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# DIGITAL OUTLET

THE CCET ACM TECH MAGAZINE

ACM CCET MOBILE APP

GET IT ON PLAYSTORE

PUBLISHED BY
CCET ACM STUDENT CHAPTER
CCET, DEGREE WING
SECTOR 26, CHANDIGARH

# OUR MISSION & VISION

**Our Mission** is to advance computing education and research, fostering innovation and collaboration globally. Through our bi-monthly digital outlet, we provide a platform for sharing knowledge and addressing societal challenges. We empower individuals within the computing community, promoting excellence and continuous learning.

**Our Vision** is to lead the forefront of computing's evolution, driving innovation and ethical practices that benefit all. We envision a dynamic global community where collaboration across disciplines sparks transformative solutions to society's most pressing challenges. ACM is committed to championing equitable access to computing's advantages worldwide. Through our magazine and platforms, we aim to inspire and inform, empowering computing professionals with invaluable resources and fostering a future where technology serves humanity's highest aspirations.

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# A NOTE FROM OUR MENTORS

Our mission at CCET is not only to produce engineering graduates but to produce engineering minds.

**Dr. Manpreet Singh**
Principal CCET (Degree Wing)

ACM CCET provides student a great opportunity to learn scientific and practical approach of computer science.

**Dr. Sunil K. Singh**
Professor and HOD, CSE | Faculty Mentor

Every person should be provided with an opportunity to learn and explore the field of computer science.

**Er. Sudhakar Kumar**
Assistant Professor, CSE | Faculty Sponsor

CCET ACM Student chapter is a group of people with similar interests and goals in computer science. Together, this platform focuses on the growth and development at not only personal but professional level also as it has a unique learning environment.

**Saket Sarin**
UG Scholar, 5th Semester, CSE | Chairperson, CASC

ACM-W Student Chapter of CCET aims to promote women in technology. As a member of this community, you will have the opportunity to collaborate with others who share similar interests and explore different areas of computing in order to advance in them.

**Aishita**
UG Scholar, 5th Semester, CSE | Chairperson, CASC-W


# CCET ACM STUDENT CHAPTER

Research and Development

Student Speaker Program

Competitive Coding

Designing & Digital Art

Internship and Career Opportunity

## ABOUT ACM

ACM boosts up the potential and talent, supporting the overall development needs of the students to facilitate a structured path from education to employment. Our Chapter CASC focuses on all the aspects of growth and development towards computer technologies and various different fields. Overall, we at CCET ACM Student Chapter, through collaboration and engagement in a plethora of technical activities and projects, envision building a community of like-minded people who love to code, share their views, technical experiences, and have fun.

We have been trying to encourage more women to join the computing field, so we started an ACM-W Chapter to increase the morale of women. CASC launched an app which aimed at maintaining decorum of reading among CS members and sharing their ideas.


# CCET ACM-W STUDENT CHAPTER

Research and Development

Student Speaker Program

Competitive Coding

Designing & Digital Art

Internship and Career Opportunity

## ABOUT ACM-W

The CCET ACM-W was founded in October 2021 with an aim to empower women in the field of computing and increase the global visibility of women in the field of research as well as development. We provide a platform for like-minded people so that they can grow together and contribute to the community in a way that shapes a better world. Our chapter was founded to encourage students, especially women, to work in the field of computing. The chapter's main goal is to create even opportunities and a positive environment for students, where they can work to develop themselves professionally. We at the ACM Student chapter aim to build a globally visible platform where like-minded people can collaborate and develop in their field of interest.

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Social Media Manager

**Simran Jaggi**
Event Manager

# CASC ACHIEVEMENTS

## CODEQUEST HACKATHON 2023

In the CodeQuest Hackathon organized by the ACM Student Chapter in collaboration with XIM University ACM Student Chapter on July 28-29, Team Tech Connect, comprising of CCET ACM-W Chapter members **Aishita, Ruchika Thakur** and **Vanshika Bhardwaj** secured **First position**, showcasing their exceptional talent and dedication in the technical field.



# CODEQUEST HACKATHON 2023

July 28th - July 29th, 2023

## Event Details

The CodeQuest Hackathon 2023, organized by CCET ACM & ACM-W Student Chapter in collaboration with XIM University-ACM Student Chapter, took place on July 28 - July 29, 2023. Participants unleashed their creativity and solved real-world challenges for a chance to win prizes. The first prize winner received Rs. 1000 and a certificate, while the second prize winner received Rs. 500 and a certificate. All winning teams also received additional goodies. The event was held in hybrid mode, with offline activities on Friday and online activities on Saturday.

# FAREWELL 2023

July 28th - July 29th, 2023

## Event Details

To bid adieu to the outgoing executive board of the CCET ACM & ACM-W Student Chapter 2022-2023, a farewell was organized on August 29, 2023. The event aimed at providing a formal platform to express gratitude and acknowledge the achievements and contributions of the departing members.

Our faculty mentor, Dr Sunil K Singh HOD, CSE delivered an insightful and motivating speech. In this address, he highlighted the growth, dedication, and enthusiasm displayed by the team during their tenure. Commending the team's commitment to organizing various technical workshops and competitions, which contributed significantly to the enhancement of the chapter's reputation. Our faculty sponsor, Mr Sudhakar Kumar shared his thoughts on the journey of the CASC Team 2022-2023. He emphasized the importance of extracurricular activities in nurturing well-rounded individuals and praised the team's efforts in promoting technological awareness and innovation on campus. A comprehensive presentation showcasing the achievements of the CASC Team during the academic year was given by the new executive board. The presentation included highlights such as successful workshops, coding competitions, industry collaborations, achievements and awards. The accomplishments demonstrated the team's commitment to fostering technical excellence and knowledge-sharing within the ACM and ACM-W community. A symbolic cake-cutting ceremony was held, with the outgoing executive board, faculty members, and the current team. The cake-cutting ceremony marked a joyful moment of unity, celebrating the collaborative efforts of the team. Members of the outgoing executive board took the stage to share their reflections on their tenure. They expressed gratitude for the opportunity to lead the club and thanked their fellow members for their hard work and dedication. The speeches were a mix of

nostalgia, personal growth stories, and optimism for the future endeavors of the club. The farewell event for the CASC Team 2022-2023 was a heartfelt tribute to the departing members who had dedicated their time, energy, and passion to advancing the club's mission. The event successfully captured the essence of their contributions, inspiring both current and future members to continue building on the club's legacy. As the event concluded, attendees mingled to exchange well-wishes and to express their appreciation for the significant impact made by the outgoing team

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# DEFENDING HEALTH: THE CRUCIAL ROLE OF CYBER-SECURITY IN HEALTHCARE

Simran Jaggi [CO22399, CSE 2022]


## Abstract

As we have all seen in the news, cybersecurity concerns, issues, and threats continue to grow rapidly every year. Often, the data they handle is very sensitive, and the adversary tries to obtain this data using various attacks. Cyber attacks designed to cause significant damage to the US economy will target healthcare information systems. The purpose of this research is to determine why we need to improve the security of the healthcare system and how to improve the security of the healthcare infrastructure. This article provides an overview of cybersecurity and its importance in healthcare. Several cybersecurity tools, features, and roles are being explored in the healthcare industry. This article examines some of the most advanced types of attacks in the healthcare industry and the damage they cause. The need for NGFW, advantages and configuration of such systems are presented. The purpose of this systematic review is to identify trends in cybersecurity, including payment software, and to identify possible solutions by searching the academic literature.


## Introduction

The unprecedented increase in the use of the Internet and related services has exposed us to several threats, including data loss, online fraud, scams and crimes. The answer to that question is "Yes" if we only use and know the right security and privacy tools. When you et, many types of unexpected and unwanted viruses, malware, and worms can enter and affect the normal operation of your computer system. This is one of the reasons why we are indifferent when we use websites and software. This insecure, confidential, personal and financial information and details can be stolen and misused by internet thieves, insiders and hackers who want to harm users; this is called cyber theft. Healthcare is a sector that is more vulnerable to cyber attacks, and thieves often use it to create weak points in a company's supply chain. Hackers outside the healthcare industry break into patient and medical systems to steal and collect information for funding purposes. Although it is necessary to protect patient data from the average employee, it can be difficult to do so because storage and sanitation are important to maintain a safe work environment. The cost of upgrading to a new system includes paying for maintenance staff and new technology. The stakes in the healthcare cybersecurity environment are undeniabl high, including patient

safety, privacy, regulatory compliance and maintaining trust. In health care, cyber security is important for everything from contact information and personal information to Social Security numbers and bank information, because fraudsters are always looking for vulnerabilities in the health care system. As a result of digital transformation, the healthcare industry is facing new cybersecurity risks. Most of the people involved in the health care industry. Most of the time, the information they deal with is highly sensitive, and adversaries are constantly trying to obtain this information using a wide range of attacks. The goal of this study is to discuss why we need to increase the security of the healthcare system and determine how to increase the security of the healthcare infrastructure. Several tools, traits, and roles of cybersecurity in the healthcare sector are studied. In this paper, a survey of the different types of most advanced attacks on the healthcare industry and the damage they cause is discussed. Finally, we identified and studied the applications of cybersecurity in healthcare.

## Various Tools for Cybersecurity in the Healthcare Domain:

Because of the ease of data retrieval and the increased security of patient information, many healthcare providers are shifting to cloud-based data storage solutions. The accuracy, security, and privacy of patient records are the responsibility of health information management. Patient information, sometimes protected under the Health Insurance Portability and Accountability Act, is among the most sensitive data currently available and one of the targets of hostile attacks frequently. As a result, developments in automation and interoperability have increased the risk f cyber catastrophies.

## Cybersecurity applications in healthcare:

Critical and confidential data includes, but is not limited to, financial information, the patient's protected health history and information, social security numbers, and data relevant to research and innovation. Hospitals rely on an intricate network of gadgets using cybersecurity to meet their demands and handle vast volumes of data and equipment. Doctors also use anonymization when it comes to data that is part of statistics or a strategy to improve a particular service.

## Conclusion:

It is imperative that time and funding be invested in maintaining and ensuring the protectioncof healthcare technology and the confidentiality of patient information from unauthorized access. In this digital age, securing healthcare involves safeguarding data. The intricate relationship between cybersecurity and healthcare is paramount for patient safety, data privacy, regulatory compliance, and the preservation of trust. Healthcare cybersecurity is not

merely a matter of compliance but a fundamental aspect of patient well-being and the long term success of the healthcare sector. By adopting robust security measures, staying informed-about evolving threats, and prioritizing the protection of sensitive patient data, healthcare organizations can fulfill their commitment to safeguarding health in the 21st century. In this critical intersection of technology and health, secure practices ensure the continuity of healthcare services and the protection of patients' lives and privacy. Hospitals should set their target level of cybersecurity beyond the requirements of current regulations and policies. Thus, policymakers need to introduce policies that not only raise the target level of cybersecurity capabilities but also reduce the variability in resource availability across the entire health care system.

# ETHEREUM, SMART CONTRACTS, AND SOLIDITY: REVOLUTIONIZING DECENTRALIZED APPLICATIONS

Palvasha Bansal [CO21347, CSE 2021]

## Abstract

Blockchain technology, with its decentralized and immutable nature, has ushered in a new era of trust and transparency in digital transactions. Ethereum, as a pioneering blockchain platform, introduced the concept of smart contracts, self-executing agreements with the potential to revolutionize various industries. This article delves into Ethereum, smart contracts, and the programming language that powers them, solidity.

## Introduction

Blockchain technology has revolutionized digital transactions, with Ethereum emerging as a foundational platform for decentralized applications (DApps) with the use of smart contracts which are fundamental to Ethereum blockchain. Fueling the creation of these smart contracts is the programming language known as Solidity.Solidity is Ethereum's native language, designed to enable the development of complex, secure, and efficient smart contracts. Its unique syntax and features facilitate the translation of human-readable contract terms into machine-executable code, laying the groundwork for innovative applications across a spectrum of industries. As we begin to understand Ethereum better it becomes evident that Ethereum, smart contracts, and t Solidity are not just technological innovations but catalysts for a fundamental shift in how we interact with digital systems.

## Ethereum Blockchain

The Ethereum blockchain is a revolutionary decentralized digital ledger system, reshaping digital transactions. It transcends typical blockchain uses, offering a versatile platform for decentralized applications (DApps) and self-executing smart contracts. Fundamentally, Ethereum serves as a decentralized framework for the execution and recording of smart contracts. These smart contracts are self-executing agreements governed by predefined rules and conditions. They are not only immutable but also autonomously execute when specific criteria are met, thereby eliminating the need for intermediaries across various transactions and processes. Ether (ETH), Ethereum's cryptocurrency, motivates network participants like miners and developers. Ethereum's blockchain, powered by "Proof of Stake" (PoS) consensus mechanism, which ensures both security and immutability, establishing an environment of trust and transparency suitable

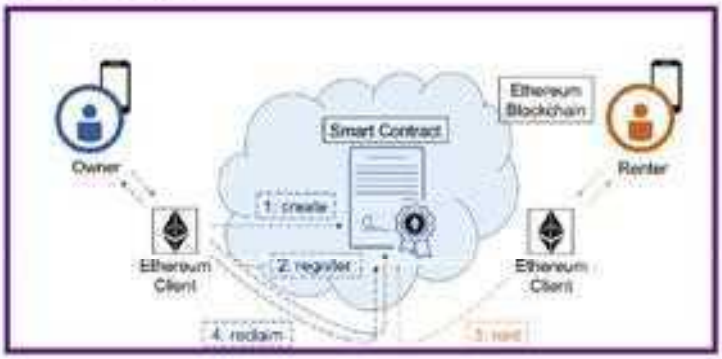
for a wide array of applications.

## Smart Contracts and DApps

Smart contracts and decentralized applications (DApps) are two pillars of blockchain technology that are transforming how we conduct transactions and interact with digital systems.

Smart contracts are automated agreements that execute based on predefined rules within a blockchain. When specific conditions are met, they trigger actions without the need for intermediaries, ensuring transparency and reducing the potential for manipulation. Their versatile applications span across various sectors, from finance to supply chain management, bringing about a transformative impact by automating operations and bolstering security, unlike conventional contracts.Decentralized Applications (DApps), on the other hand, are applications that run on a decentralized network, typically a blockchain. DApps leverage smart contracts to provide functionality, enabling trustless interactions between users. They range from finance and gaming to healthcare and governance. DApps are open-source, community-driven, and resistant to censorship, ensuring transparency and user control.

The primary elements of a system architecture consist of a smart contract residing within the blockchain, a native Ethereum client running locally, and a web application. The web app furnishes a user-friendly interface for the Ethereum client, whether it's local or not, facilitating communication with the smart contract situated on the Ethereum blockchain.




## Solidity

Solidity, a high-level programming language, is purpose-built for crafting smart contracts on the Ethereum blockchain. It forms the backbone of Ethereum's decentralized ecosystem, enabling the creation of self-executing contracts with predefined rules, automating trustless transactions. Drawing from JavaScript, Python, and C++, Solidity offers developers a familiar platform for constructing decentralized applications (DApps) and digital agreements. This language plays a pivotal role in ensuring smart contract security and reliability.

```
pragma solidity ^0.4.17;
contract Inbox{

    string public message;

    function Inbox(string initialMessage ) public {

        message=initialMessage;
    }
    function setMessage(string newMessage) public {
        message=newMessage;
    }
}
```

## Conclusion

In summary, Ethereum, smart contracts, and Solidity are pioneering the future of decentralized applications. Their impact on diverse industries is undeniable, offering transparency, automation, and security. As they continue to evolve, their transformative potential remains at the forefront of blockchain innovation, reshaping how we interact in the digital realm.

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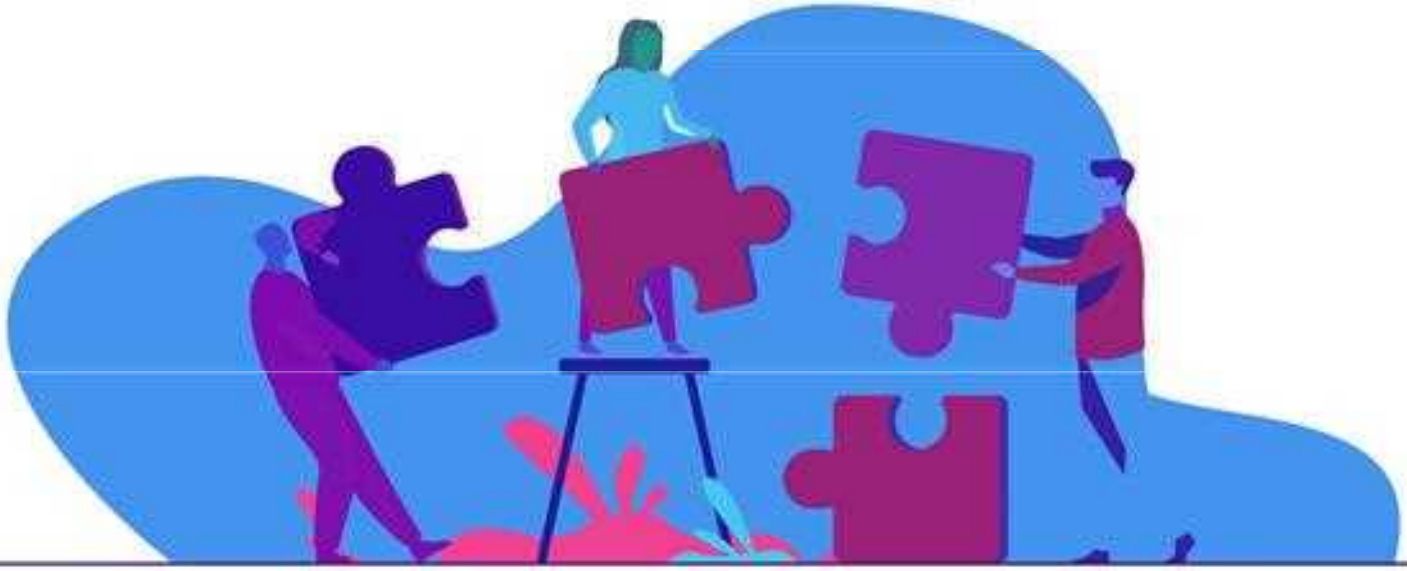

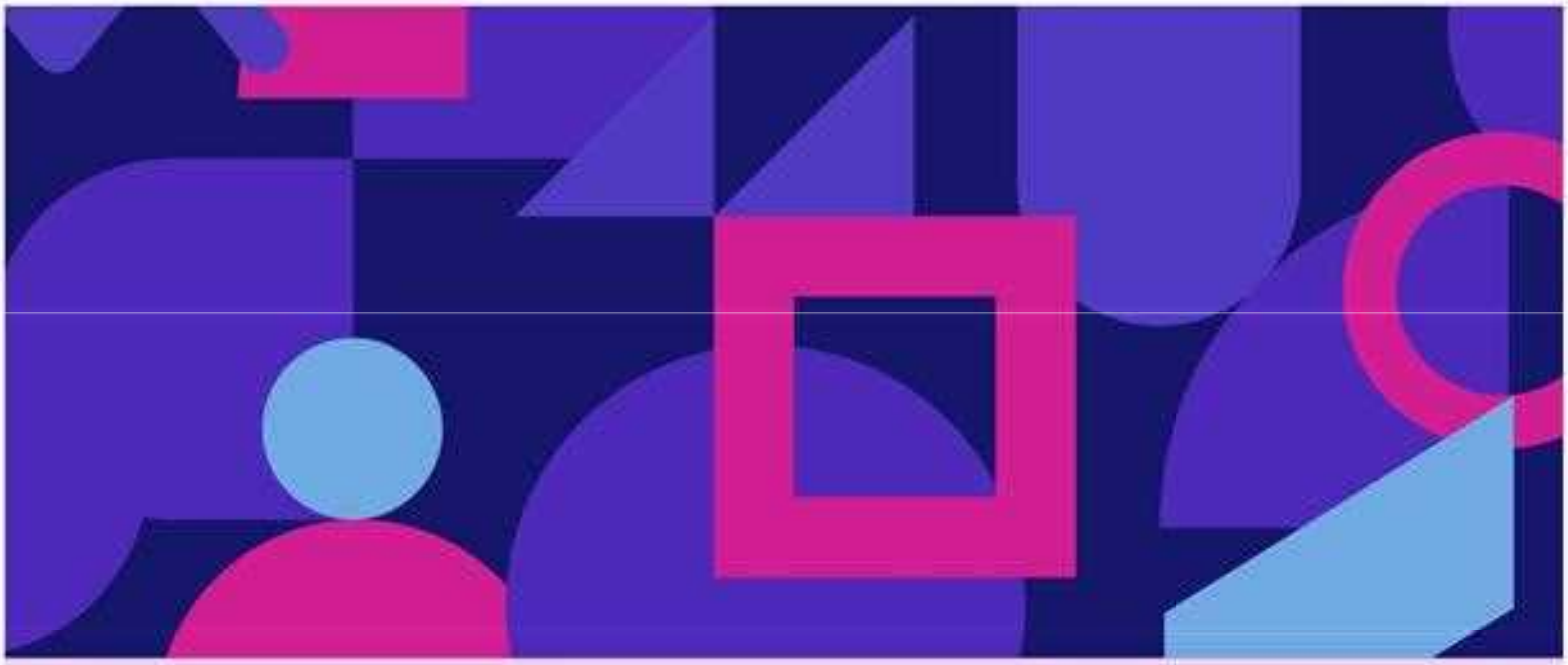

**“Scientists study the world as it is, engineers create the world that never has been.”**

**Theodore von Kármán**
Pioneering Aerospace Engineer and Physicist


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