NIT AGARTALA E-CELL IN ASSOCIATION WITH DIRECTORATE OF INFORMATION TECHNOLOGY, GOVT. OF TRIPURA

Organizes

STATE-LEVEL CYBER SECURITY

{HACKATHON}

7TH NOV REGISTRATION STARTS | 17TH NOV REGISTRATION CLOSES

19TH NOV GRAND FINALE NIT AGARTALA
Jirania, Agartala, Tripura 799046

REGISTER ON : ecellnita.in/CSH

MAJOR PROBLEM STATEMENTS

- CYBERSECURITY HACKATHON
- OPEN INNOVATION
- "MAY I HELP YOU" ROBOT DESIGN

Prize Pool : ₹30,000

NATIONAL CYBER SECURITY AWARENESS MONTH (NCSAM) 2024 CAMPAIGN

BACKGROUND

In today's digital landscape, cybersecurity is not just a necessity—it's a crucial foundation for innovation and progress. As technology continues to evolve at breakneck speed, the importance of safeguarding our digital assets becomes increasingly paramount. Let's delve into the critical role of cybersecurity and its interplay with innovation.

Cyber security is the practice of protecting systems, networks, and data from digital attacks. These attacks are aimed at accessing, altering, or destroying sensitive information, extorting money from users, or disrupting normal business operations. Cyber security encompasses various measures and tools designed to defend against threats like malware, ransomware, phishing, and more sophisticated attacks, such as Advanced Persistent Threats (APTs).

While cybersecurity aims to protect, innovation drives progress. The relationship between the two can sometimes appear conflicting, as security measures may hinder the rapid pace of technological advancement. However, a balanced approach can lead to a symbiotic relationship where innovation thrives within a secure framework. Innovative technologies such as artificial intelligence (AI), the Internet of Things (IoT), and blockchain offer tremendous benefits but also introduce new vulnerabilities. Integrating cybersecurity from the outset ensures these technologies are both safe and effective. Advanced cybersecurity solutions leverage AI and machine learning to detect and respond to threats in real time, minimizing the impact of cyberattacks and enabling continuous innovation.

ABOUT CSH 2024

The Entrepreneurship Cell of NIT Agartala, in collaboration with DIT Tripura and IICES, is thrilled to announce the Cybersecurity Hackathon 2024 (CSH 2024). This pioneering event aims to identify and nurture groundbreaking innovations and startups within the realm of cybersecurity.

CSH 2024 is designed to bring together a diverse range of stakeholders from the Indian startup ecosystem, including entrepreneurs, industrialists, investors, experts, government officials, and aspiring startups. The goal is to test, refine, and validate cutting-edge solutions in cybersecurity.

The problem statements for the hackathon have been carefully developed in collaboration with state government departments and industry partners. This ensures that participants can showcase their capabilities in addressing real-world cybersecurity challenges and contribute to the advancement of this critical field.

ELIGIBILITY

Open to undergraduate, postgraduate, and Ph.D. students from all institutions.

- Participants can join individually or in teams of up to 4 members.
- Inter-college teams are allowed, encouraging diversity and collaboration.

TIMELINE

All the applicants are advised to strictly adhere to the dates given below. These dates are locked in and no entries will be entertained beyond them

7 NOV

Release of problem statements and Starting of Registration: Welcome to the start of an exciting journey! Register your team, review the event guidelines, and familiarize yourself with the hackathon format.

9 NOV

Submission of presentation starts

17 NOV

Closing of Registration: The real test begins! Use this opportunity to showcase your problem-solving abilities and creativity in the field of cybersecurity.

18 NOV

FINALISTS FOUND: The top Team will be announced as finalists, so be ready with your tools and best skills to lock in that win!

19 NOV

Grand Finale: Congratulations to the finalists! In the Grand Finale, top teams must get ready to build their solutions to the given advanced, real-time cybersecurity challenges and present them in front of the panel of experts.

SELECTION CRITERIA FOR CSH 2024

Applicants will be evaluated based on the originality and utility of their innovative concepts, designs, or solutions to the proposed problem statements. These innovations should be demonstrated through a Model, Prototype, Minimal Viable Product (MVP), Tool, or Technology. The key parameters for selection are:

1. Innovation & Creativity

- Higher scores for entries that present out-of-the-box approaches and leap beyond existing solutions.

2. Relevance & Accuracy

- Solutions should align with the competition's theme, offering innovative, efficient, sustainable, and rapid solutions to significant problems with high impact.

3. Efficiency & Feasibility

- Practical and technically viable solutions receive higher scores. Cost-effective innovations with a well-thought-out plan considering market size and impact will be rated favorably.

4. Communication

- Effective demonstration and communication of the idea are crucial. Submissions should convey a well-developed, innovative, and feasible solution.

Ready to showcase your groundbreaking ideas at ICSH 2024? Let's make an impact together!

PROBLEM STATEMENTS

Cyber Security Hackathon

PS-1: Decrypting the Caesar Cipher

Problem statement

Can you decrypt intercepted messages encoded with the Caesar Cipher to uncover clues about potential attackers‘ strategies and timelines?

Expected Outcome

- Reverse-engineer the Caesar Cipher to decrypt intercepted messages.
- Make an extention which decrypt messages along with insights into attackers‘ intentions.
- Demonstrate comprehension of classic encryption and decryption techniques.
- Provide analysis of clues related to potential attackers‘ strategies and timelines

PS-2: Examination of a Keystroke Logger

Problem statement

How can you detect and analyze the functionality of a keystroke logger and develop mechanisms to prevent it from stealing sensitive information?

Expected Outcome

- Prepare a method which analyze the structure and operation of a simulated keystroke logger.
- Identify methods by which the logger infiltrates systems and records keystrokes.
- Develop to counteract malware and prevent data theft and present detection and mitigation strategies for keystroke logging.

PS-3: Network Packet Sniffing and Protection

Problem statement

How can you identify vulnerabilities in network communications and implement protective measures to prevent unauthorized access and data interception?

Expected Outcome

- Perform packet sniffing and analyze unencrypted network traffic.
- Identify vulnerabilities in network communications and data transmission.
- Implement security protocols, including encryption and firewall rules. Demonstrate capability to secure network integrity and protect sensitive data.

PS-4: Developing Defenses Against SQL Injection

Problem statement

What methods can you implement to secure a web application's database against SQL injection attacks?

Expected Outcome

- Investigate SQL injection vulnerabilities in web applications.
- Simulate SQL injection attack scenarios to understand potential risks.
- Design and present defenses to secure the database.
- Ensure database confidentiality and integrity for secure data management.

Innovation for Clean Homes and Cities

Problem statement

Develop strategies and solutions that promote cleaner, healthier, and eco-friendlier environments in urban and residential areas. Focus on waste reduction, pollution control, and sustainable urban planning to enhance the quality of life and environmental health.

Expected Outcome

- Prepare innovative solutions for waste reduction such as Recycling programs or zero-waste systems, Composting initiatives for organic waste.
- Structure pollution control strategies, addressing reduction of air and noise pollution in urban areas.
- Produce sustainable urban planning models that incorporate: Green spaces and urban forestry to enhance biodiversity.
- Draft a clear plan illustrating how these strategies create cleaner, greener, and more sustainable communities.
- Use Visual aids or models (optional) to demonstrate how these solutions can be implemented and their impact on communities.

Participants should propose innovative solutions focused on waste reduction, pollution control, and sustainable urban planning. Expected outputs include actionable ideas or models that illustrate how these solutions can contribute to creating greener, cleaner communities.

Low-Water Use Public Toilets with Digital Monitoring and Control Systems

Problem statement

Design a public restroom system that minimizes water consumption while ensuring cleanliness, hygiene, and efficient maintenance in high-traffic areas. Incorporate digital monitoring and control systems to enhance maintenance and user experience.

Expected Outcome

- Construct a water-efficient restroom design with features that reduce water usage without compromising cleanliness.
- Integrate digital monitoring systems that Track water consumption. Monitor usage patterns for predictive maintenance.
- Notify maintenance teams of required cleaning or repairs in real time.
- Prepare solutions for optimizing hygiene and user satisfaction through features such as: Automated cleaning mechanisms. Contactless fixtures (faucets, soap dispensers, flush systems).
- Accessibility features for a wide range of users.
- Explain how technology supports sustainability, maintenance efficiency, and overall user satisfaction.
- Use visual diagrams or mock-ups to support the proposed design (optional)

“May I Help You” Robot Design

Problem statement

Design a May I Help You robotic assistant to enhance convenience and safety in public settings such as schools, hospitals, and malls. Consider essential features that would make the robot capable of guiding, assisting, and interacting with people in these environments.

Expected Outcome

- Construct a conceptual robot design that prioritizes user convenience and safety.
- Formulate detailed descriptions of key features, including:
- Voice Recognition: Ability to understand and respond to verbal commands for ease of use.
- Navigation System: Efficient movement and obstacle avoidance in crowded spaces.
- Interactive Assistance: Engaging and helpful interactions with users, including responses to questions or guidance to specific locations.
- Draft clear explanation of how each feature improves the robot’s effectiveness in real-life scenarios.
- Use visual aids or mock-ups to illustrate the robot’s design and functionalities (optional).

Open Innovation Challenge

Problem statement

Identify a significant real-world problem and propose an innovative solution in a focus area such as sustainability, education, or healthcare. The solution should address the core aspects of the issue and demonstrate potential for real-world impact and scalability.

Expected Outcome

- Draft a well-defined problem statement that outlines the chosen issue and its relevance.
- Prepare an innovative solution tailored to address the problem effectively, with a focus on one of the following areas:
- Sustainability: Environmental protection, resource efficiency, or climate resilience.

- Education: Accessibility, quality of learning, or skill development.
- Healthcare: Access to medical care, preventive health measures, or cost reduction.
- Develop a scalable model or framework detailing:
- Key components and processes of the solution.
- Steps for implementation and potential expansion.
- Compile an analysis of the solution's expected real-world impact, showing how it could improve lives or ecosystems.
- Use visual aids, prototypes, or mock-ups to support the proposed solution (Optional).

CODE OF CONDUCT

All participants are required to act professionally and ethically throughout the competition. Failure to act as per the code of conduct can result in disqualification at any stage of the competition. In this regard, any 'means of unfair competition', as stated below, will lead to immediate disqualification:

- Any means of plagiarism in the materials and ideas used in the competition.

- Failure to provide credit for any sources referred to as aid in the development of solutions.

- Any false or malicious statements about other contestants, organizers of the competition, panel of judges, or others involved in the competition.

PRIZE POOL

Total Prize Pool - 30,000

For Cyber Security Hackathon

Winner - 8,000

1st Runner Up - 5,000

2nd Runner Up - 3,000

For Other Problem Statement

Winner - 8,000

1st Runner Up - 4,000

2nd Runner Up - 2,000

INTELLECTUAL PROPERTY

All solutions are the intellectual property of the respective teams.
However,E-Cell NIT Agartala and its partners reserve the right to showcase selected solutions for educational purposes.

By submitting an entry to ICSH 2024, participants acknowledge that their ideas and research will be publicly accessible and shared with industry professionals. The Existing Rights and Proprietary Rights remain the exclusive property of the participants, who alone will decide whether to protect any know-how and to register, protect, or defend their rights. If required, support will be provided for protecting IPR/Copyright/Patent based on expert opinion.

However, if a request comes from a concerned government department, participants agree to grant it to the organizer free of charge within the framework of the challenge. Any abuse of rights granted by law will result in disqualification.