Ideation Phase – Laying the Foundation for a Smart City AI Assistant

🔍 Problem Statement

In today's rapidly urbanizing world, city administrators and citizens are inundated with vast amounts of data—yet actionable insights remain elusive. Sustainability reports are often long-winded and packed in dense formats like PDFs, while performance metrics such as energy consumption, water usage, and recycling rates are published without context. This creates an overwhelming experience for users who need quick, understandable, and engaging summaries to make informed decisions.

🔐 Key Challenges Identified:

- 📄 Overload of lengthy, unreadable policy documents
- 📉 No easy interpretation of performance trends
- 🌱 Low citizen participation in sustainability due to limited awareness
- ⚙️ Lack of unified tools integrating AI, ML, and data summarization

🧩 **The Need:** A user-friendly, AI-powered solution that interprets city data, forecasts patterns, flags anomalies, and encourages sustainable habits—bridging the gap between data and understanding.

🧠 Empathy Map Canvas

To understand our user base—urban citizens, city planners, and researchers—we built an **Empathy Map** that reflects their thoughts, feelings, and behaviors while interacting with smart city data.

Quadrant	Key Insights
SAYS	"These policy documents are too long to read.""What do these KPIs actually mean?"
THINKS	"Is our city managing energy and water wisely?""Can I contribute to sustainability efforts?"
DOES	Skips complex PDFs and CSVs, avoids dashboards, gives no feedback
FEELS	Frustrated by complexity, disconnected from policy impact, unsure of how to act

🎯 User Expectations:

- One-click summaries of long documents
- Interactive dashboards for visual insights
- Daily eco-tips and sustainability reminders
- A conversational AI assistant to resolve queries intuitively

💡 Brainstorming

In collaborative sessions, our team explored features that directly address the pain points identified in the empathy map. The goal was to brainstorm tools that simplify interactions and encourage civic participation in sustainability initiatives.

✨ Feature Ideas:

- 🤖 **Smart Chat Assistant** – Powered by an LLM, it handles FAQs and smart city queries in natural language
- 📄 **PDF Summarizer** – Extracts concise summaries from policy documents uploaded by users
- 📊 **KPI Forecasting Module** – Uses linear regression to predict resource usage based on uploaded CSVs
- 🚨 **Anomaly Detector** – Identifies spikes or inconsistencies in CSV-based KPIs
- 🌱 **Eco Tips Generator** – Delivers bite-sized, randomized sustainable lifestyle tips
- 📝 **Feedback Collection Form** – Gathers user responses to improve engagement and trust
- 🖨️ **AI Report Generator** – Compiles readable, AI-written reports from user-supplied data

🧩 Key Design Outcomes:

- Modular architecture with minimal setup
- Session-based feedback storage (no backend database required)
- Tabbed Gradio UI for intuitive navigation
- Built-in compatibility with Google Colab GPU sessions

⚡ *This phase laid the groundwork for a user-focused, AI-enhanced platform that makes sustainability data more accessible and actionable for everyone.*