Elaborated Problem Statement

**Project Title**: Hybrid Testing Strategy for E-Commerce Web Application: Manual and Selenium-based Automation Testing Using Java”

**Purpose**: The goal of this capstone project is to demonstrates how a hybrid QA strategy improves overall test coverage and efficiency by leveraging both manual and automated approaches. It also validates the importance of frameworks, test reusability, and reporting in real-world QA.

Expanded Problem Statement (with topics):

**Project Scope:**

* Analyse and test features like login, product search, cart, checkout, and payment.
* Design manual test cases and defect tracking.
* Automate regression test cases using Java + Selenium.

**Tools & Technologies:**

|  |  |
| --- | --- |
| **Area** | **Tools** |
| Test Management | Excel / TestLink / Jira |
| Automation | Selenium WebDriver |
| Language | Java |
| Build Tool | Maven |
| Framework | TestNG |
| IDE | Eclipse or IntelliJ |
| Reporting | ExtentReports |
| Browser | Chrome / Firefox |
| Version Control | Git / GitHub (Optional) |

**1. Requirement Analysis**

* Collect functional and non-functional requirements (use a mock site like Automation Practice or OpenCart Demo).
  + [Automation Exercise - Signup / Login](https://automationexercise.com/login)
* Identify testable features.

**2. Manual Testing**

* Write **Test Scenarios and Test Cases** (Login, Search, Add to Cart, Payment).
* Perform **Smoke, Functional, UI, and Regression Testing** manually.
* Log defects using a simple defect log in Excel or Jira.

Automation Exercise - Signup / Login

This is for automation practice

**3. Automation Testing**

* Set up **Selenium + Java + TestNG + Maven** framework.
* Use **Page Object Model (POM)** design pattern.
* Automate test cases (at least 8–10 major ones like Login, Search, Add to Cart).
* Add validation points using **assertions**.
* Generate **test reports**.

**4. Test Execution**

* Execute both manual and automated test cases.
* Compare manual vs automated effort/time/coverage.

**5. Defect Logging & Reporting**

* Track bugs found in both manual and automated testing.
* Create a final **Test Summary Report**.