

# KIPM Campus Root

OCTOBER 2022



## Message From The Editor's Desk

With a perfect blend of ingenuity and contraption, we the editorial board of ATS, the association of CSE brings to lime-light, the CAMPUS ROOT, an embodiment of cutting-edge technologies and astounding facts, flashing some light on the innovative minds of our blooming engineers. Computer science is an ever expanding field and the power of what technology holds today is definitely beyond one's imagination, rendering dazzling set of ideas and therefore, "CAMPUS ROOT" is themed as "Idea is dawn. Dawn is an inception".

We use this opportunity to express our fervent gratitude and recognize the steady dedication of our Placement Coordinators who paved way for talent to meet opportunity. We express our sincere thanks to all association facilitators for their eminent efforts in organizing and indulging students in activities conducted by our association. At the outset, we thank our beloved faculty members for their perpetual brace and supervision in all our endeavors. We hope, you, the readers, will enjoy reading as much as we loved creating CAMPUS ROOT.

Happy reading buddies!!!

## Message From Our Chairman

**ER. R. D. Singh**  
**Chairman KIPM Technical Campus**  
**GIDA, Gorakhpur**



Dear students, these four years are very important in your life. The choices that you make and the effort you put in, will be a major determinant for success in your professional and personal lives.

### Our Features

- An Institute that has a good reputation, and where the best faculty, students and recruiters come.
- An institute that gives you personalized attention so that you don't remain just a face in the crowd.
- A program that is so rigorous and continuously evolving that it places you ahead of your peers.
- Faculty who are dedicated, hard-working and passionate towards your success, and who can be role models for you.
- A Hi-Tech environment that constantly exposes you to the latest technology and utilizes the latest techniques.
- An environment which encourages your all-round development besides focusing on academic excellence.
- An institute that lays strong emphasis on traditional values so that tomorrow you not only become a successful professional but also a responsible human being.
- An institute that works hand-in-hand with the corporate world so that tomorrow you are fully equipped to handle any challenges in the real life corporate situations.

**OCTOBER 2022**

## **Message From Our Managing Director**



**Mr. Vinod Kumar Singh**  
**Managing Director KIPM Technical Campus**  
**GIDA, Gorakhpur**

'Shaping young minds with skill-oriented and value-based education'- these words acceptably symbolize the mission and execution of KIPM Technical Campus. KIPM aspires to advance knowledge and educate students in various disciplines of Engineering, Management, Computer Applications and Pharmacy.

My dear students, KIPM is not elitist in its approach. While we do try to select brilliant students, we also accept those who are potentially sound. KIPM rather than restricting itself to the quality of students coming in, emphasizes on the quality of students going out from the Institution. A strong academic orientation lays the foundation for life-long learning. Thus, all activities at KIPM are oriented towards creating opportunities for students to discover, explore and learn not just within the confines of their curriculum but also outside the boundaries of classroom.

I welcome you all at KIPM which is not only an institute, but also a place of culture that strives at producing the new breeds of professionals.



**OCTOBER 2022**

## **Message From Our Director**



**Professor(Dr.) Suryakant Pathak  
Director KIPM -College of Engineering & Technology  
GIDA, Gorakhpur**

Dear Students,

My every endeavor for this college will be dedicated towards advancement of knowledge and educate our students in Science, Technology, and other distinguished areas of scholarship that will best serve the community, society, Nation and the world in the 21st century at large.

I hope to serve my students with all my might for as long as I could and provide them every assistance, be it in academics, or in co-curricular field, which is possible from our side. I wish that every student that enters this institution is of some worth after leaving this institution and we will ensure that this does happen.

## **Message From Our Assistant Director**



**Professor P C Srivastava**  
**Assistant Director KIPM -College of Engineering & Technology**  
**GIDA, Gorakhpur**

Dear Students,

A strong academic foundation supports most of the pillars of life and so, we, at KIPM ensure that the students here are served with the best knowledge that is possible at our level. I assume that you all might have some expectations from a college and thus we always strive to live up to your expectations.

The faculty here are well experienced and will be helpful in providing all sorts of information, knowledge and wisdom.

## Message From Our Dean



**Dr. Rakesh Kumar Pandey**  
**Dean Academics KIPM - College of Engineering & Technology**  
**GIDA, Gorakhpur**

It is with tremendous pride that I am serving as the Dean Academics of KIPM-College of Engineering & Technology during this time of continued growth and opportunities for the college and for our students. It feels great to see the initiative of our CSE department, including all the faculties as well the students that come up with innovative ideas to stand apart from the crowd and achieve new heights.

## Message From Our HOD



**Er. Ranjeet Kumar Rai**  
**HOD - CSE**

### **KIPM - College Of Engineering & Technology**

Welcome to the Department of Computer Science and Engineering in KIPM College of Engineering and Technology, GIDA, Gorakhpur. The Department of Computer Science and Engineering directs at bringing out the technical and inherent abilities of the young and future Engineers. The Department aims to motivate young professionals in building cognitive characteristics and improve the rising engineers with the latest trends in technology. The programme is designed to provide students both theoretical knowledge and practical skills in the newest technology. This curriculum is good enough for academia, government, research. industry, engineering, and management positions. The Department is committed to continuously improve the quality of education by enhancing the knowledge of students and staff members. The Department of Computer Science & Engineering is well equipped with centralized laboratories having the latest configurations and software.

## Message From Our Mentors

Nurturing creativity and inspiring innovation are two of the key elements of a successful education, and this technical magazine CAMPUS ROOT 2021, is the flawless amalgamation of both. No doubt this creative endeavor will bring out an assortment of technical, artistic and scientific articles with distinct individual autographs of CSE students. It harnesses the creative energies of the students' community and distils the essence of their inspired imagination in the most brilliant way possible.



**Er. Anurag Singh**  
Assistant Professor



**Er. Alok Kumar Srivastava**  
Assistant Professor

"Knowing and believing in our own potential is the primary requisite for being successful in all our endeavors". Believing in our own potentials more, motivates to prove ourselves. "Strive for progress, Move towards perfection" is the slogan behind ATS. It works with the motto of try, progress, never give up even if you make mistakes and improve continuously until perfection is reached. ATS has been functioning, successfully in full swing throughout the academic year 2021-2022. ATS secretary is the backbone behind all the activities of ATS. Office bearers and facilitators as the pillars of ATS have raised the students' association to the elegant level. We take this opportunity to appreciate all the ATS members for their magnificent efforts.



**Er. R. K. Singh**  
**Assistant Professor**

The association members of CSE are rapidly progressing towards zenith of Computer Science knowledge. It helps to depart from the existing academic world and to explore the new trends in technologies and development.

I wish to extend my deep appreciation to all those who have so generously volunteered their time and talents for publication of the ATS Magazine. Special thanks goes to our Publications Team and Editor who have shared their valuable effort in shaping the magazine and bringing out with a nice collection of articles.



**Er Vivek kumar patel**  
**Assistant Professor**

## The President's Message



**Pratyaksh Gupta**  
**CSE - III YEAR**

As the President of ATS 2022-23, I feel dazed with the splendid experience I've procured by working with concurring peers and networking with juniors. Looking back, this quarter has been a very special for the Department of Computer Science and Engineering. We have had many events in this quarter of the year. It was filled with training sessions, competitions and events. While we operated both in online and offline mode, what remained common irrespective of the mode of events was the enthusiastic participation of the department members. I am extremely delighted to be working with my team. As we come towards the end of our term. ATS is all about team spirit and there is no place for trivialities. We are not a team because we work together.. we are a team because we respect, trust and shoulder each other. I would like to extend my sincere gratitude to our faculty for their constant support and guidance as well as each student of our department for leaving no stone unturned to add their sparkle and contribute enthusiastically.

## The Vice - President's Message



**Ankita Mall**  
**CSE - III**  
**Year**

Being one of the office bearers of ATS 2022-23, I, personally had a lot of experience in managing events and people. We planned various events for the academic year 2021-22 including Mock Interview and Syllogism. The whole team of ATS 2021-22 had a lot of fun while working together as a team. ATS gave us a platform to interact with our juniors, helping them understand the industrial requirements, recruitment process and other technical aspects. I wish to thank the ATS Staff-in-charges for having trust in my skills and abilities. I would like to advise my juniors to never stop progressing in the process of learning.



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# Brain Computer Interface

Brain computer interface (BCI) or brain machine interface (BMI) acquire brain signals, analyze them and translate them into output devices that carry out desired actions. The main goal of BCI is to replace or restore useful functions to people disabled by neuromuscular disorders.

Brain computer interface need signal-acquisition hardware that is convenient, portable, safe, and able to function in all environments. BCIs measure brain activity, extract features from that activity and convert those features into outputs that replace, restore, enhance, supplement or improve human functions.

A BCI system consists of three components

- **Signal or data acquisition**

Signal acquisition in a BCI helps in the measurement of brain signals using a sensor modality. The sensor is basically a device implanted in the brain that records the signals.

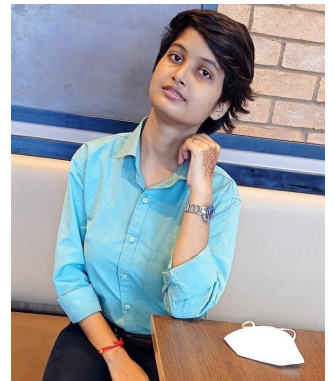
- **Signal processing**

Feature is extracted and translated in this processing. Digitised signals are analyzed to represent them in compact form suitable for translation into output commands. Resulting signal feature are passed to the feature translation algorithm, which converts feature into the commands for the output device.

- **Output Device**

The commands from the feature translation algorithm operate the external device of the Brain

Computer Interface, providing functions such as cursor control, letter selection robotic arm operation etc. The device operation then provides feedback to the user finally, thus completing the closed loop of the BCI.



Srishti Dubey  
CSE 2nd year

# Web Development

Web development is also known as website development or web application development. This web requires web designing backend programming ,and database management. Web development creates web applications using servers. We can use web server or machine server.

"Web development refers to the building ,creating and maintaining of websites. It includes aspects such as web design, web publishing ,web programming and database management. It is a creation of an application that works over internet i.e. website."

## **Classification of Web Development:**

- **Front-end web development**

Front-end web development is responsible for look and feel of a website. It means how colors, types, icons and images appear. Increasingly, front - end development has to account for how a website looks on all devices. HTML,CSS and JavaScript programming languages are use for frontend development.

- **Back-end web development**

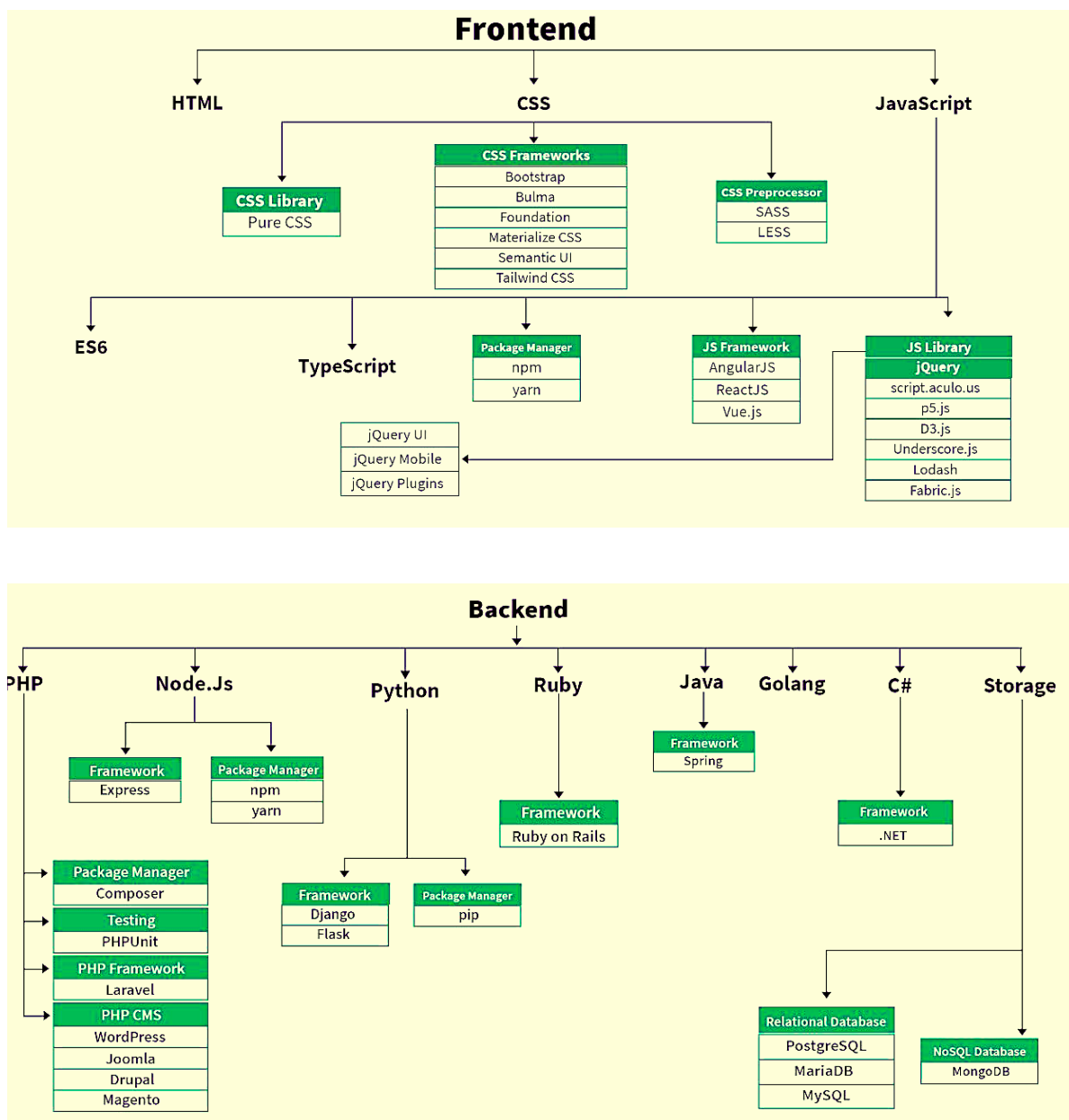
Back-end web development is responsible for building and maintaining the code that runs a website. this code connects the website to server and ensures the data flows properly to website and that transactions are processed correctly.

Java, PHP and MySQL programming languages are use for back-end development.

## • Full-stack web development

Full-stack web development covers both front-end and back-end responsibilities. Depending on the complexity of website, a full-stack developer may be responsible for all facets of its development, from the server side user interface.

Full-stack developers are often responsible for identifying cutting - edge technologies, such as enhanced programming languages and blockchain that can be used to strengthen websites' business capabilities.



## **Future of Web Development**

- Progressive web apps(PWAs)
- Single page web application(SPA)
- Voice application
- Dark mode UI
- Accelerated mobile pages
- AI powered chatbots
- Serverless architecture
- Internet of things(IOT)
- API first development



Shikha Singh  
CSE 2nd year

## Self-Taught AI

For a decade now, many of the most impressive artificial intelligence systems have been taught using a huge inventory of labeled data. An image might be labeled “tabby cat” or “tiger cat” for example, to “train” an artificial neural network to correctly distinguish a tabby from a tiger. The strategy has been both spectacularly successful and woefully deficient.

Such “supervised” training requires data laboriously labeled by humans, and the neural networks often take shortcuts, learning to associate the labels with minimal and sometimes superficial information. For example, a neural network might use the presence of grass to recognize a photo of a cow, because cows are typically photographed in fields.

“We are raising a generation of algorithms that are like undergrads didn’t come to class the whole semester and then the night before the final, they’re cramming.” Said Alexei A. Efros, a computer scientist at the University of California, Berkeley. “They don’t really learn the material, but they do well on the test.”

For researchers interested in the intersection of animal and machine intelligence, moreover, this “supervised learning” might be limited in what it can reveal about biological brains. Animals — including humans — don’t use labeled data sets to learn. For the most part, they explore the environment on their own, and in doing so, they gain a rich and robust understanding of the world.

Now some computational neuroscientists have begun to explore neural networks that have been trained with little or no human-labeled data. These “self-supervised learning” algorithms have proved enormously successful at modeling human language and, more recently, image recognition. In recent work, computational models of the mammalian visual and auditory systems built using self-supervised learning models have shown a closer correspondence to brain function than their supervised-learning counterparts.

To some neuroscientists, it seems as if the artificial networks are beginning to reveal some of the actual methods our brains use to learn.

Brain models inspired by artificial neural networks came of age about 10 years ago, around the same time that a neural network named AlexNet revolutionized the task of classifying unknown images. That network, like all neural networks, was made of layers of artificial neurons, computational units that form connections to one another that can vary in strength, or “weight.” If a neural network fails to classify an image correctly, the learning algorithm updates the weights of the connections between the neurons to make that misclassification less likely in the next round of training. The algorithm repeats this process many times with all the training images, tweaking weights, until the network’s error rate is acceptably low.

Around the same time, neuroscientists developed the first computational models of the primate visual system, using neural networks like AlexNet and its successors. The union looked promising: When monkeys and artificial neural nets were shown the same images, for example, the activity of the real neurons and the artificial neurons showed an intriguing correspondence. Artificial models of hearing and odor detection followed.



Rohit Jaiswal  
CSE 2nd year



# Cybercrime

## **What is crime?**

A crime is behavior that is punishable as a public offense. The elements of a crime generally come from statutes, but may also be supplied by the common law in states where the criminal common law still carries force. Although a crime is a crime but Cybercrime is criminal activity that either targets or uses a computer, a computer network or a networked device.

## **What people usually understand by cybercrime ?**

Everybody thinks that only stealing someone's private data is Cyber Crime. But in defining terms we can say that 'Cyber Crime refers to the use of an electronic device (computer, laptop, etc.) for stealing someone's data or trying to harm them using a computer.

## **Information regarding Cybercrime :**

It is an illegal activity that involves a series of issues ranging from theft to using your system or IP address as a tool for committing a crime.

From people's privacy to inter-state relations, the term "cyber" dominates the headlines and discussions - so much so that we risk being paralyzed by the magnitude of the problems we face.

Despite the many remaining questions about the future of cybersecurity and governance, we must take into account that international cooperation is the key element in addressing the growing threats of cybercrime.

Online exploitation and abuse of girls and boys; the black cyber markets for the purchase and sale of illicit drugs and firearms; ransomware attacks and human traffickers making use of social networks to attract victims. The unprecedented scope of cybercrime - crossing borders in our homes, schools, businesses, hospitals and other vital service providers - only amplifies the threats.

A recent study has estimated the global cost of cybercrime at \$ 600 billion. The damage done to sustainable development, security, gender equality, and protection - women and girls are disproportionately hampered by online sexual abuse - is immense. Keeping people online more secure is a huge task and no entity or government has the perfect solution.

Nevertheless, much can be done to intensify prevention and improve the response to cybercrimes.

## **How to avoid cybercrime:**

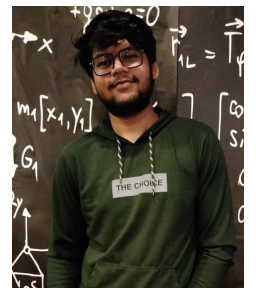
**1.By Using Strong Passwords:** Maintaining different password and username combinations for each of the accounts and withstand the desire to write them down. Weak passwords can be easily broken.

**2.Keep social media private:** Be sure that your social networking profiles (Facebook, Twitter, YouTube, etc.) are set to be private. Once be sure to check your security settings. Be careful with the information that you post online. Once if you put something on the Internet and it is there forever.

**3.Protect your storage data:** Protect your data by using encryption for your important diplomatic files such as related to financial and taxes.

**4.Protecting your identity online:** We have to be very alert when we are providing personal information online. You must be cautious when giving out personal ids such as your name, address, phone number, and financial information on the Internet. Be sure to make that websites are secure when you are making online purchases, etc. This includes allowing your privacy settings when you are using social networking sites.

**5.Keep changing passwords frequently:** When it comes to password, don't stick to one password. You can change your password frequently so that it may be difficult for the hackers to access the password and the stored data.



Ayush Pandey  
CSE 2nd year

## Robotics

Robotics originated with the goal of building human-like machines, but it has become much more than that. Even though we are still decades away from human-like machines, the developing robotics technologies are proving useful in ways that nobody expected: robot-assisted noninvasive surgery; disposal of roadside bombs, automated lab science for drug discovery, even auto-focus features in digital cameras. The broad impact of robotics is proven, even though robotics is still in the early stages of its development. Robotics thus affords a unique opportunity to make a cross-cutting investment that advances both fundamental research and development in an area are vital to U.S. competitiveness while providing the potential for near term job, business developments and educational returns. The specific proposal advanced is to create a competitive process to establish a series of robotics test beds in communities across the nation. These test beds would be devoted to specific health, transportation, agriculture, manufacturing and extended care services.

Some common and important uses are given below :-

- Connecting computers to the real world .
- Connecting humans to the real world.
- Robotics in service & Global competitiveness.
- Robotics road mapping
- Manufacturing
- Medical and HealthCare
- Services



Chandan Pandey  
CSE 2nd year

## Image Recognition

Image Recognition technology of AI that identify places, logos, people, objects, buildings, and several other variables in images. • Image recognition is a part of computer vision and a process to identify and detect an object or attribute in a digital video or image.

- The best example of image recognition solutions is the face recognition - say, to unlock your smart phone you have to let it scan your face. •

Multiclass recognition models can assign several labels to an image.

Modes and types of image recognition We can break image recognition into two separate problems: single and multiclass recognition.

In single class image recognition, models predict only one label per image.

- In cases where only two classes are involved (dog ,no dog), we refer to these models as binary classifiers.
- Multiclass recognition models can assign several labels to an image.

### **Working of Image Recognition**

- 1.We need a dataset containing images with their respective labels. For example ,an image of a dog must be labelled as a dog or something that we can understand.
- 2.Next, these images are to be fed into a convolutional Neural Network and then trained on them. These networks consist of convolutional layers and pooling layers in addition to Multi perceptron layers (MLP).
- 3.We feed in the image that is not in the training set and get predictions.

## Uses of Image Recognition

- **Drones:** Drones equipped with image recognition capabilities can provide vision based automatic monitoring, inspection, and control of the assets located in remote areas.
- **Manufacturing:** Inspecting production lines, evaluating critical points on a regular basis within the premises. Monitoring the quality of the final products to reduce the defects.
- **Forest Activities:** Drones can monitor the forest, predict changes that can result in forest fires, and prevent poaching.
- **Autonomous vehicles:** Autonomous vehicles with image recognition can identify activities on the road and take necessary actions. Mini robots can help logistics industries to locate and transfer the objects from one place to another.
- **Military Surveillance:** Detection of unusual activities in the border areas and automatic decision making capabilities can help prevent infiltration and result in saving the lives of soldiers.
- **Face Recognition:** Face recognition is a method of identifying or verifying the identity of an individual using their face. Face recognition systems can be used to identify people in photos, video, or in real-time.



Chanchal Sharma  
CSE 2nd year

# **ETHICAL HACKING**

## **What is Ethical Hacking?**

When we talk about Ethical Hacking, it is explicitly implied that we are talking about hacking that is based on ethical or moral values, without any ill intent. Ethical Hacking is defined as any form of hacking that is authorized by the owner of the target system. It can also refer to the process of taking active security measures to defend systems from hackers with malicious intentions on data privacy.

From a technical standpoint, Ethical Hacking is the process of bypassing or cracking security measures implemented by a system to find out vulnerabilities, data breaches, and potential threats. It is only deemed ethical if the regional or organizational cyber laws/rules are followed. This job is formally known as penetration testing.

To sum it up, an Ethical Hacker hacks the target system before any harmful hacker can. This allows the security team of the organization to apply a security patch in the system and effectively eliminate an opening for the attacker to enter the system or execute a hack.

## **Type of Ethical Hacking a. Web Application hacking**

Web hacking is the process of exploiting software over HTTP by exploiting the software's visual chrome browser, meddling with the URI, or colluding with HTTP aspects not stored in the URI.

### **a. System hacking :-**

Hacktivists gain access to personal computers over a network through system hacking. Password busting, privilege escalation, malicious software construction, and packet sniffing are the defensive measures that IT security experts can use to combat these threats.

## **b. Web Server hacking :-**

An application software database server generates web information in real-time. So attackers use Gluing, ping deluge, port scan, sniffing attacks, and social engineering techniques to grab credentials, passcodes, and company information from the web application.

## **c. Hacking Wireless network :-**

Because wireless networks use radio waves to transmit, a hacker can easily squirt the system from either a location nearby. To discover the Identifier and budge a wireless network, often these assailants use network snorting.

## **e. Social Engineering :-**

The art of manipulating the masses so that they divulge sensitive information is known as social engineering. Eugenics is used by criminals since it is generally easier to attack your organic hard time trusting than it is to figure out how to spoof your device.

## **Types of Hackers**

A hacker is a person who solves a technical issue by using a computer, networking, or even other abilities. Anyone who uses their skills to gain access to a system or network in application to break laws is referred to as a hacker.

- **Hat Hacker :**

White hat hackers, also known as ethical hackers, are cybersecurity experts who assist the government and businesses by performing penetration testing and identifying security flaws.

- **Black Hat Hacking :**

Black hat hackers are the main perpetrators of cybercrime. The majority of the time, the agenda of a black hat hacker is monetary. These hackers look for flaws in individual computers in businesses and banking systems.

- **Grey Hat Hacking :**

Grey Hat Hackers fall in between white and black hat hackers. Grey hat hackers may not use their skills for personal gain, they can however have both good and bad intentions.



Pragati Yadav  
CSE 2nd Year

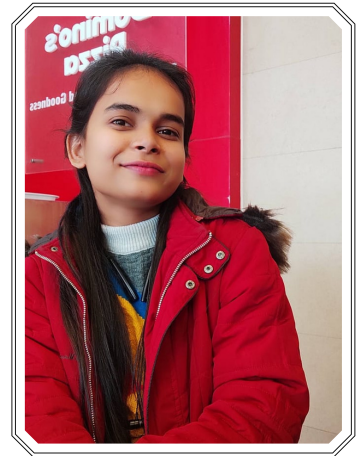


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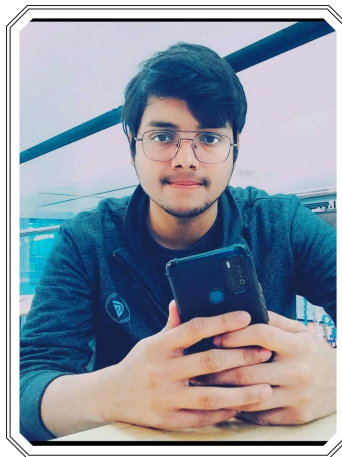
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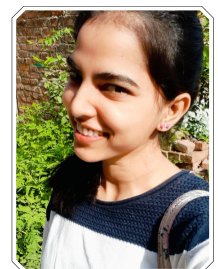


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Rohit Jaiswal



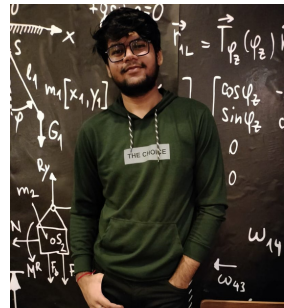
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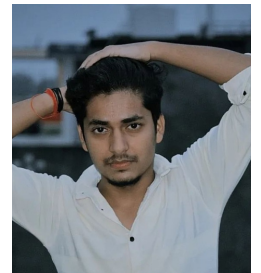
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# THANK YOU



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