**TEST PLAN REPORT**

**NAME: Nbyula**

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**COMPLETE DESCRIPTION OF THE PRODUCT:**

This document provides a product description, test strategy, roles and responsibilities, test criteria, test environment setup, test schedule and estimation, and test deliverables for the Nbyula technology brand's website. Nbyula aims to build a global digital technology ecosystem for international studies and work with trust and transparency in this field.

The Nbyula website is built using React js, Node js, Express, and Tailwind technologies/frameworks. Two types of tests will be performed on the website: manual testing and automation testing.

**STRATEGY OF TESTS CONDUCTED:**

* Manual testing will be done by experienced individuals to detect any errors or bugs in the site before it goes live and is served to the end users. Black box testing and white box testing come under this category. Automation testing will use certain tools and test cases to ensure that the site is error or bug-free for a smooth customer experience. The tools used in automation testing will be Robot framework, Selenium, and Burpsuite.
* The main objective of testing is to ensure that the website served to end-users is error- and bug-free and that every element of the website is working properly. The project should focus on testing functionalities like connections, posts, booking skylifts, etc. The roles and responsibilities include Test Manager, Tester, and Developer in Test.

Two types of tests will be performed on this website:

1. **Manual Testing:**

This test will be done by experienced individuals to detect any kind of errors or bugs in the site before it goes live and is served to the end users. Black box testing and white box testing come under this category.

1. **Automation Testing:**

In automation testing, we will use certain tools and test cases to make sure that the site is error or bug-free for a smooth customer experience.

Tools used in Automation testing will be:

* Robot framework
* Selenium
* Burpsuite

1. **Burpsuite** is a tool used by security researchers for the pen-testing of web applications.

This tool will be used by security analysts for testing the website against various flaws that might exist in the website.

Suspension criteria and exit criteria are defined based on the results obtained during the test. The suspension criteria are that if only 40% of our test cases pass, we will have to suspend the testing and let the developers fix the bugs by giving them the report of bugs. The exit criteria are that if 80% of the test cases pass, according to governing standards, the functionality is okay for public use.

**COMPLETE DESCRIPTION OF THE TOOL:**

* **The Robot Framework** is an open-source test automation framework that enables acceptance testing and acceptance test-driven development. It supports different test case styles, including keyword-driven, behavior-driven, and data-driven, making it easy to understand. Test cases are written in a tabular format using a keyword style. The Robot Framework offers excellent support for external libraries and open-source tools that can be used for automation. The most widely used library with Robot Framework is the Selenium Library, which is used for web development and UI testing.
* **Selenium Framework** is the biggest open-source automation testing suite, trusted by major companies like Google and Netflix. Integrating Selenium with the Robot Framework makes the testing process seamless, allowing testers to easily automate their tests.

The test environment must consider real devices like mobile phones, laptops, and PCs as this product is going to be live, and this will give insight into every flaw if it exists. The devices can be Android/iOS/Windows-based smartphones, laptops, and PCs.

**TIME ALLOCATION AND DEFINING THE OBJECTIVES:**

The time allocation for testing will be distributed in segments where each required functionality can be tested in the required time and with efficiency since the plan for the launch of the product is six months. Before testing, the test plan document, test cases document, and test design specifications must be provided. During the testing, the test tool simulators, test data, and error and execution logs will be provided. After the completion of testing cycles, the test reports, defect reports, installation guidelines, and release notes will be provided.

The primary objective of website testing is to ensure that the end-users are served with an error-free and bug-free website. Testing every element of the website, including connections, posts, and booking skylift functionalities is important. The project should focus on the following aspects:

1. Checking if all the elements of the website are loading correctly.
2. Verifying if the servers are responding as expected.
3. Identifying any vulnerabilities or bugs present in the website.
4. Testing all the links to ensure that they are working correctly.
5. Checking the website's performance, including how quickly changes are reflected.
6. Testing the API for various types of bugs.

**ROLES AND RESPONSIBILITIES:**

1. Test Manager – Oversees the entire project and sets the project's direction.
2. Tester – Identifies and describes appropriate test techniques, executes tests, and logs results.
3. Developer in Test – Implements test cases, test programs, and test suites.

**ESTABLISHING TEST CRITERIA:**

We establish two types of criteria based on the results obtained during testing:

1. **Suspension Criteria:**

If errors occur and only 40% of the test cases pass during testing of our marketplace/website, we will suspend testing and provide a report of bugs to developers to fix them.

1. Exit Criteria:

If we observe that 80% of the test cases pass while testing our marketplace and running tests, the functionality is considered suitable for public use based on governing standards. However, we should aim to achieve 100% of the test cases.

**TEST ENVIRONMENT SETUP:**

Since it is a live website, we must test it on real devices such as mobile phones, laptops, and PCs rather than emulators. This will give us insight into every flaw if any exist. The devices that can be used for testing include:

* Android/iOS/Windows-based smartphones.
* Laptops and PCs.

**GENERAL GUIDELINES FOR WRITING EFFECTIVE TEST CASES:**

* **Identity the objective of the feature/functionality being tested**: Before writing test cases, it's important to understand the purpose of the feature/functionality being tested. This will help in defining the scope of the testing and identify possible areas where bugs can occur.
* **Use a variety of testing techniques**: Test cases should cover a variety of testing techniques, including functional, usability, performance, security, and compatibility testing. This will help in identifying bugs in different areas of the system and ensure comprehensive test coverage.
* **Focus on edge cases and boundary conditions**: Test cases should include edge cases and boundary conditions that are likely to cause issues. These are situations where the system is most vulnerable to errors, and it's important to ensure that the system can handle such scenarios gracefully.
* Test for negative scenarios: It's important to test for negative scenarios, such as invalid inputs, incorrect user actions, and unexpected events. This will help in identifying bugs in error handling and data validation.
* Ensure test repeatability: Test cases should be designed in a way that they can be executed multiple times with the same results. This will help in reproducing and debugging the issues found during testing.
* Prioritize test cases: Test cases should be prioritized based on their impact and likelihood of occurrence. High-priority test cases should be executed first to identify critical bugs.
* Document and track bugs: Bugs should be documented and tracked in a bug-tracking system. This will help in ensuring that all bugs are addressed before the release and provide visibility to the progress of bug fixing.

**TEST CASES TO CATCH BUGS:**

**- User authentication:**

a. Verify that incorrect login credentials result in an error message and the user is not logged in.

b. Verify that correct login credentials result in the user being successfully logged in.

**- The functionality of buttons and links:**

a. Verify that all buttons and links are working properly and redirecting to the correct pages.

b. Verify that inactive buttons are not clickable.

- **Input validation:**

a. Verify that error messages are displayed when users enter invalid data into input fields.

b. Verify that users are not able to submit the form without filling in all required fields.

**- Page layout:**

a. Verify that all elements on the page are properly aligned and displayed as intended.

b. Verify that the page is responsive and displays correctly on different screen sizes.

**- Performance testing:**

a. Verify that the website can handle a large number of users simultaneously.

b. Verify that the website response time is within acceptable limits.

**- Compatibility testing:**

a. Verify that the website is working correctly on different browsers and devices.

b. Verify that the website is compatible with different operating systems.

**- Security testing:**

a. Verify that sensitive user data is encrypted and stored securely.

b. Verify that unauthorized access to the website or user data is not possible.

**TESTING SCHEDULE AND ESTIMATION:**

To align with the product launch plan of 6 months, we need to allocate the testing time in a way that allows for efficient and thorough testing of each required functionality. The testing tasks will be distributed into segments that can be completed within the required time frame.

**TEST DELIVERABLES:**

1. **Before the testing phase:**

* Test plans document.
* Test cases document.
* Test design specifications.

1. **During the testing.**

* Test tool simulators.
* Test data.
* Error and execution logs.

1. **After completion of testing cycles:**

* Test reports.
* Defect reports.
* Installation guidelines.
* Release notes.

In summary, Nbyula's website will undergo manual and automation testing to ensure its error and bug-free functionality. The testing will be done using real devices, and the results will be measured against suspension and exit criteria. The testing process will be managed by the Test Manager, executed by the Tester, and implemented by the Developer in Test. The test deliverables will include various documents and reports to ensure a smooth product launch.