NM IBM PROJECT

TEAM LEADER: HARINI S
TEAM MEMBERS: MONICA G, NANDHINI K, LOGESHWARI D
DEPARTMENT: BCA – III 'A'
COLLEGE NAME: CHEVALIER T. THOMAS ELIZABETH COLLEGE FOR WOMEN
BATCH: 2023-2026
PROJECT NAME: SUSTAINABLE SMART CITY ASSISTANT USING IBM GRANITE LLM

NM IBM PROJECT

SUSTAINABLE SMART CITY ASSISTANT DOCUMENTATION

This document provides a comprehensive overview of the Sustainable Smart City Assistant project, a generative AI solution built using IBM Granite LLM. The project aims to improve city management and citizen interaction by providing quick, AI-powered tools.

PROJECT OVERVIEW

The **Sustainable Smart City Assistant** is an AI-powered platform designed to support urban sustainability, governance, and citizen engagement[3]. It leverages IBM Watson's Granite LLM and modern data pipelines to integrate several key modules, including a **City Health Dashboard**, a **Citizen Feedback** system, **Document Summarization**, **Eco-Advice**, **Anomaly Detection**, and a **Chat Assistant**. The platform uses a modular Fast API backend and a Streamlit-based frontend dashboard.

KEY FEATURES AND USE CASES

The assistant includes several quick tools to enhance urban management and citizen services.

- **Policy Search & Summarization:** Municipal planners can upload complex policy documents. The assistant then summarizes these documents into concise, citizen-friendly versions, enabling quick interpretation of key points and informed decision-making.
- **Citizen Feedback Reporting:** Residents can report issues like a burst water pipe directly through a feedback form. The issue is instantly logged with category tagging (e.g., "Water"), making it easy for city administrators to review.
- **Eco Tips:** Provides quick tools for eco tips.
- **City Health Dashboard:** Offers a dashboard for monitoring city health.

NM IBM PROJECT

PROJECT WORKFLOW & IMPLEMENTATION

This section details the step-by-step process for setting up and deploying the project.

PREREQUISITES

To get started with the project, you'll need a basic understanding of the following tools and concepts:

- **Gradio Framework**: For building the user interface.
- **IBM Granite Models**: Accessible via Hugging Face.
- **Python Programming**: Proficiency in Python is required.
- **Version Control with Git**: For managing and uploading the project code.
- **Google Colab's T4 GPU**: The project is deployed on Google Colab, leveraging its T4 GPU for smooth performance.

IMPLEMENTATION STEPS

The project workflow is divided into four main activities.

ACTIVITY 1: EXPLORING THE PORTAL

1. Search for and navigate to the "Naan Mudhalavan Smart Internz" portal.
2. Log in to your account.
3. Go to the "Projects" section and select the "Sustainable Smart City Assistant Using IBM Granite LLM" project.
4. Click "Access Resources" and then "Guided Projects" to view the project details.
5. Click "Go to workspace" to find the project overview and details.

ACTIVITY 2: CHOOSING AN IBM GRANITE MODEL

1. Navigate to the Hugging Face website and create an account.
2. Use the search bar to find

"IBM-granite models".

3. For this project, the

   The Granite-3.2-2b-instruct model is recommended, as it's a lightweight and fast 2-billion-parameter model fine-tuned for reasoning tasks.

   ACTIVITY 3: RUNNING THE APPLICATION IN GOOGLE COLAB

1. Go to

   Create a new notebook on Google Colab.

2. Change the notebook's runtime type to

   T4 GPU by going to Runtime > Change Runtime Type and selecting T4 GPU from the hardware accelerator.

3. Install the necessary libraries by running the following command in the first cell:
4. Copy the provided project code into a new cell and run it. This will download the model and launch the application. A public URL will be generated to access the Gradio application.

   ACTIVITY 4: UPLOADING THE PROJECT TO GITHUB

1. Go to **GitHub** and create an account or sign in.
2. Create a new repository, giving it a name (e.g., "IBM-Project") and turning on the "Add a README" file option.
3. In Google Colab, download your project code by clicking

   File > Download > Download .py.

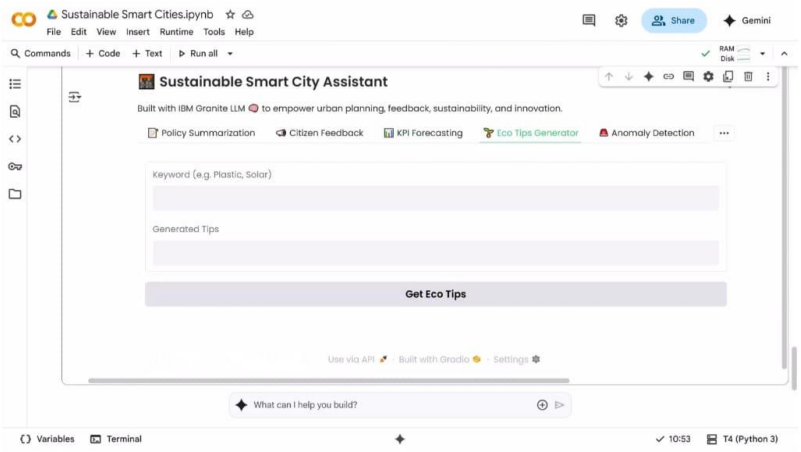
4. In your new GitHub repository, click on

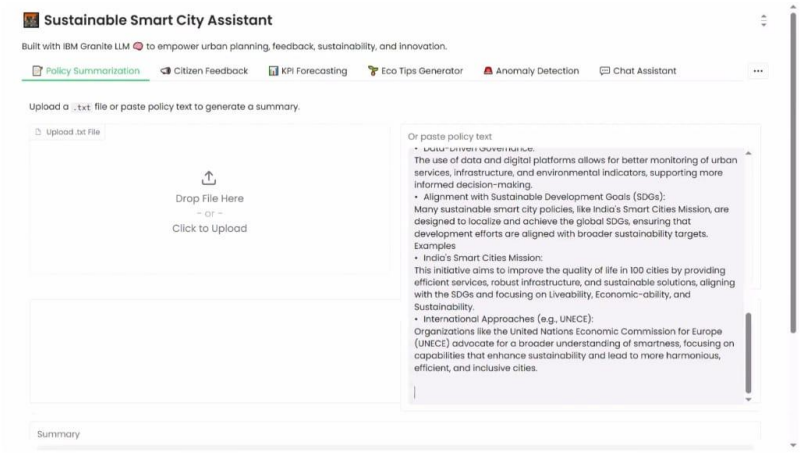
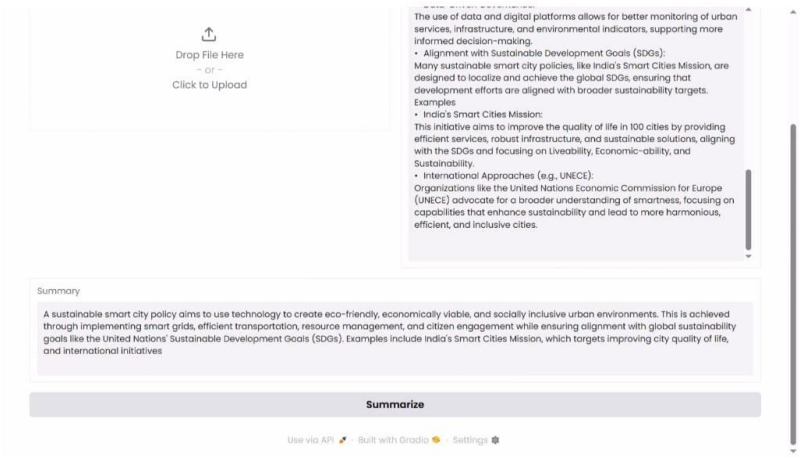
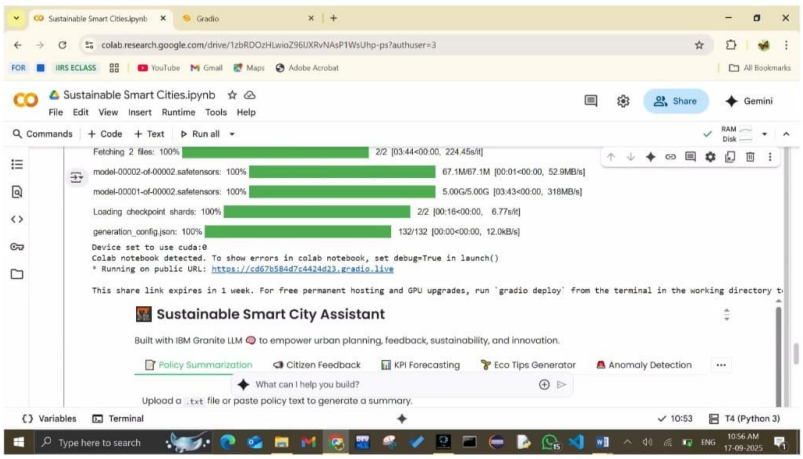
NM IBM PROJECT

"Add file" and then **"Upload files"**.

5. Choose the downloaded

OUTPUT OF THE PROJECT





NM IBM PROJECT