**Capstone Project: Automated Testing of OpenCart Demo Website**

**Project Overview:**

This project focuses on testing the demo version of the OpenCart website (<https://demo.opencart.com/>), an open-source e-commerce platform. The testing will involve UI automation with Selenium, API testing, manual testing, and behavior-driven development (BDD) using Cucumber.

**Assignment Tasks:**

**1. Automated UI Testing with Selenium**

* **Task:** Develop an automated test suite to verify the UI functionalities of the OpenCart demo website using Selenium.
  + **Test Environment Setup:**
    - Set up Selenium WebDriver with a test framework like TestNG or JUnit, and integrate with Maven or Gradle.
    - Configure browser drivers for cross-browser testing.
    - Use a CI/CD tool like Jenkins to automate test execution.
  + **Automated Test Cases:**
    - **Product Search and Filter:**
      * Automate the search functionality, ensuring that search results are accurate.
      * Verify filtering options (e.g., price range, categories) and sorting functionalities.
    - **Product Details and Add to Cart:**
      * Automate the process of viewing product details, adding products to the cart, and verifying that the cart updates correctly.
    - **Checkout Process:**
      * Automate the checkout process, including entering shipping details, selecting payment methods, and confirming orders.
    - **User Account Management:**
      * Automate registration, login, and password recovery processes.
      * Verify account features such as order history and profile updates.
    - **Cross-Browser Testing:** Ensure tests are executed across multiple browsers (Chrome, Firefox, Safari).
  + **Reporting:** Generate detailed test execution reports using tools like ExtentReports.

**2. Manual Testing**

* **Task:** Perform manual testing to validate key functionalities and explore edge cases.
  + **Test Plan and Test Cases:**
    - **Product Search and Filter:** Manually test the product search, filtering, and sorting functionalities.
    - **Product Details and Cart Management:** Verify product detail pages, cart updates, and checkout processes.
    - **User Account Management:** Test account registration, login, and profile management.
    - Document test cases with steps, expected results, and actual outcomes.
    - Provide a summary of the manual testing process, including identified issues and test coverage.
    - Log defects and track their resolution.

**3. Behavior-Driven Development (BDD) with Cucumber**

* **Task:** Implement BDD using Cucumber to define and automate test scenarios for the OpenCart demo website.
  + **Gherkin Syntax:** Write feature files in Gherkin syntax to describe the behavior of the OpenCart platform.
  + **Test Scenarios:**
    - **Product Search and Filter:** Define scenarios for searching and filtering products.
    - **Product Details and Cart Management:** Describe scenarios for viewing product details, adding items to the cart, and managing the cart.
    - **Checkout Process:** Write scenarios for completing the checkout process, including payment and shipping.
    - **User Account Management:** Define scenarios for user registration, login, and profile management.
  + **Execution and Reporting:** Run Cucumber tests and generate reports showing the execution of each feature, including pass/fail status and detailed logs.

**Tools and Technologies:**

* **UI Testing:** Selenium WebDriver, TestNG/JUnit, Maven, Jenkins, ExtentReports.
* **Manual Testing:** Test management tools like Jira or TestRail for documentation and bug tracking.
* **BDD:** Cucumber, Gherkin syntax, Jenkins for integration.
* **CI/CD:** Jenkins.
* **Expected Deliverables:**
* **Automated Test Scripts:** Selenium test scripts covering key functionalities.
* **Manual Test Cases:** Documented test cases, test plans, and bug reports.
* **Test Reports:** Detailed reports from both automated and manual testing, summarizing results and findings.
* **CI/CD Pipeline:** A fully integrated CI/CD pipeline with automated tests.
* **BDD Feature Files:** Gherkin feature files outlining system behavior.
* **Project Presentation:** A presentation covering the testing strategy, tools used, challenges faced, and overall results.