Sprint Planning Logic – Sustainable Smart City Assistant (2-week cycles)

Sprint 1: Project Setup & Architecture

Epic: Initial Setup & Core Architecture
Stories:

- Set up project folder structure (Streamlit + FastAPI) — *Story Point: 1*
- Build sidebar and navigation using Streamlit — *2*
- Set up FastAPI backend and routing — *3*
- Integrate IBM Granite LLM via `langchain_ibm` — *5*
- Create .env config for securing API keys — *2*

Total Story Points: 13

Sprint 2: AI Features & User Modules

Epic: Core Functionalities
Stories:

- Build Chat Assistant UI and connect to IBM Granite — *3*
- Create Eco Tips Generator with prompt templates — *2*
- Create Policy Question Answering textbox (no document upload) — *2*
- Design Feedback form and connect to `/submit-feedback` endpoint — *2*
- Create Smart Dashboard overview (intro + sidebar guide) — *3*
- Create separate KPI Dashboard with static data + graphs (Matplotlib/Plotly) — *5*

- Add input form for Anomaly Detection and output logic — *4*

Total Story Points: 21

Sprint 3: Forecasting & Reports

Epic: AI Insights & Reporting
Stories:

- Implement Linear Regression for KPI forecasting — *3*
- Connect CSV upload to forecasting API and display future values — *5*
- Implement Anomaly Detection with threshold logic — *2*
- Create Sustainability Report Generator UI — *2*
- Connect `/generate-report` to IBM Granite with city KPI prompts — *3*
- Render report in markdown format on Streamlit — *3*
- Add chart visualizations alongside report — *3*

Total Story Points: 21

Sprint 4: Testing, Deployment & Finishing Touches

Epic: Finalization & Optimization
Stories:

- Test all API endpoints and fix backend errors — *3*
- Improve UI design and text instructions (human-friendly) — *2*
- Add error handling (e.g., server offline messages) — *3*

- Prepare demo speech and explanation content — *2*
- Deploy project locally and test full integration — *3*

Total Story Points: 13

Final Sprint Metrics

- **Total Story Points:** 13 + 21 + 21 + 13 = **68**
- **Number of Sprints:** 4
- **Velocity:** 68 / 4 = **17 story points per sprint**