City Analysis & Citizen Services AI

# 📘 Project Documentation

Environment: Google Colab (T4 GPU recommended)

# 🔹 Overview

This project uses Hugging Face Transformers and Gradio to create an AI assistant that:  
1. Analyzes cities for crime index, accidents, and safety statistics.  
2. Provides government-related assistance by answering citizen queries about public services, policies, and civic issues.  
  
The app runs on Google Colab with GPU acceleration (T4 GPU) for faster inference.

# 🔹 Dependencies

Install required packages:  
!pip install transformers torch gradio -q

# 🔹 Code Walkthrough

1. Imports: Loads necessary libraries.  
2. Model & Tokenizer Setup: Loads IBM Granite model and sets device to GPU if available.  
3. Response Generator: Generates AI responses using model.generate.  
4. Custom Functions: city\_analysis() and citizen\_interaction() for specific tasks.  
5. Gradio Interface: Creates a tabbed UI with City Analysis and Citizen Services sections.  
6. App Launch: app.launch(share=True) provides a public Gradio link.

# 🔹 Usage Instructions

1. Open Google Colab.  
2. Set Runtime → T4 GPU.  
3. Install dependencies.  
4. Run the script.  
5. Enter City Name or Citizen Query to get responses.  
6. Access via the generated Gradio link.

# 🔹 Example Inputs/Outputs

Example 1 (City Analysis Input: Mumbai)  
- Crime Index: Medium-high  
- Accident Rates: High  
- Overall Safety: Moderate  
  
Example 2 (Citizen Query: What is the process to apply for a passport renewal?)  
- Apply online via official portal  
- Provide Aadhaar, old passport, proof of residence  
- Book appointment at Passport Seva Kendra  
- Police verification may be needed

# 🔹 Limitations

1. Responses may lack real-time accuracy.  
2. Model does not fetch live data.  
3. Limited to general knowledge.

# 🔹 Future Enhancements

1. Add real-time API integrations.  
2. Enable streaming responses.  
3. Add multi-language support.