## Test Plan for ENSEK

### 1. Introduction

* **Application Name:** ENSEK
* **URL:**<https://ensekautomationcandidatetest.azurewebsites.net/>
* **Purpose:** To evaluate the functionality, usability, and performance of the ENSEK Test application.
* **Scope:** Testing will cover all publicly accessible pages and features, including registration, login, energy purchase, and energy sale functionalities.
* **Out of Scope:** Internal administrative functionalities and backend processes not exposed to the user interface.

### 2. Test Objectives

* **Functional Testing:** Ensure all features work as intended.
* **Usability Testing:** Assess the user interface for intuitiveness and ease of use.
* **Performance Testing:** Evaluate the application's responsiveness under various conditions.
* **Security Testing:** Identify potential vulnerabilities to protect user data.
* **Compatibility Testing:** Verify consistent behavior across different browsers and devices.

### 3. Test Deliverables

* **Test Plan Document:** This document outlining the testing strategy.
* **Test Cases:** Detailed test scenarios covering all functionalities.
* **Test Data:** Sample data sets for testing various scenarios.
* **Test Environment Setup:** Configuration details of the testing environment.
* **Execution Logs:** Records of test case executions and outcomes.
* **Defect Reports:** Documentation of any issues found during testing.
* **Final Test Report:** Summary of testing activities and results.

### 4. Test Methodology

* **Manual Testing:** For exploratory, usability, and ad-hoc testing.
* **Automated Testing:** For repetitive tasks and regression testing using tools like Selenium or Cypress.
* **Performance Testing Tools:** Tools such as JMeter or LoadRunner for load and stress testing.

### 5. Test Environment

* **Browsers:** Google Chrome, Mozilla Firefox, Microsoft Edge, Safari.
* **Devices:** Desktop (Windows, macOS), Mobile (iOS, Android).
* **Network Conditions:** Simulate various network speeds to assess performance under different conditions.
* **Test Tools:** Selenium WebDriver, JMeter, BrowserStack for cross-browser testing.

### 6. Test Schedule

| **Phase** | **Start Date** | **End Date** |
| --- | --- | --- |
| Test Planning | 2025-06-12 | 2025-06-13 |
| Test Case Development | 2025-06-14 | 2025-06-15 |
| Test Execution | 2025-06-16 | 2025-06-18 |
| Defect Reporting | 2025-06-19 | 2025-06-20 |
| Final Report | 2025-06-21 | 2025-06-22 |

### 7. High Level Test Scenarios

#### Functional Test Cases

1. **Registration:**
   * Verify that users can register with valid details.
   * Ensure appropriate error messages for invalid inputs.

1. **Login:**
   * Test login with valid and invalid credentials.
   * Check for session management and timeout functionality.
2. **Energy Purchase:**
   * Validate the process of purchasing different types of energy.
   * Ensure accurate pricing and transaction confirmation.
3. **Energy Sale:**
   * Test the process of selling surplus energy.
   * Verify that the sale reflects in the user's account balance.

#### Usability Test Cases

* Assess the clarity of navigation menus.
* Evaluate the responsiveness of the design on various devices.
* Test the accessibility features, including keyboard navigation and screen reader compatibility.

#### Performance Test Cases

* Measure page load times under normal and peak conditions.
* Test the application's behavior under heavy traffic loads.
* Identify any performance bottlenecks.

#### Security Test Cases

* Check for secure data transmission (SSL/TLS).
* Verify user authentication and authorization mechanisms.

#### Compatibility Test Cases

* Ensure the application functions correctly across different browsers.
* Test the responsiveness of the application on various screen sizes and resolutions.

### 8. Risk Management

* **Changing Requirements:** Regular communication with stakeholders to manage scope changes.
* **Tight Deadlines:** Prioritize critical functionalities and focus on high-risk areas.
* **Incomplete Test Automation:** Balance manual and automated testing efforts to ensure comprehensive coverage.

### 9. Entry and Exit Criteria

**Entry Criteria:**

* Test environment set up and configured.
* Test data prepared and accessible.
* Test cases developed and reviewed.

**Exit Criteria:**

* All critical test cases executed.
* Defects identified and addressed.
* Stakeholder approval obtained for test completion.