Test Strategy

Flipkart Website Portfolio Project

By

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1. Introduction

This document outlines the test strategy for the Flipkart website automation and manual testing portfolio project. The objective is to ensure robust, scalable, and high-quality testing coverage across multiple testing methodologies and tools.

2. Project Scope

Testing will be conducted for the Flipkart website and mobile application, covering manual testing, Selenium-based automation, API testing, performance testing, and mobile automation.

3. Testing Objectives

- Validate core functionalities of the Flipkart platform.
- Ensure compatibility across multiple browsers.
- Automate test execution to improve efficiency.
- Perform API testing for backend validation.
- Conduct performance testing to ensure system stability.
- Test mobile applications using Appium.

4. Testing Scope

4.1 Manual Testing

- Functional Testing
- UI Testing
- Regression Testing
- Exploratory Testing

4.2 Automation Testing

1. **Basic Automation with Selenium (Java WebDriver Only)**

   - Automate login, search, cart, and checkout functionalities.
   - Validate UI elements and navigation.
2. **Automation with Selenium (Java WebDriver + TestNG)**

   - Implement TestNG framework.
   - Use annotations for structured test execution.
   - Generate TestNG reports.

3. **Cross-Browser Testing with Selenium Grid**
   - Execute tests on Chrome, Firefox, Edge, and Safari.
   - Parallel test execution using Selenium Grid.
4. **BDD Automation with Selenium (Java WebDriver + Cucumber)**

   - Implement Cucumber framework for BDD.
   - Write test scenarios in Gherkin syntax.
   - Generate Cucumber reports.
5. **Data-Driven Testing with Selenium (Java WebDriver)**

   - Implement parameterization using Apache POI.
   - Read test data from external sources (Excel, CSV, JSON).
6. **Mobile Automation with Appium (Selenium + Java)**

   - Automate Flipkart mobile app testing.
   - Execute tests on Android and iOS devices.
7. **Automation using Playwright**

   - Use Playwright for web automation.
   - Test UI and functional flows with enhanced speed and reliability.

4.3 API Testing

- Automate Flipkart website API testing using Postman.
- Validate GET, POST, PUT, DELETE requests.
- Perform authentication and authorization testing.

4.4 Performance Testing

- Conduct performance and load testing using JMeter.
- Test application response time under different loads.
- Identify system bottlenecks and optimize performance.

5. Test Approach

- Follow Agile methodology for test execution.
- Prioritize automation for regression and repetitive test cases.
- Implement CI/CD integration where applicable.

6. Test Environment

- **Web Automation**: Windows/Linux with Selenium, Java, TestNG, Cucumber, Playwright.
- **Mobile Testing**: Android Emulator, iOS Simulator, Real Devices, Appium.
- **API Testing**: Postman, Newman for CLI execution.
- **Performance Testing**: JMeter with cloud-based execution for scalability.

7. Testing Tools & Frameworks

- **Automation**: Selenium WebDriver, TestNG, Cucumber, Playwright, Appium.
- **Test Management**: JIRA/TestRail.
- **CI/CD Integration**: Jenkins/GitHub Actions.
- **Reporting**: Extent Reports, TestNG Reports, Cucumber Reports.

8. Defect Management

- Defects will be logged in JIRA.
- Defect triage meetings will be conducted.
- Severity and priority will be assigned to each defect.

9. Entry & Exit Criteria

Entry Criteria

- Test environment setup is completed.
- Test cases are reviewed and approved.
- Test data is available.

Exit Criteria

- All test cases are executed.
- No critical/blocker defects remain open.
- Test summary report is generated.

10. Risk Management

- **Risk:** Environment unavailability → **Mitigation:** Use cloud-based environments.
- **Risk:** Test data issues → **Mitigation:** Use data-driven testing techniques.
- **Risk:** Browser compatibility challenges → **Mitigation:** Use Selenium Grid for cross-browser testing.

11. Test Deliverables

- Test Cases (Manual & Automated)
- Test Execution Reports
- Defect Reports
- Test Summary Reports

This test strategy ensures a comprehensive approach to validating the Flipkart website and mobile app functionalities across various testing levels and tools.

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