Test Planning and Management for automationexercise.com

1. Introduction

This document outlines the test strategy, process, workflow, and methodologies for testing the AutomationExercise.com website. The goal is to ensure the website meets functional, non-functional, and user experience requirements before release.

1.1 Scope

1.1.1 In Scope

- **Functional Testing:**

  - **Home Page:** Navigation links, featured items, and banners.
  - **Products Page:** Product listing, filters, sorting, and product details.
  - **Cart Page:** Adding/removing items, proceeding to checkout.
  - **Login/Signup Page:** User registration, login, and password recovery.
  - **Checkout Page:** Payment processing and order confirmation.
  - **API Endpoints:** User authentication, product data retrieval, and order placement
- **Non-Functional Testing:**
  - **Performance Testing:**
    - Measure response times for key actions (e.g., login, product search, checkout).
  - **Usability Testing:**
    - Evaluate the user interface for ease of use and navigation.

- Test the website on different devices (desktop, tablet, mobile) and browsers.

1.1.2 Out of Scope

- **Non-Functional Testing:**

  - Performance testing under extreme load conditions.
  - Penetration testing beyond basic security validation(Security testing).

2 Roles and Responsibilities (in progress)

Since all team members are QA Engineers, the roles will be assigned based on the **Waterfall Methodology** phases. Each phase will have a dedicated lead, and team members will collaborate as needed.

2.1 Requirements Analysis Phase

- **Requirements Review Lead:**
  - Review and understand the functional and non-functional requirements.
  - Create a Requirements Traceability Matrix (RTM).

2.2 Test Planning Phase

- **Test Plan Lead:**
  - Develop the test plan document.
  - Define the scope, deliverables and environments.

2.3 Test Design Phase

- **Test Case Design Lead:**

- ○ Create detailed test cases for manual and automated testing.
- ○ Ensure test cases cover all functional and non-functional requirements.

2.4 Test Execution Phase

- **Manual Testing Lead:**
  - ○ Execute manual test cases for UI, navigation, and user flows.

- **API Testing Lead:**
  - ○ Test API endpoints using Postman.
  - ○ Validate API responses, status codes, and performance.

- **Automation Testing Lead:**
  - ○ Develop and execute automated test scripts using Selenium and TestNG.

- **Performance Testing Lead:**
  - ○ Conduct performance testing using JMeter.

2.5 Test Reporting Phase

- **Bug Triage & Reporting Lead:**
  - ○ Organize bug triage meetings and prioritize bugs.
  - ○ Generate and share test reports.

3. Identify Risks

- **Browser Compatibility:**
  - ○ The website may not render correctly on older browsers like Internet Explorer.
- **API Latency:**
  - ○ High response times during peak traffic, especially for product data retrieval.
- **Data Security:**
  - ○ Sensitive user data may be exposed during testing.

4. Test Deliverables

- **Test Plan:** This document.
- **Test Cases:** Detailed test cases for manual and automated testing.
- **Requirement Traceability Matrix (RTM):** Mapping of test cases to requirements.
- **Bug Reports:** Detailed reports of identified bugs.
- **Test Metrics:** Metrics such as bug detection rate, test coverage, and pass/fail rates.
- **Performance Test Report:** Results of performance and load testing.
- **Final Test Summary Report:** Summary of testing activities, results, and recommendations.

5. Resource & Environment Needs

5.1 Testing Tools

- **Requirements Tracking Tool:** Jira.
- **Bug Tracking Tool:** Jira.
- **Automation Tools:** Selenium, TestNG, and Cucumber.
- **API Testing Tool:** Postman.
- **Performance Testing Tool:** JMeter.

5.2 Test Environment

- **Hardware:**
  - Windows 10/11 machine.
  - Mobile devices (iOS and Android) for responsive testing.
- **Software:**
  - **Browsers:** Chrome and Edge.
  - **Tools:** Postman, Selenium, TestNG and JMeter.

6.Exit criteria

The testing process will be considered complete when the following criteria are met:

6.1 Test Coverage:
- **100% of the in-scope features** have been tested.
- **Test Coverage Percentage** has been calculated and meets the defined target (100% for core functionalities).

6.2 Bug Detection Rate:
- A **minimum bug detection rate** of 95% has been achieved for critical and high-priority bugs.
- All identified bugs have been logged and prioritized.

6.3 Non-Functional Testing:
- **Performance Testing** has been completed, and the results meet the defined criteria (response times under 300 ms for 95% of requests).
- **Usability Testing** has been completed, and the website meets the defined usability standards (ease of navigation, mobile responsiveness).
- **Response Time for API Requests** has been validated, and all API endpoints meet the performance criteria (GET/POST requests respond within 500 ms under normal load).

6.4 Documentation:
- All required test deliverables have been completed and approved, including:
    - **Test Plan**
    - **Test Cases**
    - **Bug Reports**
    - **Final Test Summary Report**
- The **Requirements Traceability Matrix (RTM)** has been updated to ensure all requirements are covered by test cases.