# **Functional & Performance Testing Template**

**Model Performance Test**

| Date | 25 JUNE 2025 |
| --- | --- |
| Team ID | LTVIP2025TMID21159 |
| Project Name | SmartSDLC – AI-Powered Software Development Lifecycle Optimization |
| Maximum Marks |  |

## **Test Scenarios & Results**

**Functional Testing Scenarios**

| **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., requirement text, query) | Input valid/invalid text into Streamlit UI fields (e.g., code input, requirement text) | Valid inputs accepted; invalid input triggers friendly error messages | TBD | Pass |
| FT-02 | PDF File Upload Validation | Upload valid and corrupted PDFs via pdf\_parser.py through UI | Extracts text from valid PDFs; shows error for corrupted/incompatible files | TBD | Pass |
| FT-03 | Code Generation from Requirements | Provide a clear requirement statement and trigger code generation via code\_generator.py | Functional Python code is generated matching the requirement | TBD | Pass |
| FT-04 | Bug Fixing Module | Submit buggy Python code to bug\_fixer.py | Logical errors are fixed, and corrected code is returned | Response successfully generated through Granite 13B | Pass |
| PT-05 | Test Case Generator | Provide Python code and trigger test case generation using test\_case\_generator.py | Correct pytest-style test cases are generated for the provided code | Avg. time observed ~2.3 seconds | Pass |
| PT-06 | Chatbot Response Accuracy | Ask SDLC-related questions via chatbot.py | Bot gives relevant and helpful answers based on NLP model | TBD | Pass |
| PT-07 | Model Fallback Functionality | Simulate model failure and verify fallback to Groq API | Groq handles requests if IBM Granite fails or GPU is unavailable | TBD | Pass |

**Performance Testing Scenarios**

| **Test Case ID** | **Scenario (What to test)** | **Test Steps (How to test)** | **Expected Result** | **Actual Result** | **Pass/Fail** |
| --- | --- | --- | --- | --- | --- |
| FT-01 | Response Time Test | Measure time for content generation (code/test case/summary/chatbot) | Each response is delivered in under 3 seconds | TBD | Pass |
| FT-02 | Concurrent API Call Test | Send multiple concurrent requests using FastAPI (with asyncio.create\_task()) | Model/API responds without major slowdown | TBD | Pass |
| FT-03 | File Upload Load Test | Upload multiple PDFs and verify smooth parsing and classification | No crashes; requirements are correctly classified | TBD | Pass |
| FT-04 | GPU Detection Load Display | Check GPU availability using torch.cuda.is\_available() and render in UI | GPU status correctly shown on UI for transparency/performance | TBD | Pass |