

Acropolis Institute of Technology and Research, Indore

Department of Information Technology

AI Manthan 2025

A National Level Prototype Hackathon

Problem Statements

Problem Statement 1: Smart Farming for a Sustainable Future

Domain: AI for Agriculture

Problem Statement:

Traditional farming methods struggle to meet the demands of a growing population amidst challenges like unpredictable weather, resource scarcity, and low productivity. Farmers often lack real-time data to make informed decisions about irrigation, pest control, and crop management.

Your Challenge:

Develop an AI-driven smart farming solution that helps farmers monitor crop health, optimize resource usage, and increase yield using data from sensors, drones, or satellite images.

Implementation Hints:

- Use image recognition to detect crop diseases or pest infestations
- Apply AI to predict ideal sowing and harvesting times using soil and weather data
- Create a chatbot or voice assistant in local languages for daily agricultural guidance

Problem Statement 2: Technology for Disaster Resilience

Domain: AI for Disaster Management

Problem Statement:

Frequent natural and man-made disasters cause immense loss of life and property, with delayed responses and lack of preparedness making recovery difficult.

Your Challenge:

Build an AI-powered solution that enhances disaster prediction, emergency response, and post-disaster recovery using real-time data and predictive analytics.

Implementation Hints:

- Use AI and satellite data to predict floods, earthquakes, or wildfires
- Develop a real-time alert system integrated with IoT sensors and GPS
- Create an AI chatbot for emergency guidance and victim assistance

Problem Statement 3: Reimagining the Modern Travel Experience

Domain: AI for Tourism

Problem Statement:

Many culturally rich and scenic destinations remain undiscovered due to poor digital visibility and lack of engaging travel experiences.

Your Challenge:

Design an AI-based tourism platform that provides personalized, immersive, and sustainable travel experiences while promoting local businesses and culture.

Implementation Hints:

- Use AI for itinerary personalization based on user interests and budget
- Build a chatbot or voice guide that narrates local stories or suggests nearby attractions
- Develop an image-recognition system to identify landmarks or tourist spots

Problem Statement 4: The Modern Placement Launchpad

Domain: AI for Career Development

Problem Statement:

Students face difficulties in career preparation due to scattered learning resources and a gap between academic knowledge and industry skills.

Your Challenge:

Create an AI-based placement preparation platform that provides personalized learning paths, mock interviews, and skill assessments to help students get job-ready.

Implementation Hints:

- Use AI to analyze students' strengths and weaknesses to suggest learning plans
- Develop an AI interviewer that gives feedback on soft skills and technical answers
- Build a mentor matching system using AI-based skill and interest mapping

Problem Statement 5: AI for Rural Education

Domain: Education & Learning

Problem Statement:

Many students in rural areas lack access to good teachers, learning materials, and personalized learning support.

Your Challenge:

Create an AI-powered learning tool that teaches students in their local language, adapts to their learning speed, and works even with low internet connectivity.

Implementation Hints:

- Use AI to generate simple quizzes or explanations from textbooks
- Build a voice-based learning app for local languages

- Use computer vision to check if a student is engaged during learning

Problem Statement 6: AI for Women Safety

Domain: Safety & Security

Problem Statement:

Women face safety risks in public places and during travel, and response times in emergencies are often slow.

Your Challenge:

Develop an AI-driven safety system that can detect distress situations and alert family or authorities in real-time.

Implementation Hints:

- Use mobile sensors (sound, motion, GPS) to detect panic or abnormal movement
- AI camera system that identifies unsafe zones based on crime data
- Chatbot or wearable device that triggers instant SOS with one action

Problem Statement 7: Smart Citizen, Responsive City

Domain: AI for Smart Governance

Problem Statement:

Civic issues like broken streetlights, garbage dumping, and waterlogging persist due to poor communication between citizens and local authorities.

Your Challenge:

Develop an AI-powered grievance reporting platform that allows citizens to report issues easily and helps authorities track, prioritize, and resolve them efficiently.

Implementation Hints:

- Use image recognition and geotagging for identifying and mapping civic issues
- Build a dashboard for real-time monitoring and issue categorization
- Apply AI to prioritize complaints based on severity and frequency

Problem Statement 8: AI for Clean India

Domain: Swachh Bharat Initiative

Problem Statement:

Many cities and towns struggle with garbage collection, waste segregation, and keeping public areas clean.

Your Challenge:

Create an AI-based system that can detect unclean areas, optimize waste collection, or help citizens report cleanliness issues easily.

Implementation Hints:

- Use image recognition to identify garbage piles from CCTV or drone images
- Predict waste collection routes for efficiency
- Mobile app for citizens to upload photos and get real-time updates

Problem Statement 9: AI for Healthcare Access

Domain: Healthcare & Medical Services

Problem Statement:

People in rural and remote areas often lack access to doctors and early diagnosis of diseases.

Your Challenge:

Build an AI solution that provides preliminary health checks or diagnosis support using images, symptoms, or voice input.

Implementation Hints:

- AI model to detect diseases from medical images (e.g., skin, eyes, X-rays)
- Health chatbot that gives first-level advice in local languages
- Predict disease outbreaks in rural areas using data trends

Problem Statement 10: Connecting Surplus to Scarcity

Domain: AI for Food Redistribution

Problem Statement:

Large amounts of edible food are wasted daily while many people go hungry due to lack of coordination between donors and recipients.

Your Challenge:

Design an AI-enabled "Smart Food Donation" platform that connects surplus food sources like restaurants and events with nearby NGOs or shelters in real time.

Implementation Hints:

- Use AI to match donors and recipients based on location, food type, and quantity
- Apply predictive analytics for logistics and delivery route optimization
- Integrate IoT sensors for food freshness tracking and safety validation

Problem Statement 11: AI for Smart Cities

Domain: Urban Development & Infrastructure

Problem Statement:

Indian cities face challenges like traffic jams, pollution, power waste, and poor public service coordination.

Your Challenge:

Design an AI-powered system to make cities more efficient, safe, and sustainable.

Implementation Hints:

- AI for intelligent traffic lights and congestion prediction
- Smart energy monitoring to reduce power wastage
- Real-time air quality and noise monitoring with AI alerts

Problem Statement 12: Protecting Public Land with Technology

Domain: AI for Urban Monitoring

Problem Statement:

Encroachment on public lands, roads, and community spaces disrupts city planning and causes long-term governance challenges.

Your Challenge:

Create an AI-powered monitoring system that detects and reports illegal land encroachments in real-time using aerial imagery or satellite data.

Implementation Hints:

- Use computer vision and drone data to identify changes in land usage
- Build a dashboard for officials to verify and track encroachment reports
- Implement AI models to predict high-risk areas for future encroachments

Problem Statement 13: AI-Powered Interview Assessment System

Domain: AI for Recruitment & HR Tech

Problem Statement:

Organizations struggle to evaluate candidates objectively during interviews, often relying on subjective assessments. There is a need for an automated system that can capture, analyze, and assess interview performance to provide data-driven insights about candidate quality and suitability.

Your Challenge:

Develop an AI-powered interview assessment system that captures both interviewer questions and candidate responses through voice recording, stores all audio data for future analysis, and provides comprehensive performance evaluation including answer quality assessment, correctness verification, and overall interview scoring with percentage-based candidate success prediction.

Implementation Hints:

- Use speech-to-text technology to transcribe interviewer questions and candidate answers
- Implement NLP models to analyze answer quality, relevance, and correctness
- Build an ML model to evaluate communication skills, confidence, and technical accuracy
- Create a scoring algorithm that provides percentage-based success prediction
- Design a secure storage system for audio recordings and analysis results
- Develop a dashboard for HR teams to review interview assessments and candidate comparisons

Problem Statement 14: Intelligent Chat History Analyzer & Question Repository

Domain: AI for Knowledge Management & Education Tech

Problem Statement:

Educational institutions and organizations accumulate vast amounts of conversational data from AI chatbots and learning systems, but this valuable knowledge remains unstructured and difficult to leverage. There is a critical need for a system that can automatically process, analyze, correct, and categorize questions from chat histories to build a comprehensive, accurate, and continuously updated question repository.

Your Challenge:

Create an AI system that analyzes complete ChatGPT conversation histories to extract individual questions, identifies and corrects any errors or ambiguities in the questions, automatically tags them with relevant technologies and topics, stores them in a structured database, and displays them on a dynamic website. The system should also process new incoming chats in real-time, ensuring continuous updates and maintaining accuracy across the entire question repository.

Implementation Hints:

- Use NLP and text parsing to extract individual questions from conversation threads
- Implement error detection and correction algorithms using grammar checking and semantic analysis
- Build a classification model to automatically tag questions with relevant technologies and topics
- Create a database schema to store questions with metadata (tags, timestamps, corrections, source)
- Develop a web interface to display categorized questions with search and filter capabilities
- Design a real-time processing pipeline for incoming chat data with automated categorization
- Implement version control to track question modifications and maintain accuracy over time