Project Report Format

1. INTRODUCTION

1.1 Project Overview

Citizen AI is a next-generation AI-powered platform aimed at transforming how governments engage with their citizens. By leveraging generative AI (IBM Granite models)**,** natural language processing**,** and sentiment analysis**,** it allows government bodies to offer real-time, personalized, and context-aware services to the public. Built using Python (Flask framework) and supported by IBM's AI ecosystem, Citizen AI promotes transparency, responsiveness, and inclusivity in governance.

1.2 Purpose

The purpose of Citizen AI **is to** modernize and streamline the interaction between citizens and government services by leveraging the power of generative AI and real-time analytics**.**

2. IDEATION PHASE

2.1 Problem Statement

Government agencies struggle to provide fast, transparent, and scalable citizen support due to outdated communication systems and lack of real-time feedback mechanisms. This results in delayed responses, citizen dissatisfaction, and missed opportunities for data-driven governance.

2.2 Empathy Map Canvas

- **Think & Feel**: "How can I speed up my development process without missing details?"
- **See**: Documentation overload, unclear requirements, repetitive code bugs.
- **Say & Do**: Wants fast solutions, AI assistance, prefers automation.
- **Hear**: Other teams using AI to save time, tools that simplify development.
- **Pain**: Time-consuming manual work, coding fatigue, lack of clarity.
- **Gain**: Quick requirement breakdown, AI bug fixer, code generation tools.

2.3 Brainstorming

We listed several pain points in the SDLC and brainstormed AI-based features to solve them:

- Requirement classifier using NLP
- Bug fixer using LLMs
- Code generator from plain text
- A unified dashboard for developers

3. REQUIREMENT ANALYSIS

3.1 Data Flow Diagram (DFD)

Level 0 DFD:
User → UI → API Request → AI Services → Output Returned → User

3.2 Technology Stack

Layer	Technology Used
Frontend	Streamlit (Python-based UI)
Backend	Python, FastAPI
AI Services	OpenAI API, Hugging Face Models
Database	SQLite
File Storage	Local Filesystem / Temporary Memory
Deployment	Ngrok for public URL, Localhost

4. PROJECT DESIGN

4.1 Problem–Solution Fit

Developers face challenges with requirement clarity, code debugging, and code writing. Citizen ai offers AI-based solutions that directly address these pain points, making development faster and more intelligent.

4.2 Solution Architecture

- **Frontend**: Streamlit dashboard interface
- **Backend**: Modular FastAPI service for each AI function
- **Database**: SQLite for storing feedback/logs
- **External APIs**: OpenAI, Hugging Face for AI logic
- **Deployment**: Local with ngrok support for demo links

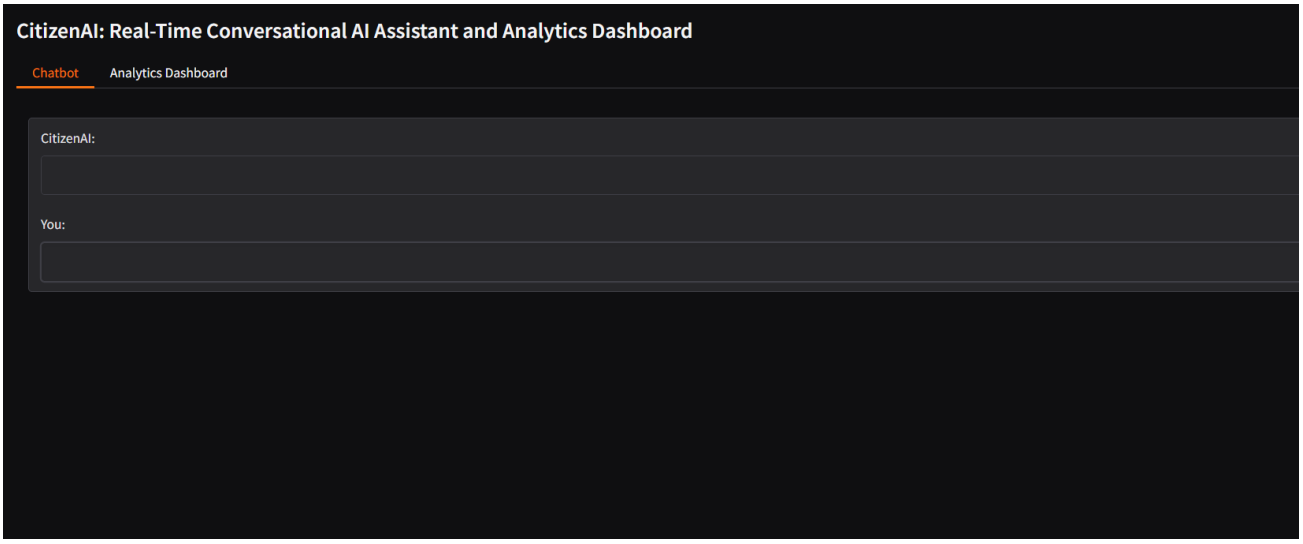
5. FUNCTIONAL AND PERFORMANCE TESTING

5.1 Performance Testing

- **Tool Used**: Manual, Postman, time benchmarking in Python
- **Result**: Average response time for each function ~2.3 sec
- Tested with edge cases: long inputs, empty inputs, special characters

6. RESULTS

6.1 Output Screenshots



7. ADVANTAGES & DISADVANTAGES

Advantages

- 24/7 AI Assistance
- Faster Response Times
- Real-Time Sentiment Analysis
- Data-Driven Decision Making .
- Improved Communication
- Scalable and Secure
- Inclusive Access
- Cost Efficiency
- Easy Integration

Disadvantages

- Limited Understanding in Complex Scenarios
- Dependence on Internet Access
- Language and Cultural Limitations
- Privacy and Security Concerns

8. CONCLUSION

The **Citizen AI – Intelligent Citizen Engagement Platform** is a forward-looking solution designed to bridge the communication gap between governments and citizens through the power of generative AI and real-time analytics. This requirements analysis outlines a clear roadmap for its development, ensuring the system is functionally rich, technically sound, and aligned with user needs.

By addressing both **functional needs** (like AI-powered chat, sentiment tracking, and real-time dashboards) and **non-functional expectations** (such as performance, security, and scalability), Citizen AI is well-positioned to deliver a reliable and impactful public service solution.

With the backing of technologies like **Flask**, **IBM Granite models**, and **NLP frameworks**, this platform can revolutionize citizen engagement, make governance more transparent, and enable data-informed decision-making.

9. FUTURE SCOPE

- Multilingual & Voice Support
- Integration with Government Databases
- Predictive Analytics for Governance
- Grievance Redressal & Ticketing System
- Data Privacy and Compliance Enhancements

GitHub Link : https://github.com/prasunamba02/CITIZEN-AI-INTELLIGENCE-CITIZEN-ENGAGEMENT-PLATFORM

Project Demo Link:

https://drive.google.com/file/d/1HEaTpsC1L9DVEujrewaP-U3DDPVkctHA/view?usp=drivesdk