Sustainable Smart City Assistant Using IBM Granite LLM

# Team Details:

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# Project Overview

The Sustainable Smart City Assistant is an AI-powered platform that leverages IBM Watsonx's Granite LLM and modern data pipelines to support urban sustainability, governance, and citizen engagement. It integrates several modules like City Health Dashboard, Citizen Feedback, Document Summarization, Eco-Advice, Anomaly Detection, KPI forecasting, and Chat Assistant through a modular FastAPI backend.

# Modules Included

- City Health Dashboard: Visualizes key sustainability metrics across air quality, water usage, traffic, and waste management.  
- Citizen Feedback: Gathers and analyzes resident inputs using NLP.  
- Document Summarizer: Summarizes long policy or environmental documents.  
- Eco-Advice: Offers eco-friendly suggestions using LLM queries.  
- Anomaly Detection: Detects unusual patterns in city services (e.g., traffic spikes).  
- KPI Forecasting: Uses time series analysis to predict future performance.  
- Chat Assistant: Provides a natural interface for citizens and administrators to query insights.

# Technology Stack

- Frontend: React.js  
- Backend: FastAPI  
- AI Models: IBM Watsonx Granite LLM, Scikit-learn, Prophet  
- Database: IBM Db2 / MongoDB  
- Deployment: IBM Cloud Foundry / Kubernetes

# Impact

This project supports the United Nations Sustainable Development Goals (SDGs) by enabling data-driven decision-making, improving citizen participation, and fostering environmentally friendly urban planning.