**Test Plan for Amazon E-commerce Automation Project**

**1. Introduction**

The purpose of this test plan is to outline the approach, scope, and strategy for the automation testing of the Amazon e-commerce platform using Selenium with Java, TestNG, and a hybrid framework following the Page Object Model (POM) design pattern.

**2. Objectives**

* To ensure that the core functionalities of the Amazon website, including search, add to cart, filters, sorting, and user account management, work as intended.
* To automate test cases efficiently using Selenium WebDriver and the Page Object Model to improve maintainability and readability.
* To validate the application against the requirements and identify defects early in the development process.

**3. Scope**

The automation testing will cover the following areas:

* Search functionality
* Add to Cart & Remove from Cart
* Product filters and sorting

**4. Testing Approach**

* **Test Methodology**: Hybrid framework utilizing TestNG for managing test execution and reporting.
* **Test Automation Tool**: Selenium WebDriver for browser automation.
* **Framework Design**: Page Object Model (POM) for better test organization and reusability.
* **Data Management**: Test data will be sourced from Excel sheets using Apache POI for reading test data and expected results.

**5. Tools and Technologies**

* **Programming Language**: Java
* **Test Automation Framework**: TestNG
* **Automation Tool**: Selenium WebDriver
* **Data Handling**: Apache POI for Excel file handling
* **Dependency Management**: Maven for managing project dependencies
* **Version Control**: Git for source code management
* **Continuous Integration**: Jenkins for automated test execution

**7. Resources**

* **Testers**: Utkarsh Howale
* **Test Environment**: Amazon production

**8. Deliverables**

* Automated test scripts
* Test execution reports
* Defect logs and tracking

**9. Risks and Mitigations**

* **Risk**: Changes in the website UI may lead to test script failures.
  + **Mitigation**: Regularly review and update test scripts to align with UI changes.
* **Risk**: Dependency on external data sources for testing.
  + **Mitigation**: Maintain a local copy of essential test data in the Excel sheet.

**10. Conclusion**

This test plan serves as a roadmap for the automation testing efforts for the Amazon e-commerce platform, ensuring comprehensive coverage and efficient execution of test cases. Adhering to this plan will facilitate the timely identification of defects and improve the overall quality of the application.