Selenium Automation Project Report

# Overview

This project focused on building an automated testing framework using Java, Selenium WebDriver, TestNG, Apache POI. The primary objective was to demonstrate the ability to set up a Java environment, automate web tasks, manage data-driven tests, and integrate continuous testing.

# What I Learned

Throughout the assignment, I developed practical experience in:  
- Configuring a Java Maven project using IntelliJ IDEA  
- Automating web interactions using Selenium WebDriver  
- Writing and organizing unit tests using TestNG annotations  
- Managing test data from Excel using Apache POI  
- Running automated builds using Jenkins and GitHub integration

# Assignment Completion

Yes, I completed all the required and optional tasks, including:  
- Maven project setup and HelloWorld program  
- Basic and advanced Selenium scripts  
- Locator strategies, waits, and web element handling  
- TestNG test structure and HTML report generation  
- Data-driven testing with Apache POI  
- Jenkins job to pull and run tests from GitHub  
- Screenshots and a clean GitHub submission

# Code Quality

I ensured that the code is modular, well-commented, consistently formatted, and includes error handling. Each test functionality was separated into classes for better maintainability and readability.

# Challenges and How I Overcame Them

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| Challenge | Solution |
| IntelliJ not recognizing Java Class option | Marked src folder as Sources Root |
| Maven dependencies not loading | Used 'Reload Maven Project' and ensured internet access |
| chromedriver.exe path issue | Verified file location and used double backslashes in the path |
| TestNG not showing 'Run' option | Installed the TestNG plugin and used testng.xml |
| test-output folder not appearing | Ensured tests were run via testng.xml |
| Jenkins build errors | Added Git and Maven tools in Jenkins configuration and set goals to 'clean test' |

# Submission Organization

All source code is pushed to a GitHub repository: [Insert GitHub URL here]  
Included:  
- Project source code  
- pom.xml file with dependencies  
- data.xlsx file for data-driven tests  
- testng.xml file for TestNG execution  
- Screenshots of test output, reports, and Jenkins build  
- This final report

# Conclusion

This assignment enhanced my skills in Selenium automation, test structuring, data-driven testing, and CI integration. I feel more confident working with real-world testing frameworks and tools. It also helped me improve my problem-solving ability by working through various technical issues.  
  
I believe my submission meets all the expectations and demonstrates the required competencies effectively.