Functional & Performance Testing Template

Model Performance Test

Date	21 February 2025
Team ID	LTVIP2025TMID34483
Project Name	Sustainable smart city assistant using IBM granite LLM

✅ Test Scenarios & Results for Sustainable Smart City Assistant (IBM Granite LLM)

Test Case ID	Scenario (What to Test)	Test Steps (How to Test)	Expected Result	Actual Result	Pass/Fail
FT-01	**Text Input Validation** (e.g., citizen query, service request, location name)	Enter valid and invalid inputs such as place names, service types, garbage pickup requests	Valid entries accepted; invalid ones trigger helpful error messages		
FT-02	**Number Input Validation** (e.g., pollution levels, energy usage, population counts)	Enter values within and beyond thresholds	Valid values processed; errors shown for unrealistic values		
FT-03	**Sustainable Recommendation Generation** (e.g., eco-friendly transport suggestion, waste management plan)	Provide context such as city size, population, and goals → click "Generate Recommendation"	Accurate, localized, and actionable recommendations are produced using IBM Granite		
FT-04	**LLM API Connection Check**	Ensure IBM Granite API key is correctly integrated and responds to city queries	Model responds successfully with intelligent output		
FT-05	**Multilingual Support Check**	Ask for the same city services in multiple supported languages	Assistant replies correctly in all languages		

⚙️ Performance Testing for Smart City Assistant

Test Case ID	Scenario	Test Steps	Expected Result	Actual Result	Pass/Fail
PT-01	**Response Time Test**	Use stopwatch to measure time taken to generate energy efficiency report	Response time under 3 seconds		
PT-02	**Concurrent API Load Test**	Send 20+ concurrent service inquiries (e.g., public transport, recycling times)	No slowdown, responses within time limit		
PT-03	**Geospatial Data File Upload Test** (e.g., city zoning maps in PDF/GeoJSON)	Upload large files and verify processing and summarization	Files processed smoothly without crashing		
PT-04	**Sustainability Query Scalability Test**	Simulate 1,000 simultaneous queries about energy, waste, water	No degradation of model performance or response accuracy		