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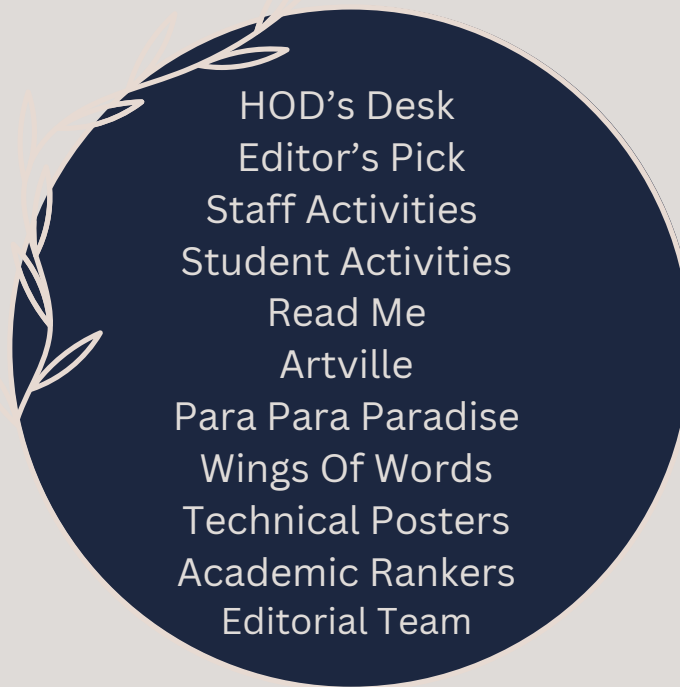
ECHNO

GRIND

V.E.S Polytechnic
COMPUTER ENGINEERING DEPARTMENT

- DECEMBER 2022

CONTENTS



HOD's DESK



Mr. Sanjay Wankhade
 (I/C) HOD

The Department was established in the year 2010 and since its inception, the department has evolved from offering a Diploma in Computer Engineering Course with the vision "To be center of excellence in the field of Computer Engineering by providing value-based quality technical education."

The Department works to address critical challenges faced by the Industry, society, and academia and also makes the student ready to grow in their academic pursuits with the skill.

The infrastructure and lab facilities are upgraded from time to time and provide a good practical and innovative learning environment for the students. The Department faculties work with excellent team spirit in different technical teams like the Web Development team, Networking and computer security team, and Application development team.

To motivate the students, the Department organizes regular Guest Lectures, training in state art of software & hardware, arranges workshops with CSI, technical events, seminars & industrial visits.

We welcome you to the Computer Engineering Department as a Diploma student and we hope to be part of your success.

Vision and Mission

- To be centre of excellence in the field of computer engineering by providing value based quality technical education.
- To impart and inculcate both theoretical as well as practical knowledge in students.
- To develop competent professionals who are proficient in analysis, design and implementation of broadly-defined computer problems.
- To create confident youth with a sense of duty, discipline and responsibility.

- Provide socially responsible, environment friendly solutions to Computer engineering related broad-based problems adapting professional ethics.
- Adapt state-of-the-art Computer engineering broad-based technologies to work in multi disciplinary work environments.
- Solve broad-based problems individually and as a team member communicating effectively in the world of work.

Program Educational Objectives

- Basic and Discipline specific knowledge: Apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the engineering problems.
- Problem analysis: Identify and analyse well-defined engineering problems using codified standard methods.
- Design/ development of solutions: Design solutions for well-defined technical problems and assist with the design of systems components or processes to meet specified needs.
- Engineering Tools, Experimentation and Testing: Apply modern engineering tools and appropriate technique to conduct standard tests and measurements.
- Engineering practices for society, sustainability and environment: Apply appropriate technology in context of society, sustainability, environment and ethical practices.
- "Project Management: Use engineering management principles individually, as a team member or a leader to manage projects and effectively communicate about well-defined engineering activities.
- Life-long learning: Ability to analyze individual needs and engage in updating in the context of technological changes.



Program Outcomes

- Computer Software and Hardware Usage: Use state-of-the-art technologies for operation and application of computer software and hardware.
- Computer Engineering Maintenance: Maintain computer engineering related software and hardware systems.

Program Specific Outcomes

Idol's Teachings



"Ignorance is the mother of all the evil and all the misery we see. Let men have light, let them be pure and spiritually strong and educated, then alone will misery cease in the world, not before. We may convert every house in the country into a charity asylum, we may fill the land with hospitals, but the misery of man will still continue to exist until man's character changes."

Editor's words

The Computer Engineering Department newsletter "The Techno Grind" is a bi-annual publication of the Department. It is written and edited by the department students selected in the newsletter committee. The students in the newsletter committee are selected through the process of first applying for the various posts in the newsletter committee, application scrutiny followed by personal interviews. Newsletter includes a detailed report of the Department activities. The students and the teachers get a scope to show their creative power through it. The newsletter contains poems, articles, short stories, short essays, reports of activities of various societies in the Department and an elaborate photo gallery providing glimpses of the campus activities.

The newsletter committee invites writings from the students. The editorial board selects the qualified ones for printing. The Department newsletter serves many useful purposes. The most important is that it brings out the latent creative talents of the students and thus helps them to form the habit of reading and writing. It also helps them to hone their intellectual skills as well as benefits in widening the horizons of knowledge. This gives a chance to the other students to be inspired by their peers' experience. The department newsletter "The Techno Grind" reflects the academic and co-curricular activities of the Department.

Every year, a team of editors, artists, photographers and designers deliberate over each page of the newsletter to ensure that the final issue is reflective of the collective vision of Computer Engineering Department in all its heterogeneous variety.

Thanks & Regards,

Vidya S Lunge
In Charge Exam Cell
V.E.S. Polytechnic, Mumbai



STAFF ACTIVITIES



Apart from the student's development, the department also focuses on faculty development so that the teachers can adapt themselves with the technological changes. Hence, the department encourages the staff to participate in the training programs, conferences and workshops.

- ✦ **Mrs. Vaishali Bodhale, Mrs. Meena Talele, Mrs. Shubhangi Chintawar and Mrs. Shubhra Tonge** attended a one week online workshop on "**Deep Learning with Python**" conducted by AISSMS, Institute Of Information Technology, Pune.
- ✦ **Mr. Dilip Nitture** attended a one week offline workshop on "**Emerging trends in computer technology**" conducted by Saraswati Institute of technology, Kharghar.
- ✦ One day online curriculum design workshop on "**Curriculum revision of Emerging Trends In Electronics (22636)**" and "**Emerging Trends In Electronics (22636)**" conducted by MSBTE was attended by **Mrs. Vidya Lunge**.
- ✦ **Mrs. Vaishali Bodhale, Mrs. Sangita Bhojar and Mrs. Shubhra Tonge** attended a twelve weeks online NPTEL course on "**Digital circuits**" conducted by NPTEL.
- ✦ **Mrs. Shubhangi Chintawar** attended twelve weeks online NPTEL course on "**The joy of Computing using Python**" conducted by NPTEL.
- ✦ **Mrs. Vidya Lunge** attended a twelve weeks online NPTEL course on "**Introduction to Industry and Industrial Internet of Things**" and four weeks online NPTEL course on "**Great Experiments in Psychology**" conducted by IIT Kharagpur.
- ✦ **Mrs. Deepa Gupte** attended twelve weeks online NPTEL course on "**Physics of Renewable energy systems**" conducted by IIT Kharagpur.
- ✦ **Mrs. Aditi Yadav** attended twelve weeks online NPTEL course on "**Biological Inorganic Chemistry**" conducted by NPTEL.

STUDENT ACTIVITIES



Desh Rangeela: A poster making competition on Frontline workers of Nation.

Humari DeshBhakti: A poem writing competition: On 18th August 2022, the 75th Independence Day, Students were asked to create posters and write poems on the given topics. The winners of competition were:

- **Poster Making:**

1st Prize: Sayali Golatkar (CO3I-A), Kavya Palishkar (CO3I-B)

2nd Prize: Aayushi Wani (CO5I-A), Esha Daiya (CO3I-A)

3rd Prize: Moniskha Jethani (CO3I-B)

- **Poem Writing:**

1st Prize: Fariya Baig(CO3I-B)

2nd Prize: Monishka Jethani (CO3I-B)

3rd Prize: Samiksha Desai (CO3I-B)



Poster Making Competition (TPP Workshop): On 10th September, 2022, The students of 3rd year were asked to create technical posters in a group.

The winners of the competition were:

1st Prize: P17- Roll No. 5,6,7 & P16- Roll No. 25,26,27

2nd Prize: P16-Roll No. 16,17,29 & 22,28,51 & P17- Roll No. 25,26

3rd Prize: P17-Roll No. 42,45,48 & 11,27,41

CSI Events: On 12th September, 2022 IOT and IOT based projects by Kushi Khanchandani, Amrita Naiksatam, Shweta Chachra from K.J. Somaiya college of Engineering gave an amazing presentation for the 2nd year and 3rd year students.

CSI Quiz Competition: On 23rd September, 2022 Technical - Geek-O-Pedia conducted was based on some basic fundamentals of C programming, HTML and Computer peripherals. The winners of the competition were:

Aayush Subhash Balip (CO3I-B)

Lalit Ravi Bajaj (CO3I-A)

Zaid Nadeem Kazi (CO3I-A)



Agree To Disagree (Group Debate Competition): On 12th October, 2022 Competitive Group Debate that heated the room took place for the students of 1st year. Most interesting facts and comebacks were seen during this debate. The winners of the competition were:

1st Prize: Yug Agarwal, Shresth Singh, Manthan Kalyani and Rutu Bauva (CO1I)

STUDENT ACTIVITIES



Engineer's Day Celebration

3rd year: Technical paper presentation, Group discussion

2nd year: Poster making competition: On 15th September 2022, Engineers day, students of 2nd and 3rd year were given opportunities to participate in events to win certificates and create creative projects that can be remembered by everyone. The winners of the competition were:

3rd Year:

- **Technical Paper: Smit Rambhia, Gandhar Bagade, Aayush Satra, Riyaz Memon, Chahat Nathwani (CO5I-B)**
- **Group Discussion: Smit Rambhia, Gandhar Bagade, Aayush Satra, Riyaz Memon (CO5I-B)**



2nd Year:

- **Poster Making: 1st Prize: Esha Daiya & 2nd Prize: Sayali Golatkar (CO3I-A)**

Teacher's Day (Greeting Card Making): On 27th September, 2022 the students were asked to make greeting cards and write something memorable or the things they love about their teachers without specifying which teacher. The winners of the competition were:

1st Prize: Mrunmayee Dalvi (CO5I-A)

2nd Prize: Sanskruti Yadav (CO3I-A) & Fariya Baig (CO3I-B)

Article writing competition (Gandhi Jayanti): On 04th October 2022, the students from every department were asked to write an article from the selective topics and the winners from every department awarded with certificates. The winners of the competition were:

1st Prize: Prerna Bahrani (CO3I-B)

2nd Prize: Rohit Motwani (CO5I-B)

3rd Prize: Atharva Naik (CO5I-A)

DegenDive Web 3.0 Session on AI and VR: On 30th November, 2022 A session was conducted for the students of 2nd and 3rd Year by Vyan Gandhi for the knowledge on virtual reality and artificial intelligence that left students amazed and students were given a chance to try the VR headsets.



READ ME

📍 GREEN PLANET , HEALTHY PLANET!!

On 15th October, 22 Vivekanand Education Society's Polytechnic, Chembur successfully completed the event of Tree Plantation under the National Service Scheme (NSS) at college campus. Trees are the foremost source for producing the oxygen in environment, they help to reduce the level of CO₂. As we all know that the whole world is facing the problem of global warming and to recover from such problem planting the trees is become one of the most important aspects of today.

In this auspicious event, Mr. Vishulala sir (Trustee of VESP), Mr. Vikrant Joshi (Principal of VESP) and many other respected members and teachers were also present along with 16 NSS members . 20 saplings were planted in all in the garden near the canteen in college premises.



📍 SCIENCE - SO VAST YET SO DOWN TO EARTH!!

The industrial visit to Nehru Science Centre on 13th September, 2022 was an informational trip for all the second and third year students of Computer Department of VES Polytechnic. The trip was planned for the students to have a look at the amazing innovations and sciences behind the most basic things in the world that humans interact with on a daily basis.

The center was opened to public of India by the then Prime Minister of India Rajiv Gandhi for the purpose of spreading the knowledge about different sciences and intrigue great minds in the field and that purpose was definitely served. The building was surrounded by a variety of trees and shrubs with seating arrangement between the nature.

The visit to the center astonished a lot of students and raised many amazing questions in their minds regarding science. The sciences behind different phenomenon was displayed at the center in terms of vision, energy, kinematics, sound, mechanics and computers.

The visit was concluded with amazed students who then proceeded to the canteen for food. The experience was truly amazing and everyone went home with new knowledge regarding science.



Time Spent with Nature

The industrial visit to Maharashtra Nature Park on 27th September 2022 was an informational trip for all the third-year students of the computer department of VES polytechnic. The trip was planned for the students to look at various activities related to Nature Conservation and Environmental Education. The park was declared open to the people on 22nd April 1994 i.e. "Vasundhara Divas-World Earth Day". The park is now converted into an Environment Education Park and thousands of students as well as visitors visit the park every year for the study of Nature and Environment related issues. Being fine abode to several species of flora and fauna, the park is visited mostly by nature lovers.



Our next industrial visit to Sanjay Gandhi National park on 11th of November 2022 was an informational trip for all third-year students of the computer department of VES polytechnic. The trip was planned for students to look various activities related to Nature and about our Ancient History. Sanjay Gandhi National Park is said to be one of the most visited national parks in Asia. Hundreds of thousands of visitors travel to the Kanheri Caves. Main attractions of the park are lion and tiger safaris for encouraging eco-tourism. Nature trails and treks are also popular. Rock climbing enthusiasts often visit the national park as the numerous rock faces there and at the Kanheri Caves offer opportunities for rock climbers. The Kanheri caves, located centrally in the park, were important Buddhist learning centres and pilgrimage sites sculpted by Buddhist monks.



This was an opportunity to learn and enjoy the outdoors with our classmates and teachers. We gained a solid understanding of how sustainability is used in real world and our history like about caves that had fantastic learning.



Artville



Aayushi Wani (CO5I-A)



Anmol Soneja (CO1I-A)



Vaishanavi Shejale (CO5I-A)



Mrunmayee Dalvi (CO5I-A)



Muskan Karamchandani (CO3I-B)



Sayali Mohan (CO3I-A)

PARA PARA PARADISE



I HEART SKY

I never thought that something could be more
beautiful than the stars and the moon but then I
look at the Sky

Unfolding my wings to fly high
Just wanna find the softest grass I can find to lay my
head in it

And look at the sky a little bit
Here comes the clouds so light
Beautiful, swift and bright!

Just like an infinite movie, I never get tired looking
at you

Who can even miss such a view?

And I fell in love again more than before
With me, the ombre sky and seashore.....



Niyati Vichare
CO5I-A

FROM THE SOIL. TO AND FRO

From Birth, Back to earth One day, it will all be dusted.
The mornings of glory,
And nights of worry;

From the first best friend, to the last small circle.
One day, it will all be dusted! From, that first failure to
that final success.

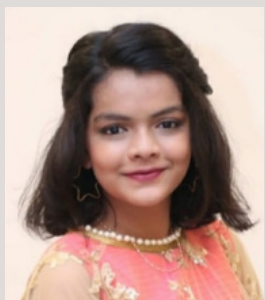
The Journey has the access.
For every tear cried, for every trial tried! One day, it will
all be dusted.

From the fear to lose, to the fomo of not living enough.
From that first pain, to reach core of zen.
One day, the road will all be dusted!. From the days when
homework was the only issue
to the era where keeping the home working well.

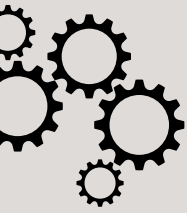
LIFE HAPPENS!

So, for how failure tasted, to make it all worth it, lets
shine before the phase is wasted!
Before, one day it all gets dusted!
Find Your exuberance Today, Coz tomorrow might not be
a day! So, rise, shine, explode, before you are rusted.

because, one day
It will all be dusted!
From Birth, Back to earth
It will all be dusted!



Rutu Bauva
CO1I-A



1. IS TECHNOLOGY A BANE OR BOON?

By Ishwari Nawathye (CO5I-A)

Technology is a word with a wide concept. It could not be explained in few words. It has been helping us in making our life a more convenient one. It is very difficult to imagine our life without these technological tools. Technology is the idea or creativity turned into practicality thereby resulting in the development of a device or machinery.

Technology helps us improve our lives and make things easier. However, there are two sides to everything. Undoubtedly, AI will grow further, but I am sure it will have both a positive and a negative impact on the world. The positive aspects of technology are Reduces the Workload, Reduces the Workload, A new light to the field of Medicine, Cashless Transactions, Enhanced Communication Made Learning Easier, and Technology has totally changed the way of teaching and learning. By this we cannot stop myself from agreeing that yes, while Artificial Intelligence is going to make life easier with all the advanced gadgets, but what about human beings? Where will we go? Are jobs going to exit? Will they stay secure?

Technology affects our sleeping habits, Technology has definitely impacted how we sleep. Many of us stay up far too late into the night texting friends or scrolling through social media. Technologies, such as handheld tablets, smartphones, and computers, can hold a person's attention for long periods. This may lead to eyestrain. It is possible for us to reduce technology's significant harm to our environment, our health by overcome unnecessary use of technology.

Technology is easy to be spelled of but has a very vast explanation. Its application has changed our life from nomadic dwellers to civilized people of today. The day is not so far when artificial intelligence will excel and the role of the human being will shrink just as the slaves of technology. It totally depends upon us that how we will be utilizing the same.

2. WHY ENGINEERING CHOSE ME?

By Aditya Madhwani (CO1I-B)

I was interested in technology because of one of the tech giants GOOGLE! Well, not because of its success story, I was interested because of google assistant and how I met google assistant. Thanks to my relatives who bought the google Pixel 1 roughly around November 2016 it was the only phone having google assistant, In the beginning, I thought google assistant is a human not "Kiki Baessell" who is well-rounded in every field and who is 24/7 available, Silly me! I browsed the internet and found that well it is a bot and later found that these bots are designed by us humans using programming languages so I gave a straight dive into the sea of knowledge and found that there are many programming languages c++ , java, python, swift and many more but learning about this makes me curious how these bots understand programming languages? I mean why are not human languages being used I found that well computers understand Binary numbers which lead us to get 256 ASCII values, and from that my world changed but due to falling in love with computers my academics was about to touch rock bottom so I decided I will hold my horses and wait for the right time.

I completed my 10th grade and scored a pretty good percentage now it was time for me to choose my career when I explore around I found that I have two routes to begin my expedition for pursuing computer science 1) DIPLOMA 2) SCIENCE after a lot of dissents and hearing both sides I decided to choose science, yeah you read it right SCIENCE but sometimes life doesn't go according to our plan well my father's friend told me about diploma well at the beginning I don't buy his opinion but when I talked to my Jiju who is now residing in USA he did diploma and really encourage me to take it as my path for success, again back to discussions and finally I made my mind for diploma, My mom and dad are very supportive they leave it on me, though they were concern about my future after I declared my final decision my dad asked my several times "Are you happy with your decision?" I always replied with a broad smile "Absolutely" due to my rigid decision they were satisfied and this is how I chose my diploma, so Ahoy sailors here I am on an expedition with you and hope these three years will be worth living.



TECHNICAL POSTERS

Artificial Intelligence: How It Is Changing Medical Sciences And Its Future

Lay VORA ,
Vivekanand Education Society's Polytechnic College Chembur,
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ABSTRACT

Computer systems are used extensively in medical sciences. Common applications include diagnosing patients, cost-based drug discovery and development, improving communication between physicians and patients, transcribing medical documents, such as prescriptions, and remotely treating patients. While computer systems often execute tasks more efficiently than humans, many recently, state-of-the-art computer algorithms have achieved accuracies which are on par with human experts in the field of medical sciences. Currently, the most common index for AI in medical settings are clinical decision support and imaging analysis. Clinical decision support tools help providers make decisions about treatments, medications, mental health and other patient needs by providing them with quick access to information or research that's relevant to their patient. In medical imaging, AI tools are being used to analyze CT scans, x-rays, MRIs and other images for lesions or other findings that a human radiologist might miss.

OBJECTIVES

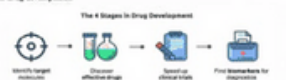
Artificial intelligence, or AI, is a general concept that machines can be taught to mimic human decision-making and learning behaviors. Medical fields that rely on imaging data, including oncology, immunology and neurology, have already begun to benefit from the implementation of AI methods. AI techniques are well suited to analyze this data and uncover patterns and insights that humans could not find on their own. With deep learning from AI, healthcare organizations can use algorithms to help them make better business and clinical decisions and improve the quality of the experiences they provide. Similar to how doctors are educated through years of medical schooling, along with on-the-job training, AI algorithms also learn how to do their jobs. Improving efficiency in operations by examining data patterns, AI techniques can help healthcare organizations make the most of their data, assets and resources, increasing efficiency. Applications of accurate and clinically relevant algorithms can benefit both patients and doctors through making diagnoses more straightforward.



Applications of Artificial Intelligence

Top 4 applications of AI in medicine today:

- 1. Diagnose diseases**
Currently diagnosing diseases takes years of medical training. Even then, diagnostics is often an arduous, time-consuming process. In many fields, the demand for experts far exceeds the available supply. This puts doctors under stress and often delays life-saving patient diagnostics. Such as:
 - Detecting lung cancer or stroke based on CT scans
 - Assessing the risk of sudden cardiac death or other heart diseases based on electrocardiograms and cardiac MRI images
 - Classifying skin lesions in skin images
 - Finding indicators of diabetic retinopathy in eye images
- 2. Develop drugs faster**
Developing drugs is a notoriously expensive process. Many of the analytical processes involved in drug development can be made more efficient with Machine Learning. This has the potential to shave off years of work and hundreds of millions in investments.
 - Stage 1: Identifying targets for intervention
 - Stage 2: Encouraging drug candidates
 - Stage 3: Speeding up clinical trials
 - Stage 4: Finding Biomarkers for diagnosing the disease



- 3. Personalize treatment**
Different patients respond to drugs and treatment schedules differently. So personalized treatment has enormous potential to increase patients' lifespans. But it's very hard to identify which factors should affect the choice of treatment. Machine Learning can automate this complicated statistical work - and help discover which characteristics indicate that a patient will have a particular response to a particular treatment. So the algorithm can predict a patient's probable response to a particular treatment. The system learns this by cross-referencing similar patients and comparing their treatments and outcomes. The resulting outcome predictions make it much easier for doctors to design the right treatment plan.



- 4. Improve gene editing**
Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR), specifically the CRISPR-Cas9 system for gene editing, is a big leap forward in our ability to edit DNA cost-effectively - and precisely, like a surgeon. Machine Learning models have been proven to produce the best results when it comes to predicting the degree of both guide-target interactions and off-target effects for a given sgRNA. This can significantly speed up the development of guide DNA for every region of human DNA.



CONCLUSION

AI is already helping us more efficiently diagnose diseases, develop drugs, personalize treatments, and even edit genes. AI looks well positioned to revolutionize the healthcare industry. AI systems can help free up the time for busy doctors by transcribing notes, creating and organizing patient data into portals such as EPCs and diagnosing patients, potentially serving as a means for providing a second opinion for physicians. Artificially intelligent systems can also help patients with follow-up care and availability of prescription drug alternatives. AI also has the capability of remotely diagnosing patients, thus extending medical services to remote areas, beyond the major urban centers of the world. But this is just the beginning. The more we digitize and unify our medical data, the more we can use AI to help us find valuable patient - patients we can use to make accurate, cost-effective decisions in complex analytical processes. AI has the potential to help fix many of healthcare's biggest problems but we are still far from making this a reality. One big problem and barrier from making this a reality to date, we can invest all the promising technologies and machine learning algorithms but without sufficient and well represented data, we cannot realize the full potential of AI in healthcare. The healthcare industry needs to digitize medical records, it needs to come together to agree on the standardization of the data infrastructures, it needs to create an enriched system to protect the confidentiality and handle consent of data from patients. Without these radical changes and collaboration in the healthcare industry, it would be challenging to achieve the true promise of AI to help human health.

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We are taking the opportunity to present the project report on the use of artificial intelligence in the medical field. The project is dedicated to Mrs. Laxmi for her valuable time right from the project's inception. She encouraged us to push harder because she was there as like a true mentor. Her suggestions have helped with the progress of our project. Our thanks go out to the Head of the Department, staff members, and lab assistants of VESIT.

Lay Vora(CO5I-B)

Know More About Cyber Security

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Introduction

Computer security, cybersecurity (cyber security), or information technology security (IT security) is the protection of computer systems and networks from information disclosure, theft of, or damage to their hardware, software, or electronic data, as well as from the disruption or misdirection of the services they provide.[1] Cybersecurity is the practice of protecting systems, networks, and programs from digital attacks. These cyberattacks are usually aimed at accessing, changing, or destroying sensitive information; extorting money from users; or interrupting normal business processes.[2] The field has become of significance due to the expanded reliance on computer systems, the internet, and wireless network standards such as Bluetooth and Wi-Fi, and due to the growth of smart devices, including smartphones, laptops, and other devices that constitute the Internet of Things (IoT). Cybersecurity is also one of the significant challenges in the contemporary world, due to the complexity of information systems, both in terms of political usage and technology to primary goal is to ensure the system's dependability, integrity, and data privacy.[3]

Objectives

The primary goal of cybersecurity is to ensure the privacy of information, the correctness of data, and access to authorized users. This brings us to focus on the 3 crucial aspects of security which are confidentiality, integrity, and availability of data collectively known as the CIA Triad. Addressing these three elements is the mantra to a successfully functioning business pointed against any form of cyber threat.[3] Confidentiality is to ensure the protection of data by preventing the unauthorized disclosure of information. [3] Integrity refers to the methods for ensuring that data is real, accurate and safeguarded from unauthorized user modification.[3] The 'availability' objective ensures that computer networks and systems work properly and services are accessible and are not denied for authorized users.[3]



Figure 1: Cyber Security and its various Perimeter Measures.

Figure 2: Cybercrime reported in India in last decade.

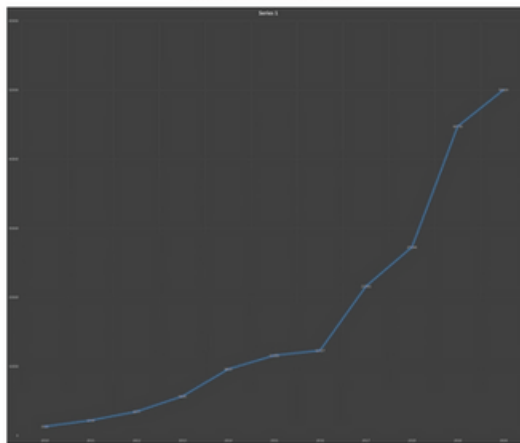


Figure 3: CIA TRIAD of Cyber Security.

Conclusion

Organizations are finding themselves under the pressure of being forced to react quickly to the dynamically increasing number of cybersecurity threats. Since the attackers have been using an attack life cycle, organizations have also been forced to come up with a vulnerability management life cycle. Thus, enhancing the cybersecurity posture of a system and by extension the organization in which it is embedded must be understood as an ongoing process rather than something that can be done once and then forgotten. Administrators especially at the high end and part of the threat spectrum constantly adapt and evolve their intrusion techniques, and the defender must adapt and evolve as well.

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- [6] <https://www.ibm.com/topics/cyber-security>

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We are really appreciative of the help we received from the college administration and the Department of Computer Engineering. Additionally, we appreciate Mrs. Vidya Laxmi and Mr. Mohan Shetty for offering us a unique course on creating technical posters.

Aryan Chauhan, Parth Gandhi, Yash Gandhi (CO5I-A)

TECHNICAL POSTERS

A Review of Cyber Security

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Introduction

Cyber Security is a procedure created to safeguard devices and networks from outside attacks. Businesses generally hire cyber security specialist to safeguard their private data, preserve worker productivity, and boost customer confidence in goods and services. [1] The industry standard of confidentiality, integrity, and availability, or CIA, is important in the field of cyber security. Only authorized individuals can access data in order to maintain privacy, integrity, and availability. Systems, functions, and data must all be readily available at all times in accordance with predetermined guidelines. The primary goal of cyber security is to interfere with essential infrastructure and routine corporate operations. Cybercriminals frequently misuse data in order to gain financial gain, inflict financial loss, harm someone's reputation, further military goals, or spread ideologies. Some people don't even need a reason to hack; they just do it for enjoyment or to show off their abilities. Companies are increasingly turning to cyber security experts to help provide threat and safeguard sensitive data in data breaches, banking, and cybercrime reach new heights. The market for cyber security is predicted to increase from \$152 billion in 2018 to \$246 billion in 2023, which makes sense.

Objectives

Almost all company processes are now conducted via the internet, putting data and resources in danger. [2] Any threat to one of these is a threat to the entire organization because the data and system resources that make up any corporation are its very base. Thus, identifying and reducing the unique goals of Cyber Security for each firm is essential in securing sensitive data. Data, resources, and devices are not to be protected from Cyber Attacks, and this is the ultimate purpose of Cyber Security in order to accomplish this, we need to focus on three primary Cyber Security objectives:

1. Protecting the Confidentiality of data
2. Integrity of data must be protected
3. Only allowing authorized people access to data

Name of the Attacks	Description	Examples
Reconnaissance Attacks	Type of attack which involves unauthorized intrusion, system mapping and services-to-steal data	a) Packet sniffers, b) Port scanning, c) Ping sweeps and d) DNS/Distributed Network Services Queries
Access Attacks	An attack where intruder gains access to a device to which he has no right for access	a) Port reuse utilization b) Port redirection c) Dictionary attacks d) Man in the middle attacks e) Social engineering attacks and Phishing
Denial of Service	Intrusion into a system by disabling the network with the intent to deny service to authorized users	a) Smurf b) SYN Flood c) DNS attacks d) DDos (Distributed Denial of Service)
Cyber crime	The use of computers and the internet to exploit users for materialistic gain	a) Identity theft b) Credit card fraud
Cyber espionage	The act of using the internet to spy on others for gaining benefit	a) Tracking cookies b) RAT (remote access Trojan)
Cyber terrorism	The use of cyber space for creating large scale disruption and destruction of life and property	a) Cracking the power grids by al-Qaeda via a network b) Poisoning of the water supply
Cyberwar	The act of a nation with the intention of disruption of another nation's network to gain tactical and military advantages	a) Russia's war on Estonia (2007) b) Russia's war on Georgia (2008)
Active Attacks	An attack with data transmission to all parties thereby acting as a liaison enabling severe compromise	a) Man-in-the-middle b) Black Hole Attack c) Modification of message
Passive Attacks	An attack which is primarily eavesdropping without modifying with the database	a) Traffic analysis b) Release of message contents
Malicious Attacks	An attack with a deliberate intent to cause harm resulting in large scale disruption	a) Smeared Attack
Non Malicious Attacks	Accidental attack due to mis handling or operational mistakes with minor loss of data	a) Registry overwrites b) Accidental erasing of hard disk
Attacks in MANET	Attacks which aims to slow or stop the flow of information between the nodes	a) Byzantine Attacks b) Transport Layer Attacks c) Flood Routing Attack d) Byzantine Wormhole Attack
Attacks on WSN	An attack which prevents the sensors from detecting and transmitting information through the network	a) Application Layer Attacks b) Transport Layer Attacks c) Network Layer Attacks d) Multi Layer Attacks




Fig 1: Cyber Security




Fig 2: Elements of Cyber Security




Fig 3: Cyber Security Life Cycle




Fig 4: Applications of Cyber Security

Conclusion

The fight against cybercrime never ends. There won't be a long-term, conclusive answer to the issue soon. The pressure to respond rapidly to the steadily rising number of Cyber Security threats is pushing organizations under pressure. Organizations were forced by law to develop a vulnerability management life cycle because attackers have been employing an attack life cycle. The vulnerability management life cycle is set up to hunt and most quickly block any attempts made by attackers. Specifically, data collection, storage, analysis, and sharing both enable more cybercriminals and the vast collection, storage, use, and distribution of data without users' informed consent and choice and necessary legal and security protections. Privacy, data protection, and security of systems, networks, and data are interdependent. In view of that, to protect against cybercrime, security measures are needed that are designed to protect data and user's privacy.

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Mobile Security Problems and Defensive Methods

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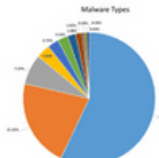
Introduction

Mobile devices are having applications for every activity of human life. Mobiles are used to perform bank transactions, and sensitive data transfer in the form of e-mails, messages, etc. Mobile devices are used to connect with family and friends through social networks. According to GSMA Intelligence, in 2017 there are 5 billion unique mobile subscribers around the world, and 3.1 billion mobile internet users. Most popular operating systems used in mobile devices are Android and iOS. There are different versions of Android operating systems like KitKat, Lollipop, Marshmallow, etc., similarly different versions of iOS are iOS 3i, iOS 5, iOS 8, etc. Compared to iOS 88% only 11% of Android mobile users having the latest Android operating system. Open Web Application Security Project (OWASP) [1] analyses mobile risks, according to their top risks 36, insecure data storage and insecure communication risks are most severe problems in mobile security. In this poster, described some significant security problems in mobile devices along with some defensive methods. This paper is structured as follows.


Objectives

Mobile security measures need to be followed by different entities at different stages to protect sensitive data of the user in mobile devices storage or while communicating over different channels. We consider Android mobile devices for our examples, but some methodologies are also applicable to iOS mobile devices. Fig. 3 shows how app files of Android applications reach the end user. These mobile applications, app files can be decrypted by anyone to get the source code, so it is possible for mobile application hosting providers or users to install or modify the source code. To protect mobile devices from security attacks there need to be a correlation between developers, mobile application hosting providers like Google play store, mobile device OS manufacturers and mobile device users [2].

Security Problems	Security Problems as per Condition	Score
Securing Data Storage	No Security	0
	Weak Security	0.5
	Strong Security	1
Securing Communications	No Security	0
	Weak Security	0.5
	Strong Security	1
Malware or Malicious Code	No	1
	Yes	0
Unpredictable Behaviour at Runtime	No	1
	Yes	0
Other Security Problems	No	1
	Yes	0



Malware Types



Number of detected malicious installation packages, Q3 2021 - Q3 2022

Conclusion

Mobile devices and their applications are growing too rapidly, so it is challenging to handle security problems in these mobile devices. We reviewed popular mobile security problems like the securing data storage, securing communications, cross-site scripting attacks and malware attacks. This paper analyzed and presented some of the defensive methods needing to be followed by the developers, mobile users and app hosting provider to prevent security issues on mobile devices. We suggested security scoring system for mobile apps at app stores, which may improve mobile app security by forcing developers to consider security as a requirement in their apps because compared to other similar apps the user may choose app with higher security scores.

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Fig 1: Different Communication Technologies



Fig 2: Weak SSL Communication

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