

INDIAN SOCIETY FOR TECHNICAL EDUCATION,
(ISTE) SLIET CHAPTER
SANT LONGOWAL INSTITUTE OF ENGINEERING
AND TECHNOLOGY



SLIET INNOVATION SUMMIT 2024

20 - 21 SEPT 2024

HACKFORGE PROBLEM STATEMENTS

UNLEASHING THE POWER OF AI-ML



SLIET INNOVATION SUMMIT : HACKFORGE

Welcome to the HackForge, a competition where teams collaborate to develop solutions for provided problem statements. The task at hand involves creating a presentation comprising a minimum of 8-10 slides, including Welcome and Thank you slides as well as a real world solution/model for it, it might be semi-working or completely working.

It's important to note that "hack" in HackForge refers to the act of development rather than illicit activity. Each hackathon is distinct, with varying themes, rules, and participant demographics.

Participants are required to provide comprehensive details about their solutions, including even the minutest aspects such as decision making algos, flowcharts of programs, or any other relevant components. This ensures thorough understanding and transparency in the presentation and demonstration of their ideas.

Success in this competition relies on creativity, originality, and the ability to effectively address the given problem statement. Innovation knows no bounds.

DETAILED DESCRIPTION

The event is spread across 2 days in three phases where Day 1 will be dedicated to presentation round while Day 2 will be dedicated to models exhibition.

PHASE-1 - REGISTRATION AND SUBMISSION ROUND

Each participant/team will receive a set of problem statements from which you must choose one to craft your solution. You will have to submit your presentations at least 48 hours prior to the event.

Our team may shortlist and remove those presentations who do not comply with the preset rules and regulations. Remember, originality is key - any hint of plagiarism will result in immediate disqualification.



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Your presentation should consist of a maximum of 10 slides, incorporating the following elements:

- Introduction
- Challenges
- Proposed Approach
- Data Sources
- AI Model Architecture
- Metrics
- Conclusion

PHASE-2 - PRESENTATION ROUND

Shortlisted teams will advance to the presentation round! In this phase, you'll have the opportunity to pitch your concept to the judges. Each team will have a maximum of 5 minutes to provide a comprehensive explanation of their solution. Be prepared to delve into the intricacies of your presentation and impress the judges with your innovative ideas and thorough understanding of the problem at hand.

PHASE-3 - MODEL EXHIBITION ROUND

This phase is designed to showcase the practical implementation of your solutions. It provides an opportunity for teams to demonstrate their semi-working or fully operational models to the judges and the audience.

During the Model Exhibition Round, each team will set up a display area where they can present their working model or prototype. This is your chance to highlight the functionality, efficiency, and real-world applicability of your solution.



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JUDGEMENT CRITERIA

- Stage 1 Presentation Round 50%
- Stage 2 Questioning Round 20%
- Stage 3 Model Exhibition Round 30%

The Judging is completely on the Judging Committee's Discretion. Their decision will be final.

TEAM SPECIFICATION

- Each team can have a minimum of 2 and maximum of 3 members from same Institute and from any branch with a valid ID card of their respective Institute.
- Each Team must specify a team representative with whom our team can communicate for further information or notice.

RULES AND REGULATIONS

- The Judge's Decision is Final.
- One person can participate in one team only.
- Every member of the team must be giving the presentation.
- Maintain the decorum.
- Clear your all doubts before the event.
- Please ensure that your contact details and college ID card (Name, Email ID, and Contact Number) are clearly mentioned on your presentation.
- Project Exhibition will be on Day 2 , safety of the project is at your risk.



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PROBLEM STATEMENTS

- 1. Real-Time Anomaly Detection:** Develop an AI system capable of detecting anomalies in real-time streaming data, such as network traffic, sensor data, or financial transactions, with a high level of accuracy.
- 2. Multi-Agent Reinforcement Learning for Traffic Management:** Create a multi-agent reinforcement learning system to optimize traffic flow in a complex urban environment, considering factors like congestion, accidents, and emergency vehicle prioritization.
- 3. Medical Image Analysis for Early Disease Detection:** Build an AI model that analyses medical images (such as MRI scans or X-rays) to detect early signs of diseases like cancer or Alzheimer's with high sensitivity and specificity.
- 4. Autonomous Drone Navigation in Dynamic Environments:** Develop an AI-powered system that enables drones to autonomously navigate through dynamic environments, such as urban areas or forests, while avoiding obstacles and adapting to changing conditions.
- 5. Natural Language Processing for Code Summarization:** Create an AI model capable of summarizing code snippets written in various programming languages into concise and human-readable descriptions, facilitating code comprehension and documentation.



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6. Privacy-Preserving Federated Learning: Design a privacy-preserving federated learning framework that allows multiple parties to collaboratively train a machine learning model on their decentralized data without sharing raw data, ensuring data privacy and security.
7. AI-Powered Personalized Education: Develop an AI-driven platform that delivers personalized learning experiences to students by analyzing their learning styles, preferences, and performance data to recommend customized study plans and resources.
8. Deepfake Detection and Attribution: Create an AI system capable of detecting and attributing deepfake videos or images by analyzing subtle inconsistencies and artifacts in multimedia content.
9. AI-Based Supply Chain Optimization: Build an AI-powered system that optimizes supply chain operations, including inventory management, demand forecasting, and logistics planning, to minimize costs and maximize efficiency.
10. Ethical AI Decision-Making Framework: Design an ethical AI decision-making framework that ensures fairness, transparency, and accountability in automated decision systems, addressing biases and ethical considerations in AI algorithms.

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11. Engineering Innovation: We embrace Technical enthusiasts with creative minds. This theme pays attention to solving real-world problems using advanced technology. Participants can showcase their innovations on any other topic related to Artificial Intelligence, Deep Learning, Machine learning.

**LET YOUR IMAGINATION RUN WILD
AND UNLEASH YOUR CREATIVITY TO
TACKLE THESE CHALLENGES**