**Developer Network Space**

Cblock No.1FeetRd, Vadapalani,
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SRM INSTITUTE OF SCIENCE AND TECHNOLOGY
FACULTY OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

# HackElite26
# Problem Statements

## 1. Urban Policy Decision Engine for Pollution Mitigation

Build a decision-support system that ingests real-time IoT data from air-quality sensors, traffic sensors, and weather stations to recommend actionable city-level pollution mitigation policies and simulate their short-term impact.

## 2. Municipal Waste Strategy Optimization System

Design an analytics platform that evaluates waste generation trends and recommends optimal pickup policies, incentive mechanisms, and processing capacity planning under budget and operational constraints.

## 3. City-Level Carbon Policy Trade-off Simulator

Create a system that compares multiple carbon reduction strategies based on cost, feasibility, and long-term emissions impact to support data-driven policymaking.

## 4. Public Health Early Signal & Planning Platform

Build a system that detects abnormal public health trends using anonymized indicators (clinic visits, pharmacy demand, symptom clusters) and supports forecasting, alerts, and intervention planning.

## 5. Healthcare Access Inequality Analysis & Planning System

A decision platform that identifies regional healthcare access gaps, predicts future service overload, and recommends facility placement or mobile health unit deployment.

## 6. Farm-to-Market Intelligence & Price Forecasting Platform

A decision system that forecasts crop prices, identifies optimal selling windows, and recommends markets based on demand signals, transport cost, and spoilage risk.

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## 7. Perishable Goods Supply Chain Optimization Engine

Build an IoT-enabled optimization system that uses temperature, humidity, and GPS sensor data from storage units and transport vehicles to predict spoilage risk and dynamically recommend optimal routing, storage, and dispatch strategies.

## 8. AI Fairness, Bias & Drift Auditor

Design a tool that audits machine-learning models used in governance or finance for bias, drift, and explainability gaps, producing compliance-ready reports.

## 9. Citizen Grievance & Welfare Intelligence System

Use NLP to cluster grievances, link them with applicable welfare schemes, and recommend resolution priorities based on urgency, impact, and population affected.

## 10. Adaptive Learning Gap Diagnosis Platform

Build a system that identifies conceptual learning gaps and recommends personalized remediation paths, with scope for predictive risk scoring or teacher dashboards.

## 11. Intelligent Test Automation Platform (AI-Assisted)

Build a system that auto-generates, maintains, and prioritizes test cases using API/UI flows, code changes, execution logs, and failure patterns, with scope for self-healing UI tests, ML-based failure clustering, and CI/CD integration.

## 12. Student Career Risk & Opportunity Forecasting System

A predictive platform that identifies students at risk of skill mismatch and recommends early interventions, certifications, or learning paths based on market trends.

## 13. Classified Document Integrity & Clearance Verification Platform

Design a system where sensitive documents remain off-chain, while hashes, access approvals, and clearance verification are stored on-chain to ensure immutability, auditability, and privacy.

## 14. Secure Defense Procurement & Vendor Transparency System

Build a blockchain-backed procurement platform that immutably records bid stages and approvals, preventing tampering while enabling secure post-audit transparency.

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## 15)Open innovation

Build an open-ended solution with no fixed constraints that addresses a real-world problem through creativity and technology. The idea can be from any domain, focusing on innovation, impact, and practical feasibility.