



Sai Nath University, Ranchi

Official Hackathon 2025 • Problem Statements



Hackathon 2025 — Real-World Problem Statements (6)

Organizer: **Pitambar Kumar Lal**

Date: **11–13 Sept 2025**

Contact: **9229569437**

Email: **pitambar0978@gmail.com**

Eligibility: **B.Sc, BCA, MCA, B.Tech only**

OVERVIEW

The Hackathon challenges students to solve real-world problems using modern technologies. Teams build working prototypes, justify tech choices, and present demos to the jury.

PARTICIPATION & RULES (QUICK)

Who can participate?

- Only **B.Sc, BCA, MCA, B.Tech** students are permitted.
- Teams of 5–6 members recommended.

1) Smart Waste Management System

CivicTech • IoT

Problem

Cities struggle with overflowing bins and inefficient collection routes.

Build

- Dashboard with bin fill-levels (use IoT data or simulated JSON).
- Auto-optimized pickup routes using a Maps API.

- Alerts for threshold breaches; historical trends.

Suggested Stack

- **Frontend:** React / HTML, CSS, JS
- **Backend:** Node.js or Flask (Python)
- **DB:** MongoDB / MySQL
- **Optional:** Arduino/Raspberry Pi (sim ok)

2) AI-Powered Career Guidance Tool

AI/ML • EdTech

Problem

Students find it hard to choose careers and relevant skill paths.

Build

- Collect interests/skills/marks via questionnaire.
- Recommend roles + skill roadmaps + courses/internships.
- Simple ML model for fit scoring; explainability notes.

Suggested Stack

- **Frontend:** React / Angular
- **Backend:** Django or Flask (Python)
- **DB:** PostgreSQL / MongoDB
- **AI/ML:** scikit-learn / TensorFlow

3) Healthcare Assistance Platform

HealthTech

Problem

Remote areas lack quick access to doctors and medical records.

Build

- Appointments, e-prescriptions, and patient record vault.
- Medicine reminders via email/SMS.

- Doctor dashboard with basic analytics.

Suggested Stack

- **Frontend:** React Native / Flutter (mobile) or React web
- **Backend:** Node.js or Django REST
- **DB:** Firebase / MongoDB
- **Notify:** SMTP/Twilio (or mock)

4) Cybersecurity Awareness Game

Security • Games

Problem

Users fall for phishing and weak passwords due to low awareness.

Build

- Mini-games on phishing spotting, password strength, safe browsing.
- Levels, scoring, and a leaderboard.

Suggested Stack

- **Game/Front:** HTML5 Canvas + JS (Phaser.js) or plain JS
- **Backend:** Firebase / Node.js (scores)

5) College Event Management System

WebApp

Problem

Manual event registration/certificates cause errors and delays.

Build

- Event listings, online registrations, QR check-in.
- Auto e-certificate generation after participation.
- Admin panel for approvals & announcements.

Suggested Stack

- **Frontend:** HTML, CSS, JS / Bootstrap

- **Backend:** PHP / Node.js / Django
- **DB:** MySQL / Firebase

6) AI-based Exam Proctoring

AI/ML • Vision

Problem

Cheating in remote exams is difficult to monitor fairly.

Build

- Webcam monitoring with face detection & suspicious-event flags.
- Exam UI + live incident log for invigilators.

Suggested Stack

- **Frontend:** React (exam interface)
- **Backend:** Flask / Django (Python)
- **AI/ML:** OpenCV + TensorFlow (face/motion)
- **DB:** PostgreSQL / MongoDB