

JANUARY 2022

# KIPM CAMPUS ROOT





### **MESSAGE FROM THE EDITOR'S DESK**

With a perfect blend of ingenuity and contraption, we the editorial board of ATS, the Association of CSE bring to lime-light 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 steadfast 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 endeavours. We hope all 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, the next 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.

Think.. Decide.. Act..

## **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



**JANUARY 2022**

## **MESSAGE FROM OUR DIRECTOR**



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

Dear Students,

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

**JANUARY 2022**

## **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 initiatives 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 H.O.D.**



**Dr. Ashish Kumar Sharma**  
**Head Of Department- CSE**  
**KIPM - CET**

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. Ranjeet Kumar Rai**  
**Chief Proctor**



**Er. Anurag Singh**  
**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.

We, as CSE Students Association (ATS) faculty in-charges feel proud in writing this cover note for the technical Magazine 'CAMPUS ROOT 2021'. It gives us immense pleasure to work along with the editorial team and association office bearers in giving shape to CAMPUS ROOT 2021 and releasing it successfully as per schedule, which in itself is an achievement, considering the effort and time required.



**Er. Alok Kumar Srivastava**  
**Assistant Professor**





**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. Ranjeet Kumar Dubey**  
**Assistant Professor**

## A FEW WORDS FROM OUR ATS MEMBERS

As the President of ATS 2021-22, I feel dazed with the splendid experience I've procured by working with concurring peers and networking with budding juniors. ATS has provided me with the dais to elevate my standards to one more level. My journey as a fragment of ATS has been prolific and fun filled by organizing events and activities for juniors, mentoring them with industrial requirements and enhancing their skills in technical aspects. 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 extend my genuine gratitude to the ATS staff in-charges for putting their faith in me and granting me freedom to accomplish my plans to actions. I use this opportunity to thank all those who spared a couple of minutes to take a peek into 'CAMPUS ROOT', an evidence of our zealous efforts. Lastly, my best wishes for those who become a part of ATS in the impending years, for they play a vivacious in escalating ATS to greater heights.



**Ayush Pratap Singh**  
**CSE - III Year**



**Alka Mishra**  
**CSE - III Year**

Being one of the office bearers of ATS 2021-22, 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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## **A Beautiful Journey Of Learning**

Living the last few moments of our college life, I would like to share something that you may find useful in determining your path in the process of learning. I don't want to waste these pages of the magazine by giving you some technical concepts which you don't want to know. I'm here to help you with the ways you could use to learn those technical concepts by yourself. Because I believe in the words.

Give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime."

I don't want you guys to be completely dependent on faculty members and seniors for learning. Learning is a never-ending process of expanding your knowledge and utilizing that knowledge acquired, to make this world a better place to live. That's what an actual engineer will do.

Let's start from day 1 of your college life. Some of us might have chosen a career in Computer Science out of passion. But, most of us might have chosen this career only out of the family's compulsion. In the first few months of your college, you might have had various thoughts on your career decision. No worries! If I could do it, why can't you? Whatever life gives you, the only thing that matters whether you put 100% of your effort before complaining about your family or friends. For us, there is always a demand for automation. If you like any other field other than computer science and regret your decision for choosing computer science and engineering as your career, please don't. Because I can promise you, that in any other field, there is a major role that computers have to play. So, I suggest you identify the domain which relates to your interest and start to work on that domain from the first year of your college.

In the second year of your Under Graduate Programme, you will be introduced with almost all of the core subjects of computer science. Please, don't even think of skipping the classes. If you do so, you could somehow clear the exams. But you will suffer a lot with placements. With these concepts known to you, you could understand the whole flow of a binary machine.



So, please concentrate on learning those concepts well. Ask a lot of questions and interact with your teachers and seniors, so that a lot of new problems and solutions can be discussed. Also, try to solve a problem with the minimum possible time and space. Always start with a working solution and then try to optimize the solution

Being promoted from Sophomore to Junior, you need to be more responsible for your actions. Try to do projects on your own, apart from Mini Project. Try to participate in programs like Google's Explore ML and Microsoft Student Partners.

Participate in competitions like Google Kickstart, Google Code Jam, Google Summer of Code and Smart India Hackathon. Apply for summer internships with tech giants like Google, and Amazon, Most importantly, never stop practicing competitive programming.

With all the above-mentioned works done, getting a job offer from dream companies will be a piece of cake. In the final year of your college, get a job offer at the earliest. Try to apply for companies off campus. I suggest you try more interviews from good companies. Never stop hunting for a job you deserve after the efforts you have put into your career. Make your parents proud. And never stop giving back what computer science community gave to you when you are in a need. Thank you and Good luck.



**Ashish Mishra**  
**CSE - IV Year**

## **Journey In Association**

During first year of our college life we had no idea about association. But, later we realized that association is something which connects us closely with the department and brings out the best in us. When we first stepped into the association, it was more of like another boring lecture session that we had to attend. So we bunked; we were irregular and also we messed up the session if we had to attend the it unfortunately.

We never realized until the end of 2nd year that association is such a beautiful thing which breaks the barrier of distant relationship with seniors and professors. out there. But then we regretted our mistakes at the very beginning of 3rd year. We decided to set right the mistakes. We started striving for the welfare of ourselves through association. Association is a key tool for all to develop their career. We take this as an opportunity to thank our seniors who dedicated their valuable time even in their rush hours.

They really strived hard to bring the best in us. In return, now, we the final year students are striving hard and making efforts to bring the best out of our juniors. And you, the one reading this article out there, we humbly request you not to commit the mistakes that we did. None is here to misguide you. The real of a precious stone is not known until it is taken from your hand. Professors here are of that kind. Have a grip of those precious stones and success will arrive at your door step.



**Preeti Singh**  
**CSE - IV Year**

## **Placement Guidelines**

This is Masoom. I would like to share some of my experiences gained during preparation. Placement is not a threatening process as you all think of. So throw away all the fear you have. The first and foremost thing you must concentrate on is your resume. It should be perfect and free from flaws. Make sure that you are familiar with everything you mention in the resume. Even if your content is small, don't worry. Focus is only on what you have cited.

You should be strong in core subjects like DS, DBMS, OS, CA and Networks. In data structures, try to solve the problems using relevant data structures related to the problem. Analyze the time and space complexity after completing the problem. When you get a question from DBMS, you should have an idea of creating a database for a system and also try to implement the concepts like normalization, keys etc..

Try to do real time projects as much as you can so that it can create a good impression on you (Only if you have new ideas not the existing ones). If you are using inbuilt functions for any algorithms in your program, you should be able to explain the algorithm to the HR clearly. They will also test your knowledge by asking questions from the projects you have done apart from subjects. So be prepared.

Be strong with at least 2 programming languages. It's well and good if you are strong in JAVA (That's what most companies expect). Some of the companies will ask you to solve real time application problems (long programming). So, have an idea of connecting the front end and the back end.

90% of the companies will have aptitude in their first round, where most of the students get eliminated. So make use of your vacation to cover aptitude. Don't by-heart the formulae. Try to understand the problem and solve accordingly.

Have a routine coding practice in platforms like Hacker rank and Hacker-earth and try to get through all the test cases. Be bold and confident while answering to an HR Maintain good attitude throughout the process. Adhere to dress code always. Express what you know and don't exaggerate things.

Look through the company's profile before attending the process. Share your interview experience with your colleagues and juniors too so that they can make use of it for their preparations. All the best for your placements!



**Masoom Zaid**  
**CSE - IV Year**



# **Hack-A-Thon**

## **What is Hackathon?**

There are many students who want to participate in Hackathon and they think that it is related to hacking only, but this is not completely true. Actually Hackathon is also known as a hack day, hack fest, datathon or codefest. Teams of many developers who are interested and work on development of apps, games or any other software field ,take part in Hackathon to solve realtime problems during this event..It's a 24-72 hours product making competition where every team needs to develop a product from scratch during those pretty hours. A team size can vary from 2-6 depending on the organization who is organizing it.

## **The benefits of participating in a Hackathon...**

For anyone looking to enter the tech field, participating in a hackathon can be a great learning experience and offers a unique opportunity to build a powerful network. One of the best things about hackathons is the opportunity to meet new people who care about the issue or technology.

### **1. Healthy work environment**

When you are working with a group of people who have the same skills that you have, it becomes more competitive for you. Some have multiple interests and skills, all are collaborating to solve a similar problem. The fact that there are time constraints makes the task more exciting and brings out the best in people.

### **2. Add up to your CV/RESUME**

When you add a hackathon participation certificate to your CV, it signals that you have the zeal to learn, sound programming skills, and great experience of working in intense environments. More importantly, participation in a hackathon instantly increases your knowledge and skill level.

### **3. Interesting way of learning**

Hackathons are very different from your routine work where you are asked to work on a small piece of code without knowing the big picture. At hackathons, you participate according to your interest and because of this, you are bound to learn something new about the development process. You stumble upon different ways of performing a particular task and learn a lot as a developer.

## **4. Prizes and achievements**

Hackathons are best known for prizes. If you create something awesome, you will win some cool prizes and bigger hackathons like usually have big prizes for winners as well as sponsors and partner organisations. These companies also have a physical presence in the hackathon which means you can personally connect with them. This is a great way to get noticed for your development skills and land a job in those big brands.

## **5. Interaction with the developer community**

A hackathon gives you the platform to meet, communicate, and collaborate with other developers. Through these conversations, you may get to know some techniques and hacks which might be beneficial for you and your team. Moreover, these developers can help and guide you through your code problems, interview needs, and learn more about other hackathons

## **What do you need to participate in a Hackathon?**

This is an important question, especially for beginners looking to increase their involvement in the programming field. The entry qualifications and experience levels vary depending on the event. So whether you're just dipping your toes into coding, you're on your way toward earning a programming Degree or you're a seasoned programming pro - there's a hackathon out there for you! Most hackathons try to be as inclusive as possible, welcoming programmers of all experience levels. While there is a competitive aspect, many participants are just there to have fun, socialize and learn. If you're unable to contribute anything to a team, you can always spectate. But having some basic programming knowledge is beneficial if you want to help out your team.

## **My Experience of Hackathon...**

I haven't got any chance to attend hackathon offline yet but I'll be joining in some of upcoming hackathons, currently i have participated in two hackathon which were held online , but unfortunately my team failed to win in both in one We got 2nd place , and in one we failed in project submission round , but between this two hackathons i learned why we failed and some of other very usefull knowledge which for sure it was'nt possible to learn in academics.

## Some of the things I learned from Hackathons...

- **Focus on one hackathon at a time**

- **How to form your Team**

Often people team up with their close friends in all of their hackathons. You should start forming teams with people who can contribute with their skill set to the hackathon.

- **Brainwash**

You need to sit down with your team mates on discussing your ideas and how you can solve the problem. Keep noting down all the ideas you all get because you never know which idea can be your winning point.

- **Remember it is a team work**

- **Don't hesitate to ask for help/ even you can discuss with other teams.**

- **Test your project regularly**

Always test your project multiple times before presenting it to the judges. In almost all of the hackathons I have participated, I have seen apps and websites getting crashed during judging round.

Keep screenshots and videos of your implementation ready with you if possible.



**Arun Singh**  
**CSE - IV Year**

# **Graphic Designing**

All article is written based upon something they had inspired through their vision. Thus, we get inspired something by our visual in this visually advanced world. So, the idea of article based on graphical designing is catchier to choose. so basically, what is graphical designing? By the web sources, it has been clearly defined in two ways. Firstly, Graphic Designing is the process of communicating visually using typography and images to present information. Graphic Designing practice embraces a range of cognitive skills, aesthetics and crafts, including typography, visual arts and page layout. Like other forms of design, graphic design often refers to both the process (designing) by which the communication is created and the products (designs) which are generated. Secondly, Graphic Designing is a creative process that combines art and technology to communicate ideas. The designer works with a variety of communication tools in order to convey a message from a client to a particular audience. The main tools are images and typography. There are eight types of graphical designing as mentioned below:

- Visual identity graphic design.
- Marketing & advertising graphic design.
- User interface graphic design.
- Publication graphic design.
- Packaging graphic design.
- Motion graphic design.
- Environmental graphic design.
- Art and illustration for graphic design.



- **Visual identity graphic design:**

Visual identity graphic design can be described as the visual elements of brand identity that act as the face of a brand to communicate those intangible qualities through images, shapes and color, Designers that specialize in visual identity graphic design collaborate with brand stakeholders to create assets like logos, typography, color palettes and image libraries that represent a brand's personality.

- **Marketing & advertising graphic design:**

Marketing designers work with company owners, directors, managers or marketing professionals to create assets for marketing strategies. They might work alone or as part of an in-house or creative team Example of Marketing & advertising graphic designs Magazine and newspaper ads. Example for Art and illustration for graphic design are Comic books, Technical illustration and Concept arts.

- **User interface graphic design:**

A user interface (UI) is how a user interacts with a device or application. UI design is the process of designing interfaces to make them easy to use and provide a user-friendly experience. Example of User Interface graphic design Web page design

- **Publication graphic design:**

Publication design is a classic type of design-think books, newspapers, magazines and catalogs Graphic designers that specialize in publications work with editors and publishers to create layouts with carefully selected typography and accompanying artwork, which includes photography, graphics and illustrations.

- **Packaging graphic design:**

Packaging designers create concepts, develop mockups and create the print ready files for a product. This requires knowledge of print processes and a keen understanding of industrial design and manufacturing.

- **Motion graphic design:**

Motion graphics design is a little new for designers. Formally reserved for TV and film, technological advances have reduced production time and costs, making the art form more accessible and affordable. Now, motion graphics is one of the newest types of design and can be found across all digital platforms, which has created all sorts of new areas and opportunities. Example for Motion graphic design are animated logos and promotional videos.

- **Environmental graphic design:**

Environmental graphic design visually connects people to places to improve their overall experience by making spaces more memorable, interesting, informative or easier to navigate. Environmental design is a broad type of design, here are some examples Public transportation navigation and Event and conference spaces.

- **Art and illustration for graphic design:**

Graphic art and illustration are often seen as being the same as graphic design, however they're each very different. Designers create compositions to communicate and solve problems, graphic artists and illustrators create original artwork.



**Salim Raza**  
**CSE - III Year**

# **Artificial Intelligence : A Brief Study**

## **Artificial Intelligence future-Less artificial, more than intelligence**

AI is going to change the world more than anything in the history of mankind. More than electricity.”— AI oracle and venture capitalist Dr. Kai-Fu Lee, 2018.

From driverless cars to voice automation in homes, artificial intelligence has progressed rapidly and is no longer just a concept from sci-fi movies and books. Artificial Intelligence Future is arriving faster than the predictions shown in the long hailed film “Minority Report” set in 2054. According to a research by scientists at the University of Oxford, Artificial Intelligence will be better than humans at translating languages by 2024, writing school essays by 2026, selling goods by 2031, writing a bestselling book by 2049, and conducting surgeries by 2053. In the next few years, AI will become an integral part of our lives reaching the level of super-intelligent machines to exceed human intellectual competencies.

AI is a technology that is transforming every walk of life. It is a wide-ranging tool that enables people to rethink how we integrate information, analyze data, and use the resulting insights to improve decision-making. Our hope through this comprehensive overview is to explain AI to an audience of policymakers, opinion leaders, and interested observers, and demonstrate how AI already is altering the world and raising important questions for society, the economy, and governance.

## **How will AI affect the future?**

Based on the recent technological advancements in AI, here’s how artificial intelligence will change the future –

### **1. AI to Open Up Millions of New Job Opportunities :**

“Artificial Intelligence will take our jobs!” is the most common fear surrounding artificial intelligence in the future. With artificial intelligence automating all kinds of work, we can think of a more comfortable future for ourselves that will create new jobs and not displace them. According to a report on the Future of Jobs by the World Economic Forum, AI will create 58 million new artificial intelligence jobs by 2022. There is an excellent chance that by 2030 AI will outperform humans in most of the mental tasks but that does not mean it will take away jobs. In fact, the Indian AI industry has doubled in size in 2019 compared to the previous year.

In just one year, 3 times more companies are working on AI-based projects and this momentum is likely to continue. India almost doubled its artificial intelligence engineers in 2019 (from 40K 2018 to 72K in 2019) but still faces a talent shortage. The growth in the Indian AI industry is powered by professionals transitioning into artificial intelligence engineer job roles by upskilling themselves through various mentored artificial intelligence courses.

## **2. AI in Healthcare:**

The future of AI in health care could include tasks that range from simple to complex—everything from answering the phone to medical record review, population health trending and analytics, therapeutic drug and device design, reading radiology images, making clinical diagnoses and treatment plans, and even talking with patients.

Nearly 86% of the mistakes can be prevented in the healthcare industry and AI will play a vital role in this. The future of AI in healthcare is a step towards democratizing healthcare for the benefit of patients and healthcare professionals alike, while at the same time making it less costly and more accurate through AI powered predictive care. Predictive analytics coupled with artificial intelligence can help understand various factors (place of birth, eating habits, local air pollution levels, etc) that influence a person's health. In the future, we can expect AI-powered healthcare systems to anticipate when a person is most likely to develop a chronic disease and suggest preventative medication to cure it before it worsens.

## **3. Artificial Intelligence Future in Banking**

According to IHS Markit's AI in Banking report, the global business value of AI in Banking is anticipated to reach \$300 billion by the end of 2030. Artificial Intelligence is all set to take center stage in the next decade in verticals like business intelligence and security with reduced cost, increased productivity, and enhanced customer experiences. Robo Advisors in wealth management will become a common sight and game changers in the banking space—saving significant amounts of time for wealth managers and customers. The banks of the future will not just personalize their services and products but will use AI to personalize customer experiences. A great example of such personalization would be removing the need to produce an ID card when you walk into the bank branch and still continue to be greeted with your name and complete knowledge of your entire bank account history.



## **Final Conclusion:**

As AI is increasing rapidly, we cannot stop or change the fact that soon AI will take over this world in no time. Everyone will be totally dependent on AI. Its before effects can be seen today only where we haven't made that much advanced AI but still, we are totally dependent on it. We can't change this fact but we can minimize the probability of getting destroyed by them. We can minimize their usage in those places where they aren't needed like going to places which are very near to us so instead of using any automobile or other source we can go on walking or by bicycle. Today, the major problem of our youth is that they have become so lazy that they can't start their day without checking their mobile once.



**Aman Maddheshiya**  
**CSE - II Year**

# **Starting With Competitive Coding**

This article will help you provide everything that you should know about Competitive Programming as a beginner.

## **What is competitive programming?**

Competitive Programming (CP) is a mind sport with one or more logical problems to be solved using programming. Each problem has some specifications which need to be satisfied to solve the problem.

The participants (known as competitive programmers) are required to solve these problems by writing efficient code. Most of the problems in competitive programming are logical or mathematical and may require the use of data structures and algorithms.

## **Online Judge**

In most contests, the solution is automatically verified with different test cases on an online judge. Generally, the solution must also run within the specified time and memory limits to make sure that only optimized solutions get accepted.

## **Scoring and Leaderboard**

Every problem has a predefined score (usually the same) and the leaderboard is computed based on the total score of each participant. Ties are generally resolved based on the total time taken to solve the problems. There might be other factors as well. Many competitive programming contests also add a time penalty for every wrong submission. Accuracy and testing play an important role in these contests.

**ACM-ICPC (the Olympics of Competitive Programming)** is the most popular competitive programming contest.

## Why should I do competitive programming?

You should do competitive programming because it will help you become a better programmer. Competitive Programming is extremely useful as it will help you for the following:

- 1- Become a better problem-solver and a fast thinker.
- 2- Learn how to write code fast.
- 3- Learn how to write efficient and optimized code.
- 4- Learn how to quickly and effectively debug your code. and many more.

## Where can I practice competitive programming?

I have listed down the most popular competitive programming platforms where you can practice.

**CodeChef:** Good for beginners, Long contests are a good way to learn and grow as a competitive programmer.

**Codeforces:** One of the most popular platforms. The contests have some really good problems. Practice here for ACM-ICPC.

**AtCoder:** Difficult questions compared to Codeforces. Top competitive programmers hang out here.

**USACO:** Most IOI participants hang out here. Pretty good problems.

**SPOJ:** Huge problem set. Good for practicing during the early days.

**Topcoder:** Was one of the best a few years back. Not very relevant now

## How do I start competitive programming?

You can start competitive programming by doing the following steps:

- Start by learning a language (C/C++ or Java)
- Practice coding on an online platform for warm-up
- Solve practice problems on CodeChef
- Start participating in CodeChef Long Challenges
- Start participating in short contests on different CP platforms



**Harshit Tiwari**  
CSE - II Year

# An Overview To Blockchain

## **Blockchain defined:**

Blockchain is a shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a business network. An asset can be tangible (a house, car, cash, land) or intangible (intellectual property, patents, copyrights, branding). Virtually anything of value can be tracked and traded on a blockchain network, reducing risk and cutting costs for all involved.

## **Why is Blockchain important:**

Business runs on information. The faster it's received and the more accurate it is, the better. Blockchain is ideal for delivering that information because it provides immediate, shared and completely transparent information stored on an immutable ledger that can be accessed only by permissioned network members. A blockchain network can track orders, payments, accounts, production and much more. And because members share a single view of the truth, you can see all details of a transaction end to end, giving you greater confidence, as well as new efficiencies and opportunities.

## **Key elements of a blockchain :**

- **Distributed ledger technology:**

All network participants have access to the distributed ledger and its immutable record of transactions. With this shared ledger, transactions are recorded only once, eliminating the duplication of effort that's typical of traditional business networks.

- **Immutable records:**

No participant can change or tamper with a transaction after it's been recorded to the shared ledger. If a transaction record includes an error, a new transaction must be added to reverse the error, and both transactions are then visible.

- **Smart contracts:**

To speed transactions, a set of rules — called a smart contract — is stored on the blockchain and executed automatically. A smart contract can define conditions for corporate bond transfers, include terms for travel insurance to be paid and much more.

## **How does a Blockchain actually works**

### **As each transaction occurs, it is recorded as a “block” of data:**

Those transactions show the movement of an asset that can be tangible (a product) or intangible (intellectual). The data block can record the information of your choice: who, what, when, where, how much and even the condition — such as the temperature of a food shipment.

### **Each block is connected to the ones before and after it:**

These blocks form a chain of data as an asset moves from place to place or ownership changes hands. The blocks confirm the exact time and sequence of transactions, and the blocks link securely together to prevent any block from being altered or a block being inserted between two existing blocks.

### **Transactions are blocked together in an irreversible chain: a blockchain:**

Each additional block strengthens the verification of the previous block and hence the entire blockchain. This renders the blockchain tamper-evident, delivering the key strength of immutability. This removes the possibility of tampering by a malicious actor — and builds a ledger of transactions you and other network members can trust.

### **Benefits of blockchain:**

What needs to change: Operations often waste effort on duplicate record keeping and third-party validations. Record-keeping systems can be vulnerable to fraud and cyberattacks. Limited transparency can slow data verification. And with the arrival of IoT, transaction volumes have exploded. All of this slows business, drains the bottom line — and means we need a better way to enter blockchain.



**Greater trust:**

With blockchain, as a member of a members-only network, you can rest assured that you are receiving accurate and timely data, and that your confidential blockchain records will be shared only with network members to whom you have specifically granted access.

**Greater security :**

Consensus on data accuracy is required from all network members, and all validated transactions are immutable because they are recorded permanently. No one, not even a system administrator, can delete a transaction.

**More efficiencies:**

With a distributed ledger that is shared among members of a network, time-wasting record reconciliations are eliminated. And to speed transactions, a set of rules — called a smart contract — can be stored on the blockchain and executed automatically.

That is all for an introduction for a Blockchain..



**Prabhat Singh**  
**CSE - II Year**

# **Alternatives To Paid Applications**

## **Libre Office -**

Libre Office is an open-source freeware that works almost similar to Microsoft Office. But the only difference you will find is Libre office does not look as updated as Microsoft Office in terms of its design.

For Word processing you get Writer, for spreadsheets, you get Calc and Impress for presentations. The apps offered in Libre Office do what the MS Office package does but with a different name.

## **GIMP -**

Adobe Photoshop is the most-used application for graphic design. But it is expensive with monthly bills that we need to pay to use its services. Every penny we pay for Photoshop is worth it if you know how to use it to its potential.

If you are someone who just crops images or does occasional image processing, Photoshop might be a bad idea. As a free alternative that works well as Photoshop, we have GIMP. It is a great application that works perfectly fine for beginner graphic designers.

## **DaVinci Resolve -**

If you are a content creator who is just starting to make videos for YouTube or other social platforms. DaVinci Resolve is a good idea to begin video editing with. It is a free software application that works well in place of Adobe Premiere Pro or After Effects.

On DaVinci Resolve, you can edit videos, color correct them, add special effects, animate, make titles, etc. It has superb features to cater to your video editing needs. Even most of the professionals use DaVinci Resolve to color correct their videos.

You can download DaVinci Resolve from [blackmagicdesign.com](https://blackmagicdesign.com)

## **Audacity -**

Podcasts are the new trendy content creation format. To create a podcast, you need a perfect audio editor to make the audio seem professional. Audacity is a free application that does the job. You can record audio, edit it and export the audio just as a professional editor like Adobe Audition CC, etc, does.

Audacity is an open-source application that lets you make audio perfectly apt for all mediums like social media, music streaming platforms.

## **7-Zip -**

7-Zip is one of the best zip or unzipping files. You can stop using the trial versions of WinRar or WinZip. 7-Zip can compress your files into different compression formats and can unzip your files from different formats.

It is a very user-friendly app that has the best security features. Also, it is an open-source application with a guarantee for safety.

## **Bitwarden Password Manager -**

The userbase for password managers has increased over the past few years. There are a lot of paid password managers that offer trial packs for the users to test. Bitwarden Password Manager is an open-source password manager which you can use for free forever.

You can use it on multiple devices and make the most out of it and secure your passwords.

## **Avira -**

Finding a good antivirus with maximum security features is not a simple task. Some antivirus software applications are free to use but we find it very difficult to uninstall them from our computer. Avira is the best pick for a free antivirus application for Windows.

Avira Free Security Suite does the same what some of the expensive paid Internet Security Suites do. It comes with all the necessary features to protect your PC from unwanted or malicious programs.

## **Psiphon -**

Psiphon is fondly called an internet circumvention tool that bypasses censorship and provides open and free access to the internet. We can simply call it a Virtual Private Network (VPN) application.

Normally, a good VPN costs us \$50-60 a year. Psiphon doesn't charge a penny and guarantees safety and privacy with its open-source code monitored by internet activists and communities. Psiphon encrypts all the traffic from your device and maintains a no-log policy.

## **BleachBit -**

If you are searching for a free disk cleaner application that actually does its job perfectly, like CCleaner, it might end here. BleachBit is a disk cleaning utility application that can replace similar paid apps that you use to clean cache, cookies, temp files, etc.

Another important feature BleachBit has is, it shreds the files without leaving any chance to recover them. You can delete cookies – including EverCookies, temporary data, form history, and web history.

BleachBit is completely safe as it is an open-source application.

## **Duplicati -**

Duplicati is a free backup software for Windows 10. It is an open-source application that is used by many all over the world. It backups your data online with AES-256 encryption and saves space by checking for duplicate files automatically. It also works with standard file sharing protocols like FTP, SSH, WebDAV, Google Drive, One Drive, AWS, Mega, etc.

Duplicati offers a web-based interface that you can access anywhere with your mobile or PC.

## **Snapseed -**

Snapseed is a photo-editing application for iOS and Android that enables users to enhance photos and apply digital filters. It was created by Nik Software, and is now owned by Google. It is one of the best free mobile editing apps available on the mobile platform and is free to install.

It can provide most features that can be handy to edit a photo on the go.

## **Lexis Audio Editor -**

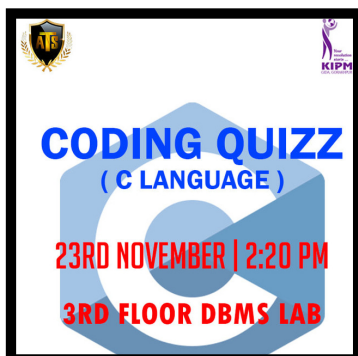
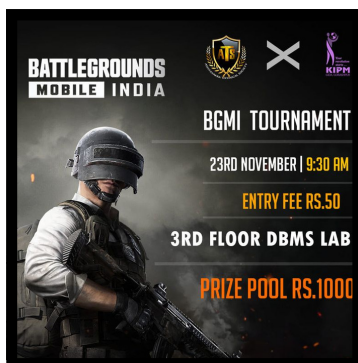
It is a free to download and use audio editor for iOS and Android platforms. It provides most of the basic audio editing features and is especially for the ones who want to try their hand in audio editing.



**Pratyaksh Gupta**  
**CSE - II Year**

# AARAMBH

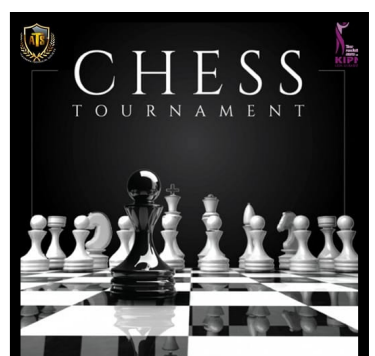
"Aarambh" was the first event organised by the ATS society and consisted of various events including the following competitions.



It was overall a great experience for all those who either participated or spectated. Few of them emerged as the winners of these events and the rest, with experience.

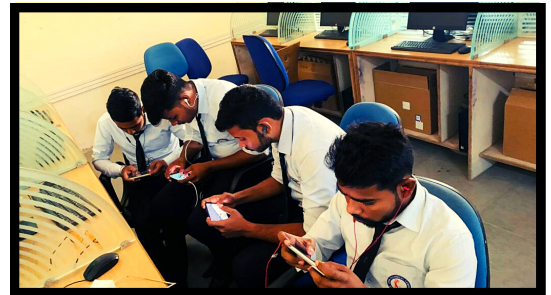
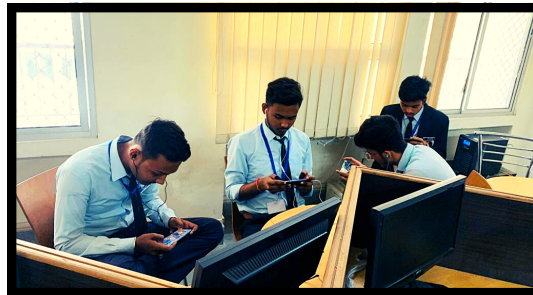
It is with all the support from the students and faculty that this event turned out to be so successful.

Below are some glimpses from the event day to relive the moments once again..

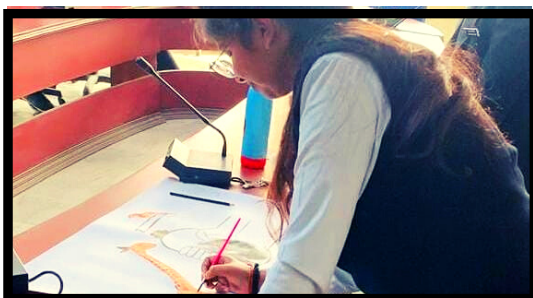




## Bgmi Tournament Highlights



## On-Spot Painting Highlights

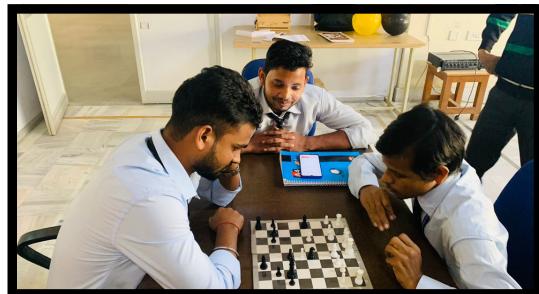




## Coding Quiz Highlights



## Chess Highlights



## The Winners Of Events

- The Winners Of BGMI Tournament -



- The Winner Of On-Spot Painting Competition-





- The Winners Of Coding Quiz Competition-



- The Winner Of Chess Tournament-



# Students' Achievements

## **Snackdown Certificate -**

This was a global level competitive programming competition and this certificate has been achieved by one of our mate, Harshit Tiwari of CSE - II Year achieved.



**Harshit Tiwari**  
**CSE - II Year**

## **ATS OFFICE BEARERS**



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# THANK YOU