

## **AI-Powered Smart Patient Triage Hackathon**

Technology-Driven Innovation in Healthcare using AI & Data

## Overview

Healthcare systems worldwide face increasing patient loads, limited medical resources, and inefficiencies in early risk identification. Traditional triage processes rely heavily on manual evaluation, leading to delays in identifying high-risk patients, overcrowded departments, inconsistent prioritization, and increased operational strain.

## Problem Statement

Design and develop an AI-based system that analyzes patient symptoms and basic medical history to:

- Classify patients into risk levels (Low / Medium / High)
- Recommend the appropriate medical department
- Provide explainable insights behind predictions
- Support efficient patient prioritization and reduced wait times

## Scope of the Solution

The system should include:

- Patient Input Module (Age, Gender, Symptoms, Vitals, Pre-existing conditions)
- Tool should be able to load health document as input (EHR or EMR doc)
- AI Risk Classification Engine (ML, Rule-based, or Hybrid)
- Department Recommendation Engine (e.g., General Medicine, Cardiology, Emergency, Neurology)
- Explainability Layer (Contributing factors, confidence score)
- Dashboard Interface (Risk summary, visualizations, department insights)

## Data Guidelines

Participants will be provided with a standardized patient metadata schema. Teams must generate synthetic data using a Synthetic Data Vault–like tool or equivalent framework.

## Sample Metadata Fields

- Patient\_ID
- Age
- Gender
- Symptoms
- Blood Pressure
- Heart Rate
- Temperature
- Pre-Existing Conditions
- Risk\_Level (optional for training)

## 32-Hour Hackathon Process

### Phase 1 Ideation & Architecture

Understand the problem, define system architecture, plan data generation strategy, select AI approach.

### Phase 2 Model Development

Generate synthetic dataset, train and test AI model, build classification engine, implement department mapping.

### Phase 3 Integration & UI

Develop dashboard, integrate explainability module, simulate patient scenarios.

### Phase 4 : Testing & Presentation

Validate model performance, test edge cases, prepare 5-minute demo and final documentation.

### Expected Deliverables

- Working prototype (Web/App)
- Source code repository
- Architecture diagram
- Dataset description and generation approach
- Model performance metrics
- Final presentation (5-minute demo + Q&A)

### Evaluation Criteria

Criteria	Weightage
Innovation & Problem Understanding	15%
Technical Implementation	25%
AI Model Performance	20%
Explainability & Transparency	15%
UI/UX & Demonstration	15%
Scalability & Practical Applicability	10%

### Innovation Bonus Areas ( NO need to share)

- Real-time triage simulation
- Voice-based symptom input
- Bias & fairness analysis
- Multilingual support

- Integration with wearable device data

### **Outcome & Impact**

Participants will gain hands-on experience in Applied AI in healthcare, synthetic data generation, explainable AI systems, and building scalable prototypes that address real-world healthcare challenges.