Sustainable Smart City Assistant Using IBM Granite

Introduction To The Project

🌍 Project Overview

The Sustainable Smart City Assistant is an AI-powered platform designed to empower citizens, urban planners, and local authorities with tools that promote environmental sustainability, informed decision-making, and smart urban living. Built as a modular web-based assistant, it integrates generative AI, data analytics to address key urban challenges.

The system includes five main functional modules:

1. ♻️ **Recycle Management Advisor** – Guides eco-friendly waste disposal and recycling practices.
2. 🖼️ **AI Image Generator** – Generates visual representations of sustainable city environments.
3. 📄 **Problem & Solution Finder (RAG)** – Provides AI-generated insights and document-based responses to urban issues.
4. 📊 **City Health Dashboard** – Allows comparison of environmental health metrics across cities.
5. 🏙️ **City Comparison Tool** – Compares two cities side-by-side based on key sustainability indicators like air quality, traffic levels, waste management, and public health metrics.

🎯 Purpose

The purpose of the project is to:

- Promote sustainable behaviour and waste management practices.
- Provide data-driven insights to empower better urban decisions.
- Encourage civic participation and public awareness.

- Offer scalable tools aligned with UN Sustainable Development Goals (SDGs).

👥 Target Audience

- **Citizens and Households**: Receive tips, feedback, and eco-advice for sustainable living.
- **Urban Planners and Civic Bodies**: Use dashboards and RAG-based tools to analyse and solve local problems.
- **Environmental NGOs and Researchers**: Access data-driven insights and visualizations.
- **Students and Educators**: Learn about sustainable practices and AI applications in urban planning.

🌐 Social and Economic Impact

- **Social Impact**:
    - Empowers individuals to take part in solving environmental issues.
    - Improves digital civic participation and community awareness.
    - Encourages responsible behaviour through AI-generated content.
- **Economic Impact**:
    - Reduces costs associated with inefficient waste management.
    - Helps local governments make data-driven policy decisions.
    - Supports green innovation and startup potential in the civic tech space.