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From the Desk of Chairman, Publication Committee

Dear Fellow Members,
Greetings.

In a meeting of the CSI Publications Editors held at Delhi on 28th of October, 2019. Some important decisions were taken. The Minutes of this meeting were published in the October issue of CSIC. Some of these decisions are:

- All CSI Publications should be brought to the level of getting them indexed with prominent statutory bodies like UGC, Springer etc.

- A number of conferences are being conducted under the aegis of CSI and these should be brought under complete CSI flagship. As mentioned earlier, eminent academicians/scientists/Industrialists who wish to contribute monographs on any IT/computer science domains of interest shall also be encouraged.

- Nomination Committee (2019-2021)

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- From the Desk of Chairman, Publication Committee

As regards Adyayan, the contributors shall be limited to CSI student members and in exceptional cases by dedicated faculty of repute. CSI Student members shall be made free members of CSI portal which shall be integrated with MOOC portal under the guidance of Prof. S.K. Yadav, Hon. Secretary, CSI.

For the Jrl of Computing at least one author should be a CSI member. In case, non-CSI members’ paper is selected they shall be motivated to join CSI as seasonal members for at least a period of one year. In due course of time, paper submissions to CSI Journal of Computing shall be automated. Online availability of all CSI publications shall be disseminated widely.

CSI Communications Dec. 2019 issue shall announce themes for first 6 months of 2020 in advance with a view to further increase the article submission rate.

We look forward to your valuable suggestions.

Dr. D. D. Sarma
Chief Scientist (R), CSIR-NGRI, Hyderabad.
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Dear Readers

“It takes 20 years to build a reputation and few minutes of cyber-incident to ruin it.” –Stephane Nappo

The above quote by Stephane Nappo, IBFS Global Chief Information Security Officer & Board advisor signifies importance of cyber security in the current connected world. Generically explained, Cyber Security indicates the means and mechanisms aimed to secure network, devices, data as well as software from attack, damage or unauthorized access.


The technical trend section starts with tracing network security through Artificial Intelligence, in the article “Past to Future of Network Security with AI” by Nilam Chaudhary and Nishita Gupta.

The research front section showcases how digitalization has altered the current landscape. The first article “Digitalization- A Need or Necessity: Technical Review” by Mayank Goyal, Karan Pandey and Umang reviews digitalization and its need. The next article “Threat Modelling: Key Activity in Security Development Lifecycle” by D. Evangeline introduces the Threat Modelling activity of the security development lifecycle.

The issue also reports important activities, events, collaborations done by various institutions and chapters of CSI and CSI congratulates them for conducting such activities. Various student branch inaugurations and activities have also been highlighted. The issue also contains calls for upcoming CSI annual convention CSI20 and other conventions.

We are extremely thankful to all our contributors as well as readers. Original, plagiarism-free, unpublished articles are solicited throughout the year from CSI members as well as non-members. Our sincere gratitude to the CSI publication committee members, editorial board members, authors and reviewers for their great contribution and support in realising this issue.

Our special thanks to Prof. A. K. Nayak, President, CSI for his constant encouragement, support and guidance in publication of July, 2019 issue.

We look forward to receive constructive feedback and suggestions from our esteemed members and readers at csic@csi-india.org

With kind regards,
Prof. (Dr.) S. S. Agrawal
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President’s Desk

From: President, Computer Society of India  
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As the society becomes more and more digital including all sectors of applications related to our day to day activities such as Business, Governance, Education, Industries, Health Care, Transport & many areas of Public Services, so it is essential to keep the information systems, resources and services available on cyber zone secured & protected. The Cyber space comprises of computer, hardware tools and integrated computer networks and the way cybercrime and hacking are spreading in the digital zone, it is highly desired to take initiatives in the direction of cyber security

The Cyber Security refers to a collection of techniques used to protect the integrity & reliability of the Networks, Data & software from damage, attack or unauthorized access. The main objective & functionality of Cyber Security involves protecting data, programs, information & systems from Cyber threats which may be challenged for Application Security, Information Security, Network Security & Operational Security etc.

Cyber Security is of great importance for the future computing as it will focus on technology innovation and trend setting initiatives in corporate, Business, Industries, Government, Education, Security, Health care & many more domains. The World IT community has experienced the contribution of growing Cyber Security cover in the past few years but the benefits of the same are still not completely and uniformly utilized by the cyber zone.

Cyber Security is the theme of this issue of CSI Communication. Being a major concern for Business, Industries, Government & Society, Research & Development, Science & Technology & many more areas where they need to think of how they would run their business effectively by making the best utilization of security tools for the optimal efficiency & productivity. Particularly the trends of Cyber Security shall change rapidly due to adoption of faster, effective & latest computing technologies like mobile computing, cloud computing, quantum computing, Nano Computing, green computing & social computing etc. along with the involvement of artificial intelligence (AI), business intelligence (BI), computational intelligence (CI), Emotional Intelligence (EI), Big data analytics & Data science. To harness these technologies under the secured environment for the inclusive growth of the society, the Business, Industry & Government have to ensure their appropriate use to promote up to highest degree of their objectives.

CSI Annual Convention

The CSI Annual Convention shall be held at Bhubaneswar, Odisha on 16th, 17th & 18th January 2020 with the theme “Digital Democracy-IT for Change” for which the dedicated & devoted Members of the Bhubaneswar Chapter are making their best efforts to make the convention excellent & scale of height. The Call for Paper has already been circulated since last several months. The Proceeding of the Convention with selected papers shall be published by Springer CCIS. I also express my sincere thanks to the Authorities of KIIT university for providing the venue & other support for this great cause. I request all the concerned for their kind participation & presence for enhancing the strength, efficiency, visibility, productivity & effectivity of CSI.

Activities & Events

The Society has witnessed more than 55 activities & events in last month comprising of National Workshops, Seminars, Regional Meetings, Industry visit, Seminars, Workshops by the chapters, Technical Talks & student branch activities which clearly reflect the dynamism, vibrancy & activeness of the Society. I express my sincere thanks to all the concerned Chapter MC, National ExecCom Members & Student Branch Coordinators along with Members & Student Members for their efforts to bring the society to scale of excellence.

Inauguration of New Student Branches

Expansion of CSI continues all over the country by establishing more & more Chapters & Student Branches. The inauguration & establishment of new Student Branches at MGM’s College of Engineering Nanded, Loyola Institute of Technology, Chennai, Loyola-ICAM College of Engineering & Technology, Chennai and addition of more than 10 Academic Institution Members has set the milestone and clear indication that more & more academic Institutions & students are extending their faith & confidence in CSI by enrolling themselves under CSI Domain. The society achieved the substantial growth in Student Membership enrollment in the current year comparison to the previous year. I take this opportunity to congratulate the Management & Student Members of respective student branches for their great efforts.

CSI Elections

The last month October Issue contains the call for nominations for CSI HQ & notification for chapter election for the year 2020-21/22. The same is also available in CSI web portal as well as communicated to voting members through mail blasts. My sincere request to all the voting members for their larger participation in the democratic process to elect the most suitable & able candidates for the respective positions.

Let us come forward to make Clean CSI & Green CSI with transparent activities & visions to make it Swachh, Pardarshi & hara Vara. 

With warm regards,

Prof. Akshaya Nayak  
President, CSI
Shri. K. S. Kane passed away on 6th July 2019, after a short period of hospitalization for a heart problem. One of the first few Indians to learn computer programming and, to master its uses in engineering, Shri. K. S. Kane played a key role in the Computer Group at Tata Institute of Fundamental Research. He had studied engineering in Sweden and returned in 1959. He joined the TIFR Computer Group headed by Dr. DY Phadke and was assigned to head computer programming activities. Later, he worked for a couple of years at the Atomic Energy Establishment Trombay, as Bhabha Atomic Research Centre was then called. A large number of Indians who entered the field in the 1960’s learnt computer programming from Shri. Kane and his colleagues, Mythili Rao, C Natesh Kumar, VSN Reddy GT Redkar, and P. Sadanandan. The TIFR Computer Group served hundreds of institutions all over India, welcoming them to share the TIFR computing facilities, teaching them introductory courses, and offering them help in coping with program development and debugging efforts. These were exciting days when many fields of science and technology were making rapid progress with the new computing tools and techniques they were developing. For instance, revolutionary insights were coming out of analyzing x-ray crystallographic data. Some of the bridges, flyovers and buildings were designed during that period using computers for structural analysis for the first time.

Shri. Kane collaborated in software development with Prof. R. Narasimhan, who had headed the effort to design and build the Tata Institute of Fundamental Research Automatic Calculator (TIFRAC). This was one of the very early computers, which was dedicated to the nation by Jawaharlal Nehru, the then Prime Minister, in 1960. Narasimhan and Shri. Kane had together designed and implemented a three-address assembler for TIFRAC, the earliest instance we know of an item of system software developed in India. Three address codes gained importance years after the TIFRAC was commissioned because optimizing compilers used them as an intermediate representation. However, the TIFRAC team seems to have chosen a three-address system for other reasons. Computer memories of those days were amazingly small, by today’s standards. TIFRAC had a 2000-word memory, words being 40 bits in length. 11-bit addresses were enough to address the whole memory and 40-bit words could accommodate an instruction code as well as three addresses. The TIFRAC Computer Group later acquired a CDC 3600 (1964), vastly increasing its computing capacities. Shri. Kane stayed on as Head of Programming till 1977 when he left TIFR to set up his own software activities. One of his sons, Shridhar, joined him in 1985 when the activity was converted to a Private Limited Company.

Shri. Kane is fondly remembered for his human qualities as well. He was a soft-spoken and friendly person. He was highly approachable and very helpful at a time when so many people were scrambling to learn computer programming, for use in science and engineering.

While we knew of Shri. Kane as a computer pioneer and a senior colleague, he was also playing an important role in maintaining his family’s institution in Mumbai that has set standards in excellence and popularity in serving ethnic food – Mama Kane’s Swatchha Upahar Gruh in Dadar. This institution had been founded by Shri. Kamalakar Kane’s grandfather in 1910. Shri. Kamalakar Kane showed equal zeal and passion for his busy computing/software activities and for this family business. He was always on the lookout for innovative ideas to implement in his ethnic food business too.

With great humility, he mingled with ease with a broad spectrum of people ranging from leading scientists to the lowest rung of workers in his business. A very generous and helpful person, he always enjoyed the respect and affection from all sections of society. He was usually referred to as Bapusaheb in Dadar.

Prof. PVS Rao recalls that in the early sixties when a computer engineer from abroad was struggling to teach a course on FORTRAN for users at TIFR, Rao requested Shri. Kane to take over and solve the problem, which he did very successfully. Dr. SG Wagle recalls meeting Shri. Kane at his residence a few weeks before his death and listening to his memories of the days TIFRAC was being built at TIFR.

Dr. Mathai Joseph recalls the work he did with Shri. Kane on a time-sharing system to run on CDC3600. He also recalls that Shri. Kane did his Master’s in Sweden and worked on the first Swedish computer, BESK. In Dr. Mathai Joseph’s words, “Shri. Kane was the person people went to when their programs did not work as desired. He had an acute eye and could often spot faults very quickly. Many large TIFR scientific programs owed their successful operation to Shri. Kane’s insight”.

We would like to say in conclusion: A kind, thoroughly civilized, sincere and dedicated person like Shri. Kamalakar Kane is rare to find. He enriched the lives of all of us who worked with him.
Titbit from the History of Computing – 4
Apple I and Apple II – Birth of the first Commercial Personal Computers

V. Rajaraman
Emeritus Professor in the Supercomputer Education and Research Centre, Indian Institute of Science, Bangalore

“A people without knowledge of their past history, origin and culture is like a tree without roots” – Marcus Garvey

The Cambridge dictionary meaning of titbit is “A small and particularly interesting item of gossip or information”.

Homebrew Computer Club

Homebrew computer club was an informal computer hobbyist group that was started in March 1975 by Gordon French and Fred Moore in Menlo Park, California. It was a popular club where many hardware designers met to exchange their experience in design with Intel 8008 microprocessor that was released in 1972 and its successors such as MOS Technology’s 6502. Some members were building computers with these new chips. One of the first hobbyists’ computer, MITS (Micro Instrumentation Telemetry Systems) Altair 8800 microcomputer was designed using an Intel 8080. MITS sent it to the Homebrew computer club for review. The computer used toggle switches to input data and LED display as output. Programming was tedious as the binary machine code was input using switches and the output seen as a binary string on the LED display.

Steve Wozniak (known as Woz) attended the first meeting of the Homebrew computer club along with his friend Steve Jobs where Altair 8800 was on display. Woz was working in Hewlett Packard Company designing calculators and was building electronic circuits as a hobby in his spare time. Woz was befriended by Steve Jobs who was five years younger than him. Both went to the same school and their common hobby was building electronic circuits and playing pranks. However, their personalities were different. Woz was shy and inarticulate but was a wizard in designing electronic circuits and software. Jobs, on the other hand, was an extrovert, a born salesman, and driven by ambition to succeed.

Woz was not impressed by Altair 8800 and felt he could do much better. He started designing a computer using Motorola 6502 and felt that it needed a much better input and output system rather than switches to input data and LED to display output. He decided to build a machine that would have interfaces to attach a standard keyboard for input, a TV to display alphanumeric output and an audio cassette recorder as a secondary memory. Being a wizard in designing digital systems, he built the system with a small number of chips, mounted them on one printed circuit board, made the system work and demonstrated it at the next meeting of the Homebrew computer club. He distributed the circuit diagram of his board and described in detail its design to the members. The members of the club were impressed to see the output of computation displayed on a TV screen.

Apple Computer Company Started

Having found a buyer, it was time to start a company. The company was started on April 1, 1976 and named Apple Computers. The name Apple was chosen by Jobs who was on a fruit and vegetable diet and had just returned from an Apple orchard. He felt the name Apple sounded “fun, spirited, and not intimidating”. The Apple logo was designed by Rob Janoff. The bite taken out of the apple in the logo was to make it look more like an apple and not some other round fruit such as an orange. The rainbow colours in the original logo was used to indicate that the computer could display colour.

Jobs sold his Volks Wagon van and Woz his scientific calculator and raised $1300 capital to buy components to build the boards. The company was started in Jobs’ garage and the first 50 computer boards were designed and wired primarily by Woz. Jobs bought the necessary components at competitive price. The board used 1 MHz 6502 CPU, 4KB RAM (expandable to 8KB), interfaces to attach a keyboard, a colour TV, and a cassette tape as secondary memory. A ROM on the board had a system monitor program, utilities and a BASIC interpreter. It was sold for $500 to the Byte Shop that added 33% margin and sold it for $666.66 and was an instant hit with hobbyists. Customers attached a keyboard and a TV monitor to run BASIC programs and play some games. Apple I was the first personal computer commercially marketed. Only 200 boards were built. Today Apple I boards have become collectors’ item and an auction of a board in September 2018 fetched $375,000!
Apple II Enters Market
Observing the popularity of Apple boards and perceiving its superiority over existing computers such as MITS Altair 8800, Steve Jobs saw a business opportunity to make a full-fledged personal computer using the board. Jobs and Woz did not have the capital to expand the company. Jobs soon found a financier, Mike Markkula who not only invested $250,000 to develop Apple II but also helped with his experience in business and engineering. He became the third partner of Apple and later assisted the company to go public. Markkula insisted that the computer must have a good look which would convince customers that it is professionally designed. He remarked that very often people judge a book by its cover design! An attractive beige coloured moulded plastic case with an integrated full-function keyboard was designed to accommodate the board. Jobs also decided that the computer will not have a cooling fan, as it besides being noisy, is also not as reliable as electronic circuits. He hired Rod Fort whose expertise was in designing efficient switched-mode power supply that did not require a fan for cooling.

Apple II was similar to Apple I. It used a Motorola 6502 microprocessor, 4 KB dynamic RAM expandable to 48 KB and a ROM to store the monitor program and BASIC interpreter, and some computer games. It had an interface to connect to a colour monitor or an NTSC TV set and displayed 40 characters per line and 24 lines in upper case only. It also had an audio cassette tape interface. Users were expected to connect their own monitor and cassette tape. The 4 KB RAM model was sold for US$1298 and the 48 KB model for US$ 2638. The first machine was sold on June 10, 1977. By the end of 1977 about 7000 Apple IIs were sold. The common configuration was a 9 inch monochrome monitor, game paddles, and a cassette deck.

Apple II was a very successful computer and was followed by the Macintosh that had a graphical user interface and was lot more sophisticated. It was priced high at $2500 compared to Apple II's price of $1395 in 1984. Apple continued to sell Apple II and its successors were continuously improved and sold till 1993 with more memory, added hardware such as hard disks and a large software library. During its 16-year life 6 million Apple IIs were sold with 1 million sold in 1983.

Personal Computer Trinity
Soon after the release of Apple I in June 1977 it had two competitors. In September 1977 Tandy Corporation released a computer it named TRS 80 and sold it through Radio Shack, an electronic components and kits retailer. It used Zilog’s Z80, 8-bit microprocessor, had 4KB dynamic RAM, a monochrome 12 inch display and a cassette recorder as secondary memory. It also had a BASIC interpreter with floating point capability. Its most attractive feature was its price of $400 for the system without a monitor and $600 with a monitor. It out-sold Apple II in the early days due its low cost. It was discontinued in 1980 and other successor models continued to be sold for many years.

Another competing computer was Commodore PET (Personal Electronic Transactor) 2001 marketed in October 1977. It used a 6502 microprocessor, 4 KB memory, a monochrome display (40 lines,25 characters per line), cassette tape secondary memory, a small keyboard, and Microsoft BASIC. It was sold for $795. It was criticised for its small, unreliable keyboard that was improved later. It was sold to many high schools in the USA.

Thus 1977 is marked as the year of birth of commercial Personal Computers and the three computers were referred to as the “1977 Trinity”

Suggested Reading

About the Author
Prof. V. Rajaraman (CSI Fellow), Ph.D. (Wisconsin), is Emeritus Professor in the Supercomputer Education and Research Centre, Indian Institute of Science, Bangalore. Earlier Prof. Rajaraman was Professor of Computer Science and Electrical Engineering at IIT, Kanpur (1963-1982), Professor of Computer Science, and Chairman, Supercomputer Education and Research Centre, Indian Institute of Science, Bangalore (1982-1994) and IBM Professor of Information Technology, Jawaharlal Nehru Centre for Advanced Scientific Research (1994-2001).

He is also the recipient of Homi Bhabha Prize by U.G.C., Om Prakash Bhasin award, ISTE award for excellence in teaching computer engineering, Rustam Choksi award, Zaheer Medal by the Indian National Science Academy, Padma Bhusan by the President of India in 1998, and lifetime contribution award by the Indian National Academy of Engineering and Computer Society of India. He was awarded DSc (h.c.) by IIT, Kanpur and by Bengal Engineering and Science University, Shibpur. An author of several well established and highly successful computer books, Prof. Rajaraman has published a large number of research papers in reputed national and international journals. (A detailed biodata may be found in en.wikipedia.org/wiki/Vaidyeswaran_Rajaraman).
Cyber Security A Complete View

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Shwettha M.
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Introduction
Today the world is completely dealing with data. Data is shared everywhere in different forms. The data sometimes is very sensitive and can be misused by anyone. Indeed when companies and organizations share sensitive information they should make sure that, it is very essential to keep the data safe. Moreover when government, military, banking and other organizations work with data, it must be taken well care as said in [1]. This is where Cyber security takes a place as an important factor. Cyber security can be simply said as a mechanism of protecting any information by using latest technologies in such a way that they cannot be used by anyone else other than to which it belongs as shown in Figure 1.

![Figure 1: Cyber Security mechanism](image)

The number of cyber crimes [2] is vastly increasing. It can also be termed as Information Technology Security. However it is very easy to understand “Why Cyber Security”. It is extremely predominant in the world we are living in. Wherever we start with we finally conclude that safety is first. In this case, cyber security is the mechanism needed to maintain the data safe. Let us now have a brief understanding about its types, requirements, merits and challenges.

Requirements of Cyber Security
A few basic requirements of cyber security are

a. People
Every individual person is responsible for preventing the threats. They must be up-to-date with the solutions for all risks.

b. Processes
The processes that are documented must explain duty, management and rules. They must be periodically viewed

c. Technology
The latest technologies are to be installed to minimize the number of cyber threats. It is made sure that the installation of this software does not bring further threats to the computer or any digital device.

Types of Threats
There are a few threats of Information security as confirmed by [3]

(i) Malware
It is malicious software that stops the functioning of the entire system. It is done by the help of some harmful program.

(ii) Social Engineering
The name suggests us that it is the change of behaviour of people to indulge in wrong actions with data. The types include Phishing, Baiting, Vishing etc.

(iii) Ransom ware
It is another category of malware from crypto virology that terrorizes the public data and manipulates it or blocks it without their knowledge.

Major domain
The following are the areas of computer security as shown in Figure 2.

a. Network Security
It protects the network from being misused by any unauthorised person. Many tools are used to build a network security still alerts go missing.

b. Cloud Security
Cloud is used by almost all the organizations whether big or large. Since all the important data transfers and storage are done there, it must be protected properly. Cloud providers use new tools to safeguard their data.

c. Application Security
Web application security has become the weakest side. The web pages are morphed and used in a wrong way. But latest tools that are emerging help the people to guard their pages and other applications from falling in wrong hands.

![Figure 2: Cyber Security Areas](image)

d. Infrastructure
It is highly essential to have physical systems that can avoid any wrong access and wrong usage of the system. The upcoming systems are having good infrastructure that is stable enough to handle any situation.

Merits
Cyber security is a friend that helps us to deal with the data correctly and guides us to protect it. It provides a bunch of benefits as such in [4].

- There is always protection for all information and networks.
- Access to unauthorized users is highly prevented.
- It shields from varied set of virus, malware virus, malware, worms and others that affects the entire system.
- It guards any sensitive information of an individual person.
- Reduces the possibility of computer freezing and crashes.

Demerits
Cyber security also has some dark sides. The few disadvantages [5] are

- It is quite expensive for ordinary people.
- It is essential to periodically keep the software updated.
- Sometimes there is a risk that the whole system slows down.
• If the firewalls are not configured properly then the whole system will start to malfunction.

Conclusion
To sum up we can simply term cyber security as a way of safeguarding information that either belongs to an individual or an organization.

There are measures taken to implement this. As we have already seen the advantages and challenges of cyber security, it will guide us where to it will guide us to use. The society we are living today needs cyber security as an essential part when handling with any data.

References
[3] https://searchsecurity.techtarget.com/definition/cybersecurity

About the Authors

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Ms. M. Shwettha [01491590] is currently pursuing B.Tech in SRM Valliammai Engineering College. Her areas of interest include IoT and Cyber Security.

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Cyber Security is the approach that deals with safe guarding confidential data, computer networks, computer system and software operations from cyber-attacks. A cyber-attack can be described as an atrocious operation which points out the networks of the computer, frameworks of the computer networks and information. This utilizes miscellaneous methods to loot and modify information systems. Cyber security is one of the prominent fields in computer applications like military, medical, financial and also in government and corporate. Cyber Security provides security for the users. In this article, we will discuss some of the cyber security attacks.

Introduction:
There are multiple layers of protection in an outstanding cyber security approach that has scattered across the programs, networks, computers, or data that one plan to secure. In a composition, the technology, people and processes all must accompany one another to set up a powerful defence from cyber-attacks. Indian digital services firm subex reported in NEWS18 on August 10, 2019 that India was one among the most attacked nations in IOT space and it recorded a 22 percent attack on IOT deployments in our country. Transportation sectors, financial services and smart cities force the sectoral ranking in the order of attacks said the “State of internet of Things”. The study by Bangalore-headquartered telecom solutions revealed that among 15 Indian cities from which data was collected; Bengaluru, Mumbai and New Delhi are inviting the maximum number of cyber-attacks. In this article types of attacks were discussed.

Types of Cyber Security:

Denial of service attack:
One of the major cyber-attack types, it is performed by offender to seeks machine's control or network which is remote from the user's access temporarily or until the uninterrupted service provided by the host that connected to internet. Attackers use hostile software in many host systems to control. Some of the DOS attacks are ping-of-death attack, TCP SYN flood attack, botnets and teardrop attack.

In TCP SYN flood attack, attacker accomplishes the buffer space utilization in Transmission control Protocol (TCP) and the target system is flooded. Though the attacker system's request is replied by the target system, it denies replying the request of the target system. So, because of this the target system attains suspension of activity. This causes the system crash.

In Ping of death attack, attacker intent to ping the destination system with fragmented IP packets. Maximum size of IP packets can be of 65,535 bytes. When the IP packets are united at the target system, then overflow occurs at buffer space and crashes. It can be blocked by firewalls.

In Botnets attacks, Botnets are the huge number of systems attacked by the hackers and they are under the control of hackers. These systems are called as zombie or bots. Bots helps in attack towards the target systems. Specifically, this type denial-of-service attack is hard to trace because zombies are situated at different places.

Man-in-the-Middle (MitM) attack:
When the communications of a client
and a server is interrupted by inserting a hacker between them a Mitm attack occurs. Among classifications of MITM attacks, one of the more time-hallowed ones is the Mitm attack which occurs via ARP poisoning. The LAN network is being the outset for 80% of network attacks, comments the KPMG Global E-fraud. Notably, this attack avail susceptibility in the ARP protocol, which is analogous to the TCP/IP protocol family.

Man-in-the-Middle Attack is classified as:

**Session hijacking:**
A communication between a loyal client and web server is hijacked by an attacker. The IP address is alternately placed by the attacking computer on the same side the server prolongs with the session, assumed as it interacts with the client.

Session Hijacking is classified as:

**Packet Sniffers:**

**Spoofing of IP:**
The IP packet establishment is made with a spurious source IP address called IP spoofing. IP spoofing is frequently used for casting Internet-based attacks and securing illegal access to a computer system.

**Blind attack:**
If the packets are unable to process by the attacker and predict the apt sequence number that the server expects, then the endeavour of brute force combinations is done. This is called blind attack.

**Passwork attack:**
Passwords have the most prominent role in one's routine life. It helps in various applications like authenticating mobiles and laptops, ATM Machines, various social media accounts, internet services. The ultimate aim of password is to restrain unofficial users to approach the system. Although they are important, they are not examined that much protective to the users. However, there is some susceptibility of the password which includes popular password attack, offline attack, popular password attack, electronic monitoring, electronic monitoring, specific account attack, user mistake exploitation, user analysis, workstation hijacking, etc.

**TYPES OF ATTACKS:**
There are 3 universal password attacking methods. They are listed below,

- **Brute Force Attack:**
  Thereabouts, Brute force attack uses cut and try method. This methodology uses a...
software that naturally develop an oversized series of sequential assumption to induce the crave data.

- **Dictionary Attack:**
  A dictionary attack, basically a trial and error, approach of cracking one's system password. The combinations of words are taken from the dictionary. They are supportive in discovery of keys to decrypt an encrypted message.

- **Key Logger Attack:**
  A Surveillance software, keystroke log is once installed on a computer, has a proficiency to log every keystroke made on a computer. The recording is stored in a log.

**Conclusion:**
The cyber-attacks can be prevented using few ways by identifying the threats, cybercrimes concern and heed, spy on employees, utilization of two faced confirmation and investigating on a regular basis for suspicious activity. Mitigation measures may differ but security remains the same. So, updating databases and devices plays a major role in safe guarding one’s data. Thus, this article provides an overall understanding about cyber security attacks and few prevention measures.

**References:**
[1] https://www.geeksforgeeks.org/session-hijacking/

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Cybercrime: Online Violation of Laws

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In today’s high tech era, computers and other electronic gadgets have become indispensable part of human life. The population of their users is increasing at very fast pace around the globe. The major reason for rise in the use of computers is Internet. People are accessing the Internet not only from computers and laptops but also from their smart gadgets. These devices are used over the Internet around the world, for performing the everyday tasks like shopping, banking, business, and tourism, etc. Cybercrimes have also grown to a significant number in the past few years.

Introduction:
Cybercrime is an illicit act or behavior performed using electronic media/device like computer, laptop or smart phone in order to harm the device, process, data or network. Generally, it involves many issues ranging from stealing the information or data to the use of electronic devices as tools for conducting an illegal action. Cybercrime is a threatening act among the Internet users which is mainly performed with malicious intentions to destroy or infect computer, networks or to steal information. Cyber criminals execute the malicious computer code, or alter the code, data or logic which results to the access of secretive information of the user or organization or damage of the electronic devices [1].

Classification of Cybercrime
Cybercrime is an unlawful act like the traditional crime. But unlike traditional crime, it can be performed with ease in little vigorous attempts and technical skills where physical and geographic boundaries are no bar. In general terms, any operation which breaches the confidentiality, integrity or/and availability of the services available online is considered a cybercrime. Computer is used as a tool or/and as a target in cybercrimes. Depending upon the technology and skill used, target and the vulnerabilities exploited, it can be classified into different categories. Most popular cybercrime categories are discussed here in brief.

Financial Fraud crime:
With the digitization of the banks and other financial services, cybercrimes of this category are the primary target of the criminals on Internet. This type of crimes involves the alteration of the data in an unauthorized way or unauthorized transaction which may cause the criminals to have the financial gain.

Online harassment or Cyber Bullying:
It is a type of an online crime which is usually committed by passing comments at specific individuals on gender, race, nationality, religion or sexual orientation. It mainly involves the mean, negative and harmful content sharing. Basically it occurs during online social interaction via newsgroups, chatrooms, social networking sites or by sending hate e-mail to specific groups or individuals. Cyber bullying is very common among the youngsters and teenagers through text messages and online social media.

Cyberterrorism:
This type of cybercrime is committed with the intention of violence against civilians or the government or political party. It generally causes the disruption or fear among society. Cyberterrorists target the critical infrastructure like disrupting the demanding websites or access to Internet.

Cyber extortion:
It is a kind of cybercrime in which criminals demand for money or other response through the use of or threat of some kind malicious activity against the victim [2]. It generally involves Ransomware or Denial of Service attack in which victim is given the threat of exposing confidential business or personal information.
Cyberwarfare:
Cyber warfare involves the use of ICT (Information and communication technology) to launch the attacks against any state, national or International organization to harm the other state, nation or government.

Obscene:
Obscene refers to the offensive content. The content of the online media like websites can be illicit due to number of reasons and the degree of this offence varies geographically. Examples of the offensive content include pornography, indecent exposure, and child pornography. Such content on internet causes the harm to humanity.

Cyber Grooming:
In this type of cybercrime, criminals establish an emotional bond with the victims (especially children) with the motive of arranging physical meeting for sexual abuse[3].

Online Gaming:
Online gaming is one of the major targets of the cybercriminals. The players of online games are the victims of many popular attacks like account hacking, phishing and even Distributed Denial of Service attack (DDoS).

Cybercrimes in News
There are many alarming news in the media related to cybercrime since the past many years that warn and alerts us to use the ICT (Internet and Communication Technology) wisely. Early in this year, it was found that Bengaluru – IT hub of India, had registered maximum cybercrime cases in the year 2018[4]. Further, it was reported that in the year 2018 more than 16,000 Indian websites were hacked. In a report by Indian Computer Emergency Response Team (CERT-In), it was informed that 2016, 2017 and 2018 (up to November), 33147, 30067 and 15,779 Indian websites were hacked respectively [5]. Last year in the month of August, New Mumbai police arrested two cybercriminals committing a financial fraud crime by using the SIM card information in illegal means to transfer money to their accounts. Cosmos Bank, Pune in August 2018 also observed the transfer of 94 crore rupees by criminals using illegal transactions through ATM server [6]. In another report by CERT in 2018, it was verified that the attacks were intended to gather information about the services and details of the users in their network.

Legal Services in India against Cybercrime
In India, Cybercrime Investigation cells and cyber police stations have been set up in various states and major cities like New Delhi, Mumbai, Noida, Hyderabad, Rajasthan, Noida, Rajasthan and Chandigarh. But still due to lack of awareness among users, many of such cases go unreported. Further, there are also few Non-Profit Organizations to generate awareness among Internet users. Information Sharing and Analysis Center (ISAC), New Delhi (https://www.isac.io), End Now Foundation, Hyderabad (https://endonewfoundation.org), Incognito Forensic Foundation, Bangalore, Chennai (https://iflab.org/) are the names of the few. Also, Government of India has taken initiative to report cybercrime complaints online. Presently this portal registers the complaints related to obscene crime. Further, these complaints are handled by respective police authorities of the region.

Few Safety guidelines
- Use legitimate and authorized applications.
- Use strong passwords on Internet and keep them changing time to time.
- Install updated antivirus
- Do not expose personal information online. Manage your personal and private settings in social media.
- Be aware on Internet and know what you should do if you are a victim of cybercrime.

References

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Cyber Security: Applications in Digital World

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Background:
Cyber security is the method or practice to protect Internet-connected computer systems, which may include various types of software and hardware along with the sensitive data. These computer systems are always prone to cyber attacks because of increased dependency of users on them. With increased usage of these systems which range from personal computers, mainframes, cloud servers, smartphones and various devices constituting the Internet of things (IoT) [1], cyber security has become a need in the digital world. Cyber security is the art of finding vulnerabilities in these systems and fixes them to prevent unauthorized access to these systems. Vulnerability is the defect in design or implementation of security for a computer system. Information Security, a subset of cyber security, is aimed at protecting the integrity and confidentiality of data [2].

Types of Vulnerabilities and Cyber attacks:
Most of the common vulnerabilities are stored in the common vulnerabilities and exposures (CVE) database. Each entry consists of an identification number, vulnerability description along with one or more public reference. These vulnerabilities can be easily exploited using automated tools like Nessus, which is a vulnerability scanner. One of the most common attacks is the backdoor attack, which avoids the normal authentication to access a system. Backdoors usually exist due to poor design configurations. Sometimes backdoors are added to allow easy legitimate access to authorized user, usually by storing credentials in the system itself [3]. Next most common attack is denial of service (DoS), which makes systems unavailable for intended legitimate users by flooding systems with traffic to exhaust their resources [4]. It can only be fixed by restarting the system, which is even more difficult if the traffic arrives from multiple sources, called a distributed denial of service (DDoS) attack. They exploit the network handling capabilities of systems. These requests are usually sent by botnets, which are the programs to create and deliver requests to the servers. These attacks are not used to fetch any information, but to mostly get an edge over the market competitors by getting traffic routed to their own websites.
Next three common types of attacks are spoofing, social engineering and phishing, which do not have a lot to do with technology but to manipulate and play with the users’ mind. These three techniques are closely related. Social engineering is the way to obtain sensitive credentials from users by phishing, which involves deceiving users by faking out someone user might be related to. Phishing asks the users for their credentials, while spoofing asks the user to click some link which might then download some malware into its system [5]. Malware is a program which may be used to steal, encrypt, alter or delete sensitive data of a system without its prior permission and knowledge. Next one is the polymorphic attack, which is the combination of multiple attacks to exploit various vulnerabilities at the same time. Ransom ware is also one of the serious threats to the cyber space. Most recent threats have been observed from ransomware, which is a malware that asks the user to pay a ransom and blocks access or threatens to leak user data if ransom is not paid. One such worldwide attack was observed in 2017, when WannaCry ransom ware crypto worm attacked Microsoft Windows operating system [6]. It encrypted users’ data and demanded ransom in form of Bitcoins. If not paid, it would wipe out data from the system. It affected many hospital and bank organizations.

Applications and Challenges:
Cyber security has wide applications in different sectors of society. Individuals, industries and businesses rely upon cybersecurity experts to protect their systems from cyberattacks. Financial institutions and banking sector have always been targets for cyber attacks due to multiple reasons. Hackers try to manipulate the market and make profits from it. They usually target websites, applications or servers to fetch sensitive credentials and misuse them. Power grids and nuclear power plants’ vulnerabilities may be easily exploited even if they are not connected to the Internet as demonstrated by Stuxnet worm [7]. The aviation sector heavily relies on complex radio communication systems which, if attacked, could cause a worldwide disruption of radio communications which may pose many lives in danger [8]. Personal computers and smartphones store data of individuals which is of great use for hackers who may use this data for fraud financial transactions and may sell in the black market for further misuse. Hackers would bypass multiple sensors like microphones, cameras, GPS navigators, gyroscopes to collect personal health information. These sensors are remotely controlled using WiFi, cellular network or Bluetooth. The home automation devices like voice assistants can also be exploited to obtain sensitive information. These personal use devices are mostly used by vendors selling them to obtain user data in order to understand user behavior for future improvements. This vulnerability may also be exploited that information very easily either by accessing those devices or by fetching the information being sent over the network to the vendors in between. These devices vary from smartphones, smartwatches, home assistants to smart vehicles and smart house locks.
Along with the personal-use devices, most common targets to fetch sensitive data are the cloud servers, which store data of a particular user for multiple applications using those servers. Many times, hackers have exploited the vulnerabilities of various companies storing user data on the cloud to get the sensitive information. In October 2019, a security researcher hacked into OYO’s database to get booking IDs, phone numbers, date of booking and location for multiple users [9]. The health sector has also been
the target of cyberattacks in the past. Many times potentially harmful vulnerabilities have been demonstrated in the medical equipments, which are connected over the Internet. DoS and DDoS attacks have been observed on the equipments leading to equipment failure causing disruption in patient care and posing life threats to patients [10]. Hospital computers have been attacked multiple times by ransomware and other multiple malware either to get the data or to get the ransom. These cyber attacks have caused huge financial loss not only to financial institutions, but also to various other industries. The actual loss is very difficult to be estimated.

Conclusion:
With the rise and significant developments in the technology, especially the cyber world, users are getting seamless experience to multiple facilities at their doorstep. This cyber world connects people across the globe. But, this also leaves the users open to cyber attacks. If any cyber attack happens, then the ultimate victim is the user itself. User’s data safety should be the first priority of the companies. Therefore, various cybersecurity methods need to be developed or improved for safety of users. System testers should be hired to analyze the systems and remove vulnerabilities from them before making them available to users.

References

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Themes for CSI Communications

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Top 4 Current Trends in Cyber Security

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1. Introduction
In this fast-growing computer age, where our lives cannot be imagined without our electronic devices to perform almost every task in routine life, the security of the information stored in these devices is dubious. The only way to safeguard our private and personal information is by taking proper measures against cybercrime.
The top key cyber threats are:
1. “Companies in the crosshairs of information warfare
2. IoT devices broaden state espionage operations
3. The weaponization of adware networks
4. Deep fakes in the wild- AI in information warfare”.

Employment of machine learning, installation ransom ware software and the acknowledgment of the importance of cyber security by several business leaders of many organizations helps us reduce these threats.

2. Current Trends In Cyber Security
2.1 Phishing
Phishing is the process or an attack that is used to steal the user’s private data like user name and password of social media, credit card details. Phishing mainly happens when an attacker masks his identity as a trusted entity, tricks the user to open an email, SMS or OTP (one-time-password). The user is then deceived into opening a link, which will install a program containing a virus (commonly malware), could be subjected to a ransom ware attack or revealing of sensitive information. The range of phishing is rapidly changing every day. Phishing has been a continuous problem for a very long time. In "Verizon's Data Breach Investigating Report, it states that 32 % of data breaches are due to phishing and 78% of cyber espionage incident involves phishing”.

2.1.1 Process of Phishing

2.2 Ransom ware Attacks
Ransom ware is a type of hostile software that seals the accessibility to a computer or data, commonly by encrypting it, which will not be decrypted until the victim pays the ransom to the attacker. Usually, if the ransom isn’t paid on time, the data disappear forever. Ransom ware attacks are mainly focused on successful companies in countries like North America and Europe. The organizations like the FBI and CIA advise the victims against paying the attackers and encouraging them to repeat the attacks.

Avast Ransom ware decryption tool is open-source software by installing which the victim can decrypt their device and protect it from future attacks.

Common Ransom ware is:
1. Wannacry - A powerful ransom ware worm which infected over 250,000 systems before it was stopped.
2. Cryptolocker – This is the first of the Ransom ware which requires cryptocurrency for payment like Bitcoin and locks a user’s hard drive.
3. NotPetya- This is one of the most damaging ransom ware attacks.
Example of a Ransomware Attack (Wannacry)

2.3 Organizations Now Aim To Be Secure By Design

Many upcoming organizations considered their technology solutions as a primary aspect as and the security measures as a secondary need which leads them to delays in the deployment of their company and unwanted expenses. Organizations have now started to see cyber security as a crucial wall that will stop external threats. Instead of adding security measures after the complete shaping of an organization, they have now shifted to building in security at different and important phases along the way. The business leaders of all organizations are starting to understand the importance of cyber security in this digital era.

The West Yorkshire Police have changed their technique of crowd control by implementing cyber security’s prowess to aid the supporters for their safety. There is the cybercrime page of the Yorkshire Police which allows the victim to report about any recent attacks.

2.4 Cyber security is becoming Intelligence-Driven

In a fast-moving world filled with automated attacks, intelligence plays a crucial role in being able to counter swiftly or even foreseeably, instead of reacting to individual threats. Machine learning will play a significant role in collecting intelligence. Furthermore, machines will start producing more of their own decisions and executing the changes themselves to reduce an organization’s cyber-risk, based on the intelligence gathered by it.

In this period of using machine learning to protect ourselves from cyber-attacks we also have to think about the possibility of cybercriminals using machine learning in their attacks. It provides them the speed to move faster to locate and encrypt a file or some private data. Once a virus (commonly malware) has entered a network, its decision-making will be prompt. Its lateral movement within the organization, through different ports and domains, will be faster than ever.

The main challenge for businesses today is that they require being 100% secure all the time and can’t afford to make a single mistake. This isn’t the same for the cyber attackers where they can try to penetrate the security several times and need to be successful only once. Intelligence has become the new arms race between adversaries. And this is why getting better at security by using intelligence is going to be critical in the future.

3. Conclusion

Many organizations are forced to react promptly to the rapidly increasing number of cyber security threats. Since the attackers are accustomed to the attack life cycle in which they attack a victim and demand payment. Cybercriminals will make occupations for security specialists all through the accompanying couple of years.
Moreover, they will do it at an amazing rate. Lamentably, there is apparently no conclusion to software engineers who need to get to your business and customer data and after that use that information to their own one of kind malicious completions. Consistently conveys with it savvier developers, which suggests that consistently brings new security frameworks moreover.

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**PROSPECTIVE CONTRIBUTORS OF CSI COMMUNICATIONS**

**Fourth Coming Issues: December 2019:** Bioinformatics

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Issued on the behalf of Editorial Board, CSI Communications.

Prof. (Dr.) S S Agrawal
Chief Editor
Past to Future of Network Security with AI

1. Introduction
As the Athenian philosopher Plato said, "Science is nothing but perception". Everything in the world developed is inspired by the surroundings. Similarly, the concept of computer networking was well thought because of the exchange of words people do to understand each other. This discovery leads to the opening of the new world for generations. Computer networking is that part of technology which without any doubt is going to increase day by day, but everything has its pros and cons. Therefore, to deal with the cons various network security protocols have been established. These have helped us to an extent to maintain the security and privacy of networking. But there are other concerns too regarding the advancement of technology in the future.

"Country's computers linked here first" read the headline of a tiny article in the student newspaper of UCLA on July 15, 1969[5]. The article briefly explained the work which was going on at UCLA on coming up with a new network connecting geographically separated computers. This project was supported by the Defense Department's Advanced Research Project Agency (ARPA) with the idea of protecting the flow of information between military installations via a technology developed called network control protocol (NCP).

Since then the idea of networking has gained a boom. In the present scenario, networking is used everywhere like in e-Commerce, resource sharing, communication through emails, etc. But with the popularity of networking, the number of threats has also increased rapidly. Some of the major threats faced with their solutions are malware which uses signature and heuristics detection engines to predict attack, ransom ware prediction is possible by using AI-based models and keeping the systems fully updated, DDoS attacks are recovered by detecting the traffic and authenticity of its source by using signature or anomaly detection methods, IoT threats are overcome by providing privacy and protection at network and service level, phishing which needs proper access management system and AI-based detection models, man in the middle attacks can be overcome by using virtual private networks. Some more recent threats are end-point attacks on cloud, form jacking, crypto jacking, spoofing etc which are more or less subsets of above major threats.

2. Review Literature
After the introduction of World Wide Web (WWW) across every part of the globe, Mr. Tim-Berner Lee stated that "There was a time when people felt the internet was another world, but now people realize it's a tool that we use in this world" Internet users around all the countries sum up to approximately 4 billion people among which maximum users are from the Asia continent. As the internet became public the security concerns increased tremendously. Therefore network security has now become an integral part of the organization's confidentiality as it prevents unauthorized users from accessing the network systems, ensures safe transferring of sensitive data and provides a robust system of warning against alarm and fixing issues in case of security breaches[6]. Earlier some famous technologies for providing network security were encryption, authentication mechanism, intrusion detection, security management, firewalls, etc. In 2008, with the concept of uprising big data and cloud, traditional methods were somewhat inadequate for multilayered threats that’s why new advanced security policies like Trend Micro Smart Protection Network. It is a composition of threat intelligence technologies and sensors working together to detect all types of malicious activities[7]. Also in 2011, F Doelitzscher introduced — SAAaS i.e. Security Audit as a Service incident detection system. In this method, an agent which is any software entity works continuously in an environment and learns from the experiences. All the agents in the SAAaS are running independently and are autonomous as do not depend on a centralized system. Therefore, communicate easily and help in incident detection in cloud computing [8]. Not only this but many more new techniques started to come into play with the increasing demand for security measures for evolving threats. The hackers became capable of decoding very complex security protocols and difficult coding. So, to counter these uprising threats something advance and futuristic approach was required which will always be present and can be modified into an intelligent system providing efficient results in detection of the malicious emails or messages. The solution organizations and researchers came up with was the universally known artificial intelligence (AI). It is agreed by most of the people that the future is AI. Nowadays every sector is familiar with AI whether its agriculture, defense, medical, security, automotive, finance, telecom, etc.

Every institution incorporating AI in cyber security follows a blueprint, to understand how the data sources have to be connected to platforms and how the operations can be applied to that data [9].

2.1 Finding related datasets and platforms:
The datasets should be safe and up to date to produce good results using algorithms. Also, employees should be aware of the implementation of a data platform to run the dataset correctly. This will provide the first step in achieving network security using AI.

2.2 Be in circle with external professionals or organizations:
Collaboration with some security and threat researchers or with different companies on a crowd-sourced platform like Open Threat Exchange enlighten everyone with new cybercrime techniques and improve logic of the present algorithms.

2.3 Deploy SOAR:
It stands for security orchestration, automation and response. These are technologies that support a firm with security
alerts and data. With this optimal results can be obtained from AI in cyber security.

2.4 Need of expert analysts:
Trained employees are needed to handle the algorithms and models so that they can analyze where, when and how to put data.

2.5 Ensure installation of governance:
IBM's Martin Borrett said “Cyber security in AI has to be tested regularly with control questions to make sure we are getting the outcomes we expect and to make sure it's performing correctly and isn’t being subverted” so for attaining transparency and long-term improvement we need government interference. After keeping these points in practice AI in cyber security is ready for functioning.

![Fig. 1: Blueprint to incorporate AI with cyber security in organizations](image)

Many organizations since a long time ago have understood the need of merging AI with cyber security (show in Figure1.) also in a report “Reinventing cyber security with AI” generated by Capgemini Research Institute in July 2019 stated the opinions of about 850 executives from security and IT fields across 10 countries[10]. They believed that as hackers are already using artificial intelligence to create various malicious software so as a counterattack the companies should also build AI-based responses that have more scope and innovative ways to fight viruses. Therefore many firms have already adopted this combined power as the strategy and supporting the world with its products and services[2]. Some of them are:

- a) Versive
- b) Check point
- c) Logrhythm
- d) Crowdstrike
- e) Darktrace
- f) Cybereason

![Fig. 2: Emerging Security Startups Based On AI](image)

3. Network Security Threats and AI Solutions

3.1 Malware:
Malware is the malicious software that affects the computer system directly or indirectly out of which ‘94% of all malicious executables are polymorphic’ as stated in a research by Webroot 2018[8]. The polymorphic malware automatically re-codes itself each time it propagates or is distributed.

Solution:
A large amount of malware detection technology is based on signatures or heuristics. The signature detection engines find exactly the piece of malware that is the same, regardless of what changes around it. This technique helps to identify many different variants of malware. Also, some of them are only identified using heuristics detection engines but due to its need to acquire many resources can’t be used on a wide scale.

3.2 Ransomware:
It is a type of malware that limits users from accessing the system files and demands money to regain access to them. WannaCry the most severe attack so far in 2017, is a ransom ware which spread across 150 countries infecting over 2, 00,000 systems. This case made many people aware of the need of developing new methods to protect systems from ransom ware threats.

Solution:
Till now the solution to the protection from ransom ware has always been keeping the system fully updated, install anti-virus and anti-malware software, do not click unfamiliar links etc. Some research students at the University of Kent published the paper regarding a predictive model named Randep which is a machine learning-based model providing information on finding and identifying behavioral patterns for improved ransom ware detection and response[4]. Researchers studied analysis of 18 families of ransom ware to come up with this and hope the model to be beneficial to identify ransom ware threats beforehand in the future.

3.3 DDoS:
A denial-of-service attack i.e. makes the service inaccessible to the actual user. A server is not able to distinguish whether the requests are from bots or actual user. Thus, flood the target with traffic. The biggest DDoS attack occurred in 2018, when GitHub services were made unavailable because of the flooded traffic which involved a Memcached amplification of 1.35 tbps attack on the site. This caused the genuine
users to be deprived of GitHub services for months.

SOLUTION:

There are a lot of methods developing
counter DDoS attacks such as signature
or anomaly-based detection, network
intrusion detection tool-SNORT, and many
other techniques separating legitimate and
malicious traffic. If the traffic is too big then
distributed computing can be used.

3.4 IoT Related Treats:

IoT stands for the Internet of Things
are gaining its popularity day by day. Using
IoT work can be automated. It is anticipated
that by the upcoming year number of devices running on IoT would be more
than 20.8 billion. But when these devices
are connected on the network bad actors
might take advantage of the loopholes these
devices contain as they don’t have much
security implementation till yet. [1]

Solution:

Many companies like Cisco, Hitachi,
Huawei etc are all developing their solution
products with different approaches. Securing
IoT devices needs both protection and
privacy at the network and service provider
level. For this, a DDoS detection method
using ANN is used for IoT networks. This
technique is based on the categorization of
legitimate and attacking traffic patterns. The
proposed system is simulated and tested to
obtain more than 99% detection accuracy
[12]. Also, creating and implementing
some policies that will see to the lifecycle
challenges of the IoT device regarding their
privacy and security.

3.5 Phishing:

Phishing is a type of electronic fraud
done using emails, messages, hyperlinks,
etc. When clicked or replied to these emails
or links your information regarding your
account is hacked and steals your fortune.
Not only common people but big companies
like Microsoft, Google, Facebook etc have
also been impersonated by malicious emails.

Solution:

Setting up proper access management
is essential. That is employees with thorough
understanding should be given access
to accounts accordingly. Also, with the
increasing trend of AI and machine learning
companies are coming up with new phishing
detection models to improve business.

3.6 Man-in-the-Middle Attack:

MITM attacks also known as
eavesdropping is an act of reading and
modifying the communication between two
parties without their knowledge.

Solution:

The most common method to control
MITM is SSL/TLS encryption protocols; this
method uses a key that is encrypted and
decrypted at the sender and receiver end
respectively. But, the hacker can still find
out the communication between the two by
knowing the sender and receiver themselves
as they use trusted third parties which may
be not authentic. Therefore, instead of a
single third party, multiple communication
channels started being used. The new way
that came into look is by using a virtual
private network (VPN). It encrypts the user’s
internet connection to disguise it from the
hackers, even if it is intercepted, there is
difficulty in decoding. Also, the internet
speed is not affected.

3.7 SQL Injection Attacks:

It is an attack in which a hacker tries to
exploit the database information by injecting
some malicious code to the queries and to
get unauthorized access to database entries.
This counts as an act of theft and a violation
of privacy.

Solution:

Various solution to solve SQL injection
attacks are now based on machine learning and AI,
one of the research paper by a student of
San Jose University presented one of the
efficient way to solve this threat. In that,
Gradient Boosting Classifier method is used
to classify the incoming traffic along with
a combination of parameters. Using this
algorithm, the accuracy of getting desired
solutions improved to 97.4% [11]. In spite of
this, other network neural techniques can be
used to reduce SQL injection attacks.

4. Conclusion

Today, every field and organization is
putting its trust in cyber security based on
machine learning and artificial intelligence
because with the world going digital at a fast
pace, intruders are becoming smarter day by
day. To fight their attacks, everyone needs a
versatile platform that can be modified and
coded according to the present requirements.
Therefore, the author has covered the topic-
how the development of network security has changed with time and will continue
to evolve itself with AI becoming the only
solution to present and upcoming threats. It
is estimated that cyber security product sales
could exceed $300 billion by 2024 giving rise
to a mass ecosystem of security startups
solving different aspects of cybercrimes.
Some of them are already discussed above.
These AI-powered products and solutions
will keep the bad actors on their toes giving
relief to the IT industries.

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The articles must be written using APA style in two columns format. The article should be typed, double-spaced on standard-sized (8.5’ x 11”) with 1” margins on all sides using 12 pt. Times New Roman font and 8-12 pages in length. The standard international policy regarding similarity with existing articles will be followed prior to publication of articles. The paper is to be sent to Prof. A K Nayak, Publisher, in the email id : csi.journal@csi-india.org with a copy to aknayak@iibm.in, CSI Journal of Computing.

Prof. A K Nayak
Publisher
Digitalization –
A Need or Necessity: Technical Review

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Every Nation is focusing to achieve digitalization to empower society in an efficient and effective way. The aim of this paper is to provide detailed insight the latest transformation of Indian era through Digitalization.

Today’s era is known as an era of machine and technology. Due to this, human efforts are decreasing day by day as the smart electronic devices have made our life easy and comfortable. This paper emphasizes on importance of digitization in our daily life and its related applications. This attempt presents challenges while performing changes during enhancement in proliferation of technologies. Presented work reviews the concept of digitization and how it will affect on changing need of today’s paradigm.

Keywords : Digitalization, Technologies, Pillars, Digital Transformation, Case Studies

I. Introduction
In today’s scenario, digitalization[1][9] is one of the important buzzwords in terms of transformation of technologies for society and also gaining attention in competitive world wide.

The world is changing now a days and everyone is living a life that is full of gadgets, a life that is highly influenced by technology. Out of 10 at least every 9 person is having a smart phone. Not only smartphones but everyone is keen to be updated with latest technologies and use them to ease their work.

Everyone says that using a smartphone, online shopping, and online transactions is a trend, but they are not aware of the fact that knowingly or unknowingly they are getting habitual to Digitalization.

Digitalization means using electronic devices such as phones or any other device that stores information in digital form. Digitalization does not means you need a special setup or a special skill. It only requires an electronic device such as a smartphone, a pc and an internet connection.

The presented paper has been framed as explained below: Section 2 includes the impact of digitalization on various factors. Section 3 explains the digitalization made life easy. Section 4 discusses the challenges to accept digitalization. Section 5 presents analytical evaluation of Digitalization through real life case study in India. Section 6 concludes the research work done.

(i) Evolution of Digitization in India
In 1961, India got its first computer at the cost of ₹ 10 lakhs and now this device is easily available at an affordable cost, although it came in 1961 but the real journey of transformation started from 1967, and here is the journey of 61 years in a brief.

Digitalization spread like a fire in forest. So, in 1967 the bond between the Tata Groups and SEEPZ was the point from where I.T. came into existence in India. Information technology and computers established its importance in technical institutions like IIT’s etc. when Mr. Rajiv Gandhi understood the need of the changing environment. Later, on Mr. Atal Bihari Bajpai, on becoming prime established an especial team for development of I.T. and also Software Development. Now as the time has passed and more technologies have evolved over the time our honorable Prime Minister Mr. Narendra Modi has introduced a new concept of Digital India.

(ii) Basic Pillars and Elements of Digitalization
Digitalization relies on Smart Gadgets, Modern digital leadership by Network, Cloud Computing which are also known as three important pillars for Digitalization as shown in Fig. 1. Through these pillars digital connected India can help in improving social

Fig.1: Pillars of Digitalization [10-13]
and economic development across the nation. Fig. 2 presents important elements of Digitalization to provide platform to access services in ubiquitous environment.

II. Impact of Digitalization on Various Factors:

Day by Day, Digitalization is spreading across our society and which is using incremental and also radical approach for encountering in daily life. Digitalization spread like a fire in the forest and as it is well known idiom that “the fire always leaves an impact on the forest and completely transforms the present scenario”. This same phenomenon is also more or similar applicable for Digitalization. Diversity of technology emphasizes to look after various factors for effective digitization which are as follows:

A. Impact on Employment:

I.T sector[2] plays an important and vital role in digitalization in other words we can say that I.T. is the backbone of Digitalization. Now a days there are a large number of jobs related to software developer, software tester, Database administrator and many more. Companies are following incremental as well as radical approach for changing paradigm of digitization. It has provided the changes in jobs. Few traditional jobs are removed and there is requirement of highly skilled persons for dealing with changing technologies.

B. Impact on Education:

Education [2][4][12-14] is one of the most important sector of the society and is highly effected by digitalization. Imagine its mandatory for a student to get his email-id registered to the school. He receives his daily task through mail and even marks are uploaded on a website. The concept of smart classes and animated learning is not new. Most of the schools have smart classes. Not only the way of learning but it has also changed the way of teaching, teachers uploading the marks, the notes on various sites and many more soft wares are there that help them to maintain their records properly.

C. Impact on Market:

From the research analysis[2-8], it is analyzed that market plays an important role in our society and also has a great contribution in our Economy. Nonetheless from last 7-8 years markets have changed to digital markets. The concept of online shopping through various websites and shopping applications have changed the complete scenario and digital marketing is emerging rapidly.

D. Impact on Economy:

Demonetization in India is best suitable example for this section. As all the payment was done through online apps. One 27 company well known app Paytm was installed and available with almost every customer and sales person at that time for frequent transfer of amount & purchasing the products. Further, Digitalization concept has introduced and provided platform of job opportunities for the I.T. professionals which is not only a high profile job but it is also a true fact that most of the I.T. trained people are indirectly contributing towards Indian economy while they are providing their services in foreign countries. Also, Digital marketing, technical content writer, data science, data analytics related technologies are growing day by day and providing new opportunities to the entrepreneurs& Industry.

III. Digitalization made Life Easy

Digitalization not only had its impact on market or economy but it also affected life of many people. It changed the way of living, from payment of small bills to the transaction of big amounts, everything can be done digitally. The life has been completely renovated, now any one can easily avail any service from anywhere just sitting at a place but the required condition is he should have a smart device connected to internet and a knowledge to use it. Here are some major points where digitalization improved the way of living:

A. Reduced Mental Stress:

Life is very busy at the present time there are lot of things to be done, life is running fast but still it cannot match the speed of running clock and this difference in the speed leads to mental stress. Digitalization plays an important role in reducing the mental stress as on a single Click we can perform plenty of tasks parallely. This somewhere reduces the work load and gives a relief from mental stress.

B. Time Saver:

Imagine the situations which you face over and over again, like standing in a long queue in a bank waiting for your turn so that you can perform the required transactions in your account and when your turns come it's time for a lunch break. On other hand using mobile banking or applications such as paytm you can easily perform your transactions, likewise we can save our time in shopping, tickets and hotel booking using various application and websites.

Like a water finds many hurdles many stones in its path but it still finds its way in the same manner although it was a great challenge to make people realize the importance of changing environment but people have realized the importance and the leaders of our country have decided to transform the make a digital India

i. Digital India moment was started by Prime Minister Mr. Narendra Modi on 2nd July 2015

ii. Connecting rural area with urban areas i.e. providing services of smart phone, internet etc. in rural area

iii. Making government services available to citizens available electronically is the main purpose of Digital India

iv. Services such as e-adhar, election card app, Delhi police app are the small steps taken in this order

v. Many campaigns have also been organized under Digital India moment.
C. Extending Business:

"Which looks he sells" is the famous quote which means in order to get your business extended you need to promote it to a big scale. Creating a website of your own, or giving a short add film in the television at the present times is the most common way to promote your product. This is how digitalization helps to promote and extend your business.

IV. Challenges to Accept Digitalization

"Changes need time “is a well-known quote, and is true. Executing something new is not easy and it is a human psychology, certain questions arises in our mind before here are some points discussed below why people find it difficult to take on digitalization.

- **Resistance to change**: In order to make a drastic change we need to take small steps towards it, but here is the main problem no one wants to come out of their comfort zone.
- **Lack of knowledge**: Just like having a notebook is not enough you should also know how to write, similarly having new gadgets is not enough you should be well aware how to use it and implement the changes in your life.
- **Lack of awareness in rural area**: one of the most important reason is that rural area is somewhere left untouched with this concept of digitalization, they don’t have proper net connection, they can’t afford smart phones and this is where the chain breaks.
- **Fear of Security**: Security is one of the most important issue and a major question when it comes to implement something new in our life same is with the case when it comes to implement digitalization. Recent Ransom ware cyber-attack not only affected the system but it also raised a question on security more over problems such as hacking also leaves a question.

V. Analytical evaluation of digitalization through real life case study in India

Case Study 1: Demonetization-period when digitalisation proved its importance and become a need of the time

A. **Demonetization** as we know is the act of changing nation’s currency and this is what happened recently in India where digitalization played an important role in making economy stable

a. On 1st November 2016, Prime Minister Mr. Narendra Modi banned the currency of ₹ 500 and ₹ 1000
b. The time was quite challenging as people were facing a problem in going through their daily routine buying vegetable was also not easy
c. At that time not only these notes lost their existence but everything seems to stop economy at that Time was at a great risk to fall down. That was the point when application such as paytm and net banking was the only way of transferring money at that time even a vegetable vendor or a tea vendor had a paytm account so he can run his business in a flow.
d. At that time people realized the need of digitalization when the experienced how a simple application can help them to bring their lives back on a track.

B. **Supporting Digital India Moment**

Well known Industrialist of India, Mr. Mukesh Ambani changed the game completely in context of Digitalization

a. Reliance introduced its Jio sim which was being available to customers from September 2016
b. The sim was free of cost, and promised free 4G data, unlimited calls and free sms service to all the customers
c. This attracted people, as a result even rural area people were now using this sim
d. After getting a great success with Jio sim Jio 4G phones were also introduced this year
e. Jio has now become a part of everyone’s life even though the free period has expired but still people uses it at because of great recharge plans that people can afford

C. **Collecting Donations via Paytm**

Pulwama attack on CRPF camp is one of the recent example that how digitalization can be used in various circumstances. Terrorist attacks on CRPF camp on 14th February 2019 was one of the dreadful incident with our valiant combatants.

a. Paytm collaborated with CRPF wives welfare association to collect funds and donations for the families of soldiers who lost their life
b. More than 20 lakh users contributed towards the association
c. The total collection was of 47 crores INR said Kiran Vasireddy, COO Paytm.

Case Study 2: When Restaurants became Digital

There is need to understand the importance of digitalization and its transformation in food market of India. Further, it is very important that how this concept transformed the market to online shopping stores like amazon and flipkart, but now a days revolution of digitalization has influenced people to use the facilities as per custom based approach and also as per their lifestyle.

Zomato and Swiggy are the two main applications that have transformed the food market of India.

- Zomato claims to have an order rate of 21 million orders a month whereas its opponent swiggy claims to have an order run rate of 14 million orders per month
- These are the two main leading service providers in case of food supply
- The number of downloads of food delivery app is grown 380% in these 3 years according to the survey
- According to a survey 74% of people prefers to order food online
- Zomato is in the lead, followed by swiggy but there are some other applications like food panda, uber food
Table 1: Comparative analysis of online food ordering Apps

<table>
<thead>
<tr>
<th>Basis of Differences</th>
<th>Zomato</th>
<th>Swiggy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years of Experience</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Total orders per month (millions)</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Minimum commission from Restaurant (%)</td>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td>Maximum commission from Restaurant (%)</td>
<td>60</td>
<td>30</td>
</tr>
<tr>
<td>Order Run Rate (millions)</td>
<td>21</td>
<td>14</td>
</tr>
<tr>
<td>Daily orders (K)</td>
<td>74</td>
<td>56</td>
</tr>
</tbody>
</table>

Coming towards customer satisfaction and survey about the two applications, we came to know a very interesting facts about the two applications. We decided to order a product from two applications and we were surprised with our finding. Here are certain results of our findings.

Table 2: Our observations

<table>
<thead>
<tr>
<th>Basis of Differences</th>
<th>Zomato</th>
<th>Swiggy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price of Items (same)</td>
<td>42</td>
<td>29.5</td>
</tr>
<tr>
<td>Promo code (%)</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>Delivery Fees</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>Additional Discount during IPL</td>
<td>30</td>
<td>0</td>
</tr>
</tbody>
</table>

VI. DigiGaon – The future villages of India

DigiGaon are the future villages of India, these are the newest emerging concept of Digital India Moment where the villages will be converted to the digital villages unlike any urban city the rural area of the village will be a hub of technologies and new opportunities. Here are certain interesting facts about the future villages of India.

a) Common Service Centre (CSC) under Ministry of IT and Electronics is in route of setting up 700 digital hamlets.

b) The intention is to launch 700 digital villages every year.

c) Outlay of around 70 lakhs INR have been approved by this time showed for this enduring Project.

d) The village will reside of the digital classrooms, digital hospitals and doctors, digital bankers

e) Every villages will have a fixed amount of digital centres where there are going to be 5-10 computers, database servers to run the perfect system

f) DigiGaon Project entailed an initial outlay of Rs 423 crore over three years.

VII. Conclusion

Digitalization is very important for India. The process of knowledge transfer does encourage the safety and security of the paid money in applications like railways reservations system etc. Developing country India putting its complete efforts and giving competition to developed countries and global market. This concept for India is moving like ultimate panacea to emerge as the greatest nation in all aspects.

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Threat Modelling : Key Activity in Security Development Lifecycle

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Threats and threat modelling

Threat modelling [1,2] is a significant activity in Security Development Lifecycle since threats are prevalent in a connected digital world. Threats [1] are organizations’ internal or external elements by which the security of the system can be compromised and the objects of interest can be at stake. Hence, the process of threat modelling plays a significant role at any stage in life of software. It is known to be effective if it is planned well-ahead [1].

Threat modelling [3] can be defined as a process which identifies the vulnerabilities of a system and focuses on countermeasures to mitigate the consequences. This process chiefly deals with secure design of software development, evaluates risk of threats, documents these threats, takes measures to mitigate its effects and compiles a set of security test cases to test security requirements.

Elements and steps of threat modelling

The basic elements of threat modelling [7] can be summarized as:
1. Assets – Elements that require security
2. Threats – Attacks imposed by attacker on the system
3. Vulnerabilities – Holes in the system which the attacker uses to realize threats

The steps of threat modelling [6,7] is illustrated in Figure 1. Security objectives must be clearly framed and sensitive data should be accessed only by specific set of users. Assets like servers, users, administrators, directories, applications are identified. Software architecture, version and details of cloud are understood. Trust zones, their entry and exit points and privilege boundaries must be clearly defined. All the constituent processes of the application are identified. Architecture diagrams and data flow diagrams are certain helpful techniques for the same. Threats are again identified classified and assessed for risks based on every user’s privileges.

Threat modelling strategies and tools

Some of the threat modelling strategies [4,5] can be summarized as follows:

<table>
<thead>
<tr>
<th>Table 1 : Threat Modelling Strategies</th>
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<tr>
<td><strong>Strategy</strong></td>
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<td>Attack Trees</td>
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Fig. 1 : Steps of Threat Modelling
One cannot say that one threat modelling is better than the other since each model is suitable for different scenarios. Some widely used thread modelling tools \[1,7\] include Microsoft’s threat modelling tool, MyAppSecurity, OWASP Threat Dragon, IriuRisk, securiCAD, Tiramisu, CVSS3.0, etc.

**Case Study**

“A simple case study can be hacking of bank account of a customer.” This simple case study is focussed from STRIDE model point of view as follows:

The basic elements can be listed as below:

1. Assets – All sensitive data like customer login and transaction credentials.
2. Threats – Threats could be as simple as intended user denied service or unintended user gaining access to bank accounts.

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<thead>
<tr>
<th>Threat</th>
<th>Mitigation Technology</th>
<th>Examples</th>
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<tbody>
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<td>Integrity</td>
<td>Presence of malware capable of modifying data can be overcome using anti-malware.</td>
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<td>Repudiation</td>
<td>Fraud prevention</td>
<td>Users cannot deny carried out transactions because of log records.</td>
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<td>Information disclosure</td>
<td>Encryption</td>
<td>SSL prevents eavesdropping by hackers and ensures secure communication between server and customer.</td>
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<td>Availability</td>
<td>Management of unnecessary traffic using firewalls and keeping disaster recovery plan in case of attacks.</td>
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<td>Elevation of privilege</td>
<td>Authorization</td>
<td>Ensuring strong password policy and changing of passwords of administrative accounts.</td>
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### Table 2: STRIDE Model

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### References


### About the Author

Ms. D. Evangeline is working as an Assistant Professor in Department of Information Science and Engineering in Ramaiah Institute of Technology, Bangalore. Her areas of interest include Computer Graphics, Digital Image Processing and Evolutionary Algorithms. She has authored publications in journals and national and international conferences. She is the author of the book on “Computer Graphics and Multimedia: Insights, Mathematical Models and Programming Paradigms”
Bhubaneswar’s First Largest IT Convention to be held in January 2020

53rd Annual Convention by Computer Society of India

Bhubaneswar 14th October, 2019: Computer Society of India (CSI), the first and largest body of computer professionals in India held the Curtain Raising Programme of its 53rd CSI Annual Convention 2020 to be held on from 16-18th January 2020 at KIIT University. Sri Tusharkanti Behera, Hon’ble Minister, Department of Electronics & Information Technology, Government of Odisha graced the occasion as Chief Guest in the presence of Dr. Achyuta Samanta Hon’ble MP of Lok Sabha for Kandhamal Odisha and Founder of KIIT & KISS, Hon’ble President, CSI Prof. A K Nayak as Guests of Honour and Hon’ble Chairman, National Board of Accreditation and Former President, CSI Prof. K K Aggarwal as Chief Speaker. CSI 2020 Convention Mentor Prof. Sasmita Samanta, Pro-VC, KIIT University presided over the meeting and Manas Pattnaik Convener CSI 2020 Convention briefed about CSI followed by vote of thanks by Dr. R N Behera, Ex Director NIC. Sanjay Mohapatra, Organising Secretary, CSI 2020 Convention, Chairman and Committee Members of different CSI groups were also present.

The three days - 53rd Annual International Convention CSI 2020 is the first largest and prestigious IT convention to be held in Bhubaneswar. The convention under the theme ‘Digital Democracy - IT for Change’ holds greater significance in the context of Hon’ble Prime Minister and Govt. of India’s effort to improve digital connectivity and taking technology to very strata of society. Further the convention also aims at highlighting the 5T initiative taken by Government of Odisha since it is an important component of Digital Democracy. As part of it, the Society further looks forward to Honour the Hon’ble Chief Minister of Odisha, Sri. Naveen Patnaik with CSI E–Ratna Award on the occasion of its 53rd Annual Convention.

Speaking on the occasion Sri Tusharkanti Behera, Hon’ble Minister, Department of Electronics & Information Technology, Government of Odisha said “It is also going to be moment of pride for Odisha to experience an IT affair held for the first time in Bhubaneswar which is surely going to encourage the ITians choose it as their career.” “Apart from this the convention will also help attracting investors in the sector of IT” he added.

The convention will provide a platform to the participants to share their views and ideas on the various aspects of the theme - ‘Digital Democracy- IT for Change’ in the present scenario. The programme will hold three sessions – Convention, Conference and Award Ceremony. As many as thirty inspiring IT Entrepreneurs as well as start-ups to be honoured in this convention.

More than 1000 Computer Professionals and Students from all over India and abroad will be participating in this convention. Delegates from different walks of life including industry experts, educationists, government officials and students will be participating in this convention. The programme will have sessions on general speeches of interest, paper presentations, panel discussions in multiple/track sessions. There will be exhibition stalls showcasing emerging products and services of the industry. Registration details for the convection has been made available on its website –www.csi2020.in and for more details one can login to www.csi-india.org/csi.in

Computer Society of India (CSI) is the first and largest body of Computer professionals in India started in the year 1965 by a few computer professionals and has now grown to be the national body representing computer professionals. The Annual Convention of CSI is the prestigious event of the Society being held every year since 1966 in different cities across India. The main features of the convention include technical sessions, tutorials, panel discussions, Exhibitions and awards ceremony.
Department of I.T. at I.T.S, Mohan Nagar, Ghaziabad in association with Computer Society of India organized “SAMAGRA-2019”, an inter-institutional Techno-Cultural Fest on Saturday 19th October, 2019. More than 750 students of over 60 Institutes participated in 14 different activities of the event under four categories including Technical, Cultural, Literary and Fine Arts. The event was full of fun, great display of talent, commitment, high class performances in all the categories.

The event was inaugurated with lamp lightening before Goddess Sarasvati by Vice Chairman, I.T.S- The Education Group, Sh. Arpit Chadha, Chief Guest Prof. A.K. Nayak - President, Computer Society of India, Key Note Speaker Shri R.K. Vyas, Vice President, Computer Society of India, Special Guest - Dr. S.K. Yadav, Honorary Secretary, Computer Society of India, Special Guest Shri Arvind Sharma, Regional Vice President (Region-1), Computer Society of India, and Regional Coordinator (Region-1) of CSI & Director (IT & UG) at I.T.S Ghaziabad Dr. Sunil Kr. Pandey.

While addressing the gathering Vice Chairman, ITS-The Education Group, Sh. Arpit Chadha appreciated the efforts by Event coordinators and students for the organizing this event where students from different institutes can showcase their talents. He said that I.T.S always provides different opportunities to the students to showcase their talent in the events like SAMAGRA.

Prof. A. K. Nayak in his inaugural address at the Chief Guest of the event shared his experience with all and also chanted many Sanskrit shlokas and gave live example of each one. While elaborating the purpose and objectives of SAMAGRA-2019, Prof. A. K. Nayak described about the trends of IT from its past to present and highlighted about the moving trends of the technology to the future, where it's integration with the changing domain which will completely change the life style of the Society. He also advised students to walk hand-in-hand with new technologies so that they will not feel any gap in industry and academia.

Key Note Speaker Shri R.K. Vyas discussed about various upcoming IT technologies. He also shared his experience. He advised students to take maximum participation in activities to expose them with variety of activities.

While addressing the participants Special Guest Dr. S.K. Yadav said that I.T.S is doing a wonderful job in organizing such activities where students get chance to show his talent and opportunity to meet with other students from various institutes. He also discussed about different online courses. He also encouraged participants to enroll in various online courses and take benefit from it.

Special Guest Shri Arvind Sharma also shared his experience and wished all the participants best luck and advised them to be updated as per the need of corporate world.

While addressing the gathering Director-IT, Dr. Sunil Kr. Pandey congratulated the team members of SAMAGRA-2019 and welcomed all the participants. He said that winning and loosing is the part of competition, but daring to participate, demonstrate one's skills & abilities on such competent forums is more important. During this event Shri Arpit Chadha, Vice Chairman, I.T.S - The Education Group was also felicitated by JEET KUNEDO FEDERATION OF INDIA as Ambassador of Jeet Kune do federation of India.

On this occasion, Prof. A.K. Nayak, President, Computer Society of India was felicitated with Life Time Achievement Award. The award was presented by Shri Aroit Chadha, Vice Chairman, I.T.S - The Education Group. On this occasion Vice President, Secretary, Regional Vice President (Region-1), Regional Coordinator (Region-1), State Coordinators of region-1, Members of CSI and large number of students were present and greeted him.

After the formal inaugural session, students of MCA 2nd & 3rd year welcomed all the dignitaries and participants by their foot-strapping Cultural activities. Earlier Prof. Puja Dhar welcomed all the
Regional Meeting of Region-1

A Regional Meeting, of Obs / Chapter Chair, Regional Student Coordinator and State Student Coordinators in Region-1, was convened on 19th October, 2019 from 12:00 noon till 4:00 pm at ITS, Mohan Nagar, Ghaziabad (UP). The President Prof. A. K. Nayak, Vice-President Shri R. K. Vyas and Hon. Secretary Dr. S.K. Yadav attended the meeting. Dr. S.C. Tyagi, Chairman Division 3 and Shri Deepak Sharma, Member National Nomination Committee were also present in the meeting. The meeting was attended by the OBs of some Chapters, Regional Students Coordinator and State Student Coordinators of different states. The meeting was presided over by the Regional Vice-President of Region-I.

The Agenda of the meeting was to discuss the Goals/plans for different Chapters, Reviewing of Membership status-current membership and new initiatives and steps to improve the image of the Chapter, Proposals for organizing Conferences / Seminars / Workshops during the year, Student Branch activities, Proposals for new Chapters / Student Branches etc.

The meeting started with the addresses of Prof. A.K. Nayak, Shri R.K. Vyas and Dr. Santosh Yadav who stressed on the points of maintaining discipline in conducting elections in time and timely submission of accounts in order to help the apex body maintaining the accounts and paying taxes like GST and Income Tax. It was also suggested that if any Chapter requires any help from HQ it should send a proper proposal along with the budget through the RVP of that Region.

During the meeting it was informed that next year Delhi Chapter shall be celebrating the Golden Jubilee of its existence and a proposal to open a new Chapter at Meerut was also mooted.

The venue and logistics were totally taken care of by Dr. Sunil K. Pandey, Director IT, ITS, Mohan Nagar, Ghaziabad (UP). He is the Regional Student Coordinator of Region-I.

In the end the vote of thanks was offered by Shri Arvind Sharma, Regional Vice President of Region-I.
One Day Hands-on workshop on Data Visualization through Tableau

Reported by Prof. J. Jerald Inico, Chapter Secretary, Chennai

The One-day hands-on workshop on Data Visualization through Tableau on 5th October 2019 was conducted by CSI Chennai chapter in association with Department of Data Science, Loyola College and was co-sponsored by Jeyachandran Textiles, Pallikkaranai, Chennai.

The inauguration started with the warm greetings by Mr. Jerald Inico, Hon. Secretary of CSI, Chennai Chapter and the welcome address by Dr. E. Iniya Nehru, Chairman, Chennai Chapter. The resource person, Mr. Ashwanth Raj G., an Expert Business Analyst was felicitated by Prof. P. V. Subramanian, Vice chairman and Mr. Anantha Padmanaban, Treasurer of the chapter. Then Dr. C. Muthu, Head, Department of Data Science, presented the dynamics of the workshop.

Mr. Aswanth gave a clear cut idea of the visualization tools that are available in the market. He started the session with the question why do we need visualization; he went on to explain the need for understanding the data. Then he briefed about the tools that are used for visualization such as Tableau, Power BI and Qlik. These three were the highly preferred tools by the business community.

He also explained the various versions of Tableau and their prices. The idea that business people prefer to depend on the software instead of the software team was quite new. He mentioned about the licensing of Tableau - user based and core based.

The architecture of Tableau was presented and the software platforms were displayed. He quoted the importance gained by python in the visualization area. The latest methods of visualization were also discussed.

The second session gave the attendees the hands on the practice with Tableau application and he encouraged enrolling at the tableaupublic.com. The Global superstore dataset was used to explain all the tools for in the tableau. He explained all the basics and the approach to learning, was guided with the step by step process.

The third session covered all the minute details of the tools available in Tableau. The data set contained attributes were used to experiment on all the available approaches. With the enthusiasm of the participants the fourth session was even more informative and the all necessary things were covered. The concept of dashboard building using the worksheets created on the visualization of data and how to perform dashboard actions, The best tableau practices are explained and performed for the better understanding.

The workshop ended with vote of thanks and certificate distribution. Over all feedback from the participants were good and the workshop helped them to gain understanding the key functions and key concepts on visualization through Tableau. Thus the workshop was a grand success.
E-Cell of Veermata Jijabai Technological Institute (VJTI) had organized their event Entrepreneurship Week. For their event “Insane Pitchers” Mr. Pradeep Rathi, RVP-6, CSI was invited as Chief Guest cum Judge. Insane Pitchers is a unique one of its kind event which is a state level marketing competition that provides a platform to budding entrepreneurs and students to show their convincing and marketing skills by selling objects to the judges that the common man calls insane.

At the event Mr. Pradeep Rathi gave a talk on entrepreneurship and shared his personal experiences. In his talk he gave insights on why you have to get your business model right and how to create a right business model. In his talk he laid emphasis on startup entrepreneurs should not copy or ape the business models of the West or East, but create India specific business models incorporating the local ethos, culture, customs, rituals, habits and sensibilities. He also gave insights and tips on how to create a successful and sustainable business startup.

VJTI, Mumbai is one of the oldest engineering colleges in Asia. Founded in 1887 and formerly known as the Victoria Jubilee Technical Institute. VJTI is an academically and administratively autonomous institute. E-Cell of VJTI is a student community which is working to foster the spirit of entrepreneurship, management & business acumen, stimulate the entrepreneurial spirit among the students and encouraging them to implement new ideas and innovation and promoting startup culture at their campus. CSI through its SIG on Entrepreneurship and Innovation is now going to be associated with e-Cell of VJTI and support their workshops, seminars and entrepreneurship events.
The Regional Vice President of Region-III, Mr. Jayant S. Bhide organized a regional meeting at Indore on 27th September, 2019 which was attended by the Chapter OBs, representatives of different CSI chapters from the state of Gujarat, Rajasthan and Madhya Pradesh along with the state student coordinators of respective states and the regional student coordinator of Region-III.

The purpose of the meeting was to review the past and ongoing activities of the CSI chapters and student branches belonging to these states along with preparation of road map for the future.

The meeting was presided by Shri. Jayant S. Bhide, Regional Vice President, Region-III in which the National President of CSI, Prof. A. K. Nayak and Hony. Treasurer Dr. Durgesh Kumar Mishra participated as the special invitees. The meeting was also attended by Chapter Obs and representatives from CSI chapters i.e. Surat, Rajkot, Baroda, Ahmedabad, Laxman Garh, Udaipur, Jaipur, Indore and Jabalpur along with the regional student coordinator, Dr. Mamta Padole and state student coordinators.

The RVP Mr. Jayant Bhide praised about the activities conducted by different chapters and congratulated the Office Bearers while delivering his welcome address to the gathering of the meeting.

In his address to the gathering CSI President, Prof. A. K. Nayak highlighted about the different action programs initiated by the Head Quarter and how the chapters can play the important role in streamlining the activities to make the society vibrant, productive and effective to achieve the scale of excellence. The Hon. Treasurer Prof. Durgesh Kumar Mishra spoke on the importance of financial discipline to be followed by the chapters for the smooth operations of the chapters.

The chapter representatives interacted with the President, Treasurer and RVPs about the various problems they are facing, particularly in the areas of the accounts operations and financial procedures. President and Treasurer assured them for resolving all the related matters as soon as possible. The RVP Mr. Jayant Bhide took the account of activities, membership drive and other academic related matter from the chapter representatives present in the meeting.

CSI Udaipur Chapter wanted legal advice for the problem with the hotel booked for CSI Convention which was cancelled afterwards. They were asked to discuss it again with the hotel in good atmosphere to find out a solution.

Regional student co-ordinator Ms. Mamta Padole discussed about the details of the students activities with state student co-ordinator and the chapters representatives of the Region-III. She has been assured by all concern to get best possible services and support from all of them.

23 members were present in the meeting and the meeting was conducted in quite healthy atmosphere and all were satisfied. It was seen a good co-ordination and co-operation among all during the meeting.
Two-day National Workshop on “Project Development Using Python (PDUP2019)”

Organized by Faculty of Computer Application, R. B. S. Management Technical Campus, Agra, U.P. in association with CSI Agra Chapter and Ninepages Techsolutions Private Limited, Gurgaon

On 4th & 5th October 2019

Reported by Prof. (Dr.) B.B.S. Parihar, Chairman, CSI Agra Chapter and Dr. K. K. Goyal, Secretary, CSI Agra Chapter.

A two-day national workshop on “Project Development Using Python (PDUP2019)” was organized by Faculty of Computer Application, Raja Balwant Singh Management Technical Campus, Khandari Farm, Agra (U.P.) in association with CSI, Agra Chapter and Ninepages Techsolutions Pvt. Ltd., Gurgaon on 4th & 5th October 2019. Prof. A.K. Nayak, President, Computer Society of India, Mr. Arvind Sharma, Regional Vice President, Region-I, CSI, Mr. R. K. Vyas, Vice-President cum President Elect. CSI, Dr. Puneet Mishra, State Student Coordinator, CSI, Prof. (Dr.) A.N. Singh, Dean Examination, Mr. V.K. Singh, Dean, Corporate Relations, Dr. K.K. Sharma, Dean, Faculty of Business Administration and Dr. D.S. Yadav, Dean, Social Outreach, R.B.S. M.T.C., Agra were the members of the advisory committee.

The workshop was started on 4th October, 2019 at 11:00 am with the garlanding and lamp lighting before the idols of goddess of wisdom Maa Saraswati and supreme creed Raja Balwant Singh Ji. Prof. (Dr.) Sanjeev Kumar, Head, Dept. of Mathematics, Institute of Basic Science, Dr. B. R. Ambedkar University, Agra was the chief guest and Dr. V.U. Vishnoi, Retired Professor, St. John’s College, Agra was the Guest of Honor of the ceremony. Mr. Rohit Singh, Application Developer, Ninepages Techsolutions Pvt. Ltd. was the keynote speaker of the workshop. Prof. (Dr.) B.B.S. Parihar, Director, R.B.S.M.T.C., Agra & Chairman, CSI, Agra Chapter, Prof.(Dr.) A. N. Singh, Mr. V. K. Singh, Dr. K. K. Sharma, Dr. K. K. Goyal, Dean, Faculty of Computer Application, and Dr. Pankaj Saxena, Dean, Student Welfare, R.B.S. Management Technical Campus, Agra share the dais with the guests. Dr. K. K. Goyal presented a brief introduction of the two-day workshop to the participants. Dr. Sanjeev Kumar addressed the participants about the increasing popularity of Python in solving real world problems related to machine learning and pattern recognition. Dr. V. U. Vishnoi encouraged participants to learn latest techniques and upgrade themselves to face the challenges in I.T. industry. Prof. (Dr.) B.B.S. Parihar motivated participants to learn Python and make them aware about the importance of Python in Data Analytics and Data Science. Prof. (Dr.) A. N. Singh, Mr. V. K. Singh, Dr. K.K. Sharma and Dr. Pankaj Saxena also addressed the gathering.

After the inaugural ceremony, the hands-on training workshop was started by Mr. Rohit Singh (keynote speaker of the workshop). Workshop was conducted in four interactive sessions. In the first session, participants were introduced with the basic concepts of Python, object oriented programing and file handling. In the second session, participants learned about overwriting images, generating .exe files, Python packages & modules, and GUI development using Python. The third session of the workshop was started on 5th October, 2019 at 9:30 a.m. It was based on accessing web camera, text-to-speech and speech-to-text conversion, handling audio & video files, and managing databases. In the fourth session, participants learned about sending e-mails, working with Google maps and Facebook API integration. This session was also focused on to make participants aware about the basics of machine learning and data science.

The valedictory ceremony was held on 5th October, 2019. Ceremony started at 4:30 p.m. Mr. Arvind Sharma, Regional Vice-President, Region, Computer Society of India was the chief guest and Prof. (Dr.) S. K. Sharma, Head, Department of Management, Dayalbagh Educational Institute, Agra was the guest of honor of the ceremony. Mr. Arvind Sharma addressed the participants about the formation, structure and functioning of CSI. Prof. (Dr.) S. K. Sharma inspired participants to actively participate in such types of workshops and events. Prof. (Dr.) B.B.S. Parihar, Prof.(Dr.) A. N. Singh, Mr. V. K. Singh, Dr. K.K. Sharma, Dr. K.K. Goyal, and Dr. Pankaj Saxena also share the dais with the guests.
Friday, September 21, 2019
1. Workshop on Ethical Hacking.
   Attended by: VIT III Sem CSE Students.

The workshop on Ethical Hacking was organized by CSI Students Branch, Vivekananda Institute of Technology, Jaipur. Keynote speaker was Naman Kumawat, student of Vth semester who gives hands on workshop on Ethical Hacking.

Tuesday, 24th September, 2019
2. Seminar on Ethical Hacking
   Attended by: VIT III Sem and V Sem CSE Students.

The Seminar on Ethical Hacking was organized by Computer Society of India Students Chapter Vivekananda Institute of Technology, Jaipur. Keynote speaker in the seminar was Mr. Abhishek, who gives practical training to students about Ethical Hacking.

Wednesday, 1st October, 2019
3. Workshop on Amazon Web Services
   Attended by: VIT III Sem, V Sem and VII Sem CSE Students.

The Workshop on AWS by IIHT was organized by CSI Student Branch Vivekananda Institute of Technology, Jaipur. Keynote speaker in the seminar was Mr. Manish Dewani, who shared some of the concepts of Cloud Technology.

Thursday, 3rd October, 2019
4. Seminar cum guest lecture on Java.
   Attended by: VIT III Sem, V Sem Computer Science Department

The Seminar on Java was organized by CSI Student Branch Vivekananda Institute of Technology, Jaipur. Keynote speaker in the seminar was Mr. Shubham Deep, by DUCAT who provides focus on the basic concepts of Java and where Java can be applied in applications.
MGM’s College of Engineering, Nanded (Region-VI)

22 August 2019 marked the beginning of a new venture for MGM’s College of Engineering, Nanded as it was the inauguration of CSI student branch and thereafter a 3-days workshop on “Web Development using Python (Django Framework)” was conducted. The CSI Student branch was inaugurated by the auspicious hands of Shri Kamal Kishor Kadam, honorable Chairman of MGM Society, in presence of Dr. Mrs. Geeta S. Lathkar, Director of MGM’s COE, Dr. Archana M. Rajurkar, Head, Dept of CSE, Ms. J. H. Patil, Remote Centre Co-ordinator and Mr. Rahul Singh G. Bisen, Assistant Professor, Dept. of CSE. Inaugural function started with Saraswati Pujan and lightning of lamp. The President of CSI Council, Samruddhi Deshpande gave the introductory speech and presented plan of workshops and other activities to be conducted in Dept. of CSE in association with CSI. Then members of CSI Council were felicitated by Honorable Kamal Kishor Kadam. The CSI Council members are President - Samruddhi Deshpande, Vice President, Jayesh Ukalkar, Secretary, Usama Shaikh, Secretary, Sakshi Dube, Joint Secretary, Rupesh Pund, Joint Secretary, Varad Kamtkar, Treasurer, Hariom Lapshetwar, Treasurer, Tohel Chini, CSI Magazine Head, Rohan Rokade, CSI Magazine Head, Bhakti Patil, CSI Student Volunteers, Vinit Komati, Nikhil Chalikwar and Rajat Vaidya. Dr. A. M. Rajurkar is CSI Students Branch Counsellor and Mr. Rahul Singh G. Bisen is a Coordinator. Director of MGM’s COE, Nanded, Dr. Mrs. Geeta Lathkar and HOD of CSE Department, Dr. Archana M. Rajurkar guided the students and Honourable Shri Kamal Kishor Kadam graced the students with their valuable words. The inauguration function concluded with the vote of thanks by Rahul Singh G. Bisen, Asst. Prof, CSE Dept., Padmukar Deshmukh, Akash and Ananda Bhise helped in smooth conduction of inaugural program and 3 days workshop. After inauguration of CSI Student’s Branch, three days workshop on “Web Development using Python (Django Framework)” was conducted by resource person Mr. Aniket Thorave, MiTu Skillologies, Pune.

Loyola Institute of Technology, Chennai (Region-VII)

On 5th of September 2019, the Department of Computer Science and Engineering and Information Technology launched the CSI Student Branch in Loyola Institute of Technology. The Branch was inaugurated by Chief Guest Dr. P Kumar, National Student Coordinator of CSI. Dr. G Bhuvaneswari HOD-CSE addressed the gathering and announced the representatives of the Branch. The representatives are Mr. R Vishnu, IV-CSE as the President, Ms. Reena Jenifer, III-IT as the Secretary and Ms Aishwarya Lakshmi, III-CSE as the Treasurer. Dr. W Gracy Theresa, Staff Coordinator of CSI Student Branch gave an introduction about CSI and its importance to the students and make use of the CSI platform to exhibit their talents and creativity in the technical areas around. A Video was released by the Chief Guest which narrates the origin and current activities executed by CSI Student branches all over India. The Chief Guest Dr. P Kumar gave a brief overview of CSI and encouraged the students to actively participate in all activities of CSI and to enrich their knowledge on current technology now. Followed by the inauguration, he also gave a technical talk on Cloud Computing. He explained it clearly with enough real time applications which was more excited and interested to the students. The technical talk was ended up with a good interactive session followed by Vote of Thanks by Ms. Reena Jenifer, Secretary of CSI student Branch.
The Student Branch Counselor & HoD Dr. R Juliana welcomed the gathering. The Principal Dr. L Antony Michael Raj felicitated the program. The faculty coordinator Dr. R Deepa introduced the office bearers for the academic year 2019-2020 to the assembly. The Chief Guest, Dr. P Kumar, National Student Coordinator, CSI gave a talk on Computer Society of India, its benefits, activities, publications and awards among them. He also briefed about the current trends in the IT field. Dr. A Janani, the faculty coordinator delivered the vote of thanks.

After the inaugural ceremony the full day event comprised of different activities under different categories including – Technical (Programming, Web Designing, IT-Quiz, Fastest Finger First, LAN Gaming), Cultural (Solo Singing, Solo Dance, Duet Dance), Literary and Fine Arts (Treasure Hunt, Collage Making, Rangoli and Cartooning).

Toward end of the Program all the winners in different categories were awarded with Medals, Certificates and Prizes by Prof. A.K. Nayak (President – CSI), Dr. Sunil Kr. Pandey - Director (IT & UG) at I.T.S Ghaziabad & Regional Coordinator (Region-1). On this occasion Coordinators of SAMAGRA-2019, Prof. Saurabh Saxena, Prof. Puja Dhar, Prof. Smita Kansal and Prof. Varun Arora, Faculty Members of Department of PG-IT & UG Campus were also present.
AHMEDABAD CHAPTER

PDPU IIC with the support of School of Technology, PDPU organized the first in-house hackathon event for CE-ICT students from 2nd, 3rd and 4th Year on 6th and 7th September 2019 in PDPU campus. PDPU IIC in association with SOT, PDPU, CSI-Ahmedabad Chapter and GESIA collaborated with 15+ corporate and industries for inviting problem statements for the students to work on. Statistics reveal the participation of 300 participants, 62 teams, 42 volunteers, 20 mentors and 6 jury members for the event. Pre-event inaugural of Let’s Hack for orientation was been organised at PDPU on 5-9-2019. Dignitaries like Prof. Sunil Khanna (Director SOT), Mr. Abhinav Kapadia(CFO-PDPU), Dr. Samir Patel (Head of CE Department) cheered the participants with their motivational words. Day 1 commenced with the registration of the students outside the Auditorium at 4:30 pm. Prof. Sunil Khanna opened the event and shared basic guidelines to the participants about the flow and rules of the event. The students were allotted a workspace and supplied with required resources to start working on their solutions. Mentors with sound technical and business knowledge guided the students to build a product that is technically efficient and is feasible in the commercial market. Day 2 showcased the ways to Connect the Database and Front-End and dynamically fetch information from Data. Presence of the faculties from CE Dept. and approximately 25 students made this event successful. Event was coordinated by Dr. Samir Patel.

KANCHEEPURAM CHAPTER

CSI Kancheepuram chapter in association with the Dept. of Computer Science and Engineering of Adhiparasakthi Engineering College, Melmaruvathur organized a guest Lecture on “Benefits of CSI Membership” on 22nd August 2019. Dr. C Dhaya, HoD-CSE welcomed the guest speaker Dr. M Senthil Kumar, Hon. Secretary, CSI Kancheepuram Chapter for the event. The Session started with an appreciation from the speaker for their eagerness to know about the benefits of CSI and went on with briefing the structure of the National Executive Committee members of Computer Society of India. He also gave a glimpse of the membership fee structure for both the students and life members. He also made an elaborate presentation on the benefits of CSI to the students, Institutional and life members. He clearly explained the different types of award nominations for students and faculty members in CSI. Finally, Vote of thanks was given by Dr. A Bhuvaneswari, HoD-IT. Totally 250 students and 25 faculty Members were benefited from this Guest Lecture. The Event was organized under the guidance of Chapter Chairman Dr. B Chidambararajan.
CSI Kancheepuram Chapter in association with CSE and IT department of St Joseph’s Institute of Technology in joint associate with Pristine Info Solutions organised Cyberthon a Cyber security and Ethical hacking summit on 6th September 2019. This event was organised with the objective to provide platform for the students to showcase their talent with a competitive spirit. Cyberthon 2019 was a massive event. In total, three competitive events and two technical talks were planned for the day. The events that were conducted to test the technical soundness of the students were Quiz, Poster presentation and Website testing.

The technical talk and felicitation was presided over by the principal of St Joseph’s Institute of Technology. We were indeed privileged to have Advocate Pankaj Bafna a specialized lawyer in conducting Trials and investigation in cyber-crime and financial fraud cases and Mr Rizwan Sheikh, CTO and founder at Pristine Info solutions and one of the India’s renowned Ethical Hacker, Information Security Researcher and Cyber Crime Consultant who not only graced the event. Over 150 students from various colleges and institutions participated in the events scheduled. The Event was organized under the guidance of Dr. B Chidambararajan, Chairman, CSI Kancheepuram Chapter.

R Sridaran (Dean, Faculty of Computer Applications, Marwadi University, Rajkot). Regional Vice President (Zone 3) Shri Jayant Rawal blessed the occasion by inspiring all members to contribute for activities of CSI. He also made various suggestions for improving the chapter activities.

The second meeting of CSI office bearers meeting was held at Marwadi Shares head office at Rajkot on 17 August 2019. Various matters including the responsibility sharing were discussed over there.

A Knowledge Forum Session (KFS) was held under CSI Rajkot chapter for enhancing the students knowledge in terms of technologies used in Apple devices. The iOS Expert Mr. Sanket Chauhan conducted a session about iOS and along with hands-on practice on 7 September 2019. Approximately 80 students attended the same. Similar workshop was conducted at RK university, Rajkot also wherein 90+ students attended.

CSI Reg-III Office bearers meeting was held on 27 Sep, 2019 at Aurobindo Institute of Technology, Indore. CSI President Dr. Nayak, Treasurer Dr. D K Mishra and RVP 3 Dr. Jayant Bhide addressed all the regional members from Gujarat, Rajasthan and Madhya Pradesh. The management committee member Dr. Brijesh Jajal and Vice President Dr. Ashwin Dobariya from Rajkot chapter attended the meet and shared their feedback for the CSI activities and office protocols and procedures.

CSI Rajkot Chapter

The Office bearer meet was held for CSI Rajkot Chapter members at Marwadi University campus, Rajkot on 30 July 2019. The meeting was organised by Gujarat State CSI Students’ Coordinator Dr
### FROM CSI STUDENT BRANCHES

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<tr>
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<th>REGION-III</th>
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<tr>
<td>Haldia Institute of Technology, Haldia</td>
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<td>Chandubhai S Patel Institute of Technology, Anand</td>
</tr>
<tr>
<td>31-8-2019 - Workshop on Git and Github</td>
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<tr>
<td>Babaria Institute of Technology, Vadodara</td>
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<tr>
<td>18-10-2019 &amp; 19-10-2019 - Hands-on Workshop on Augmented Reality with Game Design</td>
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<tr>
<td>Devang Patel Institute of Advance Technology and Research (DEPSTAR), Anand</td>
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<tr>
<td>7-9-2019 - Workshop on Python</td>
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<td>7-9-2019 - Seminar on 3D Printing and Applications</td>
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<th>REGION-V</th>
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<td>CMR Technical Campus, Hyderabad</td>
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## REGION-V

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<tr>
<th>Institution</th>
<th>Event Details</th>
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<td>KKR &amp; KSR Institute of Technology &amp; Sciences, Guntur</td>
<td>5-10-2019 · Mega Demo Day · Projects Exhibition</td>
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<tr>
<td>Dr. K V Subba Reddy Institute of Technology, Kurnool</td>
<td>30-9-2019 · Technical Seminar on AAKANSHA 2K19</td>
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<tr>
<td>Narasaraopeta Engineering College (Autonomous), Narasaraopet</td>
<td>1-10-2019 · Code Battle Contest</td>
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<tr>
<td>GITAM Institute of Technology, Visakhapatnam</td>
<td>16-9-2019 to 21-9-2019 · Skill Development Programme on Python Programming Language</td>
</tr>
<tr>
<td>Vasavi College of Engineering (Autonomous), Hyderabad</td>
<td>31-8-2019 · Aptitude Test</td>
</tr>
<tr>
<td>Dayananda Sagar Academy of Technology and Management, Bangalore</td>
<td>4-9-2019 · UI design Hackathon</td>
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<tr>
<td>Amrita School of Engineering, Bangalore</td>
<td>13-5-2019 · Inter College Project Exhibition-2019</td>
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<td>15-9-2019 · Online Quiz</td>
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FROM CSI STUDENT BRANCHES

REGION-V

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K.S. Institute of Technology, Bangalore

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<th>GSSS Institute of Engineering &amp; Technology for Women, Mysore</th>
<th>New Horizon College of Engineering, Bangalore</th>
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Alva’s Institute of Engineering and Technology, Mangalore

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<td>Santhiram Engineering College, Nandyal</td>
<td>Dnyanshree Institute of Engineering and Technology, Satara</td>
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<tr>
<td>26-8-2019 - Workshop on NAD Registrations</td>
<td>6-10-2019 - Workshop on Angular JS</td>
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<td>Pune Institute of Computer Technology, Pune</td>
<td>Sipna College of Engineering and Technology, Amravati</td>
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<tr>
<td>12-10-2019 – Hands-on Python Workshop - From basics to advanced learning</td>
<td>20-9-2019 - Seminar on Big Data Analytics and Data Science</td>
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<td>Sipna College of Engineering and Technology, Amravati</td>
<td>Phaltan Education Society's College of Engineering, Phaltan</td>
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<tbody>
<tr>
<td>Mount Zion College of Engineering &amp; Technology, Pudukkottai</td>
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<tr>
<td>5-9-2019 - Code Optimization contest</td>
<td>13-9-2019 - Students Colloquium for Engineer’s day Celebration</td>
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<td>REGION-VII</td>
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<tr>
<td>K.L.N. College of Engineering, Pottapalayam</td>
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<th>Date</th>
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<tr>
<td>1-10-2019</td>
<td>CSI State Level Students Technofest (Cluster’19)</td>
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<tr>
<td>4-10-2019</td>
<td>Guest Lecture on Industry Trends on Technology and Skills for Better Opportunities</td>
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| Rajalakshmi Engineering College (Autonomous), Chennai |

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<tr>
<th>Date</th>
<th>Event/Activity</th>
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<tbody>
<tr>
<td>21-9-2019</td>
<td>Design Thinking Summit’19</td>
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<td>28-9-2019</td>
<td>Event on Tech-a-Thon Product Development</td>
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| Shri Krishnaswamy College for Women, Chennai |

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<th>Date</th>
<th>Event/Activity</th>
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<tbody>
<tr>
<td>14-10-2019</td>
<td>National Seminar on Industry 4.0 Digital Business Transformation: How to seize your space in the midst of change</td>
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| Sri Venkateswara College of Engineering, Sriperumbudur |

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<th>Date</th>
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<tbody>
<tr>
<td>3-10-2019</td>
<td>Guest Lecture on Agile Programming</td>
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| SRM Valliammai Engineering College, Kattankulathur |

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<tr>
<td>6-9-2019</td>
<td>International Conference on Smart Automation in Computer, Electrical, Electronics and Communication Engg. (ICSA-2K19)</td>
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<tr>
<td>10-10-2019</td>
<td>Technical Contest</td>
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FROM CSI STUDENT BRANCHES

REGION-VII

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<th>St. Joseph’s College of Engineering, Chennai</th>
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Sethu Institute of Technology, Kariapatti

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<th>St. Joseph’s College of Engineering, Chennai</th>
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<tr>
<td>20-9-2019 - Guest Lecture on Data Science using Python</td>
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<th>Sethu Institute of Technology, Kariapatti</th>
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<tr>
<td>12-9-2019 - National Technical Symposium (ERUPTA ’19)</td>
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Nandha College of Technology, Erode

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<td>4-10-2019 - Guest Lecture on Architecting and Implementing Large IT Solutions</td>
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Marthandam College of Engineering & Technology, Kuttakuzhi

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<tr>
<td>1-10-2019 - National Level Technical Symposium</td>
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<th>Marthandam College of Engineering &amp; Technology, Kuttakuzhi</th>
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<tr>
<td>22-8-2019 - Hands-on Workshop on Network Simulation</td>
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<th>Marthandam College of Engineering &amp; Technology, Kuttakuzhi</th>
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<tr>
<td>28-08-2019 - Seminar on Robotics</td>
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REGION-VII
Manakula Vinayagar Institute of Technology, Puducherry

26-8-2019 & 27-8-2019 - Workshop on Web Development
31-8-2019 - Guest Lecture on IOT Applications using Cloud Computing

Jeppiaar Institute of Technology, Sriperumpudur

8-8-2019 - Event on Think Future

Student branches are requested to send their report to sb-activities@csi-india.org
Chapters are requested to send their activity report to chapter-activities@csi-india.org
Kindly send High Resolution Photograph with the report.

Talk by Er. Aruna Devi at CSI-NIE Student Branch

Er. Aruna Devi, Chairperson of Computer Society of India (CSI), Mysuru Chapter delivered a talk on ‘Importance of Python in the IT industry’ at the National Institute of Engineering, Mysuru on 4 September 2019 during the orientation programme organised for the first year students. Mrs. Aruna Devi spoke about how CSI is the most professionally managed association of and for IT professionals in India and discussed about the evolution of certain blooming technologies such as Blockchain and Machine Learning. Mr. Pavan Simha, Secretary of CSI-NIE Student branch, gave an insight into the benefits of becoming CSI Member also highlighted how one could explore a lot of opportunities for acquiring knowledge through technical papers, exchange ideas etc. The event also witnessed talk by the Head of the Department of IS&E, Dr. K. Raghuveer, which has definitely opened the minds of the students towards various forthcoming technologies.
CALL FOR PAPER

Computer Society of India - Annual Convention 2020
(at KiiT, Bhubaneswar, Odisha (16-18 January, 2020)

Theme: “Digital Democracy - IT for Change”

Computer Society of India is holding its prestigious Annual Convention (CSI2020) in world renowned University-KiiT, Bhubaneswar, Odisha from 16-18 January, 2020 in conjunction with an International Conference with the Theme “Digital Democracy - IT For Change”. Like previous years, Proceedings of the Conference of CSI2020 will be published by Communications in Computer and Information Science (CCIS) series of Springer.

Indexing: This Conference Proceedings will be indexed in DBLP, Scopus, Google Scholar, EI-Compendex, Mathematical Reviews, SCImago and Springer link. CCIS volumes are also submitted for the inclusion in ISI Proceedings.

The articles for this International Conference should be within 8 pages in the Springer one-column format. All submissions are subject to screening for plagiarism by Turnitin. Double blind review system will be followed and each paper will be reviewed by at least three reviewers. At least one of authors of each accepted paper must register for the conference and present the paper in person at the conference.

For more details regarding submission, visit: www.csi-india.org/csi2020

Authors are kindly invited to submit their formatted full papers including results, tables, figures, and references. All submissions are handled through the EasyChair portal: https://easychair.org/my/conference?conf=csi2020

Original research papers are invited in the following broad areas (but not limited to):

- Digital Democracy
  - E-Democracy
  - E-Governance
  - E-Judiciary
  - E-Learning
  - E-Commerce
  - E-Participation
  - Crowd Sourcing
  - Social Network
  - Machine Learning

- Digital Communication
  - Distributed Computing
  - Internet of Things
  - Cloud Computing
  - Mobile Communication
  - Edge Computing
  - Fog Computing
  - Wireless Sensor Network
  - Intrusion Detection System

- Digital Analytics
  - Web Analytics
  - Data Analytics
  - Big Data Analytics
  - Business Analytics
  - Software Analytics
  - Medical Informatics
  - Deep Learning

- Digital Security
  - Digital Forensics
  - Information Security
  - Network Security
  - Blockchain Technology
  - Social Network Security
  - Cyber Security

For any query, Please write mail on pkbehera.cs@utkaluniversity.ac.in

Important Dates:

- Last date of Submission: 15th November 2019 (extended)
- Date of Notification: 30th November 2019
- Camera Ready Submission & Registration: 15th December 2019

Sd/-

Dr. Prafulla Kumar Behera
Programme Chair
Computer Science Dept.
Utkal University, Bhubaneswar, Odisha, India.
Email-id: pkbehera.cs@utkaluniversity.ac.in

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National HQ: Samruddhi Venture Park, Unit No.3, 4th floor, MIDC, Andheri (E). Mumbai-400093, Maharashtra, India.
Phone: 022-2926 1700 • Fax: 022-2830 2133 • Email: hq@csi-india.org

EDU HQ: Education Directorate: CIT Campus, 4th Cross Road, Taramani, Chennai – 600 113, Tamil Nadu, India.
Phone: 044-2254 1102/03, 044-2254 2874 • Fax: 044-2254 1143 • Email: admin.officer@csi-india.org
CSI 2020
53rd Annual Convention of Computer Society of India™

DIGITAL DEMOCRACY - IT FOR CHANGE

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