**PROJECT PLANNING**

**Project Scope:**

This project develops an AI-driven citizen support tool with two major functions:

1. City Analysis: Provide insights about crime index, accident statistics, and traffic safety for a given city.

2. Citizen Services: Answer citizen queries about public services, government policies, and civic issues.

The system will be built using the IBM Granite language model and a Gradio web interface.

**Project Objectives:**

Build an interactive web application for AI-based city and citizen analysis.

Deliver accurate, contextual responses through natural language processing.

Ensure the system can be easily scaled or extended to include more civic services in the future.

**Deliverables:**

AI model integration with IBM Granite LLM.

Functional Gradio-based web interface with two tabs: City Analysis and Citizen Services.

Text generation module for structured responses.

Documentation (Design, Planning, Future Enhancements).

**Resources & Tools:**

Programming Language: Python

Libraries:

transformers (for AI model & tokenizer)

torch (for model inference)

gradio (for web interface)

Hardware:

Development machine with CPU (basic usage)

GPU (optional, for faster performance with 2B parameter model)

Deployment Platform (optional):

Hugging Face Spaces

Local server

**Project Timeline (High-Level):**

Phase Duration Activities

Requirement Gathering 2 days Identify features (city analysis, citizen interaction)

Design Phase 3 days Prepare system design & architecture docs

Development Phase 5 days Implement model integration, functions, Gradio UI

Testing Phase 3 days Test responses, fix issues, optimize output

Deployment 2 days Deploy locally / Hugging Face Spaces

Documentation & Handover 2 days Prepare user guide, technical docs

Estimated Total Duration: ~17 days

**Risk Analysis:**

Risk Impact Mitigation

Slow performance on CPU High Use smaller Granite model or GPU

AI hallucinations (inaccurate data) Medium Add disclaimers, future integration with real datasets

Internet connectivity issues Medium Provide local hosting option

Model loading errors (large size) High Use efficient model loading, reduce max\_new\_tokens

**Success Criteria:**

Application runs without crashing on CPU or GPU.

Users can analyze a city and receive structured safety insights.

Users can submit queries and receive contextual government-style responses.

Interface is easy to use with clear tabs and outputs.

**Future Planning:**

Integrate real-time government APIs for accurate statistics.

Expand services (healthcare, education, transport, waste management).

Add multilingual support for non-English users.

Build mobile-friendly interface.