**Testing Approach for ENSEK Energy Application**

**1. Introduction**

This document outlines the testing approach for the ENSEK Energy Corp.application. The goal is to ensure that all functionalities, user interactions, and content are tested thoroughly to deliver a secure, user-friendly, and high-quality website.

**2. Testing Objectives**

**2.1.** Verify that all web pages (Home, About, Contact, Register, Log In) load correctly.

**2.2.** Ensure the functionality of interactive elements (e.g., "Buy some energy," "Sell some energy").

**2.3.** Validate the registration and login processes for secure access.

**2.4.** Confirm that the website meets user experience standards and is responsive across devices and browsers.

**2.5.** Identify any bugs, broken links, or usability issues.

**2.6.** Ensure security standards are met, particularly for user data protection during registration and login.

**3. Scope of Testing**

**3.1. Functional Testing**: Validation of features and functionalities.

**3.2.** **Non-Functional Testing**: Assessment of usability, performance, security, and compatibility.

**3**.**3. Content Verification**: Review of text, images, and links.

**3**.**4**. **Usability Testing**: Evaluation of user navigation and experience.

**3.5. Responsive Testing**: Verification of the website's adaptability to various screen sizes.

**4. Test Environment**

**4.1. Devices**: Desktop (Windows)

**4.2. Browsers**: Chrome

**4.3. Operating Systems**: Windows

**5. Types of Testing**

**5.1 Functional Testing**

**5.1.1.** Verify navigation between "Home," "About," "Contact," "Register," and "Log In."

**5.1.2.** Test registration and login forms for validation, submission, and error handling.

**5.1.3.** Check if links (e.g., "Buy some energy," "Sell some energy") redirect properly.

**5.1.4.** Validate messages during form submissions (e.g., error or success messages).

**5.1.5.** Ensure successful logout after logging in.

**5.1.6.** Confirm visibility of the "For Candidate Testing Purposes Only" disclaimer.

* 1. **User Interface (UI) Testing**

**5.2.1.** Verify alignment, colours, and text formatting across all pages.

**5.2.2.** Check consistency in fonts, button styles, and layout.

**5.2.3.** Validate proper loading of images and logos without distortion.

**5.2.4**Ensure buttons and links respond appropriately when clicked.

**5.3 Usability Testing**

**5.3.1.** Evaluate ease of navigation between pages.

**5.3.2.** Check for clear visibility of call-to-action buttons (e.g., "Buy some energy").

**5.3.3.** Review registration and login process for clarity and simplicity.

**5.3.4.** Validate text readability and font legibility.

**5.4 Security Testing**

**5.4.1.** Ensure password fields mask input.

**5.4.2.** Verify restricted access to sensitive pages without authentication.

**5.4.3.** Confirm that error messages do not expose sensitive information.

**5.5 Compatibility Testing**

**5.5.1.** Validate proper rendering across different browsers.

**5.5.2.** Test responsiveness on various screen sizes (desktop, tablet, mobile).

**5.5.3.** Check for any UI issues or layout shifts.

* 1. **Performance Testing**

**5.6.1.** Measure page load times for each page.

**5.6.2**. Test form submission and response times.

**5.6.3**.**E**valuate performance with multiple concurrent users during login/registration.

**5.7 Content Testing**

**5.7.1.** Verify that all text, including the slogan "Doing all things energy since 2010!", is accurate.

**5.7.2.** Check for spelling and grammatical errors.

**5.7.3.** Validate that all internal and external links work correctly.

**6. Test Cases and Scenarios**

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Case ID** | **Description** | **Steps** | **Expected Result** |
| TC001 | Verify "Home" page loads correctly. | Navigate to Home page. | Page loads with all elements visible, links/buttons clickable. |
| TC002 | Register a new user. | Enter valid details on Register page and submit. | Registration is successful, and user is redirected to the login page. |
| TC003 | Test registration with an existing email. | Use an already registered email. | Error message: "Email already in use." |
| TC004 | Check "Buy some energy" link functionality. | Click "Buy some energy." | User is redirected to options for purchasing energy. |
| TC005 | Verify user login functionality. | Enter valid credentials and log in. | User logs in and is redirected to their dashboard. |
| TC006 | Test responsiveness on mobile. | Access the website on a smartphone. | Layout adjusts without horizontal scrolling. |

**7. Tools and Resources**

**7.1.Automation Tools**: Selenium for automated regression testing.

**7.2.Performance Tools**: Google Lighthouse, JMeter for load testing.

**7.3.Cross-Browser Testing**: BrowserStack or CrossBrowserTesting for diverse device testing.

**8. Defect Management**

* Record defects with steps to reproduce, expected vs. actual behaviour.
* Prioritize defects based on severity and impact.
* Use a bug tracking tool like Azure DevOps for tracking and managing defects.

**Defect is raised (Status = New)**

**Fixed (Status = Resolved)**

**Re-tested**

**Decide priority**

**Assigned to a developer (Status = Active)**

**Backlog**

**Valid Issue**

**In Triage**

**Rejected (Status = Closed)**

**Pass (Status = Closed)**

**Failed (Status = Active)**

**9. Reporting and Documentation**

* Prepare a summary report of test execution, highlighting passed and failed test cases.
* Document major issues and areas of improvement.
* Provide final sign-off after resolving all critical issues.

**10. Conclusion**

This testing approach ensures that the ENSEK Energy Corp. website is functional, secure, and user-friendly. By following a structured testing process, we aim to identify and resolve issues early, delivering a seamless user experience.