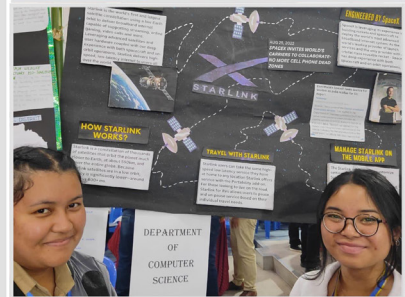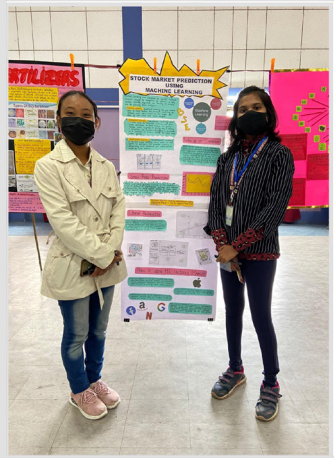# TECH TALKS

"Everybody should learn to program a computer,
because it teaches you how to think." - Steve Jobs

AND TIDBITS

Illustrations: Vibek Singha
Layout and Design: Shem Rongmei

TABLE OF CONTENTS

With great joy and excitement, I extend to you a warm welcome to the inaugural issue of Tech Talks and Tidbits, a magazine that epitomizes the essence of our beloved Computer Science Department at St. Edmund's College, Shillong. As the editor-in-chief, it is both an honor and a privilege to present this captivating collection of articles, artworks, and tributes, crafted by the talented minds of our esteemed alumni, dedicated faculty, and brilliant students.

Within the pages of this magazine, you will embark on a journey through the realms of technology, where innovation knows no bounds. You'll be reading through the history of the department and get a glimpse of how it has shaped the lives of many who have now gone on to do greater things. Over the years, the department has grown from strength to strength. Snippets of this growth have been recorded in this issue with succinct documentation of programs and activities that have been conducted from time to time. These programs have been organised with the primary goal of enriching the mandatory student coursework. The contributions in this issue are on a wide range of topics and disciplines, showcasing the multifaceted nature of our students, faculty and alumni.

At the heart of this special issue lies a tribute to our revered Head of Department, Dr. Sajid Nagi, whose tireless dedication and unwavering commitment have been the guiding light of our department for over three decades. As he prepares to embark on a new chapter, we come together to express our deepest gratitude for his transformative leadership, boundless wisdom, and unflinching support. The messages of thanks and appreciation from our alumni serve as a testament to the profound impact he has had on countless lives. On a personal note, my association with Dr. Nagi started a little over two decades ago, as a class XI student. Though he didn't teach me then, I knew he was a teacher of repute. It was during by B.Sc. (Comp. Sc.) that I had the privilege to sit for his classes. And I saw first hand that his teaching skills are second to none. I am grateful I was his student, having learnt a subject I love from a most capable person. Now, as sir's colleague, I continue to learn from him on how to carry out my duties as a teacher. I am extremely fortunate to have him guide and mentor me on these finer points. A man of high intellect and sharp wit, who quotes Shakespeare and sings songs by Queen, my interactions with sir were never dull. Thank you, sir, for all that you've taught me. Knowing that you will be retiring in a few months is sad but I hope we'll always be able to fly the department flag high.

Of course, none of this would have been possible without all the contributions that have poured in, and the steadfast support of the college management. To our alumni, whose achievements and insights continue to inspire and motivate us: thank you for sharing your expertise and wisdom with the next generation of innovators. To our students, whose passion, creativity, and relentless pursuit of knowledge breathe life into every page of this magazine: you are the beating heart of our department, and we are immensely proud of all that you've accomplished. This issue was made possible because of all the work put in by the following students of B.Sc. 4th Semester (Comp. Sc.): Shem Rongmei and Vibek

Singha for the cover design and layout. Mitryunjay Kumar and Erwin Sohphoh for additional help with the design of the magazine. Bidipta Das, Hoilenchong Chongloi, Naveen Kumar, Tadak Dui, Dalsanglun and Dev Agarwal for proofreading all the articles. A word of thanks also goes to all the faculty members of the department, namely, Dr. S. Nagi, Mrs. P. Thapa, Mr. J. Kharchandy and Ms. R. Joshi for their unwavering enthusiasm, encouragement, contributions and suggestions which have helped in making this magazine a reality.

As we embark on this journey together, let us embrace the spirit of collaboration, curiosity, and continuous learning that defines our community. In the ever-evolving landscape of technology and education, let us remain committed to pushing the boundaries of innovation, fostering inclusivity, and making a positive impact on the world around us. Together, we have the power to shape the future, and I am confident that the best is yet to come for Tech Talks and Tidbits and the remarkable individuals who comprise our community.

Thank you for joining us on this exhilarating journey. Here's to many more years of exploration, discovery, and innovation.

Warmest regards,
Bertrand Dkhar,
Editor-in-Chief,
Tech Talks and Tidbits.

*I*t gives St. Edmund's College a reason to celebrate with the Computer Science Department publishing its first edition of a magazine called Tech Talks and Tidbits.

Conceptualizing a magazine is a challenge, especially when there is no reference point. Hence the efforts by the staff and students of the department are more laudable.

The magazine will showcase creativity and projects with the new that is emerging in technology and programming. The space and the support offered by the teachers certainly gives the Edmundians the freedom to experiment and learn from mistakes. The honing of the problem solving, critical thinking and analytical skills will certainly generate the programmers we dream of.

Sincere thanks to the HOD, Dr S. Nagi, the entire staff and the students for the concept, design, and publication of the magazine.

Best wishes to the Editorial Board for their efforts to capture ideas that can catapult the department to new heights.

Sd/-
Br. S. Coelho,
Secretary.

𝒥 am happy to learn that the Department of Computer Science proposes to publish the maiden edition of the Department Magazine in the coming days. Computer Science as an undergraduate course was introduced in St. Edmund's College in the 90s as a response to the contemporary demands of time as well as allowing students to pursue their interests in bracing for an alternative career in the IT sector.

Over the years, the department has grown in stature and today it is hailed as one of the best in the entire North Eastern India. The distinguished alumni of the Department have been spread far and wide holding significant positions in various sectors. As Computer education prepares students to face the technological challenges of the modern times vis a vis human behaviour, it's appeal to the young learners can never be underestimated. A Computer Scientist always enjoys an advantage when it comes to understanding the rapidly changing academic demands of the time. It is no wonder then that SEC Computer Science Department has been regularly churning out excellent human beings who are not only academic achievers but also capable leaders. I take this opportunity to congratulate each member of the team responsible for this publication, particularly the teachers and their students for having made this effort to record the achievements of the department in black and white for generations to emulate. I am particularly happy that the department has entrusted the students with the responsibility of working independently to ensure the successful publication of the magazine and in the process allowing them a significant space to give shape to their creative and scholarly faculties.

Best wishes always
Thank you,

Sd/-
(Monotosh Chakravarty)
Vice Principal (Admin).

*D*ear Esteemed Faculty and Students,

As I pen down this message, it comes with a profound sense of nostalgia and gratitude for the incredible journey across a span of over 30 years that we've undertaken together in the Department of Computer Science and serving as the Head of this remarkable department. Over these decades, our department has evolved into a thriving hub of innovation, knowledge and academic excellence. The unwavering dedication of our exceptional faculty members and the remarkable achievements of our students have been the cornerstones of our success. To our students, past and present, it has been an honour to witness your growth and accomplishments. Your passion for learning and pursuit of excellence has been the driving force behind the success stories that characterize our department.

As we navigate the pages of this edition of our magazine, let us celebrate not only the achievements we've accomplished but also the enduring spirit that has fuelled our collective journey. The stories within these pages are a testament to the resilience, creativity and collaborative spirit that define the soul of our department.

As I reflect on the transformative advancements we've witnessed in the field of Computer Science, I am confident that the future holds even greater possibilities for our department. Towards the end of the year and with a sense of pride and optimism, I will pass on the mantle of responsibility into the capable hands of my colleagues that will guide our department forward to greater heights.

I extend my deepest gratitude to each one of you for contributing to the success and legacy of our department. It has been an extraordinary privilege to serve as the Head of the Department of Computer Science for over three decades and I am confident that the legacy we've built together will endure for years to come. Thank you for being a part of this incredible journey.
Warm regards,

Dr. Sajid Nagi
Head of Department
Department of Computer Science

*W*ith the world turning towards computers, a need was felt to start a Department of Computer Science in St. Edmund's College and to offer Computer Science as a subject to the students from the Pre-University level onwards.

In the month of May 1992, the Principal, Br. A. F. Pinto contacted Mr. Nagi and informed him that he was planning on setting up a Computer Science Department in the College and would he be interested in joining the Department. A product of St. Edmund's School and St. Edmund's College, Mr. Nagi responded to the call of his Alma Mater and resigned from his job as a Lecturer in the Department of Computer Science and Engineering in Jorhat Engineering College and joined St. Edmund's College as the Head of the Department of Computer Science. Mr. Nagi then got in touch with his ex-classmate, Mr Hussain, and persuaded him to leave his job with CSE, NEHU and to join as a full-time lecturer of St. Edmund's College. Thus these two young men, fresh out of college, took up the challenge of setting up the Computer Science Department in this prestigious College, which was formally established on 1st June 1992 with two faculty members, Mr. Sajid Nagi and Mr. Ashraf N. Hussain.

The Department initially procured eight personal computers, mainly PC and PC-XT and a 2 KVA UPS. The Laboratory was above the Physics P.U. Lab and the theory classes were to be held in the classroom adjacent to the Lab. The first batch of nineteen students was enrolled to take up Computer Science as a Fourth subject in lieu Additional Maths or Biology. As Br. Pinto had once commented, Mr. Nagi and Mr. Hussain complemented each other as far as teaching was concerned and due to their combined efforts and those of the students, the result of the students of the Computer Science Department was extremely good – the student who stood first in the University, Manish Gupta, had Computers as a subject and had also secured the highest marks in this subject. This was a very encouraging sign for the next batch and the number of students who wanted to take up Computers increased dramatically!

Now it was time to start the B.Sc.(Computer Science) classes and it was decided to offer Computer Science for both the General as well as the Major students. The 1st year B.Sc. started in 1994 with fifteen students and so additional computers were purchased. At around the same time Mr. Nagi received a job offer to join NIC (National Informatics Centre) as a District Information Officer at Shillong, but he declined the offer as he preferred to stay in the teaching profession. However, as fate would have it, in the month of October 1994 Mr. Hussain then received an offer to join NIC at Delhi and Mr. Nagi also received an offer from TCS (Tata Consultancy Services) to join their Kolkata Office. At that time Computer teachers with the requisite qualification were hard to come by and if both Mr Nagi and Mr Hussain left at the same time, it would leave the Department in a quandary. This threw both of them in a dilemma and after contemplating a lot, Mr.Hussain decided to leave after the students completed their 1st year BSc. in December and Mr Nagi would stay back and hold the fort. The end of 1994 saw the Computer Department loose one of its finest teachers. But, this move worked well for Mr. Hussain and now he is a US citizen, settled in Maryland.

In the beginning of the new session of 1995, Mr. Partha P. Roy, a Computer Science graduate, joined the Department of Computer Science as a lecturer. The load of the various classes

(both PU 1st and 2nd year and BSc. 1st and 2nd year) were getting too much for two people to cope with and Mr. Kerwin Fernandes joined the Department as a part-time lecturer. Thus the Department started with the help of two people now had grown to three and the number of students joining the Department swelling in numbers every year. The lab was also shifted to a new building to accommodate more computers and students.

1996 saw the Department lose the services of Mr. Partha P. Roy, who after rendering over one year of service, left to join EDP Department of SAIL (Steel Authority of India Limited). Now with the introduction of the BSc. 3rd year, more staff were needed and so Ms. Sarmishta Karmakar, followed by Mr. Satyakam Pandit joined the Department in 1996, both of them holding B.E. in Computer Science degrees. This was also the year when the first batch of Bsc. Students was to be sent up for the University Exams in the beginning of 1997 and the students received timely help from the new staff. Soon after, Ms. Surekha Devi, also a B.E. in Computer Science, joined the Department. At this time Mr. Kerwin Fernandes had gone back to Bangalore and a part-time teacher, Mr. Bhasru Zaman Khan was recruited to help out with the P.U. Classes for a period of one year.

Mr. Dipanker Deb, a class-mate of Mr. Nagi and a lecturer from the Department of Mathematics, was requested to help out with the mathematics paper of BSc. 2nd year, which was being taken care of all this time by Mr. P.P. Roy and then by Ms. Devi and Ms. Karmakar. Some of the other lecturers (friends of both Mr. Nagi and Mr. Deb) say that this seemed to be a calculative move on behalf of Mr. Nagi – to ask for the services of Mr. Deb. He had seen that people in the Computer Department were lured away by lucrative jobs and he did not wish to lose another staff member. What better way than to throw two eligible people together? The move worked and Ms. Karmakar became Mrs. Deb in 1998!

The result of the first batch of students of BSc. (Computer Science) in 1997 brought a smile to everyone's face – the first position was secured by Mr. Samit Roy. The Department which started in 1992 for just PU students had now produced graduates of Computer Science – a very commendable effort on the part of all the staff and students of the College. Mr Samit Roy went on to complete his MCA and after working in India for a couple of years, is now settled in Minnesota, USA. Mr. Sameer Gurung, also a student of the first batch, completed his MCA and went on to join St Mary's College as the Head of the Computer Department. The next step was to introduce Computer Science as a subject for the newly opened Commerce Department in 1997 (an initiative of Br. E. V. Miranda, c.f.c, Principal). The first batch to be admitted saw a strength of 22 students. With this introduction, the Computer Department was now catering to all the three streams of the college - Science, Arts and Commerce. The next year 1998 saw the Department loose the services of two teachers – Ms. S. Devi and Mr. S. Pandit. Ms. Devi left as her husband had to leave on a posting and Mr. Pandit left for Bombay after getting a lucrative offer. The services of Mr. Pandit was sorely missed by the Department, as he was good both in teaching as well as fixing minor problems with the computers. Mr. Pandit is at present settled in Sydney, Australia. At this time the College felt the need of a website to keep the general public and current, prospective, and ex-students and parents informed about the College. It was strongly believed that such a website k$Tserve the general public with information about the College directly online and the Principal Br. Miranda entrusted Mr. Nagi to create this maiden website. Website development was very new

at that time and not many tools were available – so most of the work was done using HTML and Frontpage. The bandwidth was very low during that time and so it was a very basic website. However, it was successfully uploaded in 1998 as www.sec-shillong.org.

Mr. Arwot Syngkon, Mr. Livingstone Nongseij and Mrs. Urmila Yadav were the next batch of staff to join the Department in 1998. The year 1999 saw the introduction of Computers in IT as a subject for BCom 1sl year students. With staff strength of five, the Computer Science Department was managing classes for Class XI and XII (Arts, Science and Commerce), BSc. 1st, 2nd and 3rd year (General and Major) and B.Com 1st year. At that point of time, the Computer Science Department was being assisted by Mr. Deb and Br. Noronha of Maths Department. The Computer Centre of the Department had grown and had a number of computers ranging from Pentium Multimedia's to 386 computers, all connected by a LAN (Local Area Network). 1999 also saw Mr Westerland Tynsiar joined the Department in 1999 as a Lab Assistant. The Department was striving towards self-dependency with Mr. Nagi and Mr. Syngkon taking care of the maintenance of computers. In the year 2000, Mr. L T Vantawl a.k.a "Patea", joined as Lecturer and in December 2000, Mr. L Nongseij left to join the Election Department of the Meghalaya Government, where he is working till date. In 2001, Ms N Rajkumari and Ms Amanda Rapsang joined the Department but Ms A Rapsang left after six months to join the M Tech course in IIT, Guwahati. Subsequently, Mr. A Syngkon also left to take up an assignment in Delhi. Since jobs for Computer Professionals were up for grabs in the market, it was difficult to hold on to teachers as the salary was not lucrative.

In mid 2001, two more Lecturers, Mr. Marcello Vaz and Ms Surmila Thokchom joined the Department to bring it to its current strength of SIX faculty members. Marcello was an excellent teacher and the students would enjoy his classes! The next step forward for the Computer Department was to offer the DOEACC (Department of Electronics Accredited) 'O' Level course for the students of the college. A team of officials of DOE visited the college and gave the required permission to the College Authorities to start the DOEACC 'O' Level course in 2001, under the Provisional Number O-Prov No. 00980, Accreditation Number Accr – 01131. These classes were open to the public and classes were held in the late afternoon, after College hours and the response was very good!

The next couple of years saw the Department maturing; more students enrolled and more computers were bought – the Department was extended by adding another theory cum lab room and a new addition was the LCD projector. The new computers were also added to the network and this led to the nuisance of viruses spreading from one computer to the next! A dial-up Internet connection was also installed in the Lab and it was extended to the Library computers via a co-axial cable.

By this time all the Departments in the College had Computer Systems installed for the use of the faculty. The College Library had 7 Computers with Internet facility for the use of the students and the College Office had a network of Computer Systems. The maintenance of both the hardware and software were the responsibility of the Computer Department. However, with the rising responsibilities of classes and Computer maintenance, it was not easy going for the staff in the Department. Ms N Rajkumari got married left the Department in 2004 to join in the Systems Division of Indian Overseas Bank at

Guwahati and Mr. Hiten Choudhury joined the Department in her place in 2004. Subsequently, the next addition to the Department was Ms. Preeti Thapa in 2005. At this point Ms. Thokchom took lien for two years from 2004 to complete an M.Tech degree in IT from Tezpur University and Mr. Wilford Thangkhiew stepped in during her absence. His was our hardware man and he stepped up to the job and was managing the maintenance of all the computers on the campus. However he left after Surmila, i.e. Ms. Thokchom, returned in July 2006. Subsequently she got married and left the Department. At present she is a faculty in the Department of Computer Science, NIT, Meghalaya.

A Bridge Course was introduced for those B.Sc. 1st year students who had not done 'C' Programming before so as to prepare them for the Data Structures paper. Add-on Courses were also conducted for the students of B. A., B. Com., and B. Sc. 3rd year who were not computer-literate as part of the college's larger programme for preparing the Final Year students for All-Round development apart from their standard education. This is fundamental course on computer applications taught students how to operate in a Windows environment, run standard applications such as MS-Word, MS-Excel, MS-Powerpoint and included Web/Internet applications. At around this time it was felt that the College website needed a revamp and also facilities to register academic institutions under an educational (.edu) domain were now available. The Computer Science Department registered a new domain name in 2006 (www.sec.edu.in) and completely re-designed and restructured the new website from scratch. This task was primarily taken up by Mr. L. T. Vantawl and was ably supported by Mr. S. Nagi. The new site was officially launched by Rev. Jala, Arch Bishop of Shillong in August 2006.

The years 2008 - 2009 saw the delinking of Class XI and XII from the College and that gave an opportunity to the Department to seek permission from the University to offer Bachelors in Computer Application (BCA) course. In the meantime, Mr. Jeremy Kharchandy, an ex-student of the Computer Sc Department (Batch of 2002), joined as a faculty in 2009. However, the Department was dealt a big blow when both Mr. L. T. Vantawl and Mr Marcello Vaz left in 2009-2010. Their leaving left a void in the Department. But, as it is said, the show must go on and finally there was some good news for the Department, starting of the BCA course! The BCA was started by the Department of Computer Science on 1st May 2010 with Mr. S. Nagi as HOD of both the Departments of Computer Science and Computer Applications. The first batch of BCA saw an enrollment of nearly 70 students!

Since the workload had increased and there was a vacancy for two teachers, it was again time for new recruitment - Ms Sunila S Chanu at that point of time was teaching in the Higher Secondary section and so she was brought over to teach in the College in 2011. Then Ms Reema Joshi was also appointed as a lecturer in the Computer Science Department in November 2011. Since Mr. Hiten Choudhury proceeded on a 2-year lien to pursue his PhD, Ms. Rajni Khyriem was appointed against this lien vacancy in December, 2011. In June 2012, Mr. Bertrand Dkhar, an ex-student of the Department (Batch of 2009), was appointed as a Lecturer in the Department of Computer Sc, bringing the strength of the Department to 8 members who were looking after both B.Sc.(Computer Sc) and BCA courses under the headship of Mr. S. Nagi, along with taking papers for B.Com and Biotech students! Mr. Hiten Choudhury joined the Department in Dec 2013 on expiry of his lien - this meant that Ms. Rajni Khyriem would have to leave the Department as her tenure in the lien

vacancy was now over. But on her request, Mr. Nagi spoke to the Principal and put up a strong case as to why she was required in the Department. The Principal, Dr. Lamare, agreed and she was then reappointed against a College post in the Computer Science Department. Dr. Choudhury got a job in Cotton State University and he again proceeded on lien in May 2015. This lien vacancy was advertised since it was a sanctioned post and Mr. Bertrand Dkhar was appointed against it after successfully clearing the interview. In 2015 the Computer Science Department started the IIT-Bombay Spoken tutorial program, initially for the students of Department of Computer Science but later on it was opened to the students of the College. The only responsibility on the Department was to enroll students for this completely free of cost, self learning course on Free and Open Source Software (FOSS) and the evaluation would be by appearing for an online exam. Quite a number of students have taken courses from this program.

The BCA Department started in 2010 still had a Temporary Affiliation to NEHU and so the process of Permanent Affiliation to NEHU was initiated and in 2017 BCA received its Permanent Affiliation to NEHU. Thereafter in Jan 2019 Ms Reema Joshi proceeded to Tezpur University for her PhD Course work. In 2019 Mr. Melvin Majaw, an ex-student of the BCA section of the Computer Department, was appointed as a Lecturer in the Computer Department. In mid 2019 it was decided to split the Computer Department into two departments, the Department of Computer Science and BCA Department and this bifurcation was completed in Feb 2020. Now the Department of Computer Science is catering to only Science students!

This is the thirty year history of the Department of Computer Science of St. Edmund's College.

Did You Know?

CAP Theorem:
• The CAP theorem, formulated by computer scientist Eric Brewer, states that it is impossible for a distributed system to simultaneously provide all three of the following guarantees: Consistency, Availability, and Partition tolerance.

Shannon's Information Theory:
• Claude Shannon, the "father of information theory," developed the concept of "bit" and laid the foundation for digital circuit design theory in his master's thesis.

Blaise Pascal and the Pascal Programming Language:
• The Pascal programming language is named after Blaise Pascal, a French mathematician, physicist, and inventor. Pascal's work on calculating machines influenced the development of early computers.

Name	Batch	Designation	Organization
Sameer Kumar Gurung	1997(B.Sc. C.Sc.)	Assistant Professor	Department of Computer Science, St. Mary's College, Shillong , India
Samit Roy	1997(B.Sc. C.Sc)	Software Development Manager (Research Application Services - Artificial Intelligence Assisted Research)	Thomson Reuters, Minneapolis, USA
Michael K	1997(B.Sc. C.Sc.)	Program Manager	Siemens Healthcare, Bangalore, India
Dr. Pynbianglut Hadem	1999(B.Sc. C.Sc.)	Scientist-D	NIC, MeitY, Shillong , India
Gautam Roy	1999(B.Sc. C.Sc.)	Digital and Technology Head - Trade, Enterprise Architecture and Strategy	Company - General Mills, Mumbai , India
Vineet Sharma	1999(B.Sc. C.Sc.)	Enterpreneur Wealth Manager	Own business
Pankaj Joshi	2OOO(B.Sc. C.Sc.)	Assistant Professor	Department of Computer Science , Synod college, Shillong , India
Bhavatosh Das	2OO1(B.Sc. C.Sc.)	Lieutenant Colonel	Indian Army
Jibo Sanyal	2OO1(B.Sc. C.Sc.)	Group Manager Hybrid Systems	National Renewable Energy Lab, Colorado, USA
Daman Pradhan	2OO1(B.Sc. C.Sc.)	System Architect.	Exxon Mobil, Bangalore , India

Name	Batch	Designation	Organization
Amal Nag	2OO1(B.Sc. C.Sc.)	Custom software development manager	Accenture, Bangalore , India
Jeremy Kharchandy	2OO1(B.Sc. C.SC.)	Assistant Professor	Department of Computer Science , St. Edmund's College, Shillong , India
Sheikh Mohammad Sajid	2OO1(B.Sc. C.SC.)	Lead Software Engineer	SAMI AEC, Riyadh, Saudi Arabia
Jaki Chowdhury	2OO2(B.Sc. C.Sc.)	Director Product & Commercial	TalkTalk Group, London, UK.
Shibashish Rudra	2OO2(B.Sc. C.Sc.)	Vice President-AML Operation (APAC and EMEA)	Bank of America, Gurugram, India
Tusar Kumar	2OO2(B.Sc. C.Sc.)	Regional Sales Manager, ANZ and APAC	Deltek Replicon, New Delhi, India
Chirodeep Paul	2OO4(B.Sc. C.Sc.)	Senior Chief Engineer	Samsung, Bangalore , India
Pallav Nath	2OO4(B.Sc. C.Sc.)	Business Consultant	EMS - Fiserv – Clover, Amsterdam, Netherlands
Rupam Shome	2OO4(B.Sc. C.Sc.)	Senior Associate Vice President - Strategy & Business Transformation	JP Morgan, Bangalore , India
Radha Shah	2OO4(B.Sc. C.Sc.)	Founder and Director	FLHC PVT. LTD., Mumbai , India
Ajoy Krishna Dutta	2OO4(B.Sc. C.Sc.)	Assistant Professor	Department of Computer Science, Saint Mary's College, Shillong , India

Name	Batch	Designation	Organization
Loopa Chakraborty	2004(B.Sc. C.Sc.)	Project Lead (Accessibility specialist)	TCS, Bangalore, India
Bishwadeep Gupta Roy	2004(B.Sc. C.Sc.)	Solution Architect	Oracle , Bangalore, India
Bertrand Dkhar	2008(B.Sc. C.Sc.)	Assistant Professor	Department of Computer Science,St. Edmund's College Shillong , India
Yadaphica War	2009(B.Sc. C.Sc.)	Assistant Professor	IT Department, ICFAI, Shillong, India

The alumni list of the department is not exhaustive and has been capped till the batch of 2010. The next issue of the magazine will have more names added to the list.

Did You Know?

Famous Computer Buggy Ride:
•The term "bug" in the context of computer glitches originated when Grace Hopper found an actual moth causing a malfunction in the Harvard Mark II computer in 1947.

Firefox is not a fox! :
•In 2004, the Mozilla Firefox came into existence. This "firefox" is actually a red panda, an endangered Asian species.

First in the Internet:
•Internet was Invented by ARPANET in 1983. The first website, info.cern.ch, was created in 1991 by Tim Berners-Lee, the inventor of the World Wide Web.

Dr. S. Nagi

Dr. Nagi has a long association with St. Edmund's, spanning over five decades! He joined in St. Edmund's School in 1970 as a student in Class 1B when Br. Oman was the Principal of the School and went on to complete his ICSE in 1979, with Br. Gaffney as the Principal of the School. Unlike nowadays, the ICSE exam at that time used to be held in the months of Nov – Dec and the results would be declared in April - May of the subsequent year. Thereafter he joined P.U.(Sc) in St. Edmund's College in 1980 when Br. Shannon was the Principal and graduated with a degree in Chemistry (Hons) in 1986, securing the 3rd Position in the University.

Computers as a subject had just begun to be introduced in select Colleges in India at that time and so Dr. Nagi opted to join for a one and half year Post-Graduate Diploma In Computer Application (PGDCA) from the Indian Institute of Business Management, Patna, in 1986 as a sponsored candidate of the Education Department of Meghalaya. On completion of the course in early 1988, his passion to learn more about computers pushed him to join the Master of Computer Applications (MCA) course from Jorhat Engineering College, Jorhat, Assam, under Dibrugarh University. He passed out in 1991 as a Gold Medalist, securing the 1st Position in all the 6 (six) semesters of the MCA course.

He joined as Lecturer in the Department of Computer Science and Engineering, Jorhat Engineering College immediately after passing out in August 1991 and served in the Department till 31st May, 1992. From 1st June 1992, Dr. Nagi joined St. Edmund's College and became the founding member of the Department of Computer Science.

Even after getting lucrative offers from Tata Consultancy Services (TCS) and National Informatics Centre (NIC), Dr. Nagi preferred to stay on with his alma-mater for his love of teaching. Later on in his career, Dr. Nagi obtained a PhD in Computer Science and Engineering as a part-time candidate from Tezpur University.

During his tenure, Dr. Nagi has been a member of numerous boards and has prepared syllabi of computer related subjects both at the UG and School level. He has authored six textbooks on Computer Science and Applications for Classes VIII to XII, which had been the prescribed text for Meghalaya Board of School Education (MBOSE).

Now, after nearly thirty two years of service in the Department, which he cherishes as his child, he will be handing over the reins of the Department to his capable Colleagues on his superannuation on 30th September this year.

Ms. Preeti Thapa

"In my tenure within the department of Computer Science St. Edmund's College, Shillong, the department has encouraged me and my colleagues to contribute to our sharededucational mission. As an educator, I have had the privilege of guiding students through diverse subject matters, cultivating critical thinking skills and fostering a passion for lifelong learning."

"Additionally, the role as a curriculum developer has allowed me to collaborate closely with my colleagues and students to design engaging and rigorous learning experiences tailored to the needs of our students. Whether through the creation of projects or the integration of educational technologies, I believe to consistently seek to innovate and elevate the educational offerings within our department."

"I felt empowered in my position to shower my students with it in its many forms — from a hi five to written feedback. When you know someone is watching over your back, you feel responsible, you feel brave. And that's what a place of learning should be — a place where you feel comfortable to explore and never feel lost. Furthermore, it is a thrill to observe firsthand the intellectual maturation process over the course of a semester, along with the long-lasting mentor and mentee relationship that is valued by both the student and myself. The only hard thing is when we have to say goodbye to students when they graduate. Wishing all the very best to the current and passed out students. God Bless Us All."

Mr. Jeremy Kharchandy

"I graduated in Computer Science from the department and college that I teach in. At the time, life as a student and life in general, was fairly spartan compared to what it is today. Learning was a lot more relaxed; but a lot of extra time, effort and luck was required to discover and learn about new things. Some of what we learnt and used back then has since, faded off into computer history. At the time, I thought Pascal was the only language I would ever program in because I liked it so much; that was until I was taught Visual Basic and used the Visual Studio IDE. VB has since, largely been replaced by other more modern languages, but it had the easiest learning curve for a beginning GUI programmer."

"Upon graduating, I went on to pursue a 3-year M.C.A. course and those were the best years of my life as a student. It is during this period of higher study that all students find they largely have to fend for themselves. This period, the mid-2000s, was probably the brightest period for IT in India. There was a relatively narrow gap between what was taught in the classroom and what was required of an IT employee out in the real world, and this drew many young people into the field of computers."

"I have now been teaching for almost fifteen years at St. Edmund's College. When I took up teaching, I began to seriously look into Computer Architecture and it helped me and my students to better understand the digital gymnastics the machine has to perform to do its job. Architecture itself, isn't the first thing a prospective employer asks a candidate about; but a clear and thorough knowledge of it goes a long way in making a good systems programmer. Over the years, I have dabbled in Linux and bash programming which I have been teaching on and off. A student actually told me quite a few years later after he graduated, how he found the classes on the vi editor to have been very useful for him in his line of work. I now also teach a few classes on C programming and data structures and will be teaching some Python too, in the next semester. As we bring out this first edition of the department magazine, I hope that more and more students find the course and the department useful to them as a launching pad for greater things."

Ms. Reema Joshi

Ms. Reema Joshi joined as Assistant Professor the Department of Computer Science and Applications in November, 2011 with a postgrad in Computer Science from St. Xavier's College, Kolkata (2011) and holds a National Eligibility Test (NET) qualification. Over the course of her career in the College, she has been committed to academic duties involving teaching, mentoring, guiding student projects and teaching Value Added Courses (VACs), coupled with organizing academic events like workshops and talks by professionals as well as inter-college tech competitions. She has been contributing as an active member of the Internal Quality Assurance Cell (IQAC), Research and Publication (RPC), Placement, Dance Club and Brainstormers committees, among others. Ms. Reema was involved for a brief period in an IoT project which aimed to guide students on programming smart devices.

As part of her own academic journey post appointment, she has attended several seminars, workshops, Faculty Development Programs (FDPs), short-term courses and participated in research paper presentations at conferences. Ms. Reema is currently pursuing her Ph.D. from the Department of Computer Science & Engineering, Tezpur University, Assam in collaboration with Dalhousie University, Halifax, Canada. Her research objective is "Biomarker Identification Using Differential Co-expression Analysis And Clustering of Transcriptomic Data", which aims to use computational methods to identify potential disease biomarkers for effective prognosis and drug therapy. She has authored several papers featured in national/international research platforms across the broad arena of operating systems, mathematics, philosophy and computational biology, and was awarded in 2023 for a research poster in a competition themed "Innovative ideas to Address the Challenges in Healthcare System", organized by DST-funded Technology-Enabling-Centre (DST-TEC), Tezpur University. "Learning is a holistic process and a means to attain poise in living with the right balance of academic and soft skills" , she believes.

Mr. Bertrand Dkhar

"My journey in St. Edmund's College started two decades back. Having spent more than a decade in the school, it was a given for me to pursue higher studies in the same campus. Spending five years in the college with the culmination of a B.Sc. in Computer Science, I enjoyed my time as a student very much and did my best to develop a deeper love for the subject. After completing MCA, I had the privilege to teach in the Higher Secondary Section for exactly one year. Then came knocking a position in the Department of Computer Science. After getting through the interview, a sense of happiness and calm engulfed me. I was home! And I am now writing this paragraph, eleven and a half years after my first day as a teacher in the department."

"Over the years, I've been able to sharpen my knowledge of the subject through reading and endless interactions with students and colleagues. I consider myself extremely lucky to have met (and continue to meet) so many intelligent and inspiring young minds that keep me on my toes. I teach, yes, but on so many occasions I've also been taught by my students. And that's how I'd like it to continue; to keep learning. Also, to have my teachers as colleagues, I am most fortunate, as I continue to assimilate all that is good from them."

"With the passage of time, the department and college has entrusted me with duties apart from teaching, that have helped broaden my skillset. Whether it is looking after the college website, organizing student centric programs in the fields of academia and sports, or getting the college ready for accreditation by NAAC, I've had many opportunities to develop as a well-rounded individual in the workplace. Workwise, there are still many things I want to accomplish. With the right environment and at the right time, I'm confident I'll be able to achieve much of what I desire. Looking forward, I hope to continue teaching for many more years and have the same unwavering happiness for the career I've chosen."

Did You Know?

It's IoT time!:
• *The Internet of Things (IoT) refers to the connection of everyday devices to the Internet, allowing for the exchange of data between them. It is estimated that there will be 75 billion IoT devices by 2025.*

Who just texted me? :
• *The first commercial text message was sent in 1992 by Neil Papworth, who was working for Vodafone at the time. The message simply said "Merry Christmas."*

Let's Socialize :
• *The first social media site, Six Degrees, was launched in 1997.*

This is Amal Nag one of the alumni of the prestigious St Edmunds College in the Computer Science department would like to share few sentences about myself as a student and the journey so far.

When I look back at my reflection 20-21 years back from now, I can see a student who is very much fascinated with universe and astronomy and was eager to do further studies in that direction but suddenly, my fortune took 360 degrees turn, and I did land up in a professional course from Aptech Computer Education in the field of Software Engineering. My interest from physics to computer science changed in a fortnight and When I met Sajid Sir during the course I was so impressed and motivated that I did not give a second thought and marched ahead to pursue further studies in Computer Science. So, I had been studying parallelly BSc in Computer Science from St. Edmunds College as well the course of Aptech Computer Education.

Talking about the classes of Computer Science department we were a bunch of passionate students attending our regular classes and the bonding among us was awesome. Our teachers were fantastic and were sharing knowledge us in all the possible way they could, and our teacher student bonding had never been so close. That was the time when there was a fear about Y2K problem in computers, and we were also moved by it but luckily, we were able to pass through.

Post completion of graduation the next best thought came to my mind was to do post-graduation in the field of computer science and hence joined Master of Computer Application course from Assam Engineering College. By the time I had completed M.C.A I had joined R&D section of IIT Guwahati and started working on one of the MHRD sponsored project. There I met Nandi Sir who was also a source of inspiration for me. I had then made my mind to join Software Industry which eventually I did in Bangalore and there after I have been in the IT industry since last 15-16 years. I am happily married with a 5-year-old son.

One thing I firmly believe that the platform that the Computer Science department had given us had helped to pursue our career in the information technology field and the values and knowledge injected in us by our respected teachers had helped us to continue so far and would inspire us to excel further. THANK YOU so much for everything. There is a never ending to learning and we learn everyday either on the job or through the series of events around us, so let us keep learning.

Enlighten our skills and thought process via learning is the moto that I do follow and would like to impart to next generations.

Thank You.

~ Amal Nag
BSc Computer Science Batch 2001

This is Anu Kangabam from the 2002 batch, following up on the article you were planning to compile for the centenary celebration. I am attaching a recent picture of me and my family. I don't have an old picture from my days in Edmunds handy and waiting for my sister to find some and send it to me. I will forward once I receive it. Here is a write up for the article.

Growing up in Assam, I had heard about the wonderful colleges in Shillong, but St. Edmunds held a special place for me. My sister used to teach in St. Edmunds back in 1997, and I had heard great things from her, and it was the obvious choice. That was the start of my career in Computer Science. I gotta say though, the first year was brutal. I had never dealt with Computers in school compared to my fellow students and had a hard time wrapping my head around algorithms and programs. Why do I need to write a program to add 2 numbers, when it's such an easy thing to just go ahead and add the 2 numbers. Everyday I would hope that it would be a better one, where I can get my program to run. My teachers and fellow students were very supportive and in spite of the struggle made my days in Edmunds very memorable. After graduation, I pursued a Masters in Computer Applications which felt like a cake walk due to the foundations built from my days in Edmunds. I feel that in some way I am standing by our motto ìfacta non verbaî. Today I work for a software company and all that I have learnt in St. Edmunds has come of use and helped me in my professional life.

Thanks very much for this opportunity !!

~ Anu Kangabam
BSc Computer Science Batch 2002

We stand, today, at the cusp of our beloved college turning a full one hundred years and what an honor be a part of this momentous occasion!

It has been a long 20 odd years since I last walked through the gates of this prestigious institution, and, yet, it feels just like yesterday, when I was attending SAD lectures(System Analysis and Design – for those not familiar with this acronym)!

I passed my B.Sc(Computer Sc) in the year 2001 and even after so many years I fondly recollect the idyllic days spent in college.

More importantly, the bonds that were built during those days still carry strong with my classmates and friends from other departments.

Those of us who can, often meet and reminisce of the days we spent together in college. There are too many stories that we lived through - some funny, some sad and some, dare I say outright unbelievable too! (Some of my batchmates turned out to be legends in their own right)

But each of those left an unforgettable memory that we still carry with us, and which makes our days lighter.

College laid the foundations of my career. The lessons I learnt still stand with me today as I mentor a bunch of grads fresh out of their colleges and inadvertently include my own days from St. Edmund's in our conversations.

Life at the campus stood for the freedom, intellect and exposure it provided me with. No matter where I am, my roots will always lie in St. Edmund's.

Our teachers were the very best examples of humans – not only did they have mastery over their subjects but shone as individuals in their personal lives as well.

Humble, generous, empathetic and courteous to a fault, they were always there when we needed them the most. I cannot fathom college without their presence.

Unfortunately, after all these years we have lost some of these gems and I deeply mourn their absence.

It was an honor to have them in my life and they have set very high standards to pass on to future generations.

I cannot put into words my gratitude toward this institution and its teachers who have shaped my future and have helped me stand where I am today in life.

To the teachers from the Computer Sc. Dept – Sajid Sir and Patae Sir, you will forever remain with me for all the knowledge, both from books and from life, that you imparted. To the students, please feel free to reach out for any guidance you feel I am capable of extending.

A picture of our farewell.

Thanks to our juniors for assembling a get-together at such short notice!!!

"Facta Non Verba" – Indeed!!!

~ Daman Pradhan
BSc Computer Science Batch 2001

You can take the kid out of Shillong but you can't get the Shillong out of the kid. As I write this short essay, I can't help but realize that I'm back at 5000 ft above sea level, not back in Shillong but in Denver, Colorado after spending a bunch of time at different elevations.

College days were fun. I was that guy who had that one sheet of paper folded in four and in my back pocket as I went through the three years. To be fair, that sheet of paper was more so for the Math classes than CS. In hindsight, the CS department had/ has a great set of professors and a lot of what I have done in my career since then, I find I can attribute a great deal to what I had learned at St Eds. Take for example Visual Basic. I understand it is not in the curriculum anymore but what it exposed me to was even driven programming, callbacks, visual computing, and how these paradigms force one to think beyond writing functions or classes in C/C++ or Python.

I found my self next at 30 ft above sea level at the University of Calcutta. Here, I got introduced to the more classical CS principles, AI, and a lot of digital signal processing. This is where I met my then girlfriend and now wife, and my scale of bunking classes also reached an all-time high. Hanging out on the streets of Kolkata was super cool, from College Street where you can find books that have been out of print for decades, to live music at Someplace Else on Park Street, and to the thematic international jazz and blues festival held every year. It was epic to see some of the world's best guitarists descend to the city. I also got my first job at Sasken Communication Technologies and ended up moving to Bangalore, which sits at ~3000 ft above MSL.

Bangalore is a cool city. Plus I had a real paycheck so it was pretty awesome. I was working on the full stack integration of the complete 3G (newest and greatest then) mobile product and got to know a lot about how cell phones work. But Bangalore was a short stint. My spouse and I started looking at a higher degree, like a PhD, in the United States. And how it worked out was that she ended up at Southern Illinois University and I at Mississippi State University. The challenge was not getting admitted. We both had admissions at very good universities; the difficult part was to ensure we had a job of some kind to support us through the degree. We both found Research Assistantships to support us but ended up 6 hours apart. My support was through a NASA funded project on satellite remote sensing. I was now at 335 ft above MSL. And over the course of the next few years, we put over 160,000 miles on the car. I was working, at that time, on the uncertainty and variability in weather models and consequently how flooding and inundation models would behave. My first access to a supercomputer happened and I was just filled with glee that I was using one and running weather models. I particularly remember the time when a big cyclone by the name of Aila emerged in the Bay of Bengal and while there were evacuations on the Indian side, about 10,000 people died in Bangladesh. And here I was running these models myself knowing that the location of landfall could be predicted well in advance to an accuracy of under 50 kms. I dug deeper and found that the weather data is freely available for the Indian subcontinent and surrounding countries; however, the mechanisms and particularly education in the population around expecting evacuations and emergency response was nonexistent. It wasn't a technology problem but a social one.

As I was finishing up my degree, I had an opportunity for a postdoctoral position, at 850 ft above MSL in Tennessee. This was at the Oak Ridge National Laboratory (ORNL), the US Department of Energy's largest open-science laboratory located just outside Knoxville, TN. With a staff of 5500 people where about half of them had PhDs, this was honestly a dream. Applied R&D takes on a whole different level here. National laboratories

in the US sit between academia and industry to propel innovations that aren't market ready or are too big or too ambitious for industry to undertake. ORNL is especially strong in computing and routinely has more than one fastest supercomputers in the world. And yes, that thrill was at a whole different scale when I found my code running on over 200,000 processors in parallel!

Still, I was very much on the applied energy side of things. I worked on building energy modeling, scaling that up, and optimizing control orchestration for certain energy targets. I transitioned from a postdoc and became a research scientist, and a few years later, a team leader for High-Performance Geocomputing. I now ran a group of scientists and engineers working on things like remote sensing, situational awareness of the electric grid, and connections with electrification, mobility, and end use of energy. As smart cities and edge computing around connected communities emerged, ORNL founded a Computational Urban Sciences group and I was tasked to build the R&D portfolio and develop the group. The next three years was a blur, but we got the group elevated to where it is now recognized internationally for the R&D work that is done.

As life happens, it was time for a change and about 6 months ago, I switched jobs to join the National Renewable Energy Laboratory (NREL) in Golden, Colorado. This is generally in the Denver metro area and is at about 5,500 ft above MSL. We moved from being close to the Smoky Mountains in TN to now being close to the Rocky Mountains in CO. I am now a group manager and run the Hybrid Energy Systems Department at the laboratory. One of the reasons for this change is simply the mission focused nature of work that we do here. Renewable is the middle name. We have a once-in-human-history opportunity to figure out sustainable clean energy for the future of our kids and the planet. It is now certain that scientists do not see any viable pathways to limit the global average temperature to under 1.5 degree C. I have been close to the science that goes into this. I have colleagues who contribute to the IPCC reports. Many clean energy/emissions-free technologies are either already technically and economically viable or fast becoming so. We do not have a lot of time and hence our work here is to derisk these technologies as fast as we can, demonstrate them, and transition them to use.

Circling back to the elevation here, I find strange similarities with Shillong. In winter, the humidity drops and it gets dry, the grass turns brown; when it rains a lot, those same flying ants come out; it drizzles sometimes; it's a similar clear blue sky; lots of places to hike in the mountains; the same poppies and hydrangeas; sound of the wind in the pines; and a warm cup of coffee at a neighborhood café.

~ Jibo Sanya
BSc Computer Science Batch 2001

Where do You Go?

A restless mind searches for the presence of hers
It seems to never be calm nowadays
The eyes for some reason are now filled with tears
It seems like clouds these emotions wander

Amidst the confusion and overthinking
About everything that I see and hear
It feels nothing's real and all a fling
However, the days are spent.

Oh where about do you rest my dear
I've been searching for you all this time
How I wish you were now near
Oh what a tragedy for this pneuma it is

Oh help me get closer to this person
I pray her safety, I pray for her well being
Oh for her, I could go miles of million
For even that would seem less

My feelings never seem to calm down
They wander wildly in search of her
For her, if I lose I'll do nothing but mourn
As now the love has become visceral

Like pieces of broken glass does the distance hurt
Cutting through the veins of my eyes
The bloodbathed tears fall , unbearable to the heart
All of it merely but not yet because of our distance

She knows nothing about this amour
Nothing about the patience or suffocation
Now her unknowing, is bearable no more
All I do now is smile and wipe my tears

Do you go too far away from reach
Is it because I've done something
Or is it because you have something me to teach
Alas, did you go far to never return, to myself I ask!

~ Sambuddha Das
BSc Computer Science, 1st semester

From Communication to Lifestyle:
The Smartphone Revolution

The smartphone, once a mere communication tool, has transformed into a necessity, a status symbol, and a lifestyle influencer. In comparison to traditional desktops and laptops, smartphones, a relatively new technology, have become the fastest-evolving tech on the planet. Each year, numerous companies compete to produce their best-ever devices, packed with seemingly endless features and the best camera on any phone. This fierce competition drives them to one-up their previous devices and competitors.

While the first smartphones were released in the 90s by companies like IBM and Nokia, they were not commercial successes due to their bulky form-factor, limited functionality, and poor batteries. One such phone was the IBM Simon, released in 1994, featuring cellular capabilities, a liquid-crystal display (LCD), and the ability to send/receive emails and faxes. Despite having a calendar, world clock, calculator, and notepad, it failed to gain traction. The term 'Smartphone' was coined three years after its introduction by Swedish telecommunications giant Ericsson for its new mobile device GS88.

The 2000s marked a time of continued innovations, with companies like Nokia and Blackberry dominating the smartphone market through clever choices and robust designs. These phones, significantly different from today's devices, featured physical keyboards. On January 9th, 2007, Steve Jobs announced the iPhone, a game-changer with a 3.5-inch display and a single button. Its main selling point was the ability to browse the web freely through the Safari browser and download external software (apps) via the App Store. Other notable features included location services and precise navigation. The iPhone's tremendous reception on its release date, June 29th, 2007, established its form factor as the golden standard for the industry. Companies like Nokia and Blackberry, failing to recognize changing trends, persisted with physical keyboards and lacked proper software support, resulting in a shift from market leaders to needing a complete business overhaul.

Since the first iPhone's launch, the idea of a smartphone has evolved into a device capable of diverse functions, from basic communication to being a media consumption/creation machine. Comparing modern smartphones with those from the early 2000s and 2010s highlights substantial advancements in display quality, screen-to-body ratio, camera quality, user interface experience, and overall functionality. Modern smartphones, with their extreme hardware and optimized software, outperform many full-size desktop systems of the past. Flagship devices boast up to 16GB RAM, enabling them to shoot 8K videos, play high-graphic games, and run multiple apps simultaneously, all in a form factor no larger than a human hand.

These advancements empower individuals with unprecedented abilities: capturing any moment, sharing it effortlessly, and accessing information with unparalleled ease. The ease of sharing experiences and ideas has never been greater, thanks to platforms like YouTube, allowing people to learn from others' experiences and document their journeys for entertainment and assistance.

Examining recent smartphone launches reveals grand tech events, with CEOs presenting their latest devices through cinematic visuals and

Examining recent smartphone launches reveals grand tech events, with CEOs presenting their latest devices through cinematic visuals and well-crafted statistics. Companies like Apple and Samsung have perfected phone launches, generating massive anticipation globally. Due to such strategies, tech companies have become some of the world's richest, surpassing the GDPs of many countries.

The overall impact of smartphones on human behavior is extensive. Studies comparing human characteristics before and after smartphone popularity reveal a decline in attention spans and an increased dependence on phones. The current generation, Gen Z, is the first to grow up entirely with smartphones, having access to the internet and social media since childhood. This has created a dichotomy between the physical and virtual worlds, with most teenagers relying on multiple social media accounts for primary communication. However, this shift has negatively affected the ability to form meaningful relationships and concentrate on specific tasks due to constant distractions and smartphone-induced dopamine addiction.

To mitigate these effects, there is an urgent need to spread information about wise social media and phone use. Parents should monitor their kids' phone usage and set daily limits, encouraging outdoor activities. Adults can help by deleting social media apps and using them through a browser to resist constant usage. Additionally, people can extend their device usage rather than buying new ones every couple of years.

Smartphones, like a coin, have two sides, with both positive and negative aspects. The impact of smartphones on humans, comparable to the light bulb's influence, necessitates a balance between embracing the benefits and addressing the challenges.

~ Dev Agarwal
BSc Computer Science, 4th Semester

Did You Know?

ENIAC Programmers:
• The first programmers of the ENIAC (Electronic Numerical Integrator and Computer), one of the earliest electronic general-purpose computers, were all women. In the 1940s, Betty Jennings, Betty Snyder, Fran Bilas, Kay McNulty, Marlyn Wescoff, and Ruth Lichterman played crucial roles in programming the ENIAC.

First Computer Bug:
• The term "bug" in the context of computer programming originated in 1947 when a moth got trapped in the Harvard Mark II computer, causing a malfunction. Grace Hopper, a computer scientist, is credited with removing the "first actual bug" from a computer.

Lisp and AI:
• Developed in the late 1950s, Lisp (List Processing) is one of the oldest programming languages and has been influential in the development of artificial intelligence.

The Future Unveiled- Emerging Technologies Shaping Today's World

In the ever-evolving landscape of technology, innovation seems boundless. The 21st century has witnessed a rapid acceleration of technological advancements that are reshaping our world. Artificial intelligence, quantum computing, biotechnology, renewable ene=rgy, and more are poised to revolutionize our lives in unimaginable ways. Let's explore these promising technologies that will shape our future.

1. Artificial Intelligence and Machine Learning

AI and ML have made significant strides, but their full potential is yet to be realized. AI applications are integrated into various industries, transforming healthcare, finance, transportation, and entertainment. Natural language processing, computer vision, and deep learning techniques revolutionize our interaction with technology. In the future, AI will play a pivotal role in decision making, autonomous vehicles, and personalized healthcare.

2. Quantum Computing

Quantum computing is a game changer in computation. Unlike classical computers, quantum computers use qubits, allowing them to exist in multiple states simultaneously. This capability enables quantum computers to solve complex problems exponentially faster than traditional computers. Quantum computing finds applications in cryptography, drug discovery, and weather prediction. Companies like IBM and Google strive to build practical quantum computers, revolutionizing our computational capabilities.

3. Biotechnology and Genetic Engineering

Biotechnology and genetic engineering create a new era of healthcare and agriculture. CRISPR-Cas9 technology can edit genes with precision, treating genetic diseases and enhancing crop traits. Regenerative medicine and bioprinting have the potential to revolutionize transplantation and healthcare.

4. Renewable Energy

The global push for sustainability drives innovation in renewable energy technologies. Solar panels, wind turbines, and energy storage systems become more efficient and cost-effective. Electric vehicles and smart grids transform the energy landscape, reducing carbon emissions and creating a greener world.

5. Internet of Things (IoT)

The IoT expands, connecting everyday objects to the internet and enabling data exchange. This interconnectivity influences smart homes, cities, and industrial applications. More sophisticated IoT systems offer automation, efficiency, and convenience in our daily lives.

6. Space Exploration and Commercial Space Travel

Space exploration resumes with private companies like SpaceX and Blue Origin progressing in commercial space travel. Accessible space travel opens doors to extraterrestrial resource mining and exploration of other planets.

7. 5G Technology

The rollout of 5G networks revolutionizes connectivity and communication. Higher data speeds and reduced cold storage enable advancements in augmented reality, virtual reality, autonomous vehicles, and more. It transforms our interaction with technology.

The future of technology is filled with innovation and possibilities. The emerging technologies described here provide a quick look of what is to come. As these advancements evolve and intertwine, they reshape industries, societies, and our daily lives. It is an exciting time to be part of this transformative era, where possibilities expand to solve pressing challenges and create new opportunities for the future.

~ Mrityunjay Kumar
BSc Computer Science, 4th Semester

Did You Know?

Xerox Alto - The First GUI:
•The Xerox Alto, developed in 1973, was the first computer to use a graphical user interface (GUI) with windows, icons, and a mouse. Despite being a groundbreaking innovation, it was not a commercial success.

The First Computer Mouse:
•The computer mouse was invented by Douglas Engelbart in 1964. It was a wooden device with two wheels at the bottom, and it was initially called the "X-Y Position Indicator for a Display System."

IBM 701 - First Commercial Computer with RAM:
•The IBM 701, introduced in 1952, was the first commercially produced computer to use Random Access Memory (RAM). It had a magnetic drum for storage and could hold up to 2,048 words of RAM.

ASCII - American Standard Code for Information Interchange:
•The ASCII standard, which assigns letters, numbers, and other characters to the 128 slots available in the 7-bit binary code, was first published in 1963. It laid the groundwork for character encoding in computers.

The Virtual Trial

"Failure is essential. Trial and Error is necessary" David Bergen. This quote by David Bergen perfectly sums up the importance of trial and error in almost every aspect of our lives. Trial and error can even be considered as the basic principle that lead to the development of our species. Trial and Error is used in all the fields around the world but in this article, we are going to talk only about the modern age Scientific or Data-based Trial and Error.

Before World War 2, scientists had to spend a lot of Time, Money and Manpower to test out some hypotheses or ideas they had to make sure it could be considered as a Theory. They had to use slide-rules and ectromechanical calculators and Manpower to come to a possible conclusion. During the Second World War, two mathematicians Von Neumann and Stanislaw Ulam brought forward a revolutionary technology called Computer Simulation while they were studying the behaviour of neutrons. They came across a very puzzling problem while studying the behaviour of neutrons and generic trial and error experimentation was too costly and it was also too complicated for analysis, the basic data about the occurrence of various events were known and so a simulation was created using a computer where the probabilities of separate events are merged in a step-by-step analysis to predict the outcome of the entire sequence of events. With the remarkable success of neutron problem solving with the help of computer simulation, they quickly became popular and found many commercial and industrial applications. Hence began the new generation of Trial and Error with the help of Computer Simulation, the Virtual Trial.

The technologies developed during the war gained more prominence in Scientific research as time went on and Computer Simulation was one of the technologies that would take the world by storm and bring fast-paced development. So what exactly is a Computer Simulation? A Computer Simulation is a real-world (Imaginary) model made with the help of various data compiled together by a computer system and uses step-by-step methods to explore the approximate behaviour of a mathematical paradigm. This model incorporates various variables given by the user to create deductions after the whole mathematical process is completed with the creation of a virtual world. Simulations are data analyses that are from already existing systems or yet-to-exist systems but regardless provide near-accurate results. There are four main types of Computer Simulations:-

 Equation-Based Simulations: As the name suggests, this is a simulation that runs completely on equations, more precisely on Continuous Differential Equations.
 Agent-Based Simulations: This simulation leans towards social and behavioural sciences, and helps in the study of disease transmission, environment, and studies in which the organised interaction of numerous people is being examined
 Multi-Scale Simulations: This system brings together simulation systems of different resolutions and complexity.
 Monte-Carlo Simulations: In this simulation, computer calculations prioritise randomness to create the system of experimentation.

Computer Simulation is a very important technology for the study of the different branches of sciences such as Molecule-material science, Meteorology, Designing, Liquid mechanics, Astrophysics, Environmental Science, Biology, Mathematics, the Study of disease transmission and others. The use of simulation extends to other fields like Finance, Demography etc.

When performing a Computer Simulation, the most important thing is the accuracy of the simulation in regards to the real world. The accuracy of a simulation is calculated by a procedure known as Prediction Accuracy which determines the closeness of the model to the actual world by a series of checks of various parameters. The accuracy of a system can be increased by providing precise data and proper variables that abide by the physical rules of the real world. We can never get a simulation system with a hundred per cent accuracy. An example to prove the aforementioned statement would be how we can't get a perfect universe in simulation as the computer is also a part of the universe and for the simulation to be perfect the computer would have to show itself in the simulation simulating itself, running a simulation of itself and so on.

In short, computer simulation is a transformative tool that can help shape different fields. It acts as a virtual trial for all our requirements in scenarios where generic trial and error becomes irksome in many ways. The ability to model complex scenarios, predict outcomes, and innovate solutions has driven advances in science, technology, and industry. As we evolve in an increasingly complex world, computer simulation remains a powerful ally, facilitating innovation, understanding and progress.

~ Amit Saharia
BSc Physics 6th Sem

Did You Know?

The First Computer Art:
•The first known computer-generated art was created by Christopher Strachey using the Ferranti Mark I computer in 1952. He programmed the computer to generate a visual representation of a mathematical function

Altair 8800 - Birth of the Microcomputer:
•The Altair 8800, released in 1975, is considered the first commercially successful microcomputer. It featured an Intel 8080 microprocessor and inspired the founding of Microsoft by Bill Gates and Paul Allen.

First Hard Disk Drive:
•The IBM 305 RAMAC, introduced in 1956, was the first computer to include a hard disk drive (HDD). It had 50 aluminum disks with a storage capacity of 5 megabytes and a rotating speed of 1,200 revolutions per minute.

Debugging: Beginner Tips.

Debugging, the art of finding and fixing issues, is a skill that extends far beyond the realm of programming. It's a problem-solving technique applicable to everyday challenges, whether you're deciphering a perplexing software bug or troubleshooting a household appliance. In this article, we'll explore a set of practical debugging tips designed to enhance your ability to dissect problems, identify their root causes, and arrive at effective solutions. These tips are not exclusive to programmers; they are tools for anyone seeking to tackle issues systematically and efficiently in their daily lives. So, let's dive into the world of debugging and empower ourselves to overcome obstacles with confidence.

1. Understand the Code Flow
Spend some time learning how your code functions completely before you begin troubleshooting. Go over your program's logic and flow. This basic understanding will assist you in identifying potential problem areas.

2. Use Breakpoints
Breakpoints are a functionality that most integrated development environments (IDEs) provide. To halt the execution of your code, place breakpoints at crucial locations. This helps you go further into the problem by enabling you to examine variables, data, and the condition of your programme at those precise periods.

3. Examine Error Messages
You may go through your code line by line in several different IDEs that allow you to debug your code. This is a useful tool for breaking down difficult problems since it allows you to examine how your programme performs at each stage and can reveal flaws with logic or variable values.

4. Isolate the Problem
One of the easiest methods to locate issues that cause the error is to locate the shortest piece of your code. To pinpoint the issue, leave comments in other sections. This procedure aids in narrowing your focus on the particular problem, which facilitates analysis and solution.

5. Use Print Statements
Strategic use of print statements (or logging) can be incredibly helpful. Output the values of variables at various points in your code to track their changes. This can reveal where unexpected values or behaviours occur, shedding light on the root cause of the problem .But make sure to remove them before production.

6. Step Through Code
Many IDEs allow you to step through your code line by line. This helps you see how your program behaves at each step and can uncover issues in logic or variable values, making it a powerful tool for dissecting complex problems.

7. Collaborate and Seek Help

Don't hesitate to seek help from colleagues or online programming communities. Another set of eyes can often spot issues you might have missed. Collaborative debugging is an effective way to tackle complex problems and learn from others.

9. Rubber Duck Debugging:

Sometimes, explaining your code or problem to someone (or even an inanimate object like a rubber duck) can help you see the issue from a different perspective and find a solution.

10. Test-Driven Development (TDD):

Consider using TDD principles, where you write tests before implementing code. This approach can help you identify issues early and ensure your code meets its requirements.

11. Avoid Magic Numbers:

Replace hard-coded numerical values in your code with named constants or variables. This makes your code more maintainable and helps prevent errors.

12. Monitor Resource Usage:

If your code interacts with external resources (e.g., databases, APIs), monitor resource usage to identify performance bottlenecks and connectivity issues.

13. Code Linters and Analyzers:

Use code analysis tools and linters that can automatically detect common coding mistakes, style violations, and potential issues.

Happy debugging, and may the code be ever in your favour! .

~ Jason Khongwir
BCA, Batch 2021

Did You Know?

The World's First Computer Programmer:
•*Ada Lovelace, an English mathematician and writer, is often regarded as the world's first computer programmer. In the mid-19th century, she wrote detailed notes on Charles Babbage's Analytical Engine, including what is now considered the first algorithm intended for implementation on a machine.*

Grace Hopper's Nanoseconds:
•*Grace Hopper, a pioneer in computer programming, used to hand out pieces of wire that were 11.8 inches long to represent the maximum distance that light or electricity could travel in one nanosecond.*

Mastering One Programming Language with a Strong Foundation

In the realm of computer programming, the significance of mastering one programming language with a strong foundation cannot be overstated. Whether you're a seasoned developer or just starting your coding journey, the ability to work proficiently with one language is a vital skill that paves the way for successful software development. Learn one language and you can learn them all holds truth as learning a new language will never be a barrier if one is having a very strong hands on to one language.

A firm foundation in one programming language is essential for several reasons. First, it provides a deep understanding of fundamental coding concepts, which can be easily translated to other languages. This fundamental knowledge is like a universal key, opening doors to mastering additional languages with relative ease.

Second, specialization and expertise in one language enhance career prospects. Employers value programmers who possess in-depth knowledge, and specialization can lead to exciting and rewarding opportunities. In the competitive tech industry, expertise in one language can set you apart from the crowd. It can be a springboard for career advancement, helping you secure higher-paying jobs and tackle more complex projects.

Furthermore, mastering one language promotes efficient and clean coding practices. Developers can focus on solving the underlying problems, as they are not bogged down by the intricacies of multiple languages, ultimately leading to cleaner and more effective solutions.

In conclusion, mastering one programming language with a firm foundation is a cornerstone for successful software development. It enhances proficiency, problem-solving skills, and career opportunities. Developers who specialize in one language are better equipped to adapt to new technologies and contribute to the ever-evolving field of computer programming. As they say, "The journey of a thousand lines of code begins with mastering one language."

~ Pooja K Kushwaha
BSc Computer Science, Batch 2016

Did You Know?

Halt and Catch Fire (HCF):
•The term "Halt and Catch Fire" originally referred to a fictitious computer instruction in early assembly language programming. It later became the title of a TV series about the personal computer revolution of the early 1980s and 1990s.

Computers to Computers

Picture this: It's a warm Spring morning. The year is 1942. You're listening to "A string of pearls" on the radio in order to distract yourself from the depressing war news. You feel a little better, to the extent that a smile appears on your face and you decide to cheer up and head to work. A brisk walk leads you to your office, a huge building with a very professional look about it. "Why not?", you wonder to yourself. The Ballistics Research Laboratory is bound to have a professional look. You head in and immediately set to work. At your desk you find a list of information that needs sorting, a heap of data that must be evaluated and tabulated. What's more, you are to perform complex mathematical calculations by hand. You had better not skipped Math class! You crack your knuckles, take a deep breath, and get to it. You are a Computer.

That's right! The very first computers weren't mechanical machines at all! They were humans, rather like you and me, made of flesh and bone. Such individuals were employed in important research facilities where they were tasked with performing complex mathematical calculations to the best of their abilities without the help of what we call today as computers. For almost a century, these human computers worked tirelessly and produced results with utmost precision. This changed with the advent of electronic computers which were capable of performing more calculations in a shorter period of time and with more precision.

Now let us board a time machine of infinite speed. It is not bound by the laws of Physics and surprisingly, every human possess it, though not all choose to use it as often. I will give you a moment to ponder over what this incredible machine could possibly be! For now, let us take it to the year 1976. "Hotel California" by Eagles was one of the most popular songs of the year. Less popular but perhaps more important was the fact that this was also the year Seymour Cray unveiled to the world the CRAY-1: One of the earliest known Supercomputers. For the time, it was a marvel of engineering performance and architecture. It was capable of performing calculations at a rate of 80 Million floating - point operations per second. A huge step up from the knuckle cracking computers of the 40's!

Were you able to guess the answer to the little riddle? The answer is the human Mind! More specifically, I am referring to the ability of the human mind to imagine. Imagination is the fastest thing there ever was! It's good to know that answer, because what follows required humans to do a lot of imagining.

It is common knowledge that the language of computers is that of 0's and 1's. These are referred to as bits and the result of any logical operation (which modern computers perform billions of per second) is either a 0 or 1, or False or True respectively. Now, what if we were to make computers which were not limited to just 0's and 1's? At first the very thought seems outlandish! 0 stands for False and 1 stands for True. These are the only possible results of logical operations. So how can we have something in between? Perhaps something which is true, but also false? Absurd! At this point where things seem bleak, we once again let our imagination work its magic. We think of a universe in which there is no certainty. Something may be true, but it may be false as well! We don't know and we never will! Well, such a universe does exist. It is the Quantum Universe. When things are scaled

down to the size of electrons, protons and constituents of protons, the quarks, the laws of physics become blurry. At this point physicists cannot use normal, everyday physics to describe such systems. They resort to quantum mechanics. By its very nature, quantum mechanics is probabilistic, not deterministic. This very quality paves the way for Quantum Computing.

Regular computers work in bits. Quantum computers work in Quantum bits or Qubits. They are entirely different from bits and do not follow rules such as having only 1 or 0 as their values. The simple idea that Qubits can take values 0 and 1 simultaneously through the well known principle of superposition opens up the possibility of making far larger calculations far quicker. In fact, they are supposed to be so quick that traditional computation power measuring units cannot be used at all. It is similar to how the use of kilometers to measure inter galactic distances is redundant, when we have at our disposal a unit as mighty as a light year!

As exciting as quantum computers are, they are still at the earliest stages of development right now. Although work is being done in this field, we will have to be patient and wait till the time comes when they can used on a daily basis. Until then I believe it will be a good exercise to marvel upon the fact that a device resting in the palm of our hand, or on the desktop is capable of connecting us to the entire world. We have truly come a long way, from the human computers of the 20th century, to the quantum computers of the 21st.

~Anirban Das
BSc Physics, Batch 2023

Did You Know?

P vs NP Problem:
- The P vs NP problem, which deals with the efficiency of algorithms, is one of the seven "Millennium Prize Problems." A correct solution to any of these problems is worth one million dollars.

Largest Prime Number:
- The largest known prime number, as of my last update in January 2022, is $2^{82,589,933} - 1$. It was discovered in December 2018 and has 24,862,048 digits.

Bridging Real and Virtual: The Evolution of Digital Twins

Introduction

In today's rapidly evolving technological landscape, digital twin technology has emerged as a powerful tool that enables businesses to create virtual replicas of physical objects, processes, services, and environments. By accurately reflecting the characteristics and behavior of their real-world counterparts, digital twins open up new possibilities for analysis, simulation, and optimization. In this article, we will explore the details of digital twins and their diverse utility spanning numerous sectors. What is digital twins

A digital twin is a virtual model designed to accurately replicate a physical object, process, service, or environment. It serves as a digital counterpart of its real-world counterpart, providing a comprehensive representation of its functionality, features, and behavior. By leveraging advanced technologies such as the Internet of Things (IoT), artificial intelligence (AI), and data analytics, digital twins enable businesses to gather real-time data, run simulations, and gain valuable insights into the performance and optimization of their assets.

History of Digital Twin Technology

The concept of digital twin technology can be traced back to the 1960s when NASA pioneered the use of digital replicas for space exploration missions. NASA created exact replicas of spacecraft on Earth to simulate and study their behavior in various scenarios. This early application of digital twins laid the foundation for their use in industries beyond aerospace.

In 1991, the term "digital twin" was first mentioned in David Gelernter's book, "Mirror Worlds." However, it was Dr. Michael Grieves, a faculty member at the University of Michigan, who applied the concept of digital twins to manufacturing in 2002. He introduced the idea of using digital twins to optimize product design, production, and maintenance.Since then, digital twin technology has gained significant traction and recognition. In 2010, John Vickers of NASA officially coined the term "digital twin" in a roadmap report. Today, digital twins have become an integral part of many industries, driving innovation, improving efficiency, and enabling predictive maintenance.

Types of Digital Twins

Digital twins can be categorized into different types based on the level of magnification and the area of application. Each type offers unique insights and benefits. Let's explore the various types of digital twins:

- Component Twins/Parts Twins
Component twins or parts twins are the basic units of a digital twin, representing individual components of a larger system.

- Asset Twins
When multiple components work together to form an asset, an asset twin is created. Asset twins provide a holistic view of how different components interact and function as a whole.

- System or Unit Twins
System or unit twins focus on understanding how different assets come together to form an entire functioning system. These twins provide visibility into the interactions between assets and can suggest performance improvements and optimization strategies.

~ Atul Nongbri
BSc Computer Science, Batch 2014

Integrity and Humility

In a time where most of us have upgraded our education, skills and lifestyles, there is a field where most of the youths take for granted today. I wish we can have an introspection regarding our personal integrity and humility. Integrity is the quality of being honest and having strong moral principles, while humility is the quality of not thinking that one is better than others. These are the two core characteristics that are vital towards studentship, relationship and life as a whole.

One can become a better student if one has integrity and humility. A student can always question himself or herself, "Have I really mastered this topic?". If the answer is yes, then move on to the next topic else one has to keep working till one masters the topic. On the other hand, humility improves a student in a way the egoistic one can never understand. It is a fact that as humans, we are not supposed to know everything, hence at one point or the other we are going to need assistance from others. A humble student will always seek help from the teachers, friends or even others the moment one feels he/she cannot tackle the topic on his/her own. This will help the student to achieve mastery in the subject concerned.

Integrity will help you to build the trust and respect that people and your loved ones will bestow upon you. If one understands life and social structure, one will understand the value and importance of trust. Humility on the other hand will ensure that you will be loved and helped courteously. As you keep on adding to yourselves more degrees, do keep in mind about Integrity and Humility. Live a meaningful life.

~ Ferdinand Tangsang
BSc Computer Science, Batch 2013

Hope against all odds
Dept of Computer Science, St. Edmunds

Seemed like my life's dream was over. After a disheartening result in PU(Sc), I could never make it to a college of engineering. There was nowhere to go, all my hopes of making it big in life lie crushed and coupled with my family's weakening financial condition only made it worse. Sadly, such a plight in India was common then and any efforts to study the usual pure sciences wouldn't lead you anywhere except academics or public services. Therefore, anyone who aspired to follow a career in the corporate world would fade away in the blivion if he or she did not make it to engineering or medical sciences. I remember I used to like studying literature and history in my school, St. Edmund's. However I was not talented enough nor did not quite want to make a career of it. If I remember correctly, I did enjoy attending a certain computer studies class along with doing a project for my tenth standard in BBC Basic. Back then, handling those beautiful machines in the school laboratory when the world was just waking up to them along with a great teacher whom many of us know as Br. Eric D'Souza made life and studies very interesting. In school all I knew was that coding programs in Basic was fun and hours seem to pass effortlessly. Anyway, time passed on and I quite forgot about my favourite computer studies class in a bid to make it to the more orthodox and conventional means of acquiring a much wanted career of engineering.

When all my friends left for greener pastures in the sought after colleges of engineering, I returned back to my old college to find something that would interest me to pursue academics further. Fortunately for me that year a new branch of graduate studies had opened up, yet lady luck wasn't ready to smile at me. Br. Pinto, the then principal decided that my weak result in P.U.(Sc) was not good enough to pursue such a branch of study. With much persuasion and by throwing in a small challenge to either do or die made quite a difference. I had just promised him that if I did not do well I would step down or be prepared to be fired from this branch of study. He nonchalantly accepted my challenge though I did feel that he was amused by my melodramatic approach. That day in my life indeed made a difference and opened up a path from where I simply followed my dream and passion. The new branch introduced in St. Edmunds College was a B.Sc. in Computer Science and I was thrilled to find myself in a branch of study I was so passionate about back in school.

Computer Science in India had picked up in a big way at that time and companies like TCS, Infosys and Wipro were pushing India into a new economic frontier. This helped open up many lovely avenues of computer studies and jobs in every aspect of its education. Not only was computer engineering becoming a much wanted branch of study, other vocational and pure science offerings grew stronger. India was indeed ushering into this new world of a strong force of professionals, academicians that would change the face of computer science throughout the world in days to come. From Harvard, MIT, IIT right down to a small beautiful yet ambitious town like Shillong woke up to this field of study. I wa indeed lucky to be able to ride this lovely wave by being the first batch of B.Sc. graduates of Computer Science.

Two young intelligent professors were chosen to lead this department. Prof. Sajid Nagi, a topper from the Jorhat College of Engineering and a Master's in Computer Science was to lead the department. Along with him, his classmate, young cheerful and motivating Prof.

Ashraf Hussain decided to embark on this exciting journey and to set up this infant department and keep up the fame of Edmunds college. Going to class each day was like a dream come true and all my aspirations seemed to rejuvenate once again. The sun was just beginning to rise. Along with me a few other braved to pick up this new field of study and joined this very new department. One such name was Sameer Gurung. He was brightest of the lot and his passion for programming had urged him to join the course and challenge every student only to excel. Prof. Nagi was the best of all the teachers I had attended to at that time and he made the subject so interesting that listening to his lectures was so engrossing that one wasn't aware of time. While Prof. Nagi taught us the core of computer science, Prof. Ashraf taught the fundamentals of programming using Pascal and made us implement the core theory we had learnt in Prof. Nagi's class. This unique and very deft combination of theory and practical applications made our passion grow and thrive even more. The first year was great and by the end of the year the results of students were simply great!

The second year was more fun with us able to learn more of science and new technologies but with a sad note of Prof. Ashraf deciding to pursue his passion of moving on to the corporate world. Eventually, he migrated to the United States where he currently resides. Nevertheless, he was a great motivator and fun loving. He never stopped smiling as if like if we had to draw a portrait the smile would have been the most prominent. Students just loved to be with him as he so in touch with them in understanding their needs and problems. It was as if he was a student himself and such a great understanding of students and their behaviour. Now in retrospection I feel perhaps it was because there wasn't a big generation gap between us and our teachers and that may have been an important factor. After he left Sameer and I made the college proud by winning the Valentino Cup, a programming contest then held by the ICES Aptech Computer Education Centre run by Mrs. Sharlene Das. It was wonderful and I learned a lot from Sameer in that competition. Sameer is now an excellent professor of Computer Science in St. Mary's College, Shillong.

By the third year we turned all very serious with our studies because by then we had clearly understood the need of learning fast and updating ourselves with the new technological developments in the world of computer science. Prof. Nagi was the lone guide for us and he led us alone in this quest for knowledge and led us well. The infancy of computer science was making leaps and bounds into its youth in the world and the theory we were learning today seemed to be becoming obsolete the next day. The sane part was that the core concepts like data structures, algorithms, database management, operating systems never changed but only got better. Prof. Nagi developed our sense of learning and curiosity which is such a basic requirement of computer science that to excel in this field one's quest cannot stop to look for better ways of doing or resolving the same problem.

We all graduated from the Dept. of Computer Science by the end of the third year and the kind of foundation the department provided stood unparalleled and we were more than ready to utilize our skills beyond our home town and institution. Most of us went to do excellently well in life and now we only look back to pay utmost our respect to such a great institution of knowledge and its teachers who put us in the right path and developed in us the right attitude towards life. The biggest lesson and takeaway from the three years of graduation so well spent in St. Edmunds was that life does not stop if one dream gives way but it only opens up avenues that one might not have even

do excellently well in life and now we only look back to pay utmost our respect to such a great institution of knowledge and its teachers who put us in the right path and developed in us the right attitude towards life. The biggest lesson and takeaway from the three years of graduation so well spent in St. Edmunds was that life does not stop if one dream gives way but it only opens up avenues that one might not have even dreamt of. With such an institution of great learning one can absolutely be sure that the best of their self will be exposed. With this I would with all humility admit that all that I know of Computer Science today was because the Dept. of Computer Science of St. Edmunds played the most important part in the career building role in terms of confidence, attitude and knowledge. It all started with a dare to dream, the insatiable need to follow our dreams and in the end to hang onto the greatest life giver of all, "Hope".

~Samit Roy
BSc Computer Science, Batch 1997

Reflections

Like most children growing up in Shillong in the 80s, I had wanted to be a part of the St. Edmund's family. As I was not a student of the esteemed St. Edmund's School, the urge to somehow manage to get admitted to St. Edmund's College after my 10th, was much stronger. This dream finally came true in 1997 when I saw my name in the 2nd list of 1997 batch of 11th standard Science admission. I vividly remember this day and how happy I was; a milestone of life was achieved.

I have spent my 10+2+3 in SEC and these 5 years have been the most memorable. We were blessed to be taught by the most capable and admirable professors, who made all the classes interesting by their individual skills of delivering a lecture. English class of Bro. Miranda, Physics of Profs K.B. and R.Dd, Electronics of Prof. Passah, Maths of Prof. Lahiri, Chemistry of Prof. S.P. and Comp. Sc. (my eventual Honors subject) of Prof. Nagi were my most attended and loved. Each one had their own way of teaching and some have been iconic in their delivery – my gratitude to all my teachers. My special thanks to Bro. Miranda for persuading me take up Computer Science as my Major; I had scored well in my 10+2 on the subject.

Fact non Verba, is inked as one of my first tattoos and SEC and its motto is always with me.

I wish to also congratulate all fellow Edmundian's, Teachers and Staff on celebrating 100 years!

~Shibashish Rudra
BSc Computer Science, Batch 2002

MANAGE BPD WITH A POSITIVE ATTITUDE

What is BPD?

Borderline personality disorder is a mental health condition that severely impacts a person's ability to manage their emotions. People with BDP have extreme mood swings, unstable relationships and trouble controlling their emotions thereby causing higher risk of suicide and self-destructive behaviour.

Traits of a BDP person —

Low self-esteem Feeling chronically empty or bored Impulsive and risk-taking behaviours Self-harm and feeling cut off and out of touch with reality Black and white thinking Feelings of self-loathing and self-hate Alternating between idealising and devaluing other people Hallucinations and age regression

"In fact, about 75% of people diagnosed with BDP are women; that's a ratio of 3 women to 1 man diagnosed with BDP."

DEPICTION OF COMMON THINKING Vs BORDERLINE THINKING

The three actionable tips for managing BPD "If you stay positive in a negative situation you win." While therapy and medication are crucial components of BDP management, it can also be taken care by following several actionable steps that we can take and maintain positive attitude.

1. Mindfulness and Emotional regulation -This is one of the most effective ways to manage BPD symptoms .This particular skills helps to gain better control over emotions and reactions .The skill is the "STOP" technique —Stop, Take a deep breath, Observe the thoughts and feelings and Proceed with a more chosen rational response .With regular practice this skill helps to become more aware of one's emotions and enable to respond in a healthier way, promoting stability .

2. Build a support system - A strong crucial network of supportive friends and family members is crucial for managing BDP. Additionally joining a support group or seekin individual therapy is equally important .Connecting with others who share the same experience can provide a safe comfort place and help reduce intense fear of isolation and creates a platform to discuss the challenges and successes .Building a support system is necessary as it offers a sense of belonging and reinforces the notion "You're not alone in your journey to manage BDP."

3. Prioritising healthy boundaries - Setting clear boundaries helps protect emotional well-being with the advantage of maintaining healthier relationships. Begin by identifying situations that trigger or stress complex or unpleasant past

experiences and negative emotions. Establishing guidelines for communication, specifying the need for personal space, limiting the time spend in certain environments can reduce emotional turmoil and increase more stable mental state.

Conclusion   :

Living with Borderline Personality Disorder, a patient presents unique and tough challenges but by adopting certain practical strategies and establishing healthy boundaries can effectively manage the condition of a BDP patient.

"Celebrate your progress, seek professional help and know that you are not alone ."

~ Ruth M. Marak
BSc Computer Science, 6th Semester

Fibonacci in Nature:
•The Fibonacci sequence, which often appears in computer science and mathematics, is also found in nature, such as in the arrangement of leaves on a stem, pinecones, and sunflower seeds.

Dvorak Simplified Keyboard:
•The Dvorak Simplified Keyboard is an alternative keyboard layout designed for efficiency. Despite its advantages, the standard QWERTY layout remains the most widely used.

Zeroth Law of Robotics:
•Before the Three Laws of Robotics by Isaac Asimov, there is the "Zeroth Law": A robot may not harm humanity, or, by inaction, allow humanity to come to harm.

First Computer Virus:
•The first computer virus, known as the "Creeper," was created in the early 1970s. It displayed the message "I'm the creeper, catch me if you can!" on infected systems.

The Luhn Algorithm:
•The Luhn algorithm, also known as the mod-10 algorithm, is used for credit card number validation. It was invented by IBM scientist Hans Peter Luhn in 1954.

The Black Hole Information Paradox

Introduction:

This article is brought to you by Brindhan, an ordinary boy with extra-ordinary dreams. It embodies a compact yet clearly-outlined report on the black hole information paradox. Throughout the course of this subject, many details are omitted for brevity. Also, the current understanding of the problem is so confusing that the takeaway segment at the end of this article should not be considered reliable or stable as it is likely to change in future.

Throughout history, paradoxes have threatened to undermine everything we think we know and just as often, they have put us in a whole new perspective of everything that surrounds us. One such paradox is THE BLACK HOLE INFORMATION PARADOX. This paradox arises when the predictions of quantum field theory (quantum mechanics) and theory of general relativity are combined since they contradict each other. When one considers a black hole's formation through a physical process and then assumes it evaporates away entirely through Hawking radiation, it poses a dilemma for physicists because when a black hole evaporates, the general theory of relativity states it destroys the information that's fallen into it. Yet quantum theory supports information cannot be destroyed.

The theory:

Let's kick off this topic with what we mean by information. Consider an apple, now typically, one type of information we can talk about this apple is the things which are visible to the naked eye. Like the apple is red, kind of spherical and looks bigger. But physicists are more interested in the quantum information. Quantum information refers to the quantum properties of all the particles that make up that apple such as their position, velocity and spin. Every object in the universe is composed of particles with their own unique quantum properties.

Amongst the laws of quantum mechanics, this idea evoked, "the total amount of quantum information in the universe must be conserved". This simply means that even if you destroy an object beyond recognition, say, you cut that apple into a million tiny pieces, now, the quantum properties of one millionth tiny piece of that apple and the quantum properties of the apple as a whole remains the same. Hence its quantum information is never permanently deleted. And theoretically, knowledge of that information would allow us to recreate the object from its particle components. It basically means, in the quantum universe, everything is retrievable as well as reversible.

To understand this even better, here's an excerpt from Leonard Susskind's book The Black Hole War (page 188), where the author describes what will eventually happen to "information" that happens to fall into a "black hole," which will subsequently (according to a 1975 Stephen Hawking hypothesis) ever so slowly "evaporate" away into thermal radiation:

"Imagine drops of ink falling into a tub of water, carrying a message — drip, drip, drop, space, drop, drip. Soon the sharply defined drops begin to dissolve, the message gets harder to read, and the water becomes cloudy. After a few hours, all that's left is a uniform tub of slightly

gray water. Although from a practical point of view, the message is hopelessly scrambled, the principles of Quantum Mechanics ensure that the message is still there among the huge number of chaotically moving molecules. But soon the fluid begins to evaporate from the tub. Molecule after molecule escapes into empty space — ink as well as water — eventually leaving the tub dry and empty. The information is gone, but has it been destroyed?."

Conservation of information isn't just an arbitrary rule, but a mathematical necessity, upon which much of modern science is built. But around black holes, these foundations get shaken. When an apple enters a black hole, it seems like it leaves the universe entirely and all of its quantum information becomes irretrievably lost. However, this doesn't immediately break the laws of physics. The information of that apple is indeed out of sight. But it might still exist within the black hole's mysterious void.

Some theories suggest that information doesn't even make it the inside of the black hole at all. Seen from outside, it is as if the apple's quantum information is encoded on the surface layer of the black hole, called the event horizon. As the black hole's mass increases, the surface of the event horizon increases as well. So it is possible that as a black hole swallows an object, it also grows large enough to conserve the object's quantum information. But whether the information is conserved inside the black hole or on its surface is still inconclusive until you take hawking radiation into account.

Hawking radiation is discovered by Stephen Hawking in 1974. His discovery originated in quantum physics, which shows us that empty space isn't actually empty. Instead, pairs of so-called virtual particles continuously arise out of the vacuum. These pairs usually stay together, except for the unlucky few that arise on either side of a black hole's boundary, called its event horizon. In that case, one member of the pair can get trapped within the horizon while the other carries energy away. Over extremely long periods of time, black holes lose their mass as they shed these virtual particles away from their event horizons. Thus, hawking realized that black holes evaporate. Just like a puddle of water out in the sun, a black hole will slowly shrink, particle by particle, until nothing is left at all.

Critically, it seems as though the evaporating particles are unrelated to the information the black hole encodes, a problem still appears with this scenario. If black holes can be destroyed by evaporation, then so can all the information about what fell into them. This seems to break the fundamental notion of quantum field theory mentioned earlier, which says that information is never truly lost. Hence, the paradox originates!

Takeaway:

Well, if the quantum information doesn't truly disappear, where does it go? Researchers are investigating a broad range of solutions to the information paradox. Some have theorized that information is actually encoded in the escaping radiation in some way we can't yet understand. Others have suggested that the paradox is a misunderstanding of how general relativity and quantum field theory interact. General relativity and quantum field theory describe the largest and smallest physical

Phenomena of the universe, respectively, and they're notoriously difficult to combine. Few argue that a solution to this will come naturally with a unified theory of everything.

But, the most mind-bending theory to come from exploring this paradox is the holographic principle proposed by Gerardus 't Hooft and Leonard Susskind. Expanding on the idea that the two dimensional surface of an event horizon can store quantum information, this principle suggests that the very boundary of the observable universe is also a 2D surface encoded with information about real 3D objects. If this is true, it's possible that reality as we know it is merely a holographic projection of that information!

~Birundhan T R
BSc Computer Science, 1st Semester

Did You Know?

The Heisenbug:
•A Heisenbug is a software bug that seems to disappear or alter its behavior when an attempt is made to study it. The name is a humorous reference to the Heisenberg Uncertainty Principle in quantum mechanics.

Turing's Codebreaking Machines:
•Alan Turing not only played a crucial role in codebreaking during World War II but also designed several machines, including the bombe, to aid in deciphering German messages.

Smallest Computer:
•In 2018, the University of Michigan developed the world's smallest computer, measuring just 0.3 mm on each side. It was designed for medical purposes, such as monitoring eye pressure in glaucoma patients.

Pioneering Women in CS:
•Ada Lovelace, Grace Hopper, and Jean Bartik are some of the pioneering women in computer science. Jean Bartik, in particular, was one of the original programmers for ENIAC.

Quantum Computing Qubits:
•Quantum bits, or qubits, can exist in multiple states simultaneously due to the principles of superposition, a key concept in quantum computing.

Hello readers, my name is Mrityunjay Kumar from the 2022-25 batch of the Computer Science department. I would like to take this opportunity to pen down a few things based on my perceptions about things I've observed during my different academic sessions and life in general.

Being the student of Computer science Department , I would like to share something that you may find useful in determining your path in the process of learning. I don't want to waste these pages of the magazine by giving you some motivational dialogues which you don't want to know. But being a student one thing you all have to admit that learning is a never-ending process of expanding your knowledge and utilizing that knowledge acquired, to make this world a better place to live. That's what an actual student will do. Let's start from day 1 of your college life. Most of us might have chosen a career in Computer Science with passion passion. But, some of us might have chosen this career only out of the family's compulsion. In the first few months of your college, you might have had various thoughts on your career decision. No worries If I could do it, why can't you? Whatever life gives you, the only thing that matters whether you put 100% of your effort before complaining about your family or friends. For us, there is always a demand for automation. If you like any other field other than computer science and regret your decision for choosing computer science as your career, please don't. Because I can promise you, that in any other field, there is a major role that computers have to play. So, I suggest you identify the domain which relates to your interest and start to work on that domain from the first semester of your college.

In your Bsc Computer science , you will be introduced with almost all of the core subjects of computer science. Please, don't even think of skipping the classes. If you do so, you could somehow clear the exams. But you will suffer a lot with upcoming placements in future. So, please concentrate on learning the concepts well which are taught in the classroom. Ask a lot of questions and interact with your teachers and seniors, so that a lot of new problems and solutions can be discussed. Also, try to solve a problem with the minimum possible time and space. Always start with a working solution and then try to optimize the solution.

you need to be more responsible for your actions. Try to do Assignments on your own. Try to participate in programs organised by different Departments and college like Science Mela, Hackathons and so on…. Apply for internships with tech giants like Google, and Amazon. Most importantly, never stop practicing competitive programming. With all the above-mentioned works done, getting a job offer from dream companies will be a piece of cake. Never stop hunting for a job you deserve after the efforts you have put into your career. Make your parents proud. And never stop giving back what computer science community of St. Edmunds college gave to you when you are in a need.

~ Mrityunjay Kumar
BSc Computer Science 4th Semester

Hello my name is Vibek Singha from the 2022-2025 batch of Computer Science department. I am not really that great in jotting down things to be more presentable but I will try my best.

I would like to share some of my philosophies alluding on life in general not just as a student but as someone even having that slightest impulse to do something meaningful with his/her life.

See I'am a student myself and I will be brutally honest with the readers that I am not that great in my academics so far. I have my own highs and lows and I am still trying to figure out things but during this process of learning between righteousness and errorneous assumptions, I have learnt quite a few useful things throughout my life.

A wise man once said, "How can you fight longer than possible? Move faster than possible? Without the most powerful impulse of the spirit.....The fear of failing." What if you were ripped off of all the privileges you had? Racing to the bottom, having nothing in yourself to pin your hopes on? Read that line once again. I'm pretty sure you will be really scared if you visualise this scenario putting yourself in that position. Now lets flip the coin to the other side. What if in those moments of despair, the fear you had became your biggest weapon to fuel you up in doing things you didn't even knew you could? That's where the point lies. This fear is a very ambiguous term, its a two sided blade. It solely depends on you which side you make use of and leverage it further. When you think about it on a very serious level, you'll see yourself taking calculated risks because you'll know by then that if you don't imply your decisions on your advantage, things will go south 100%, and then fear will find you again, not as your ally this time but as your biggest adversary, your worst nightmare.

You can't really wait for your wake up call, the world is changing rapidly, time is considerably passing by faster than ever. Considering you or me as an average person, things need to pivot in your edge real soon, you need to put up your trump card, each year comes and goes by in just a flick of time now. There is really no hack on how to make it. You just need to be purely resilient and persistent with things that should be done now in order to make it work. Try to become someone who's based on principles and ethics and imbibe on those words every single day because theory would only get you so far. Always try to be conscious with your life and your surroundings and if you lose all your cards, always use that fear inside you as your last resort to keep pessimistic things at bay and kick off your engine once again. The world is yours, you don't owe it a single thing so do it for yourself, prove yourself not to others. Work hard and play harder, you only live once so make it count.

~Vibek SIngha
BSc Computer Science, 4th Semester

7th September 2020   **Webinar - Cyber Security as an IT career opportunity**
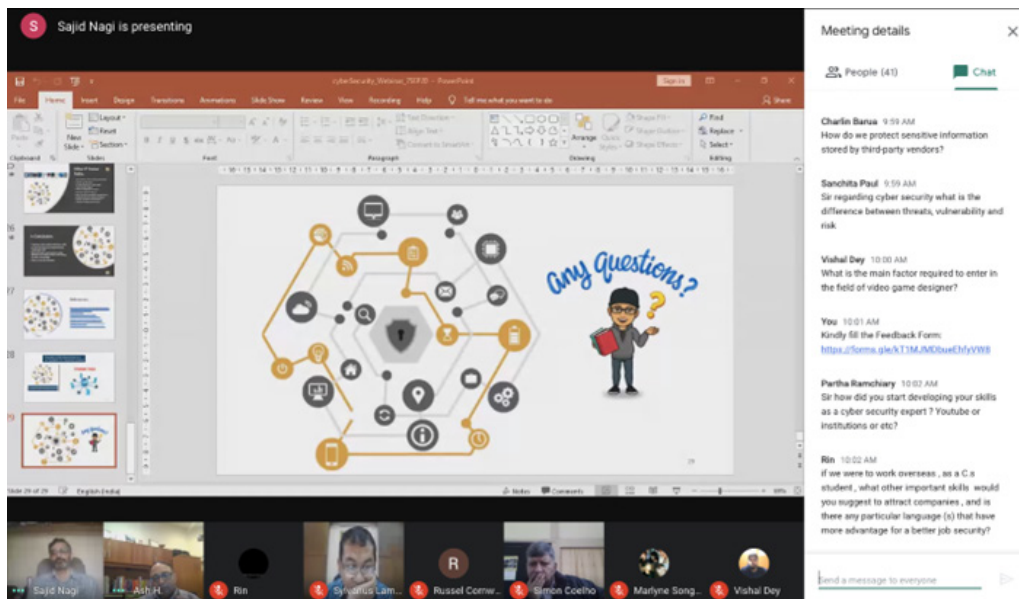
Mr. Ashraf Hussain, former faculty of the Department of Computer Science, St. Edmund's College, was the resource person. At the time the talk was conducted, he was serving as a Cloud & DevSecOps Engineer at Nuclear Regulatory Commission, USA. The talk began with a welcome address by Dr. S. Nagi (HOD), who was also the host for the programme. The Principal, Dr. S. Lamare, then spoke a few words on the importance of cyber security in this day and age and stressed the need for students to take up this subject for further studies.The resource person started with the definition of cyber security and then went on to discuss some of the threats that are prevalent. Further he spoke about the tools and techniques required to pursue cyber security as a career option. He informed the participants that it is preferable for a candidate to have some knowledge of a programming language when studying cyber security. He then delved into the possible avenues one could take if they were serious about taking up cyber security as a profession. Whether it is cloud security, network penetration testing or safeguarding data in general, a whole host of opportunities awaits a prospective candidate. After the resource person concluded the talk, he took a good amount of time answering queries from the participants, especially of how to safeguard our data. It was a highly informative session and many doubts were cleared.

9th March, 2021   **Awareness Programme on "Perils of Social Media"**

The awareness program began with a discussion on the different techniques used my fraudsters to get personal and financial information from unsuspecting users. It was made known that a good number of people fall prey to such malicious activities. It then moved on to how social media is used negatively especially by young adults with rampant cases of cyber bullying through the posting of false, demeaning and objectionable material. The resource person highlighted the frequent propagation of fake news that consequentially has a detrimental effect on society. He also shared some guidelines on how one should behave on social media. A number of questions were asked which made the program very engaging. Questions on the legality and veracity of social media posts, meme culture, data policies were discussed and deliberated. The talk was delivered by Shri. Banraplang Jyrwa, MPS, Dy.SP (City), East Khasi Hills.

17th April, 2021   A talk entitled "Mind the Gap"; Syllabus v/s Industry requirements

The resource person, Mr. Rohit Yadav, backend developer at Xlayer, agreed that there is a gap that exists between the coursework and skills required for seeking employment as a developer in the industry. The coursework syllabus serves as a base for the theoretical knowledge that students require as well as hands-on practical skills that they need to start as a developer. However, it is not enough for a student to bank only on it for a career in the IT industry. Since the field of Computer Science is ever changing, there is a need to adapt to new processes and technologies. The student has to be willing to put in extra effort to keep abreast with the latest developments and find time to up-skill himself/herself. Some of the practical nuances can only be learnt on the job, when faced with actual user requirements. The speaker opined that the gap is substantial, but with effort, it is possible to close the gap. The resource person also spoke about a few projects he has developed, one being Grosboy, an app for online grocery shopping in the Shillong region. After the talk was completed, the resource person took questions from the participants who were eager to understand the finer points of application development in the real world.
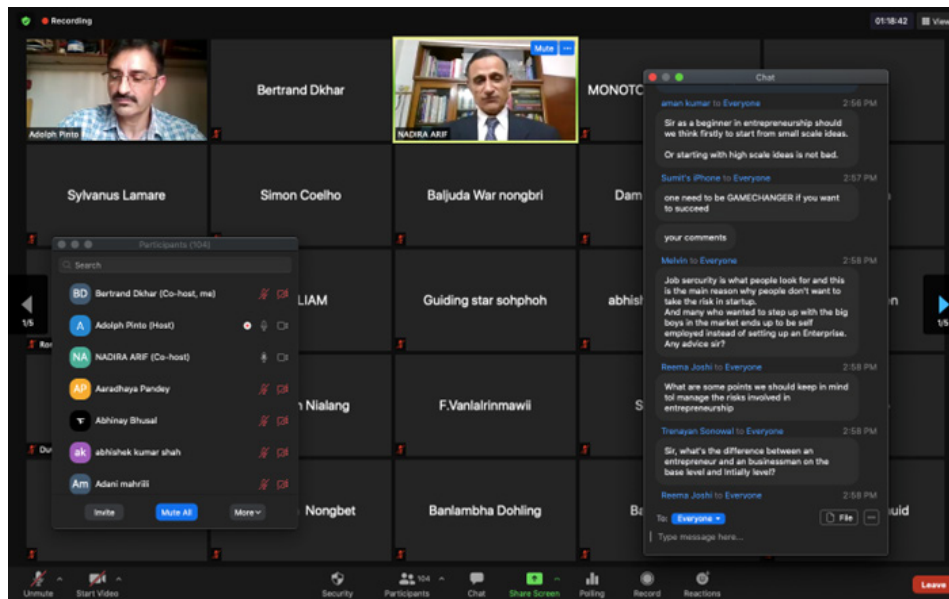
The Department of Computer Science was very fortunate to have Mr. S. M. Arif, a man with a wealth of experience in the field of entrepreneurship and HR development, as a resource person. The webinar began with him defining the term 'entrepreneurship', and stated that entrepreneurs work for the betterment of society. Passion, commitment, leadership skills and the ability to teach are some of the characteristics an entrepreneur should have. He laid emphasis on the birth and importance of novel ideas which can lead to the creation of wealth for themselves and the society. An entrepreneur should also be a good mentor to guide and lead a team of people, as well as having multifaceted knowledge of the enterprise because the business environment is always changing and a need to adapt to the current situation is paramount. There is also a need for funding the entrepreneurial endeavour which may be sought from government and private institutions, angel investors and through personal funding. The primary goal is to develop the idea into a practical implementation. The current pandemic has unfortunately led to an economic recession and it make take some time for things to get back to normal.

24th June, 2021   Webinar on "Mental well-being and Stress Management"
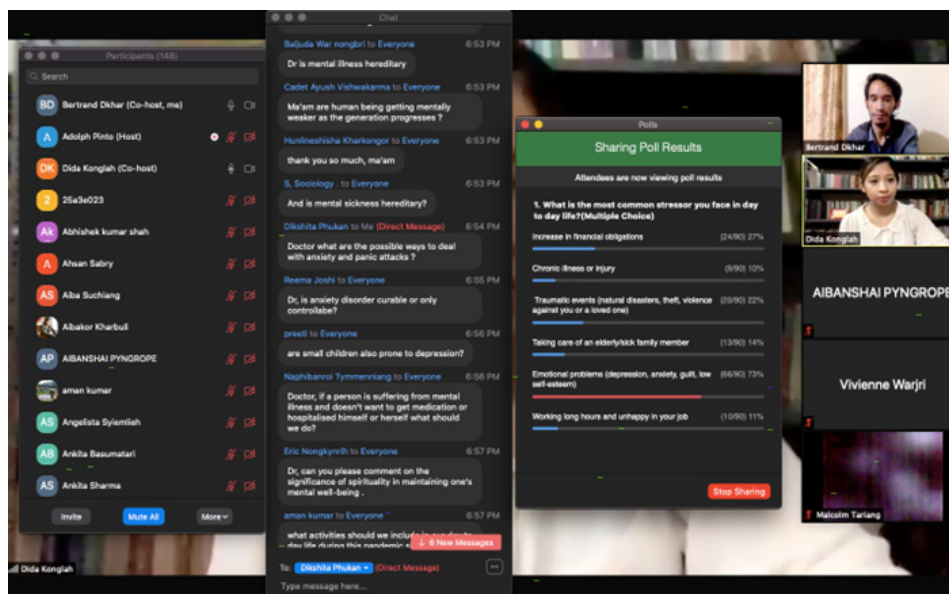
The resource person, Dr. Didakamiwan Khonglah, MBBS, MD(Psych), started the discussion with the definition for mental health, stating that it was inclusive of emotional, psychological and social well-being. She shared a study that projects India as a country having a large population with depression. Anxiety and depression disorder affect many people but more often than not, they are unaware of its cause. Although anxiety is an evolutionary trait that helps us tackle difficult situations, the degree to which it manifests should be closely observed. Cyberchondria and suicidal ideation are real threats and in many cases, professional help is required. If the problem persists and escalates, medication maybe required to control and cure patient. The speaker opined that it is unfortunate that depression has been glamourised in movies and tv shows which should not be the case. The pandemic we went through has exacerbated the situation for everyone. With most young adults being socially active, it has greatly affected them due to the restrictions the lockdowns have imposed. Modifying one's thought process by turning something negative to that which is positive allows for a person to cope better with the situation at hand. Stress is another dimension that affects mental health and the resource person stated that people can take practical, proactive steps to mitigate this problem by being mindful and practice deep breathing. Quick polls on the participants' view of mental health, common stressors in daily life, willingness to speak to a professional and how they deal with stress were taken to have real-time feedback for the resource person.

8th September, 2023   A popular talk on Astronomy

A popular talk on astronomy was held on 8th of September, 2023, in collaboration with the college's Astronomy Club. The talk titled, 'Visible And Invisible In The Universe' was carried forth by esteemed speaker Dr. Bikram Phookun, Professor of Physics, Ashoka University. It was held via ZOOM meeting and the duration of the talk was approximately two hours. The audience in the college auditorium comprised of students and teachers from various departments..The speaker spoke of various topics related to the field of cosmology with special references to observational astronomy. He started with observations that are visible to the naked eye and then moved on to more sophisticated methods of observing objects that are invisible. The use of algorithms running on powerful computers to process large volumes of data from observatories was paramount for the success of the work carried out in astrophysics. The level of clarity and coherence put forth by the the speaker made the talk an exceptional experience. As the speaker delivered his final conclusions, a Q&A segment was started and it saw favourable responses. The talk then moved forward with the final remarks of the afternoon delivered by Amit Saharia, extending thanks to our speaker for his valuable talk. Ending with a note of heartfelt appreciation, Dr. Bikram signed off leaving us with more wonder and admiration for our place in this universe. The collective efforts put together by the organising committee notably by our teacher-in-charge, Bertrand Dkhar, chief student volunteers Subhankar Deb Roy, Tynshain Lang Nongrum, Daniel Marwein, Amit Saharia, resulted in a grand success. The event was hosted by Calwyn A. Suchiang.

The Department of Computer Science held an Inter-College Invitational Presentation for students of B.Sc. (Computer Science) and BCA. Eight academic institutions (including the host college) were invited, with two eventually declining because of unavoidable reasons. The presentations made by the students were very well thought of and engaging. They covered various fields of Computer Science among which Machine Learning, Block Chain, Computer Vision and Data Science were prominent. It was a tough fight but in the end, three winners emerged. Bidipta Das of St. Edmund's College earned the first prize, Constatine S. Kharsyntiew of Shillong College bagged the second prize while Raj Chakraborty of St. Anthony's College was awarded the third prize. The program took off its first session with a keynote address (online) by Dr. Debayan Gupta, Asst. Prof (Computer Science), Ashoka University, and research associate at Massachusetts Institute of Technology (MIT). Dr. Gupta opined that the concept of security in computing differs from daily life, requiring additional layers of protection due to the absence of geographical distance and the potential for attacks from anywhere in the world. Furthermore, privacy and security are essential but need to be balanced with the ability to address criminal activities and societal concerns, requiring a middle ground between individual rights and government access. He also added that advanced mathematical techniques allow for privacy-preserving computations, enabling the calculation of functions on private information without revealing the data itself. He concluded the address by stating that one should have a strong foundation in the fundamental concepts of the subject they are studying and steer their skills towards the greater good.

Value Added Coursed conducted

20th - 30th October, 2021
Value Added Course on "Introduction to Algorithmic Thinking and Programming"

1st - 5th November, 2021
Value Added Course on "Basic Web Design with HTML5 And CSS3"

16th - 22nd November, 2021
Value-Added Course on "Installing Linux on Virtualbox and a tour of essential commands"

14th - 19th March, 2022
Value Added Course on "Basic Statistics for Data Analysis"

23rd - 28th March, 2022
Value-Added Course on "A Basic Introduction to Libre Office Calc"

Results

Year	Appeared	Passed	Pass Percentage	First Class	University Position Holders
2018	15	12	80	7	Dependra Kafley (1st Position) Dapmon I Papang (6th Position)
2019	20	13	65	6	Himangshu Kumar Basistha (3rd Position) Birender Sah (6th Position) Om Prakash Rai (7th Position) Ambarish Nath (8th Position)
2020	23	12	52.17	12	Beena Rai (1st Position, University Book Prize Winner)
2021	23	20	86.96	20	-
2022	24	24	100	24	Abhishek Kumar (1st Position) Abinash Boruah (2nd Position) Guidingstar Sohphoh (5th Position) Anurag Kakoti Nath (8th Position) Sanchita Paul (9th Position)

Year	Appeared	Passed	Pass Percentage	First Class	University Position Holders
2023	12	11	91.67	11	Abanggi Kimrang S Momin (3rd Position) Abhinay Bhusal (7th Position) Nafees Hamza (8th Position) Daniel Charan Ropmay (9th Position)

Note: NEHU did not declare Position Holders List in 2020 and 2021. It only declared the subject topper (Book Prize Winners)

Did You Know?

Serendipity :
•The domain name "Google" was actually a mistake. The founders of the company originally intended to call it "Googol," which is a mathematical term for the number 1 followed by 100 zeroes. However, they misspelled it when registering the domain name and decided to stick with the new version.

Use 2FA whenever possible. Just a tip.:
•68% of black hat hackers say multi-factor authentication and encryption are the biggest hacker obstacles.

Hacked!:
•In 2013, more than 3 billion Yahoo accounts were compromised, making the breach one of the largest in history.

It's not a bug! It's a feature!:
•Deep Blue, an IBM supercomputer 1997, defeated the world-renowned chess master Garry Kasparov through a critical move that came from an unexpected bug in the software.
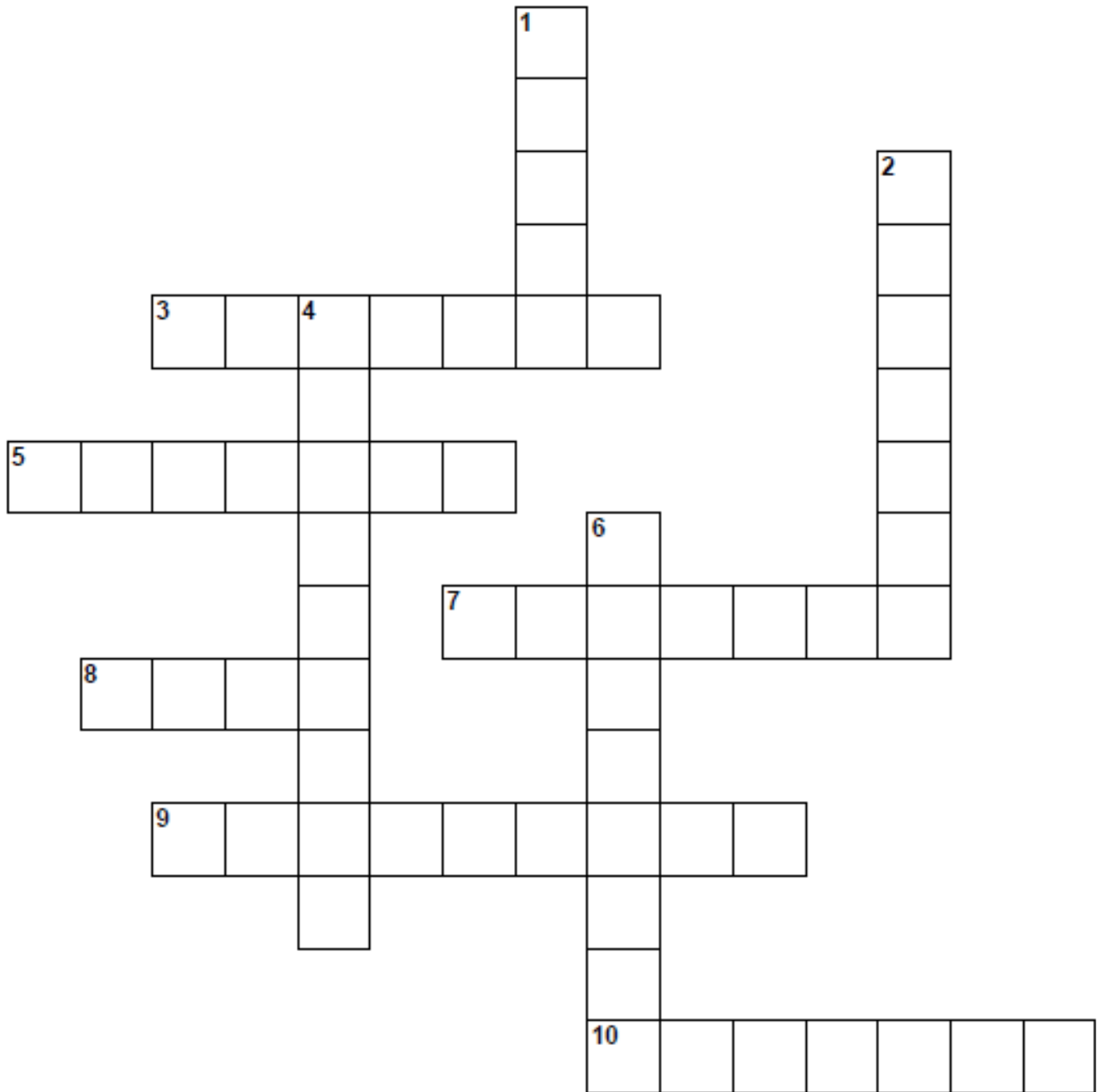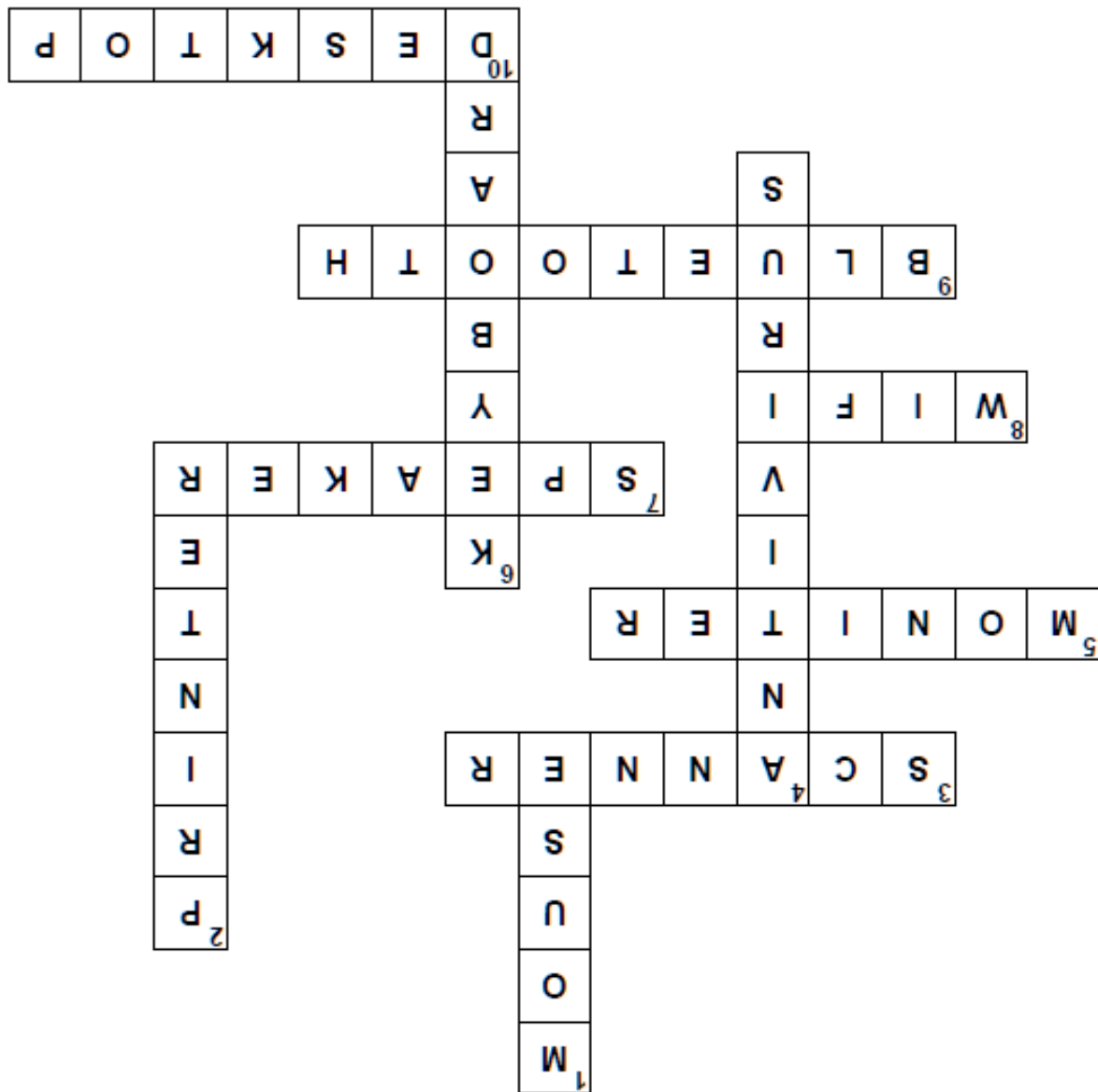
Across

[3] scans hard copy
[5] output device
[7] does not have mouth but is audible
[8] wireless internet
[9] short distance transmission
[10] not portable

Down

[1] helps to drag and click
[2] uses ink but does not have a nip
[4] protects our devices
[6] input device

This year, 2024, is very special for me as it is my year of superannuation! To me it seems like just the other day the Department of Computer Science was started in the College and that was on 1st June, 1992. Initially, the department was housed above the Electronics Department and is now occupied by the present day Zoology Department. The Department boasted of 10 PC-XTs, one dot-matrix printer and a big UPS. Gradually as the number of students grew, the department was then shifted to its present location in 1997.

We were also entrusted with the responsibility of imparting training to our Colleagues on how to work with computers in the late 1990s – this brings to mind a very hilarious incident that was narrated to me by one my department colleague, Mr. L.T. Vantawl, a.k.a. Patea – he had a batch of teachers with him and then he told them, "Okay, let's open Windows", Mr. Bareh (may his soul rest in peace), our colleague from the Khasi Department got out of his seat and opened the window of the lab where the class was being taken! One can only imagine the chaos and laughter that echoed in the lab that day! Another incident that happened with me was when I was conducting a training of the B.Com. students on creating email-id and login password. I was moving around in the lab and checking if they were being able to do the assignment and I noticed that one girl was typing the password and whenever I would be near her, she would deleted it using the backspace key – I thought she didn't want me to see the password and so I moved away – after sometime I came around again and saw that she was still entering the password and then deleting it. I asked whether anything was wrong and had she forgotten the password and her reply really stumped me! She said that she was typing the password but each time only asterisk was being displayed and not the letters! That was such a learning experience for me, considering that at times, we expect the student to understand without actually explaining that the password is not meant to be displayed when typed!

Finally, the one that really took the cake happened with Mr. Rajesh Dutta, our Head of Economics Department... this happened more than twenty years back and at that time after a lot of consultation, he finally purchased a PC and had it all set up, with the icons of MS Office on the desktop so that he could have easy access to it. One evening he gave me a frantic call and said that he could not locate Ms Word. I told him it will be on the desktop, but he said it wasn't there. So I asked him what can he see on the desktop – he said he could see his pen, some papers, few text books.... I was surprised that how could he get all of that on the desktop and he replied that these things always were kept on his desk.... then it dawned on me that what I was referring to as "Desktop" was not what he understood as "Desktop"! My apologies, Rajesh, for letting the cat out of the bag but this is such an adorable incident that I just could not keep it to myself and had to share it on this page!

Moral of the story – always expect the unexpected!!

~ Dr. Sajid Nagi
Head Department of Computer Science

B.Sc. (Comp. Sc.) Batch 2020

On behalf of the 2017- 2020 batch, we extend our heartfelt gratitude and warmest wishes to Sir Nagi, whose unwavering dedication, wisdom, and leadership have profoundly impacted all of us who have had the privilege of passing through the halls of our cherished alma mater. As alumni, we hold dear the memories of the invaluable guidance and mentorship that sir provided during our time in the department.

Sir Nagi, renowned for his fitness, may have appeared strict, yet he exuded a sense of coolness and composure that endeared him to us all. Behind this facade, however, lay a heart filled with kindness and a steadfast commitment to the well-being and success of not only students but also teaching faculty, whom he treated as family.

We especially recall his remarkable kindness during our final semester, amidst the unprecedented challenges posed by COVID-19 closures. He swiftly became our anchor, providing invaluable support through the transition to online learning. Despite the unfamiliarity and difficulties, he tirelessly ensured that we received the necessary resources and assistance, remaining available for guidance and support at all times. His unwavering presence played a pivotal role during those uncertain times, providing us with much-needed reassurance and stability.

May Sir Nagi's retirement be filled with boundless joy, new adventures, and the satisfaction of knowing that his impact will endure far beyond his years of service.

Elizabeth Thma, B.C.A., Batch 2013

In the halls of knowledge, you stood tall,
Guiding us through each rise and fall.
Sir Sajid Nagi, beacon of light,
Leading us through intellectual heights.

Head of Department, wise and kind,
Your brilliance forever etched in our mind.
From the first batch of BCA's dawn,
You nurtured minds, like a radiant sun.

Smart and fit, approachable too,
Your presence a comfort, your guidance true.
In the realm of computers, you reigned supreme,
A master of bytes, a visionary's dream.

Through algorithms and complex code,
You taught us to decipher and decode.
Your knowledge vast, your passion ablaze,
Inspiring us to seek wisdom's maze.

As the years roll on, and time takes its toll,
Your legacy remains, a treasure to behold.
For the class of 2010 to 2013,
You'll forever be our guiding breeze.

So here's to you, Sir Sajid Nagi,
With gratitude and admiration, we pay thee homage.
May your retirement be filled with joy and ease,
As we carry forth the torch, your legacy to seize.

Melvin Majaw, BCA, Batch 2015.

As I reflect on my academic journey in the field of computer science, I am filled with gratitude for the incredible influence you've had on my learning experience. I first encountered your expertise during my Class 11 studies when I delved into the world of computers, guided by the course whose very book you authored. .Fate, it seems, had a plan, leading me to pursue my undergraduate studies in the very department that you proudly headed.

Your guidance, teaching prowess, and wealth of knowledge have been instrumental in shaping my understanding of computer science. The opportunity to learn under your leadership was not only a privilege but also a source of inspiration. Your commitment to fostering a nurturing learning environment has left an indelible mark on my educational journey. Little did I know that our paths would cross once again after completing my postgraduate studies. I had the distinct honor of being a colleague under the same department you continued to lead.

As you embark on a well-deserved retirement, I want to express my heartfelt gratitude for your dedicated service to the department. Your passion for the subject and unwavering commitment to your students have set a standard of excellence that will endure long after your retirement. I wish you a fulfilling and joyous next chapter in life, confident that your impact on the world of computer science will continue to resonate.

Thank you for being an exceptional mentor and educator. Your legacy will undoubtedly continue to inspire generations to come.

Best wishes for a happy and fulfilling retirement!

Ryan Sangma, B.Sc. (Comp. Sc.), Batch 2022.

Sir, looking back now as a former student, I am deeply grateful for the profound impact you had on my education. Your passionate teaching and engaging lessons nurtured my love of learning. You pushed me to think critically, broadening my mind and acquiring abilities that have served me well. Even though my college days are over, the essential lessons you taught me have stayed with me. Thank you for inspiring me and making a lasting difference in my life.

Mukesh Singh, B.Sc. (Comp. Sc.), Batch 2014

Dear Sir Nagi,

I wanted to take a moment to express my deepest appreciation for your exemplary leadership and unwavering support throughout my journey in the Department of Computer Science at St Edmund's College.

Your dedication to fostering a vibrant learning environment and your passion for the field have been truly inspiring to me. Your insightful lectures, and commitment to excellence have not only enhanced my understanding of the subject but has also inspired me the most.

Beyond the classroom, your willingness to go above and beyond to support your students has not gone unnoticed. Whether it was offering guidance or providing valuable career advice, your mentorship has been invaluable to all of us.

As I move forward in my journey, I carry with me the lessons and wisdom that you have shared along with all other lecturers from our department, and I am confident that they will continue to guide me towards success. Thanking you all once again for your unwavering support.

Iainehborlang Nongsiej, BCA, Batch 2017

Sir Nagi, a revered figure in the Computer Science department, has been instrumental in shaping the educational journey of countless students. His dedication to teaching and knack for crafting real-world analogies, like the memorable circuit switching analogy using the computer lab layout, have left a lasting impression on his students' understanding of so many complex concepts.

As Sir Nagi prepares to retire this year, his legacy as a teacher and mentor will undoubtedly be remembered by all those he has encountered as he has left an undeniable mark in each of our lives. His teaching methods and passion for his work have inspired us all to strive for better. We are grateful for having had the honour of working with such an amazing educator who has never fallen short of the ideals of teaching. Thank you so much sir for always helping those of us in need and guiding us teachers and students alike and for being such an inspiration for us all. You will be greatly missed.

Dependra Kafley, B.Sc. (Comp. Sc.), Batch 2018

Dear Sir Sajid Nagi,
I am writing to express my sincere gratitude for your outstanding contributions as our Head of the Department of Computer Science. Your expertise and guidance in the realm of Computer Science have played a pivotal role in shaping our academic experience. Throughout the academic year, your classes have served as beacons of knowledge, unravelling the intricacies in the field of Software Development and, especially, Data Mining with unparalleled expertise.

unparalleled expertise. Your dedication to our understanding of the subject matter was evident in every lecture, making complex concepts accessible and fostering a deep appreciation for the nuances. As the mentor for my last-year projects, Sir Nagi's insightful advice and unwavering support were instrumental in steering me through the challenges of real-world applications of data mining. Your mentorship cultivated an environment where creativity flourished, and I felt empowered to explore innovative solutions.

Sir Sajid Nagi, your passion for teaching and commitment to our academic success have left an indelible mark on each of us. We are profoundly grateful for the wealth of knowledge and guidance you've shared.

Pooja Kushwaha, B.C.A., Batch 2019

Sir Nagi was an exceptional teacher during my undergraduate studies. His teaching style was engaging and his explanations were clear, which made it easy for me to understand complex topics. His approach was especially effective in software engineering, where he had a talent for breaking down difficult concepts into manageable pieces and providing real-world examples. Thanks to his guidance, I was able to grasp the material more easily and I still apply the valuable lessons I learned from him in my work as a software developer today.

Ferdinand Tangsang, B.Sc. (Comp. Sc.), Batch 2013

Sir Nagi has always been an inspiration to me. What kindled my mind and heart was his ability to take care of his fitness. It's like he's saying to me every single day, "Be strong Mentally, Academically and Physically, because these are the ingredients to succeed in making dreams come true".

Abinash Boruah, B.Sc. (Comp. Sc.), Batch 2022

"The good teacher explains. The superior teacher demonstrates. The great teacher inspires." These profound words by author William Arthur Ward perfectly capture the essence of Dr Sajid Nagi's impact on our Computer Science Department and St. Edmund's College. As we prepare to say goodbye to Dr Nagi, we recognize him not only as an excellent educator but also as a true inspiration to all who have had the privilege of being his students. Under his guidance, the department has evolved into one of the best Computer Science Departments not only in Meghalaya but the whole of North-East India.

Throughout my time at St. Edmund's College, although shortened due to the pandemic, Professor Nagi served not only as a knowledgeable instructor but also as a dedicated mentor who went above and beyond to nurture my passion for computer science. His door was always open for students seeking advice, encouragement, or simply a listening ear, and his quick wit and occasional touch of sarcasm brought a sense of levity during those tiring college days. His classes were always filled with trivia, injecting moments of curiosity and amusement into our learning experience. I still vividly

that he used to refer to us all not as his students, but rather as his own children, which created a familial bond within our department, serving as a father figure. He exemplified punctuality and discipline, consistently setting the standard by being the first to arrive at the classroom. His unwavering dedication left an indelible impression on us, inspiring us to uphold the same level of diligence and professionalism in our academic pursuits.

While we may be sad that we can't create an infinite loop to his career, Professor Nagi's legacy will continue to iterate and inspire future generations of students. As Dr Sajid Nagi embarks on a well-deserved retirement, we extend our heartfelt wishes for this new chapter in his life and may it be as fulfilling as finding that one missing semicolon.

Bidipta Das, B.Sc. 4th Semester, 2024

I am immensely grateful to Sir Sajid Nagi . I am extremely fortunate to have had this opportunity of being his student. Sir is a very dedicated teacher and a humble person. Along with Computer Science he has also given us some useful life lessons. Sir is soon going to leave us and possibly we will be meeting only occasionally but his lessons will always be remembered and acted upon by me.Thank you so much sir.

Tips and Tricks

Try these exercise with your computer or mobile device.

Open Google and try these fun google tricks;
- *Search "Google gravity"*
- *Search "Do a barrel roll"*
- *Search "Google sky"*
- *Search "Shake it trick"*
- *Search "Google sphere"*
- *Search "Google underwater"*

Type "Pacman" and enjoy! also try "tic-tac-toe"

Do you want your own customized emoji?
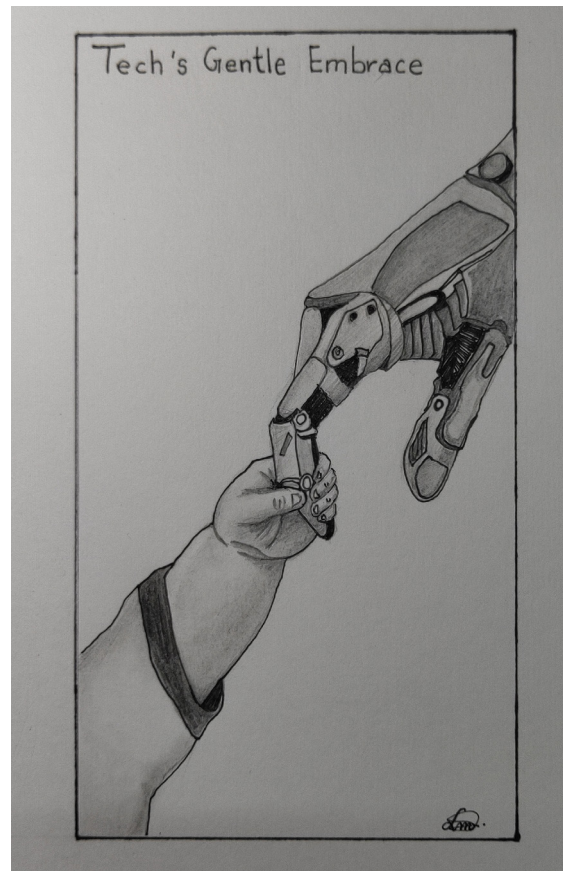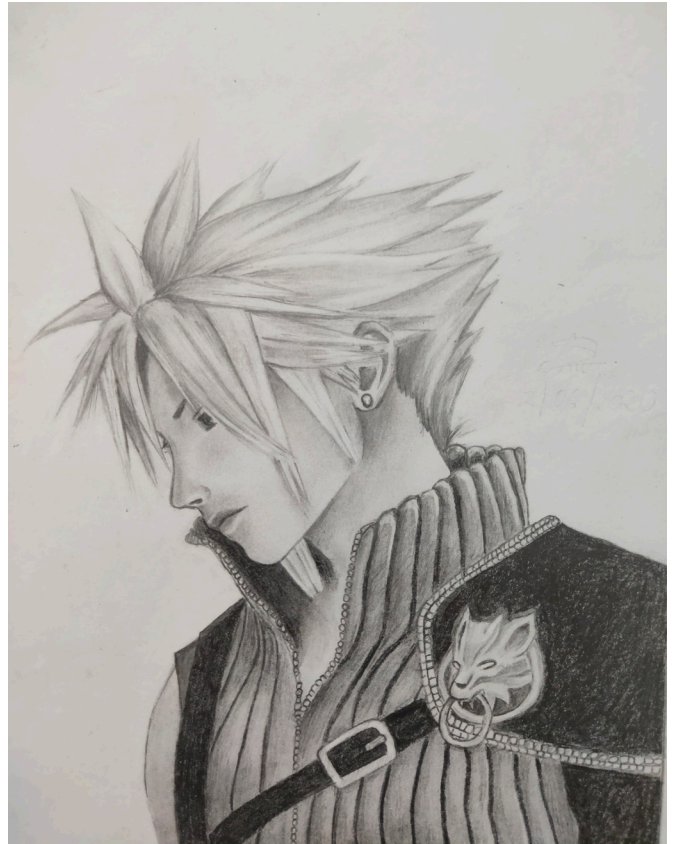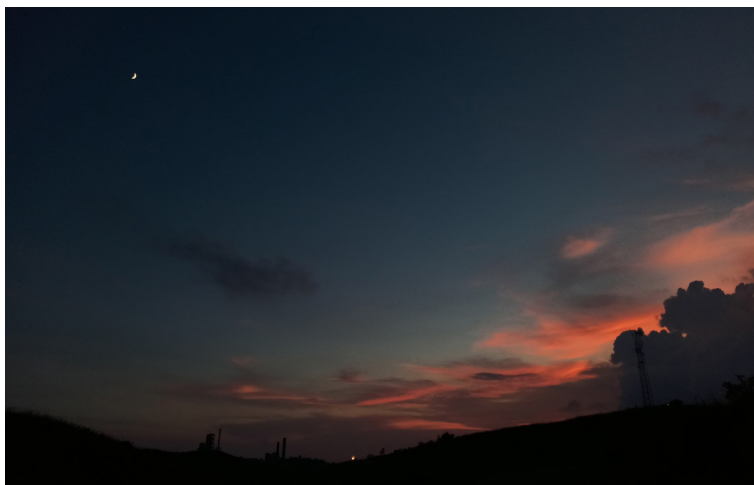*Search "Emoji kitchen" and make your own emoji-dish!*

BSc Comp Science
6th Semester

BSc Comp Science
4th Semester

BSc Comp Science
1st Semester

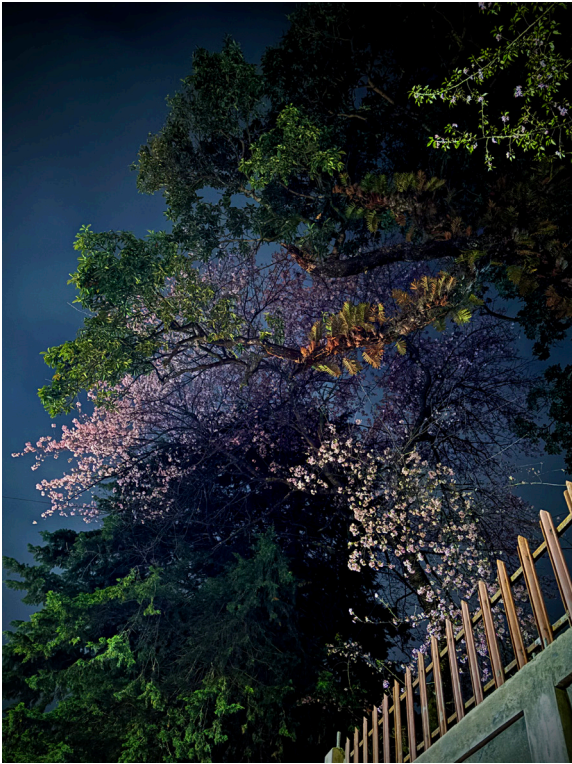Tech's Gentle Embrace

In the Artist Corner page:

Contributor:

Lawanpat Marpan, B.Sc (Computer Science), Batch of 2022

In the Gallery:

Contributors:

Ronie Charles Dkhar Fancon, BSc Computer Science, 6th Semester
Mitryunjay Kumar, BSc Computer Science, 4th Semester
Anu Kangabam, BSc Computer Science, Batch of 2002
Shibashish Rudra, BSc Computer Science, Batch of 2002
Bertrand Dkhar, BSc Computer Science, Batch of 2008

In Loving Memory of Dhiman Lahiri

Dhiman Lahiri, a bright and promising student, passed away on October 23, 2023, at Central DuPage Hospital in Winfield, Illinois, USA, just two weeks before his 44th birthday. He touched the lives of many during his time with us, leaving an indelible mark on the hearts of those he encountered.

Dhiman (Batch of 2001) was a student in the Department of Computer Science 22 years ago and even then he showed a remarkable aptitude for Computers. He possessed a relentless thirst for knowledge, an insatiable curiosity and an unwavering dedication to his studies. He always stood out as someone destined for greatness.

Dhiman was the son of Dr. Dilip Lahiri, who was a professor in the Department of Bengali, St. Edmund's College. In the years since Dhiman left our classroom, he continued to excel in his chosen field as an IT consultant in the healthcare industry. He was not only a brilliant individual but also a compassionate and kind-hearted soul who never hesitated to lend a helping hand to those in need.

Dhiman is survived by his wife Mitali and son Neil. Dhiman may be gone, but his legacy and the impact he made on the world will forever be remembered in the hearts and minds of those he inspired.

Rest in peace, dear Dhiman.

St. Edmunds College

Old, Jowai Rd, Laitumkhrah, Shillong, Meghalaya 793003