

**DEPARTMENT OF COMPUTER**

**SCIENCE**

# GATEWAYS 2024

# ARES TECHWAR: THE MYTHOLOGICAL HACKATHON

**General instructions**

**DO’S:**

* Ensure all content generated for the project is original and created by the participants.
* Create a single GitHub repository for the project, and grant collaborator access to all team members.
* Final Submission should contain the below:
  + Upload the documentation in PDF format.
  + GitHub link (post the deadline, no push to the GIT will be entertained)
  + Zip file
* All team members need to be present during the final online presentation (no absenteeism is entertained.

**DON’TS**

* Do not use AI-generated content in the project. (team will be disqualified if found)
* Previously used or cloned projects are not allowed.

**Attempt only 1 question i.e. 1.1 OR 1.2 OR 1.3 OR 2.1**

### **1. DOMAIN: WOMEN SAFETY**

### **INTRODUCTION**

Women's safety is a pressing issue that impacts societies around the world. Ensuring a safe environment for women, whether at home, work, or in public spaces, is essential for fostering equality, freedom, and empowerment. Despite numerous advancements, women continue to face threats ranging from domestic violence and harassment to safety concerns during travel. Technology offers new ways to mitigate these challenges by providing innovative detection, prevention, and response solutions.

The following problem statements focus on addressing some of the key areas of concern for women’s safety, with an emphasis on software-based solutions that provide secure, private, and effective methods for enhancing safety.

**PROBLEM STATEMENTS**

**1.1 Domestic Violence Prevention and Intervention**

**Problem Description**

Develop a **software-based solution** for the real-time detection/ reporting/ prevention of domestic violence incidents. The solution should ensure privacy and security for the victim while enabling them to discreetly alert authorities or support networks.

Domestic violence is a critical issue affecting women globally. Victims may face challenges in seeking help due to fear or restricted access to communication. The solution should enable the detection of warning signs and provide mechanisms for victims to report abuse safely without alerting the perpetrator. The system could use patterns of communication, behavior analysis, or other non-invasive techniques to identify potential risks and ensure quick intervention.

**1.2 Women’s Safety at Night**

**Problem Description**

Develop a **software-based solution** that enhances the safety of women traveling at night. The solution should provide real-time safety alerts, suggest safer routes, and offer an easy way for women to notify emergency contacts or authorities in dangerous situations.

Women often face heightened risks while traveling at night due to inadequate lighting, isolated areas, or high crime rates. The software could provide features like AI-driven safe route suggestions, real-time alerts based on the safety of areas, and an easy-to-use panic button that triggers an immediate response from authorities or designated contacts.

**1.3 Open Problem Statement on Women’s Safety**

**Problem Description**

Participants are encouraged to identify a specific issue related to women’s safety and develop a **software-based solution**. This open-ended challenge allows teams to explore underrepresented safety concerns and propose innovative solutions to make women feel safer in various environments.

Potential focus areas could include workplace harassment, digital safety, improving access to public services, or enhancing safety during day-to-day activities. The aim is to identify a unique safety problem and propose a creative, technology-driven solution to solve it.

**Evaluation Criteria**

* **Technical Implementation (40 points):** This carries the most weight, as it's the core of the project. How well participants have developed the front-end, back-end, and overall system should significantly impact their score.
* **Impact and Utility (20 points):** This assesses how practical and useful the solution is. A project that provides a valuable, real-world solution deserves a strong score.
* **Teamwork and Collaboration (15 points):** Working cohesively as a team and distributing tasks evenly is crucial for success, so this is given moderate importance.
* **Innovation and Originality (10 points):** While important, this criterion has lower weightage, as the focus is more on execution than pure innovation.
* **Presentation and Clarity (10 points):** The presentation is important but should not overshadow the technical implementation. Even if the presentation is basic, strong technical work should still shine through.
* **Completeness (5 points):** The project should be fully functional and address all aspects of the problem statement.

***2.* DOMAIN: HEALTHCARE & AI**

**INTRODUCTION**

The intersection of Healthcare and AI is transforming patient care, diagnostics, and medical advancements. In this hackathon, “Healthcare & AI” offers an exciting platform to leverage AI for critical healthcare challenges. From predictive analytics for disease outbreaks and automated diagnostics to virtual health assistants and personalized treatment plans, AI enables faster, more accurate, data-driven insights.

Participants will address key areas such as patient monitoring, medical imaging, drug discovery, and healthcare accessibility. This is an opportunity to create solutions that empower healthcare professionals, enhance patient experiences, and improve health systems—all while upholding ethical standards and patient privacy. Join us to ideate, prototype, and implement solutions that can shape the future of healthcare.

**2.1 General Disease Diagnosis**

AI-driven general disease diagnosis has the potential to revolutionize healthcare by enabling quicker, more accurate, and data-informed diagnostics. In this hackathon, participants are encouraged to create AI tools that assist in identifying a wide range of diseases, using data sources such as medical images, lab results, and patient records. By leveraging machine learning for predictive modeling and pattern recognition, these solutions aim to support healthcare providers in making precise diagnoses more efficiently. The outcome can help reduce diagnostic errors, optimize clinician workflows, and improve access to timely care, especially in resource-constrained settings.

**- Dataset will be provided to all the participants.**

**- Predict empty values for ‘Disease’ Column and submit result file in identical structure format.**

**- Evaluation of models to be done on F1-Score.**

**Evaluation Criteria**

* **Data Pre-processing (10 Points)**: The project should demonstrate effective data cleaning and preparation to ensure reliable and accurate analysis.
* **Feature Engineering (5 Points)**: The project should include thoughtful and relevant feature creation to improve model performance.
* **Model Selection and Training (15 Points)**: The team should choose and train an appropriate model, showcasing sound reasoning and optimization techniques.
* **F1 Score (40 Points)**: The model's F1 Score should reflect its balanced performance, capturing both precision and recall.
* **Documentation (10 Points)**: The project should include thorough and clear documentation, enabling others to understand and reproduce the work.
* **Usability (5 Points)**: The solution should be user-friendly, intuitive, and practical for end-users or stakeholders.
* **Completeness (5 Points)**: The project should be fully functional and address all aspects of the problem statement.
* **Novelty (10 Points)**: The project should offer a fresh approach, demonstrating creativity and new ideas in its solution.