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EZINE

BRIGHT FF

Message

Deans Message

I acknowledge the efforts of students and staff of IT department who have taken forward 'E-Zine' for 5 consecutive years.

Ezine's primary purpose is to provide the students and staff a platform where they can express their creative thoughts through technical and non-technical sections.

It provides opportunity for all students to write various technical articles in five technical domains defined by the department. Students and staff achievements have also been presented which will be a motivational factor for all other students to achieve a standard of excellence.

The vision and mission of IT department is to make students technically sound and ethical citizens of nation. Let the "learning attitude" develop in each one of us and may all of us contribute for the betterment of our society.

Dr.Kamal Shah
Dean R&D

Message

HOD Message

I am pleased to know that our Information Technology Department students are once again successful in bringing their issue of magazine "EZine" for this quarter of academic year 2016-17. Our IT staff & students have established a joint venture, in bringing out a technical magazine with their contributions. The most important aspect we could derive from this stupendous effort is that it brings out the various technical and analytical skills of the budding engineers .

This magazine is intended to bring out the hidden literary talents in students and teachers to inculcate strong technical skills among them. I congratulate and thank all the students and faculty coordinators who have made untiring efforts to bring out this magazine.

I wish them all the very best for releasing more such magazine in future. I express my compliments to the secretary, the editors and their dedicated committee for their valuable efforts in bringing out this issue. I wish them all success.

Dr. Rajesh S. Bansode

Message

Faculty Incharge EZine

It gives me immense pleasure to present the Sixth issue of an "E-zine" E Magazine of the department of Information Technology. It is the talent and outcome of our students which is reflected through this. This is one of the best platforms for our students to present multifaceted personalities and innovative ideas. Our magazine is balanced collection of technical activities, placement progress, departmental activities, academic achievement, NSS activities etc.

I take this as opportunity to thank our respected Principal Dr. B. K. Mishra for having faith in me and giving me opportunity to work as In charge of the E-Magazine. I thank Dr. Kamal Shah , Dean R&D and Dr. Rajesh Bansode Head of the department and all faculty members for their incessant inspiration and kind support.

I would like to express my sincere and heartfelt gratitude to all the students, their parents, the alumni ,the teaching and the supporting staff of the department for their wonderful response and enthusiastic participation without whom this would not have been possible. Last but not the least I thank my E Magazine team without whom this would be dream only. I respect their efforts and really proud of them.

I hope u will enjoy Ezine oct-2016.

Mrs. Hetal Amrutia

Message

From Desk of Editor

It gives me immense pleasure to present you the latest edition of Ezine magazine! A lot of efforts have been put forth by the publication team and the staff in publishing this issue of Ezine. Ezine is, and has always been, a platform for students to showcase their creative skills and also provides a great opportunity to all the students to post articles on their areas of interest and also on the latest trending topics in the field of Information Technology.

Ezine focusses not just on articles but also of the achievements of students and staff which highlights the talent and brilliance of IT Department alongside being a springboard for others to excel. We have also mentioned the students who are currently interning in different companies which will also enable others to get help and advice on the same.

The mission of the department is to provide overall growth and development of students in all aspects through academic and co-curricular activities.

The vision of the IT Department is to impart quality education to all the students so that they become technically sound, research oriented, professionally ethical and socially responsible citizens.

"It does not matter how slowly you go as long as you do not stop"

If you have any queries or suggestion, you can contact us ot ezineit@gmail.com.

Tanishq Mehra

INFORMATION TECHNOLOGY DEPARTMENT

Department Vision

"The Department of IT will strive to be at the top position among the renowned providers of IT education"

Department Mission

"The IT Department is committed to enrich students by rigorously implementing quality education with a focus to make them industry ready, while imbibing in them professional ethics and social values to become responsible citizens."

Programme Educational Objectives

PEO1 : To enable learners to gain a broad background across fundamental areas of information technology along with a depth of understanding in a particular area of interest within the domain of information systems.

PEO2 : To prepare learners for effectively using modern programming tools to solve real life problems.

PEO3 : To prepare learners for successful career in Indian and multinational organizations. To identify and evaluate current and emerging technologies. To assess their applicability to address the users' needs and recognize the need for continued learning and motivate students to pursue it throughout their career and higher studies

PEO4 : To encourage and motivate Learner's for Research &Development and entrepreneurship.

PEO5 : To inculcate independent critical thinking, problem solving and leadership skills, with an ability to analyze the impact of technology on individuals, organizations and society including professional, ethical, legal and public policy issues.

PEO6 : To encourage Learner to use best practices and implement technologies to enhance information security and enable compliance, ensuring confidentiality, information integrity, and availability.

PEO7 : To develop excellent written and oral communication skills to effectively interact with clients, users, co-workers and managers. To Collaborate and work in teams to accomplish a common goal by integrating personal initiative and group cooperation.

Programme Outcomes

PO1 : An ability to apply knowledge of computing, mathematics, science and engineering fundamentals appropriate to the discipline.
PO2 : An ability to analyze a problem, and identify and formulate the computing requirements appropriate to its solution.
PO3 : An ability to identify and analyze user needs and take them into account in the selection, creation, evaluation, administration and effective integration of IT-based solutions into the user environment.
PO4 : An ability to design and conduct experiments, research and development activity in computing and IT.
PO5 : An ability to use and apply current techniques, concepts, skills, and modern tools necessary for computing practice.
PO6 : An ability to analyze the local and global impact of computing on individuals, organizations, and society.
PO7 : An understanding of the impact of sustainable development and engineering solutions in a global, economic, environmental, and societal context.
PO8 : An understanding of professional, ethical, legal, social, cultural, security issues and responsibilities.
PO9 : An ability to function effectively individually and on teams, including diverse and multidisciplinary, to accomplish a common goal.
PO10 : An ability to communicate effectively with a range of audiences.
PO11 : Recognition of the need for and an ability to engage in continuing professional development and pursuing Higher Studies.
PO12 : An understanding of engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects with an understanding of best practices and standards and their application.

ANDROID
Evolution of The OS

The most popular Operating System for mobiles at the moment is Android, which was launched by Google way back in 2008. Android is an open source operating system written in Linux and basically designed for smartphones and tablets. It was launched during the period when Apples's iOS (Also read: Evolution of iOS) was at the helm of the OS for mobiles market. Initially Android OS didn't create any ruckus in the mobile world but it started to grow gradually.

Android was developed by Android Inc. which was later bought by Google in 2005. The first Android based smartphone was HTC Dream which was launched in 2008. As the OS is open-source, it allows the developers to play with the code allowing them to modify the code as per their needs. At present Android has one of the largest community of Application Developers writing and developing large number of applications that extend the functionality of the device.

Google has launched different versions of Android till now and the interesting fact to be noticed in these versions is that most of the names of OS are named after desserts and the names are in alphabetical order such as CUPCAKE, DONUT, ECLAIR, FROYO, GINGERBREAD, HONEYCOMB, ICE CREAM SANDWICH , Jelly Bean, Kitkat and Marshmallow now.

Also read: Less known android features in latest versions, Android apps for remote computer access and 15 Less known facts about Android.

While the mobile launched with the first version of OS – HTC made T-Mobile G1 or HTC Dream – was found wanting in many aspects and lacked many features but it showed enough promise to pull out some impressive features in future. And now after four years Android is running neck to neck with iOS and giving stiff competition to Apple Inc.

Let us see the different versions of Android in detail :

Android 1.0

As i said earlier, Android 1.0 was not given any name. For the first time this OS appeared in HTC T-Mobile G1 in 2008 and the features like Gmail, Bluetooth, Google Maps, Google Calender, pull down notification window were offered. And the most important one – Android Market – was provided. Though the market had just 35 apps but it caught the eyes of the developers. Since then Android started to make its mark.

Later in 2009, an update to this version, first ever software update- Android 1.1 -was launched. This version fixed some bugs and allowed the user to save attached documents.

Android 1.5 – CUPCAKE

Android 1.5 was named as cupcake and it marked the beginning of the tradition of naming the OS in alphabetical order. It was launched in April 2009 with API level 3. Video recording and uploading to YouTube, support for widgets and animated transition effects were added in this version. The on-screen default keyboard got text prediction feature and also the support for third-party virtual keyboards was provided.

Android 1.6 – DONUT

Android 1.6 – Donut was launched in September 2009 with many improvements. Android Market was enhanced and the number of apps also increased. 'Mark All' option was added in Gallery. Screens with 800×480 resolution was also supported by the platform. Stand out features like Android Search, Voice Search Functionality. Handwriting gestures etc. were added.

Android 2.0/2.1 – ECLAIR

One of the popular versions of Android – Android 2.0/2.1 (Eclair) – was launched in October 2009. Many camera-oriented features like flash and digital zoom, scene mode, white balance, color effect and macro focus were introduced. Other than these, multi-touch support such as pinch zoom, multiple user accounts, Quick Contact, live wallpapers, five home screens, improved keyboard, and microphone icon for voice dictation in emails, speech-to-text option and Bluetooth 2.1 were included.

Android 2.2 – FROYO

Android 2.2 named as Froyo (derived from Frozen Yogurt) was launched in May 2010 with many bug fixes. The SDK for Android 2.2 was launched based on Linux Kernel 2.6.32. The highlight of Froyo is that it allowed the users to install the apps on SD card so that the internal memory can be managed efficiently. This version also supports 720p screens, Wi-Fi tethering etc. With the help Adobe Flash 10.1 integration, devices running on Froyo allow the users to watch videos on web other than YouTube.

Market application was enhanced with batch and automatic update features. Many incremental updates were released for Froyo such as 2.2.1, 2.2.2, 2.2.3.

Android 2.3 – GINGERBREAD

The next version of OS was Android 2.3 codenamed as Gingerbread which was launched in December 2010. This version supports large screen mobiles with much larger resolution. NFC (Near Field Communication) feature was added in this version with much improved power management. Internet telephone, video chat capability were also introduced.

Many incremental updates ranging from 2.3.1 to 2.3.7 were launched for Gingerbread.

Android 3.0/3.1/3.2 – HONEYCOMB

This version of Android was mainly designed for Tablets. Launched in February 2011, it came with much organised tablet UI, enhanced widgets, improved performance etc.

Android 3.1 and 3.2 were just incremental updates which were released to fix the bugs.

Some of features in Honeycomb are-

- Dual pane modes for address book.
- Support for video chat using Google Talk.
- Hardware acceleration.
- Redesigned keyboard, making typing fast, efficient and accurate on larger screen sizes.
- Multiple browser tabs replacing browser windows, plus form auto-fill and a new "incognito" mode allowing anonymous browsing.

Motorola Xoom is the first Android 3.0 based tablet.

Android 4.0 – ICE CREAM SANDWICH

Android 4.0 was launched in October 2011 with much improved UI and ultra-modern features. This was launched with full support for multi core CPUs to improve the processing capabilities and the multitasking. The OS came out with virtual buttons, improved copy and paste functionality, Pinch-to-zoom functionality in the calendar, Face Unlock feature (a feature that allows users to unlock handsets using facial recognition software) and many more.

This is a Full Fledged mega hit OS with many latest smartphones running on it. To fix the bugs and to improve the performance many incremental updates ranging from 4.0.1 to 4.0.4 were released.

Android 4.414 KITKAT

Google announced Android 4.4 KitKat on September 3, 2013. Althougth Initially under the "Key Lime Pie" ("KLP") codename, the name was changed because "very few people actually know the taste of a key lime pie. Some Technologies bloggers also expected the "Key Lime Pie" release to be Android 5. KitKat debuted on Google's Nexus 5 on October 31, 2013, and was optimized to run on a greater range of devices than earlier Android versions, having 512 MB of RAM as a recommended minimum; those improvements were known as "Project Svelte" internally at Google .The required minimum amount of RAM available to Android is 340 MB, and all devices with less than 512 MB of RAM must report themselves as "low RAM" devices.

Android 5.0 LOLLIPOP

Lollipop features a redesigned user interface built around a responsive design language referred to as "material design". Other changes include improvements to the notifications, which can be accessed from the lock-screen and displayed within applications as top-of-the-screen banners. Furthermore, Google made internal changes to the platform, with the Android Runtime (ART) officially replacing Dalvik for improved application performance, and with changes intended to improve and optimize battery usage, known internally as Project Volta.

Android 6.0 MARSHMALLOW

The latest generation of Android follows along nicely with the sweet-flavored names of the past, this time dubbed Marshmallow. This version promises to follow in the Material Design footsteps created by its predecessor and focuses on even greater polish for the entire platform.

Android 6.0 Marshmallow exists on a multitude of devices, with more carriers & devices receiving updates in the near future. The biggest features in this version are small things people will appreciate every day, like individual app permissions, native support for fingerprint sensors, and granular context features for Google Now. They're also seeing developers do more with Chrome, better app-to-app communication, and new power management features.

AND MANY MORE ARE ABOUT TO COME.....

THIS IS THE EVOLUTONARY HISTORY OF GOOGLE-ANDROID OPERATING SYSTEM

HARSH AGARWAL
FE IT A

The Humanity of Robotics

Wikipedia defines an "ideal" intelligent machine as flexible rational agent that perceives its environment and takes actions that maximize its chances at attaining success in the task that it has been programmed to do. The term 'Artificial Intelligence' was first coined by John McCarthy at MIT in 1956. AI aims at reducing human effort by maximizing the "thinking" capacity of robots while performing tasks. AI, today, is employed in a variety of spectrums for performing operations that are both within and beyond, the realms of human capabilities. Examples include Defence, Gaming, System design, Medical applications and manufacturing process.

In the future, I see a world where robots coexist with humans, not just peacefully, but also as their equals. But this would imply that robots would have the same abilities as humans. Here, it comes down to the ethics of it all. Whether it is morally right or wrong to entrust an artificially created being to make the decisions that a human would under a critical circumstance. Giving an entity the ability to think comes under artificial intelligence, but what about giving it the ability to reason, like a human being can. Our ability to reason stems, after all, from our basic emotions. A question we face now, is whether such emotions should be integrated in something that has been programmed to operate on the basis of probability and statistics. For instance, robots, now, cannot reform a society of prejudice and hatred. They cannot govern.

They can be merely be used to make governance more efficient. Being superior to us in intelligence, it would appear logical that they would handle administrative tasks more efficiently. However, governance and administration go much beyond the realms of statistics and mathematical calculations. It branches into diplomacy, socio economic policies, understanding global conditions, things that cannot be ruled on the basis of pure logic; things that require empathy and emotion to be handled. In a warzone, a robotic soldier can be programmed to kill much more efficiently than a human can. But can it really understand when to pull the trigger? Can it understand the consequences of pulling and the impact that a single bullet could have on global relations and fragile economies? Can it grasp the concept of collateral damage? Is

it right to give a brain to something which is capable of identifying you as a threat? All these are questions that are faced by research scientists and robotic developers. And it all comes down to ethics, which in the end, is not an absolute concept. A judge, may excuse a criminal, on the basis of understanding and empathy. However, if the judge is replaced by an artificial intelligence, a legal pardon would become an imaginary concept. There arise several paradoxes too when programming a robot to do something. As an example, visualize a scenario wherein each of us have a personalized robotic bodyguard who has been programmed purely to detect threats to you and eliminates the threat based on pure calculation. Imagine you get into an argument with a neighbor and in the heat of the moment, he/she threatens you with bodily harm. Now, from a human standpoint, it is known that no harm will be done.However, from the robot's view, the only logical action to be taken is to immobilize what it identifies as a threat. Several questions like this arise and need to be answered before wading out into the ocean that is AI. Should robots be coded with the emotions that are at the base of how we make decisions, or should a robot's decision be a purely mathematical function? If possible, is it right to grow a human fetus inside a robotic womb? Should a military bot be designed to the express purpose of killing? To present my opinion on these matters, I would say, that while such developments would be in favor of scientific advancement, it would be advisable to let robots perform tasks that humans would do mechanically and rationally while leaving tasks that require even an ounce of emotion to humans. So while maintaining the balance of society, it would ensure a high increase in task efficiency and productivity. Approaching the conclusion I would like to disclose why I have chosen to elaborate upon this topic. It is simply because of one question that struck me. This question was:- "Where exists the line that separated ULTRON from JARVIS? Was the line clear or blurred? Whatever it was, should it have been the other way around?" I thus conclude using
Darwin's theory as my hypothesis. Bearing in mind that reaching full artificial intelligence would be tantamount to creating a superior, more evolved human being. And according to Darwin, the arrival of a more evolved version of any species is followed by the immediate extinction of its predecessor. Thus, just like everything else in the world, just one formula applies here.

"et profectus est quintessential stateram in salutem."

ADVAIT MADUSKAR
FE IT-A
Roll no.52

Start-up India : The Prime Minister of India, Shri Narendra Modi on the Independence Day speech announced the "Start-up India" initiative, in the year 2015. This initiative aims at fostering entrepreneurship and promoting innovation by creating an ecosystem that is conducive for growth of Start-ups. The objective is that India must become a nation of job creators instead of being a nation of job seekers. The Prime Minister of India has formally launched the initiative on January 16, 2016 from Vigyan Bhawan, New Delhi. The event will be attended by a vast number of young Indian entrepreneurs (over 2000) who have embarked on the journey of entrepreneurship through Start-ups.

Start-up India is a flagship initiative of the Government of India, intended to build a strong eco-system for nurturing innovation and Start-ups in the country that will drive sustainable economic growth and generate large scale employment opportunities. The Government through this initiative aims to empower Start-ups to grow through innovation and design. In order to meet the objectives of the initiative, Government of India is announcing this Action Plan that addresses all aspects of the start-ups ecosystem. With this Action Plan the Government hopes to accelerate spreading of the start-up movement:

· From digital/ technology sector to a wide array of sectors including agriculture, manufacturing, social sector, healthcare, education, etc.; and

· From existing tier 1 city to tier 2 and tier 3 cities including semi-urban and rural areas.

Young Indians today have the conviction to venture out on their own and a conducive ecosystem lets them watch their ideas come to life.

The "start-ups India Hub" will be a key stakeholder in this vibrant ecosystem
To all young Indians who have the courage to enter an environment of risk, the start up India Hub will be their friend, mentor and guide to hold their hand and walk with them through this journey.

In order to promote research and innovation among young students, the Government shall implement the following measures:

· Innovation Core. Innovation Core program shall be initiated to target school

kids with an outreach to 10 lakh innovations from 5 lakh schools. One lakh innovations would be targeted and the top 10,000 innovations would be provided prototyping support. Of these 10,000 innovations, the best 100 would be shortlisted and showcased at the Annual Festival of Innovations in the Rashtrapati Bhavan.

· NIDHI: A Grand Challenge program ("National Initiative for Developing and Harnessing Innovations) shall be instituted through Innovation and Entrepreneurship Development Centres (IEDCs) to support and award INR 10 lakhs to 20 student innovations from IEDCs.

Uchhattar Avishkar Yojana: A joint MHRD-DST scheme which has earmarked INR 250 crore per annum towards fostering "very high quality" research amongst IIT students. The funding towards this research will be 50% contribution from MHRD, 25% from DST and 25% from industry. This format has been devised to ensure that the research and funding gets utilized bearing in mind its relevance to the industry. Each project may amount to INR 5 crore only. This scheme will initially apply to IITs only

GREAT STARTUPS LIKE :

FLIPKART, OLA, ZOOMCAR, JUSTDIAL.....and many more

Various startups have been established from past few years that have created foreign interest in the Indian economy and thus there is great opportunities open for the young talent and innovations, there is just need of uniqueness and out of the box thinking along with determination and sportsmanship .....

And most importantly

COURAGE

HARSH AGARWAL
FE IT A

Hacking With Sound Waves

Hacking, though a very powerful procedure, always had its limits. For example, a device with no internet connection needs physical access; otherwise it is completely safe from any malware. Thus, the lack of network can deter the best of hackers. This is now going to change.

Computer scientists have proposed a malware prototype that uses inaudible audio signals to communicate, a capability that allows the malware to covertly transmit keystrokes and other sensitive data even when infected machines have no network connection.

The software, or malicious Trojans that adopt the same high-frequency communication methods, could prove especially adept in penetrating highly sensitive environments that routinely place an "air gap" between computers and the outside world. Using nothing more than the built-in microphones and speakers of standard computers, the researchers were able to transmit passwords and other small amounts of data from distances of almost 65 feet. The software can transfer data at much greater distances by employing an acoustical mesh network made up of attacker-controlled devices that repeat the audio signals.

The researchers developed several ways to use inaudible sounds to transmit data between two Lenovo laptops using only their built-in microphones and speakers. The most effective technique relied on software originally developed to acoustically transmit data under water. Created by the Research Department for Underwater Acoustics and Geophysics in Germany, the adaptive communication system (ACS) modem was able to transmit data between laptops as much as 20 meters apart. By chaining additional devices that pick up the signal and repeat it to other nearby devices, the mesh network can overcome much greater distances.

The hurdles of implementing covert acoustical networking are high enough that few malware developers are likely to add it to their offerings anytime soon. Still, the requirements are modest when measured against the capabilities of Stuxnet, Flame, and other state-sponsored malware discovered in the past 18 months. And that means that engineers in military organizations, nuclear power plants, and other truly high-security environments should no longer assume that computers

isolated from an Ethernet or Wi-Fi connection are off limits.

The research paper suggests several countermeasures that potential targets can adopt. One approach is simply switching off audio input and output devices, although few hardware designs available today make this most obvious countermeasure easy. A second approach is to employ audio filtering that blocks high-frequency ranges used to covertly transmit data. Devices running Linux can do this by using the advanced Linux Sound Architecture in combination with the Linux Audio Developer's Simple Plug-in API. Similar approaches are probably available for Windows and Mac OS X computers as well. The researchers also proposed the use of an audio intrusion detection guard, a device that would "forward audio input and output signals to their destination and simultaneously store them inside the guard's internal state, where they are subject to further analyses."

With these advances, it has become necessary to be more careful on the internet.

Varun Mishra
SE IT A

Competitive Programming

What is Competitive Programming?

Competitive Programming is a mind sport which is usually held online where participants need to correctly solve a number of problems in a given amount of time. The problems asked can be related to Math, Physics, Logic and even real world or day to day problems. Arriving at a solution to these problems is not enough because the participant also needs to design a code that gives him the correct solution in the given time limit.

How does one get started?

Anybody with a knack to solve problems and a thirst for knowledge can easily get started. There are various sites with tonnes of practice problems and resources. You do not go to a war without learning how to shoot, thus one should start off by practice problems and when one feels confident, move on to compete. Some of the sites where one can solve practice problems as well as compete are as follows:

- Codechef
- SPOJ
- Topcoder
- Codeforces
- HackerRank
- HackerRank
- HackerEarth
- GeeksforGeeks
- Project Euler

Biggest CP Competitions

ACM-ICPC:

ACM Inter Collegiate Programming Competition is an annual coding event sponsored by IBM amongst the brightest problem solvers of various colleges of the world. It is sometimes referred to as the "code-Olympics". ICPC has three rounds viz. Online round, Regional round, World Finals. 6 Indian teams had reached the finals last year.

India hasn't performed too well in ICPC, India stands at 64 according to last year's rankings. India's best performance came from IIT-Delhi's Team PEACE who got placed 18th amongst all the universities of the world.

Google Code Jam:

Just like ICPC, this too is a multi round programming contest. Unlike ICPC, this is an individual event and there is no age limit to participate in it. Only top 25 participants reach to the finals.

. There have been many people from India in the top 500 but only Harsha Suryanarayana (aka humblefool) managed to book a seat for the Google Code Jam World Finals. Unfortunately, humblefool died in a car accident in 2014. It is said that, humblefool was the best coder India ever produced.

Facebook Hacker Cup:

Exactly like Google Code jam but organized by Facebook.

Codechef Snackdown:

Codechef is a NPO under Directi. It is an Indian company with headquarters in Andheri Mumbai. Snackdown is an annual team event organised by Codechef with maximum 2 members per team. Snackdown has a few elimination rounds and a final Onsite round where Top 25 Indian teams as well as Top 25 Global teams compete.

Why should one do it?

India produces 1.5 million engineering graduates each year, over 80% of these are unemployable. This is mainly because the students lack the aptitude and the applicative skills skills that are expected by the MNCs. Understanding an algorithm is one thing but tinkering it according to the problem and implementing it is another, most Indian students lack the latter. Many times in competitive programming, the participants are bombarded with such problems which can be solved if and only if one knows a particular algorithm, which in turn encourages the participants to learn that algorithm before hand or in the process and implement it, thus improving the problem solving skills. As one keeps solving practice problems, the aptitude also gradually increases, thus increases the chances of landing a good job.

Codechef organizes Long(10 days) as well as Short(2.5 hours) contests and securing a good rank and a maintaining a good rating can get one an internship at Directi or maybe even a job, same goes with the finalists of ICPC, CodeJam and HackerCup. A good rating on these CP sites and a good performance in the competition reflects the aptitude and problem solving skills of a candidate in an interview. It is also said that if one has the aptitude to solve "Hard" section problems on Codechef, that person can easily crack Google technical interview rounds. More and more companies are moving from traditional interviews to Coding Competitions to get the best man for the job irrespective of his/her GPA. One should have a passion to code and not just do it for the sake of landing a job.

Vidit Vora (SE IT-B 51)
Niesh Tiwari (SE IT-B 45)

We all use mobile phones in day to day life. The content gets synced across all your devices. The automation and triggering of some other device with response to other device and generating intelligent data deployed on cloud is IoT (Internet of Things)

IOT Is an evolution of mobile home and embedded systems that are being connected to internet integrating greater computing capabilities and analyzing data. The Internet of Things revolves around increased machine-to-machine communication; it's built on cloud computing and networks of data-gathering sensors; it's mobile, virtual, and instantaneous connection; and they say it's going to make everything in our lives from streetlights to seaports "smart."

As related devices connect with each other they can become an intelligent system of systems and when these intelligent devices and systems of systems share data over cloud and analyze it they can transform our businesses our lives in easiest way whether its consumer devices or automation systems

. Smart-thermostats, cameras, scales, gadgets to help you sleep and other devices, which are easy to install and use either in isolation or together with other bits through together with other bits through an app or syncing service. But with various sensors and interconnected systems available, much more advanced setups can be built using more specialist equipment and universal protocols such as Z-wave or ZigBee, which allow disparate devices to communicate wirelessly without Wi-Fi or the internet. Almost anything from IoT security systems to automatic lighting, advanced power management and status monitoring, from bins to pantries, can be created, although some need the skills of an electrician and coders.

Internet of Things (IoT) is and will continue to be widely adopted by companies. According to a recent Gartner report, Internet of Things (IoT) or Machine-to-machine (M2M) technology is expected to multiply 30 times to 26 billion units by 2020; driven by the growing web of connectivity that is ever-increasing.

The IoT building blocks will come from those that can web-enable devices, provide common platforms on which they can communicate, and develop new applications to capture new users.

Enablers : we see increased share for Wi-Fi, sensors and low-cost microcontrollers.

Platforms : focus on software applications for managing communications between devices, middleware, storage, and data analytics.

Industrials : Home automation is at the forefront of the early product opportunity, while factory floor optimization may lead the efficiency side.

A key enabler of the IoT is the emergence of Big Data technologies for analytics that enable enterprises to glean insights from significantly larger data sets at less than 1/10th of the cost of traditional database technology. As the amount of data collected by connected devices swells, we expect increased investment in analytical platforms and visualization technologies that will allow business managers to make sense of the information and react to it.

IoT will rearrange the tech landscape, again. IoT has key attributes that distinguish it from the "regular" Internet, as captured by our S-E-N-S-E framework: Sensing, Efficient, Networked, Specialized, Everywhere. These attributes may tilt the direction of technology development and adoption, with significant implications for Tech companies – much like the transition from the fixed to the mobile Internet shifted the center of gravity from Intel to Qualcomm or from Dell to Apple.

So are you ready for the revolution ?
Lets contribute!

Radhika R. Gokani
(TE-IT A
Roll no. 79)

IOT - Security

The Internet has change almost every aspect of our lives. How we work, think, educate us and entertain ourselves. We know internet is changing the world. We send messages, emails, use websites via internet and communicate with each other.

To make our life smarter internet has given birth to various things, we call it as gadgets, wearables and so on. These embedded computing devices are interconnected uniquely in the existing internet infrastructure. It is called "Internet Of Things" and it is going to change the world again.

Internet Of Things also called as IOT acts as a nervous system connecting anything with everything on the earth. It is not just connecting people but it is connecting things and things sense and communicate.

Internet Of Things is simply nothing but network of interconnected things or devices that are embedded with electronics, softwares, sensors which contains IP address for internet connectivity that enables them to exchange data.

According to Gartner Inc, By 2020 there will be approximately 20.8 billion devices on the Internet Of Things.

Applications of IOT technology can be in many of the industries today, including precision, agriculture, transportation, energy. One of the best example of IOT applications is Home automation system over cloud or under WiFi through android apps from any smartphone and the smart city which offer big economic benefits and allows technology to improve the performance of public services like waste or water management, control traffics, lighting and those that impact environment.

There are numerous security challenges in IOT

Resource constrained: things are resource constrained and have limited CPU, memory and energy resources.

Cost constraint: addition of security features increase the cost and reduce the performance.

· Retrofit: addition of security features is thus ineffective.

Intrusion and tampering: things have hardware and software backdoors for the manufacturers to update or patch the firmware. Anyone with physical access to the device could exploit this vulnerability.

Following are the fundamentals to ensure IOT security :

· Authentication: each device must prove that it can communicate securely with other devices. This can be achieved using both digital certificates and hardware based anchor of trust.

· Confidentiality: encrypt all of the data, in the cloud, environment to protect it.

· Integrity: the data must be protected from unauthorized modifications.

· Use of security protocols and intrusion detection and prevention systems

So the IOT is our near future which will make system more efficient and smarter. Intelligent decisions will be taken by machines without human intervention and there will be no wastages.

MANASI KADAM
TE-IT-A
Roll no. 69

Friendship

Step By Step
We Keep On Going,
Way By Way
We Keep Preceeding,
The First Truth of Life Starts From
FRIENDSHIP.
And Friends Are Those Who Lasts For
FRIENDSHIP.
We Should Have Faith To keep,
To Choose Our Friend And Believe.
Friends Are The One Who
Keep Us Away From Agony.
Friends Are The One Who
TakesUs To Devotees.
So Let,s Keep on Going And Preceeding.
And Let The Life Be Running.....

- Chanda Jha
TE IT A
Roll no. 63

Student

What is Li-Fi?

Light Fidelity or Li-Fi is a Visible Light Communications system running wireless communications travelling at very high speeds.

Li-Fi uses common household LED (light emitting diodes) light bulbs to enable data transfer, boasting speeds of up to 224 gigabits per second.

A 224Gbps speed would technically allow for 18 movies of 1.5GB each to be downloaded in a single second!!

How it works

Li-Fi and Wi-Fi are quite similar as both transmit data electromagnetically. However, Wi-Fi uses radio waves while Li-Fi runs on visible light. As we now know, Li-Fi is a Visible Light Communications system. This means that it accommodates a photo-detector to receive light signals and a signal processing element to convert the data into 'stream-able' content. An LED light bulb is a semi-conductor light source meaning that the constant current of electricity supplied to an LED light bulb can be dipped and dimmed, up and down at extremely high speeds, without being visible to the human eye.

For example, data is fed into an LED light bulb (with signal processing technology), it then sends data (embedded in its beam) at rapid speeds to the photo-detector (photodiode). The tiny changes in the rapid dimming of LED bulbs is then converted by the 'receiver' into electrical

The signal is then converted back into a binary data stream that we would recognize as web, video and audio applications that run on internet enables devices.

Li-Fi vs. Wi-Fi

While some may think that Li-Fi with its 224 gigabits per second leaves Wi-Fi in the dust, Li-Fi's exclusive use of visible light could halt a mass uptake. Li-Fi signals cannot pass through walls, so in order to enjoy full connectivity, capable LED bulbs will need to be placed throughout the home. Not to mention, Li-Fi requires the light bulb is on at all times to provide connectivity, meaning that the lights will need to be on during the day. What's more, where there is a lack of light bulbs, there is a lack of Li-Fi internet so Li-Fi does take a hit when it comes to public Wi-Fi networks. In an announcement yesterday, an extension of standard Wi-Fi is coming and

and it's called Wi-Fi HaLow. This new project claims to double the range of connectivity while using less power. Due to this, Wi-Fi HaLow is reportedly perfect for battery powered devices such as smartwatches, smartphones and lends itself to Internet of Things(IoT) devices such as sensors and smart applications. But it's not all doom and gloom! Due to its impressive speeds, Li-Fi could make a huge impact on the internet of things(IoT) too, with data transferred at much higher levels with even more devices able to connect to one another. What's more, due to its shorter range, Li-Fi is more secure than Wi-Fi and it's reported that embedded light beams reflected off a surface could still achieve 70 megabits per second. The integration of internet of things devices and Li-Fi will provide a wealth of opportunities for retailers and other businesses alike. For example, shop owners could transmit data to multiple customers' phones quickly, securely and remotely. Li-Fi is reportedly being tested in Dubai, by UAE-based telecommunications provider, Du and Zero1. Du claims to have successfully provided internet, audio and video streaming over a Li-Fi connection. What's more, reports suggest that Apple may build future iPhones with Li-Fi capabilities. A Twitter user found that within its iOS 9.1 code there were references to Li-Fi written as 'LiFiCapability' hinting that Apple may integrate Li-fi with iPhones in the future. Whether or not Li-Fi will live up to its hype is yet to be decided.

Samdharsi Kumar
IT-B
ROLL NO.17

Fourth Generation Technology

Fourth Generation (4G) mobile technology is a set of standards for providing broadband Internet access to devices like cellphones and tablets. Though it first became available in the US in 2009, no specific technologies were officially designated as 4G until 2011. Despite this, many devices were labeled as "4G" even though they did not meet the International Telecommunication Union's (ITU) standards for the technology. The main difference between it and previous standards is a big increase in data transfer speeds and the types of media people can access with it.

Features

There are also a number of technical specifications, including things like the wireless standard, radio interface, and frequency spectrum used. As of 2011, there were only two technologies officially designated as 4G mobile: LTE-Advanced and WiMax Release 2. Though devices using these technologies can theoretically reach the data speeds and functionality requirements set out by the ITU, the actual function varies according to the network coverage, infrastructure, and location.

Other Versions

Former versions of LTE and WiMax, and another technology called HSPA+, are also commonly referred to as 4G; despite the name, none actually meet the standards set out in IMT-A. The technologies were marketed so often as "4G" that the ITU allowed them to claim the designation. Most major carriers in the US work with at least one of these standards, with some supporting both. Generally speaking, LTE services are faster than WiMax, but WiMax can often support a farther-ranging signal than LTE, meaning that a user could conceivably use the mobile device farther away from a hotspot. Additionally, LTE is primarily used for cellphones and similar mobile devices, while WiMax is sometimes used to provide at-home Internet connections.

As Compared to 3G

The main difference between 4G mobile technology and the previous standard, 3G technology, in terms of end usage is the data transfer speeds provided. This means that users can access much more sophisticated data that requires a lot of bandwidth very quickly. Depending on the ser-

service provider, however, 4G mobile devices may be limited to specific zones for making phone calls that are generally smaller than the areas covered by 3G. This means that people trying to make a call would have their call dropped if they went outside the covered area. Some 4G phones also have much shorter battery life than most 3G phones.

Shweta Panchal
TE-IT-B (12)

1. Introduction:

Artificial intelligence (AI) has always been a little scary. We picture evil robots controlling the world and making human beings obsolete or, even worse, using us as energy sources as in the Matrix. The defeat by Google's DeepMind - a computer program - of the world champion in Go, an ancient Chinese board game, has reinforced the apocalyptic vision of machines taking over the world in the popular media.

"Go is the most complex and beautiful game ever devised by humans," Demis Hassabis, head of the Google team, and himself an avid Go player.

An ancient Chinese board game that dates back nearly 3,000 years, Go is played on a 19-by-19 square grid, with each player trying capture the opponent's territory. Unlike Western chess that has around 40 turns in a game, Go can go up to 200. The number of possible outcomes quickly compounds to a bewildering range of 10,761 — more than the total number of atoms in the entire observable universe. It was thought it would take at least another 10 years before a machine could beat a human in Go.

"There are more possible Go positions than there are atoms in the universe."

-Google DeepMind's CEO Demis Hassabis

AlphaGo's search algorithm is much more human-like than previous approaches. For example, when Deep Blue played chess, it searched by brute force over thousands of times more positions than AlphaGo. Instead, AlphaGo looks ahead by playing out the remainder of the game in its imagination, many times over - a technique known as Monte-Carlo tree search. But unlike previous Monte-Carlo programs, AlphaGo uses deep neural networks to guide its search. During each simulated game, the policy network suggests intelligent moves to play, while the value network astutely evaluates the position that is reached. Finally, AlphaGo chooses the move that is most successful in simulation.

2. What this means?

Elon Musk says artificial intelligence could be "potentially more dangerous than nukes," and likened it to "summoning the demon." Apple cofounder Steve Wozniak went further still: "The future is scary and very bad for people," he argued. "Will we be

be the gods? Will we be the family pets? Or will we be ants that get stepped on?"

Although, there is a threat to many jobs, but the good news is that there will always be plenty of new jobs that emerge. When textile machines decimated the entire industry of weaving and spinning, 20th-century workers went on to build more complex goods: automotive, aircraft, and consumer electronics. Now that the routine white-collar work is being automated, occupations that demand higher forms of human empathy and long-range planning will be the new frontier. Already, we have seen the evangelization of design thinking for almost a decade, where business managers are encouraged to embrace a human-centric perspective when conceptualizing new product offerings—from liquid detergent to MRI scanners and insulin syringes. The acceleration of evermore user-friendly products can only be achieved when a substantial part of the office work is automated, thereby releasing the human brain for higher purposes.

3. What's next?

AlphaGo proves that the rise of machines capable of learning with minimum supervision from human experts and programmers is inevitable. the team that developed AlphaGo had fewer than 50 people. The program itself is relatively lightweight, requires little human intervention once set up, and is deployable across different problem domains.

It is easy to imagine a world where self-taught algorithms will play a much bigger role in coordinating economic transactions; AlphaGo simply shows us what is possible in the near future. With instantaneous adjustment, automatic optimization, and continuous improvement all quietly managed by unsupervised algorithms, the redundancy of production facilities and wastage in the supply chain should become headaches of the past.

As Mary Kay Ash said, "There are three types of people in this world: those who make things happen, those who watch things happen and those who wonder what happened." Let us not become the last.

- Anuj Singh,
Akshdeep Rungta &
Shivam B. Waghela
BE IT B

Generation of Mobile Networks

The cellular networks are evolving through several generations. The first generation (1G) wireless mobile communication network was analog system which was used for public voice service with the speed up to 2.4kbps. The second generation (2G) is based on digital technology and network infrastructure. As compared to the first generation, the second generation can support text messaging. Its success and the growth of demand for online information via the internet prompted the development of cellular wireless system with improved data connectivity, which ultimately lead to the third generation systems (3G).

The 4th Generation (4G) wireless mobile internet networks are research items in academy, which will integrate current existing 3G cellular networks (i.e., OFDM, CDMA2000, WCDMA and TD_SCDMA) and Wi-Fi (i.e. Wireless LAN) networks with fixed internet to support wireless mobile internet as the same quality of service as fixed internet, which is an evolution not only to move beyond the limitations and problems of 3G, but also to enhance the quality of services, to increase the bandwidth and to reduce the cost of the resource.

In 2009, the ITU-R organization specified the IMT-Advanced(International Mobile Telecommunications Advanced) requirements for 4G standards, setting peak speed requirements for 4G service at 100 Mbit/sec for high mobility communication (such as from trains and cars) and 1 Gbit/secfor low mobility communication (such as pedestrians and stationary users).

The 5th wireless mobile multimedia internet networks can be completed wireless communication without limitation, which bring us perfect real world wireless – World Wide Wireless Web (WWWW). 5G is based on 4G technologies, which is to be revolution to 5G.

The 5th wireless mobile internet networks are real wireless world which shall be supported by LAS-CDMA, OFDM, MC-CDMA, UWB, Network-LMDS and IPv6. IPv6 is a basic protocol for running on both 4G and 5G.

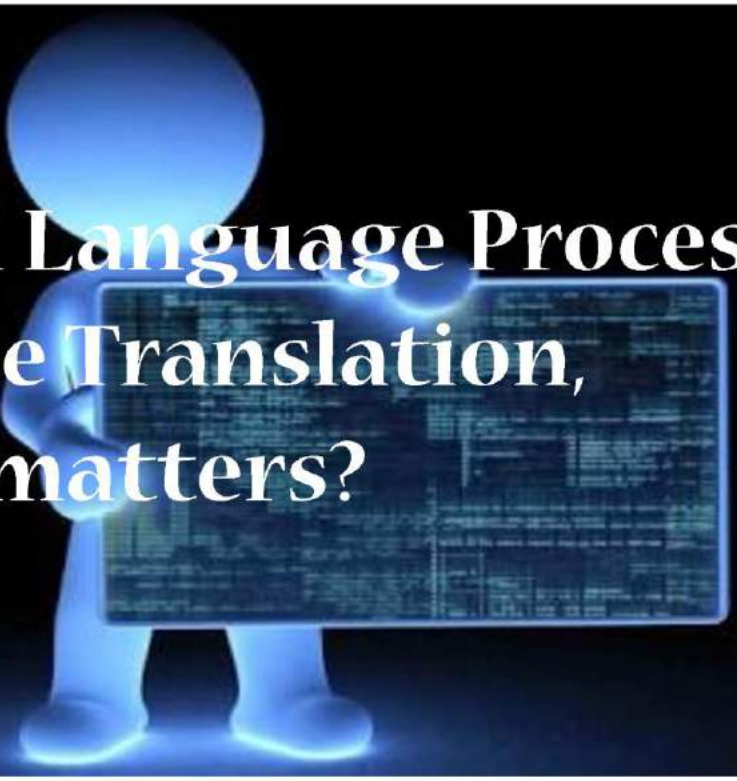
The problem is that 5G is designed for World Wide Wireless Web (WWWW) to mobile users based on network access management, but IPv6 assigns any IP address to any mobile node based on location management. This will cause 5G wire-

networks resources waste and the IPv6 is difficulty working on the World Wide Wireless Web (WWWW). In order to solve this problem, we have proposed the bandwidth optimization control protocol and the mix-bandwidth data path for future 5G real wireless world. The bandwidth optimization control protocol (BOCP) is implemented in between MAC layer and TCP/IP layer, which is used to establish the mix-bandwidth.

Were a 5G family of standards to be implemented, it would likely be around the year 2020, according to some sources. A new mobile generation has appeared every 10th year since the first 1G system (NMT) was introduced in 1981, including the 2G (GSM) system that started to roll out in 1992, 3G (W-CDMA/FOMA), which appeared in 2001, and "real" 4G standards fulfilling the IMT-Advanced requirements, that were ratified in 2011 and products expected in 2012-2013. Predecessor technologies have occurred on the market a few years before the new mobile generation, for example the pre-3G system CdmaOne/IS95 in 1995, and the pre-4G standards fulfilling the IMT-Advanced requirements, that were ratified in 2011 and products expected in 2012-2013. Predecessor technologies have occurred on the market a few years before the new mobile generation, for example the pre-3G system CdmaOne/IS95 in 1995, and the pre-4G systems Mobile WiMAX and LTE in 2005 and 2009 respectively.

Simant Sah
Saurabh Sigh
Vishal Tiwari
Amrit Kalash Singh
(BE IT B)

Natural Language Processing: Machine Translation, Why it matters?



Machine learning is the science of getting computers to act without being explicitly programmed. In the past decade, machine learning has given us self-driving cars, practical speech recognition, effective web search, and a vastly improved understanding of the human genome. Machine learning is so pervasive today that you probably use it dozens of times a day without knowing it. Many researchers also think it is the best way to make progress towards human-level AI.

Think if a Computer could understand languages like Tamil, Marathi or Bengali, rather than C, C++ or Java. But for us the questions are, if the digital systems can ever process natural languages. Natural Language Processing is a field which works in the same direction.

Being a multilingual Country where languages change after every 50 miles and 22 languages as official. The need for Machine Translation is much required. Changing the source language to a target language will become very easy as researchers from various fields working on different projects trying to make it happen. Machine translation, a field of Natural Language Processing has evolved in India. For a country like ours it is important to have a system where communication becomes easy. However, it's relatively a new field in India, many projects under the government of India and other prominent institutes have been undergoing. The emphasis has mainly been on the English to Indian Languages, but at the root level, it's required to have a translation system which will translate from one regional language to another.

Indian languages have their own set of problems with the large character set in comparison with English language and to resolve the ambiguity. Hence the scope for researchers is to work in these two areas of machine translation so that we can one day have a system which communicates in Natural Languages.

-Mrs. Shruti Mathur
Assistant Prof
IT dept

Women Empowerment

What is women empowerment?

Women empowerment means releasing the woman from different discriminations like social, educational, economical, political, gender etc. Woman should have right to make any decision on her own regarding regarding her life as well as she has freedom to make life choices. In India still 50% women are suffering empowerment issues. Gender equality is the biggest issue of women empowerment. So it is all Indian citizen's responsibility to fight for women empowerment. The various parts of women empowerment are:

Educational Women Empowerment : It means empowering women with their intelligence, knowledge, skills and self-confidence to participate fully in the development process in various working areas like industries, government sectors, educational sectors etc. It means making women educated about awareness of their rights and how those rights can be preserved.

Social Women Empowerment : A critical issue of social empowerment of women is gender biasing. Gender equality means a society in which women and men enjoy the same opportunities, rights and obligations in their life. Even one woman degrades the power of social woman empowerment for another woman.

Economical empowerment : How to make a woman economically strong? Some rules or ways should be developed to decrease financial dependence on their male counterparts by making them a significant part of the human resource.

Legal Women Empowerment This is the most powerful empowerment area. There should be some legal structure which suggests the provision of an effective legal structure which is supportive of women empowerment. There should be some strict legal structure against woman burning, woman rape, mental & physical harassment & gender biasing.

How to strengthen women empowerment?

1)Better work opportunity & safe space to work in safe environment.

2) Help every woman to resolve issues like gender biasing, their rights , their health issues & physical & mental issues.

3) Every woman should be educated in terms of reading news paper, reading books, using phones, reading numbers, reading texts etc.
4) Provide training to increase self confidence, leadership & skill development.
5) Provide education in direction of political parties, so that they can join political parties & can support the women caucuses.
6) Provide strict legal laws against crimes.
7) Establish high level corporate leadership for gender equality.
8) Build & develop the practices to empower the woman.
9) Free self defense training should be given to all women.
10) Promote safe environment where every woman can enjoy freely.

-Neha Kapadia
Assistant Professor IT-Dept

97% engineers in India cannot speak English required for jobs in corporate sales/business consulting

"Absurd" as it may sound, but this word is not understood by 67% of the engineering population in India, pronunciation is a far cry! Aspiring Minds, world's leading employability credentialing firm released a report on the state of spoken English capabilities in young engineers and how their employability is affected by their Spoken English skills. The National Spoken English Skills (SES) of Engineers report analyses the spoken English skills of over 30,000 engineers in India from more than 500 colleges. The study is based on SVAR, Aspiring Minds patented automated spoken English assessment tool measuring spoken English (pronunciation, fluency, etc) and listening skills and is used across the world by large global corporations to test and rate spoken English capabilities.

According to the report over 51% engineering graduates are not employable based on their spoken English scores. This is a signal that there is a need for higher emphasis not only on written English. The report extensively discusses specific areas of spoken English skills that engineering graduates most lack in and implications of these deficiencies. It also provides suggestive ways to bridge these gaps by way of interventions in the Indian higher education system in order to improve the English of students.

Of the six hundred thousand engineers that graduate annually, only 2.9% candidates have spoken English skills (SES) for high-end jobs in corporate sales/business consulting. These are some of the best paying jobs in the market. This signals that there is a need for higher emphasis not only on written English but also on SES.

Varun Aggarwal, co-founder and CTO, Aspiring Minds, said, "With jobs going global, the importance of English has increased manifold. It is now a medium of communication at both international and intra-national levels. However, at the same time, it is disappointing to know that 97% engineers cannot speak English fluently and 3/4th of them are not eligible for job requirements in any knowledge economy. He further adds, "Recruiters and HR managers around the world report that candidates with English skills above the local average stand out from the crowd and garner 30-50% higher salaries than similarly-qualified candidates with-

than similarly-qualified candidates without English skills. The trends in India are no different, with English fluency being one of the key qualities recruiters look for during the interview process."

Engineers show larger gap in elements of spoken English, pronunciation and fluency. Only 6.8% engineers show ability to speak/respond spontaneously. These candidates can speak fluently, with good pronunciation and proper sentence construction.

Tier of college has been found to have major influence on quality of spoken English. As expected the spoken English ability of candidates becomes worse, on an average, in campuses in lower tier cities. There is further degradation of spoken English skills from tier 2 to tier 3 campuses as compared to that from tier 1 to tier 2 campus.

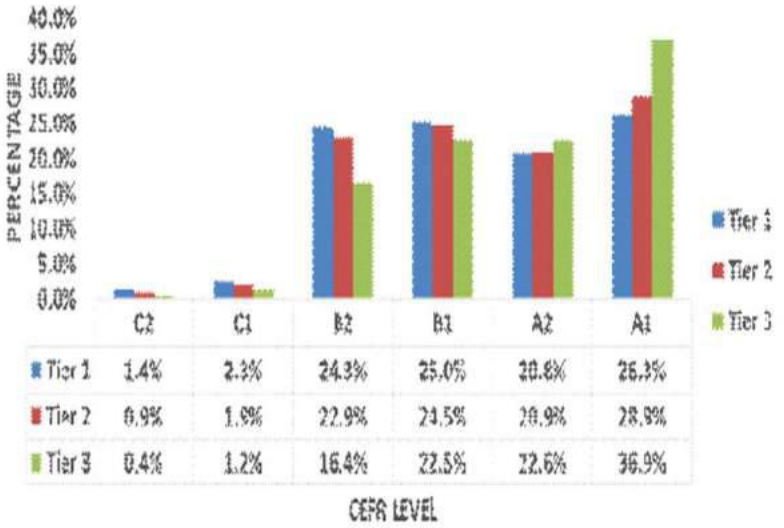


Figure: Distribution across CEFR Level of CollegeCity

Delhi, Mumbai+Pune and Bangalore do the best with respect to spoken English, whereas Hyderabad and Chennai needs maximum improvement.

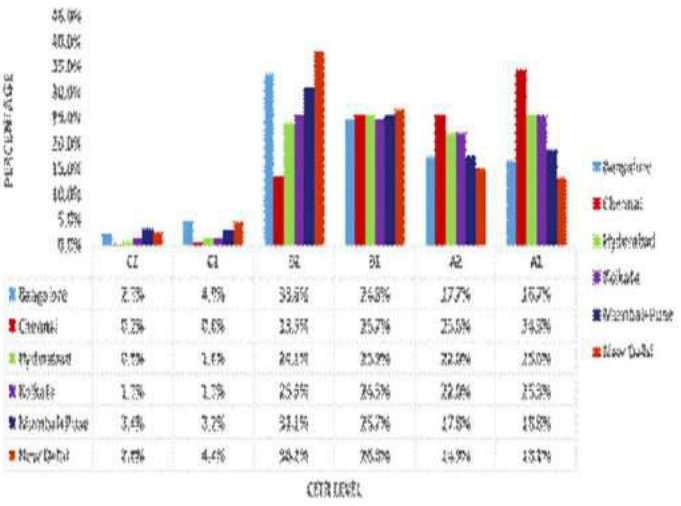


Figure: Distribution across CEFR Level -Key Cities

-Zahir Aalam,
Associate Professor – IT
and TPO

E-Commerce Website Simulation Tools

There are many developer tools available for E-Commerce by which E-Commerce web application or online store can be built. These tools provide all the functionality required in order to shop at the online store. Such tools help to build the website as per the benchmark (like it follows Web 2.0) The examples of such tools are :

Prestashop : It is a shopping cart application of web 2.0 era. It is PHP based and can be deployed on web servers like Apache or IIS server. It can be hosted on Windows / Unix.

Konakart : It is Java / JSP / XML based solution and can be deployed on web servers like Apache or IIS server. It can be hosted only on Windows.

Magneto Commerce : It is PHP based application deployed on Apache server and it can be hosted only on Unix operating system.

Steps to install Prestashop:

1. The prerequisites to install Prestashop are PHP 7, Apache server 2.4 and MySQL 5.6 or newer
2. Download Prestashop archive and unzip it on local machine.
3. Copy prestashop folder under htdocs folder of Apache and modify httpd.conf file to include following: (Here, port 7788 is used to run Prestashop application on Apache)

Listen 7788

‹VirtualHost *:7788›
DocumentRoot "c:/Apache24/htdocs/prestashop"
‹Directory "c:/Apache24/htdocs/prestashop"›
Options None
AllowOverride None
Require all granted
‹/Directory›
‹/VirtualHost›

4. Create a database and user for Prestashop :
$ mysql -u adminusername -p
mysql› CREATE DATABASE prestashop;
mysql› CREATE USER 'prestashop'@'localhost' IDENTIFIED BY 'password';
mysql› GRANT SELECT, INSERT, UPDATE, DELETE, CREATE, DROP, ALTER, CREATE TEMPORARY TABLES, LOCK TABLES ON prestashop* TO 'prestashop'@'localhost';

5. Run Apache and access the site as http://your_IP_address:7788. It will show Prestashop installation screen.

6 Follow the steps as shown on installation screen. There are total 6 steps ahead to be done.

Web Analytic Tools

Purpose:

Web analytics is majorly required to judge and improve the effectiveness of the website. It is not only for measuring web traffic but also analyzes it that helps to identify what changes are required in the website in order to make it even better.
There are many such tools available like Google Analytics (Limitation: It takes time to update and its real time version is in beta testing), Spring Metrics (Limitation: Free trial of 14 days), Woopra (Limitation: limited free plan) etc.
Piwik is a free and open source web analytics application that runs on PHP/MySQL web-server.
It gives a detailed view of visitors, pages that have visited, how much time has been spent by each visitor on the pages, locate the geographical location of the visitor, the Referrer sites, E-commerce logs, track the requests from search engines, advanced analytics for e-commerce sites such as revenue generated by the site etc.
Piwik provides dashboard with All websites menu with the help of which we get an over-view of what is happening on all the websites at once.

Installation of Piwik:

1. The prerequisites are PHP 7, Apache server 2.4 and MySQL 5.6 or newer
2. Modify php.ini file. Uncomment following lines in the file:

extension=php_curl.dll
extension=php_fileinfo.dll
extension=php_gd2.dll
extension=php_mbstring.dll

extension=php_mysqli.dll
extension=php_pdo_mysql.dll

3.Download piwik archive and unzip it on local machine.

4. Copy piwik folder under htdocs folder of Apache and modify httpd.conf file to include following: (Here, port 80 is used to run piwik application on Apache)

```
Listen 80
<VirtualHost *:80>
 ServerName www.testpiwik.com
ServerAlias testpiwik.com
DocumentRoot "c:/Apache24/htdocs/piwik"
<Directory "c:/Apache24/htdocs/piwik">
Options None
AllowOverride None
Require all granted
 </Directory>
</VirtualHost>
```

5. Create a database and user for piwik:

```
$ mysql -u adminusername -p
mysql> CREATE DATABASE piwik_db;
mysql> CREATE USER 'piwik'@'localhost' IDENTIFIED BY 'password';
mysql> GRANT SELECT, INSERT, UPDATE, DELETE, CREATE, DROP, ALTER, CREATE TEMPORARY
TABLES, LOCK TABLES ON piwik* TO 'piwik'@'localhost';
```

6. Run Apache and access the site as http://your_IP_address:80. It will show piwik installation screen. Follow the steps as shown on installation screen.

Integration of Piwik and Prestashop Following are the steps to do it:

1. Add Prestashop website through Piwik dashboard.
2. In order to track web traffic of Prestashop with the help of piwik, JavaScript Tracking API need to be inserted in each page of the website. For this, Piwik provides plugin for Prestashop which is available on Github.
3. Download the plugin (ZIP file) on local machine.
4. At the time of installing Prestashop, it provides separate admin account for it.
5. Login to Prestashop using admin account.
6. Go to Modules and Service menu on left hand side.
7. Upload the module by selecting downloaded zip file.
8. Install it.
9. It shows piwik Analytics menu on left panel. Configure piwik in Prestashop by putting the values for piwik host (e.g. www.testpiwik.com/) and piwik token auth (It is present in personal settings of piwik under API menu)
10. Now, we can see all the statistics related to Prestashop on piwik dashboard.

We can generate test data to Prestashop through CLI of piwik.
To run piwik commands for generating test data, piwik console is required. It uses symfony console. To use piwik console, following steps are required:
Install composer. The exe to download is Composer-Setup.exe.
After installing it, it creates folder "vendor" under the path C:\Apache24\htdocs\piwik.
The folder C:\Apache24\htdocs\piwik contains executable file console. Add following lines in the console file as follows:

```
require __DIR__.'/vendor/autoload.php';

// import the Symfony Console Application
use vendor\symfony\console\Symfony\Component\Console\Application;
```

Run command prompt and run the command as follows:

```
C:\Apache24\htdocs\piwik>php console visitorgenerator:generate-visits --idsite=8 --days=2
```

(The site id of website can be seen by putting cursor on the website name in piwik dashboard. It shows the siteid at the bottom of the page.)

- Dr. Deven Shah
Assistant Professor
IT Dept.

What is BIG DATA?

Big data refers to tremendous amounts of information which is becoming increasingly available due to widespread use of the internet and computing systems.

According to former Google CEO Eric Schmidt, we are dealing with a deluge of data:

"Every two days now we generate as much data as we did from the dawn of civilization until 2003."

Why is it important?

Basically, big data allows us to make big decisions. Massive quantities of data can be used to generate powerful insights in domains ranging from business and entertainment, to politics and healthcare. However, experts predict a vast shortage of big data specialists:

"There will be a shortage of talent necessary for organizations to take advantage of big data. By 2018, the United States alone could face a shortage of 140,000 to 190,000 people with deep analytical skills as well as 1.5 million managers and analysts with the know-how to use the analysis of big data to make effective decisions."

What's a data analytics specialist?

They turn information into gold, using advanced computer technology to mine and analyze vast amounts of data from disparate sources – presenting their insights so users can make better decisions and forecasts. The applications are endless.

Where can you fit yourself?

The Data Scientist :A data scientist is probably one of the hottest job titles that you can put on your business card, and the closer you get to Silicon Valley, the more valuable this role becomes. A data scientist is as rare as a unicorn and gets to work everyday with the mindset of a curious data wizard. He/she masters a whole range of skills and talents going from being able to handle the raw data, analyzing that data with the help of statistical techniques, to sharing his/her insights with his peers in a compelling way. No wonder these profiles are highly wanted by companies like Google and Microsoft

The Data Analyst : The data analyst is the Sherlock Holmes of the data science team. Languages like R, Python, SQL and C are elementary to him/her. Just like the data

scientist, the skills and talents that are needed for this role are diverse and range the entire spectrum of the data science process combined with a healthy "figure-it-out" attitude. Data analysts are wanted by companies like HP and IBM (where they can be teamed up with Watson)

The Data Architect : With the rise of big data, the importance of the data architect's job is rapidly increasing. The person in this role creates the blueprints for data management systems to integrate, centralize, protect and maintain the data sour. The data architect masters technologies like Hive, Pig and Spark, and needs to be on top of every new innovation in the industry.

IT)

The Data Engineer The data engineer often has a background in software engineering and loves to play around with databases and large –scale processing systems. Thanks to these interests, he/she can easily master technologies and is therefore familiar with a diverse set of languages that span both sta-

statistical programing languages and languages oriented more towards web development. Your data engineer is your jack of all trades.

The Statistician : Ah !! the statistician! The historical leader of data and its insights. Although often forgotten or replaced by fancier sounding job titles, the statistician represents what the data science field stands for: getting useful insights from data. With his/her strong background in statistical theories and methodologies, and a logical and stats oriented mindset, he/she harvests the data and turns it into information and knowledge. Statisticians can handle all sorts of data. What's more, thanks to their quantitative background, modern statisticians are often able to quickly master new technologies and use these to boost their intellectual capacities. A statistician brings the mathemagic to the table, and his/her insights are are able to radically transform businesses.

The Database Administrator: People often say that data is the new gold. This means you need someone who exploits that valuable mine. Enter the Database Administrator. Your DA makes sure that the database is available to all relevant users, is performing properly and is being kept save. Thinking how to prevent disasters comes natural to him/her. A DA makes sure that all backup and recovery systems are in place, that security is taken care of, and keeps track of the different technologies that are being used and how to support these.

The Business Analyst: The business analyst is often a bit different from the rest of the team. While often less technically oriented, the business analyst makes up for it with his/her deep knowledge of the different business processes. (S)he masters the skill of linking data insights to actionable business insights and is able to use storytelling techniques to spread the message across the entire organization. They often act as the intermediary between the busi-act as the intermediary between the business guys and the techies. Companies looking for business analysts are diverse and active in very different industries. Some examples are Uber, Dell and Oracle.

Data and Analytics: Manager The cheerleader of the team. A data analytics manager steers the direction of the data science team and makes sure the right priorities are set. This person combines strong technical skills in a diverse set of technologies (SQL, R, SAS, ...) with the social skills required to manage a team. It's a hard job but if you feel that its fit for you, make sure to have a look at the job offerings at Coursera, Slack, or Motorola.While looking for your data science dream job, however, take into account that roles can differ: that is why you should make sure to ask about details on what projects and technologies you'll be working with to make sure there

WANT TO KNOW MORE?

Check out these examples of big data at work:

-1.Netflix Predicts Success of House of Cards Series Using Big Data Analysis-http://nyti.ms/1olH73Q

-2.How Obama Campaign Used Big Data to Rally Voters- http://bit.ly/1halhyG

-Big Data is Transforming Healthcare- http://bit.ly/29RRy0m

-KAVAN SHUKLA
Ex-TCETian

Information System

Information is a critical resource in the operation and management of organizations. Timely availability of relevant information is vital for effective performance of managerial functions such as planning, organizing, leading, and control. An information system in an organization is like the nervous system in the human body: it is the link that connects all the organization's components together and provides for better operation and survival in a competitive environment.

The term information system usually refers to a computer-based system, one that is designed to support the operations, management, and decision functions of an organization. Information systems in organizations thus provide information support for decision makers. Information systems encompass transaction processing systems, management information systems, decision support systems, and strategic information systems.

Information consists of data that have been processed and are meaningful to a user. A system is a set of components that operate together to achieve a common purpose.Thus an information system collects, transmits, processes, and stores data on an organization's resources, programmes, and accomplishments. The system makes possible the conversion of these data into information for users and decision makers within the organization. An information system, therefore, produces information that supports the various functionalities of an organization.

Data versus Information

Data refers to raw, unevaluated facts, figures, symbols, objects, events, etc. Data may may be a collection of facts lying in storage, like a telephone directory or census records. It can be something simple and seemingly random and useless until it is organized.

Information is data that have been put into a meaningful and useful context and communicated to a recipient who uses it to make decisions. An element of data may constitute information in a specific context; for example, when you want to contact your friend, his or her telephone number is a piece of information; otherwise, it is just one element of data in the telephone directory.

Computers have made the processing function much easier. Large quantities of data can be processed quickly through computers aiding in the conversion of data to information. Raw data enter the system and are transformed into meaningful information.

Characteristics of Information System

Understandable: Since information is already in a summarized form, it must be understood by the receiver so that he will interpret it correctly

Relevant: Information is good only if it is relevant. This means that it should be pertinent and meaningful to the decision maker and should be in his area of responsibility.

Complete: It should contain all the facts that are necessary for the decision maker to satisfactorily solve the problem at hand using such information. Nothing important should be left out. Although information cannot always be complete, every reasonable effort should be made to obtain it.

Available: Information may be useless if it is not readily accessible in the desired form, when it is needed. Advances in technology have made information more accessible today than ever before.

Reliable: : The information should be counted on to be trustworthy. It should be accurate, consistent with facts and verifiable. Inadequate or incorrect information generally leads to decisions of poor quality.

Concise: Too much information is a big burden on management and cannot be processed in time and accurately due to "bounded rationality". Bounded rationality determines the limits of the thinking process which cannot sort out and process large amounts of information. Accordingly, information should be to the point and just enough – no more, no less.

Timely: Information must be delivered at the right time and the right place to the right person. Premature information can become obsolete or be forgotten by the time it is actually needed. Similarly, some crucial decisions can be delayed because proper and necessary information is not available in time, resulting in missed opportunities. Accordingly the time gap between collection of data and the presentation of the proper information to the decision maker must be reduced as much as possible.

Cost-effective : The information is not desirable if the solution is more costly than the problem. The cost of gathering data and processing it into information must be weighed against the benefits derived from using such information.

Components of Information System

Hardware : consists of input/output device, processor, operating system and media.

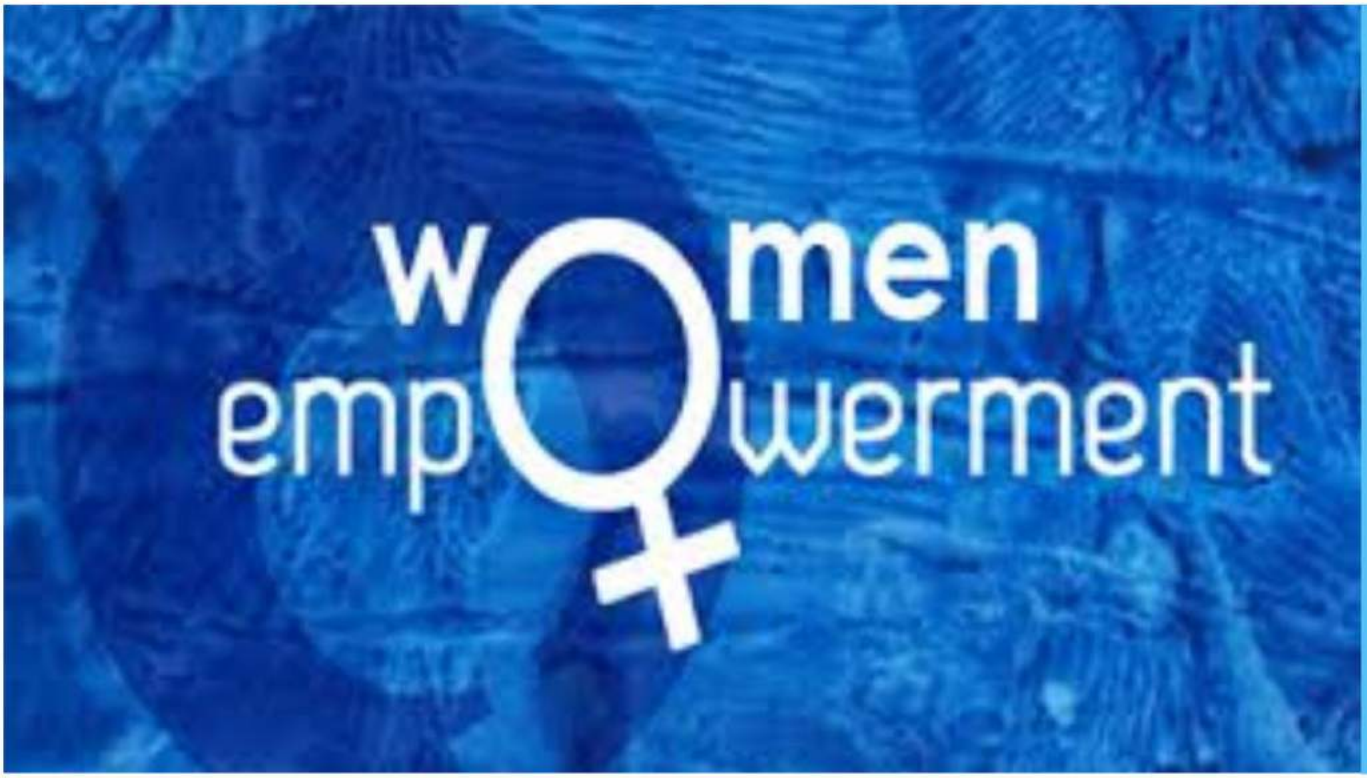
Software : consists of various programs and procedures.

Database : consists of data organized in the required structure.

Network : consists of hubs, communication media and network devices.

People : consist of device operators, network administrators and system specialist.

Dewang Desai
Propritor



In recent years, a number of women's movements have emerged, characterized by theorizing, mobilizing and acting against suppression and subjugation of women. Are these movements' class struggles or are they emancipation movements? Another related question is: How should one link the struggle for the liberation of the working class with that for the emancipation of women? The women's movement, like the students' movement, is more or less middle class oriented.

The systems of sexism and male chauvinism are more or less universal in all organizations. Thus, there is a close connection between male dominance and patriarchies in the family and capitalist exploitation in the larger society.

The women's movement has been organized by white-collar middle class women and women social workers from amongst upper and upper-middle classes. Feminist publications such as Manushi, Bayja, Mahila Andolan Patrika, Feminist Network and several others are run by women's organizations managed by urban middle and upper-middle class women.

Women's conferences and seminars in Delhi, Mumbai and Pune have now become a regular means of mobilizing working women to achieve equality with men.

Intra-household discrimination, women's economic status, work situations, occupational patterns, etc., have become focal themes of these seminars. It has been mentioned in the discussions held in these seminars that women in India receive less consideration and money than what is required to meet their needs and responsibil-ities within the household and less than their right.

and less than their right.

One view is that there is economic basis for sexual discrimination within the family. Women can be compared to some extent with the urban proletariat and the poor peasant in terms of their exploitation. Women do a lot of work at home for which they are not paid for even working women do not enjoy independent status as they are made to carry the burden of household work actually to be done by their in-laws and husbands. Exploitation of women in the countryside has not received proper attention.

The question is:

Do women have a self and identity in a male-dominated society?

Bina Gandhi
(Parent Vamil Gandhi
TE IT A
Roll No. 17)

Parent A Guide Not A Controller

Parents want the best for their children. They do play a big role in influencing their child's career development and career decision-making. Parents want their children to find happiness and success in life. And one factor, which influences happiness and success, is CAREER CHOICE. When children feel supported and loved by their parents, they have more confidence on their own ability to research careers and to choose a career that would be interesting and exciting.

Sometimes, parents are chasing lost dreams, trying to make their child succeed. The more they see themselves in the child, the more they push him. Such parents should be cautioned against imposing their own goals onto their child or seeing their child's accomplishments as a reflection of themselves. So, while parents should show genuine interest and support for their adolescent's career plans, they must allow their children to discover who they are on their own. Some teenagers fear the disapproval of their parents if they pursue a career in a field of their choice as opposed to a practical high-earning occupation. If parents make it clear that they have no specific specific expectations for their child's career, then he/she will feel free to explore a greater variety of professions choosing one based on their own preferences rather than those of their parents.

Choosing a career is an extremely important decision that impacts an individual's entire future. Parents should evaluate their child's aptitude, strengths and weaknesses.They should help the child in discovering his/her own passion. They can motivate the child in pursuing his/her passion. It is important for parents to give their child support and encouragement to explore many options available to find the best career.

Parents need to keep the lines of communication open and encourage their child to gather as much information as possible on their career interest areas. It is very difficult to spend your life working in a field that you are not interested in. Hence, parents should look into the interest of the child and consider it while shortlisting career options. Parents must recognize that their role is simply to act as a facilitator in the child's career journey and allowing independent career choices marks

choices marks a young person's first step into adulthood. Parents should motivate and guide their child in selecting a career, but the decision should be their child's own, according to his/her interest. It is upto parents to help children discover their passions and interest and put them on the path of self-discovery.

Few Simple Rules:

Involve, But Do Not Control.
Advise, But Do Not Decide.
Support, But Do Not Dominate.

Mrs. Neena Desai
(Parent of Nishita Desai)
TE IT -A
Roll no. 74

ACHIEVEMENTS

STUDENT NAME	ACHIEVEMENT
Vedant Shrivastava (SEIT-B)	1st prize Winner in Paper Presentation-Multicon(2015-2016)
Akshdeep Rungta (BEIT-B) Shivam Waghela (BEIT-B)	Stood at 4th Place in the IIT BOMBAY EYANTRA ROBOTICS COMPETITION(2015-2016)
Shubham More (TEIT-A) Akanksha Tiwari (BEIT-B) Abhishek Tiwari (BEIT-B) Divya Sharma (BEIT-B) Milan Tank (BEIT-B) Suraj Singh (BEIT-B)	CERTIFICATION IN "Oracle Certified Professional Java Programmer"(OCPJP)

ACHIEVEMENTS

STUDENT NAME	ACHIEVEMENT
Vishal Mishra Darpan Mehra (SE.IT-A)	2st prize Winner in Paper Presentation-Multicon(2015-2016)
Vedant Shrivastava (SEIT-B)	Professional C Development Course Professional C++ Development Course IOT System Architecture and design Course
Abhijit kushwaha (SE.IT-A)	Certification in PYthon
Vijay Karotra (TE.IT.A)	Represented TCET-NSS Unit in Leadership Training Camp at Mumbai University

ACHIEVEMENTS

STUDENT NAME	ACHIEVEMENT
Vamil Gandhi (TE.IT-A) Raj Desai (TE.IT-A) Tanishq Mehra (TE.IT-A)	TCCI (TIMSR CENTRE FOR CREATIVITY & INNOVATION) Campus Innovator Award 2016

Toppers

Swapnil Jaiswal
Pointer:9.48
FE IT A

Kiran Yadav
Pointer:9.26
FE IT B

Shraddha Paghdar
Pointer:10
SE IT A

Pooja Kammala
Pointer:10
SE IT A

Shweta Mishra
Pointer:9.68
SE IT B

Rinal Jain
Pointer:9.68
TE IT A

Akanksha Tiwari
Pointer:9.64
TE IT B

Shruchi Jain
Pointer:9.38
BE IT A

Suvarna Divya
Pointer:9.17
BE IT B

SPORTS

STUDENT NAME	TEAM
Suyash Yadav (BE IT B)	College Football Team Captain
Harsh Singh (BE IT B)	College Cricket Team Captain
Shubham Joshi (BE IT B)	College Football Team Player
Veena Kamat (TE IT A)	College Volleyball Team Vice-Captain
Shubham Tare (TE IT A)	College Cricket Team, College Football Team, College Volleyball Team player
Vijay Karotra (TE IT A)	College Football Team player
Kartik Iyer (TE IT B)	College Football Team player
Nehal Chaurasia (TE IT B)	College Football Team player
Krunal Kothari (TE IT B)	College Football Team player

SPORTS

STUDENT NAME	TEAM
Rohan Shetty (TE IT B)	**College Football Team player**
Yash Kanodia (SE IT A)	**College Table Tennis Team Player**
Gaurav Gupta (SE IT A)	**College Taekwondo, Kick-boxing, Karate Team player**

Extra Curricular Activities

STUDENT NAME	TEAM
Vatsal Gandhi (BE.IT-A)	College Dance Team Head
Shreya Mishra (BE.IT-B)	College Dance Team Head
Nisha Kode (BE IT A)	College Dance Team Member
Nidhi Pandey (BE IT B)	College Dance Team Member
Milan Tank (BE IT B)	College Dance Team Member
Priyanka Verma (TE IT B)	College Fashion Team Member
Drishti Kadam (TE IT B)	College Fashion Team Member

STUDENT NAME	INTERNSHIP
SHREYA JOSHI (SE.IT-A) VISHAL MISHRA (SE.IT-A)	Internship at STRATAGILE
Karan Anand (SE.IT-A)	Internship at- FOX TRAVELLER SNAPKUPID WOOPLR FRAPP BI
Shubham Maheshwari (TE.IT-A) Raj Desai (TE.IT-A) Shraddha Paghdar (TE.IT-A) Ashwini Nakil (TE.IT-A)	Internship at PHIONIKE SOLUTIONS

STUDENT NAME	INTERNSHIP
Shubham Maheshwari (TE.IT-A) Tanishq Mehra (TE.IT-A)	Internship at BIZOTICS
Shashank Mishra (BE.IT-B) Sanjay Yadav (BE.IT-B)	Internship at STYLEDGE
Aditya Pitroda (BE.IT-B)	Internship at NIVARAN ONLINE
Kshitij Pandey (BE.IT-B)	Internship at LAZYWIRE

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Tanishq Mehra(Publication Head)
Harsh Raval(IV Co-ordinator)

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Manav Mishra
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Abhijit Kushwaha
Editor

Code of Ethics

The department of Information Technology of TCET believes that IT engineers make a direct impact on almost all aspects of human life for its betterment. I.T engineers should strictly adhere to the highest principles of ethical conduct. In order to inculcate high standards in professional behavior. The department advocates the following code of ethics for all students ,faculty members and staff of the department :

1) Strive to be professionally competent to provide high quality products and services.
2) To responsibly make decisions avoiding / minimizing hazards to society and to disclose potential factors that may be a threat to health and safety.
3) Be fair to all individuals and not discriminate between individuals based on religion, race, sex, age, disability, national origin etc.
4) Give credit to contributions of others viz. copyright, patents, intellectual property.
5) Protect and respect privacy and ensure confidentiality of information wherever appropriate.
6) The knowledge gained during the course of study will not be misused for carrying out any illegal activities including intruding and hacking of networks.