PES UNIVERSITY, BANGALORE

Department of Computer Science and Engineering

Testing Document for University Lost and Found Management System

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Template of a Test case:

Test Case ID	Name of Module	Test Case Description	Pre-conditions	Test Steps	Test Data	Expected Results	Actual Results	Test Result

- Test Case ID : Each test case should be represented by a unique ID. To indicate test types, follow some convention like "UT_01" indicating "Unit Testing - Test Case#1."
- Name of the module : Specify the name of the main module or submodule being tested
- Test Case Description : Specify the summary or test purpose in brief
- Pre- Conditions : Any requirement that needs to be done before execution of this test case.
- Test Steps : Mention all the steps in detail and specify the order in which it is to be executed.
- Test Data : Input for the test case to be executed. Specify different data sets with precise values to be used as input. (create test case for both valid and invalid inputs)

- Expected Results : Mention the expected results including error or precise messages that should be displayed on screen
- Actual Results : After execution of test case fill this column with the result obtained
- Test Result (Pass/Fail) : Mark this field as “fail” if the actual result is not the same as expected result else mark as “pass”.

Testing tools Critique

Selenium

Selenium is a free, open-source testing tool that is compatible with a wide range of platforms and supports multiple programming languages. It is suitable for a variety of testing methods, including functional and regression testing, and can be easily integrated with various testing frameworks.

Advantages of Selenium:

- Free and open source
- Platform-agnostic
- Supports multiple programming languages.
- Suitable for a range of testing methods
- Easily integrates with testing frameworks.

Disadvantages of Selenium:

- Limited applicability for non-web applications
- Steep learning curve
- Requires frequent script updates.

Applications of Selenium:

- Automates web application testing.
- Ensures consistent performance across browsers and platforms through cross-browser testing.

- Facilitates compatibility testing across operating systems and devices

Selenium is a free and powerful testing tool that can be used to test web applications on a variety of platforms. It is easy to learn and use, but it can be challenging to master. Selenium is not suitable for testing non-web applications, and it requires frequent script updates. However, its open-source nature, wide platform compatibility, and integration capabilities make it a popular choice for web application testing.

Overall, Selenium is a good choice for software testing teams that are looking for a free, open-source, and versatile testing tool.

Junit

Introduction:

JUnit, a widely used testing framework for Java, plays a crucial role in ensuring the reliability and stability of Java applications. This report critically analyzes the strengths and weaknesses of JUnit, along with its practical applications in the context of software development and testing.

Advantages of JUnit:

Streamlines the testing process, making it easier for developers to identify and rectify potential issues in the code.

Offers comprehensive support for annotations, assertions, and test runners, facilitating organized and efficient test suite creation.

Integrates seamlessly with popular build tools like Maven and Ant, simplifying the automation of testing procedures within the development workflow.

Enables the seamless incorporation of testing into the continuous integration and deployment process, ensuring the consistent quality of the software application.

Disadvantages of JUnit:

Limited functionality in handling complex tests, potentially posing challenges when dealing with intricate integration or system-level testing scenarios.

Reliance on external libraries, leading to possible compatibility issues and increased dependencies within the project.

Inability to inherently support asynchronous testing, making it cumbersome to test asynchronous code without additional custom implementations or workarounds.

Where to Use JUnit:

Ideal for conducting unit testing, ensuring the individual components of the code function as intended.

Widely employed in Test-Driven Development (TDD) practices, where tests are written before the code, fostering an iterative and systematic development process.

Integrated into continuous integration and deployment pipelines to automate testing and guarantee the stability and reliability of the software application before deployment.

Conclusion:

In conclusion, JUnit serves as a valuable tool in the realm of Java software testing, aiding developers in identifying and addressing potential issues within the code. While it excels in unit testing and seamlessly integrates with the development workflow, its limitations in handling complex tests and asynchronous code necessitate careful consideration during its implementation. Nonetheless, JUnit remains an essential component for ensuring the overall quality and robustness of Java applications.

Apache JMeter

Introduction:

Apache JMeter, an advanced version of the popular testing tool, offers enhanced collaborative features that enable multiple users to work simultaneously through a server-client setup, leveraging workstations and JVMs. This report critically assesses the strengths and limitations of Apache JMeter's advanced version, emphasizing its collaborative functionalities and their implications for software testing and development teams.

Advantages of Apache JMeter's Advanced Version:

Facilitates collaborative work, allowing multiple team members to contribute to the testing process simultaneously, thereby expediting the testing workflow.

Enables the setup of a server-client architecture, providing a centralized platform for test management and execution across different workstations.

Offers compatibility with JVMs, ensuring seamless integration with existing Java-based systems and environments, thereby streamlining the testing process within Java development projects.

Disadvantages of Apache JMeter's Advanced Version:

Complexity in setting up and maintaining the server-client architecture may pose challenges for teams with limited technical expertise, potentially leading to delays in the testing process.

The increased reliance on JVMs may result in resource constraints and performance issues, particularly when dealing with large-scale or resource-intensive testing scenarios, thereby affecting the overall testing efficiency and accuracy.

Applications of Apache JMeter's Advanced Version:

Ideal for collaborative testing projects that involve multiple team members working simultaneously on various testing components within the same testing environment.

Suitable for the centralized management and execution of complex testing scenarios, ensuring a coordinated and efficient testing process across different workstations.

Widely utilized in Java-based software development projects that require comprehensive testing solutions integrated with existing Java Virtual Machine environments.

Conclusion:

In conclusion, the advanced version of Apache JMeter introduces valuable collaborative features and server-client capabilities, enhancing the testing process for teams working on Java-based projects. Despite its advantages, the complexities associated with setting up and maintaining the server-client architecture, along with potential resource constraints linked to JVM usage, should be carefully considered to ensure a seamless and efficient testing experience for development teams.

We have selected Selenium as our testing framework for our agile project, which consists of small, integrated components. Selenium is a versatile tool that can be used to automate end-to-end, unit, and integration tests, while JUnit and Apache JMeter are not as well-suited for this type of testing.

New user registration :

Test Case ID	Name of Module	Test Case Description	Pre-conditions	Test Steps	Test Data	Expected Results	Actual Results	Test Result
UT-001	User Registration	Successful New User Registration	The user is on the registration page	1. Enter valid user details (name, email, password). 2. Click the "Register" button	Valid user details (e.g., Name: John Doe, Email: john@example.com, Password: securepwd123)	The user is registered successfully, and they are directed to their profile page.	The user is registered successfully and directed to their profile page.	Pass
UT-002	User Registration	User Registration with Invalid Email	The user is on the registration page.	1. Enter invalid user details with an invalid email format. 2. Click the "Register" button	Invalid email format (e.g., Name: Jane Doe, Email: invalid-email, Password: pwd123)	User registration should fail, and an error message is displayed.	User registration fails, and an error message is displayed.	Pass
UT-003	User Registration	User Registration with Weak Password	The user is on the registration page.	1. Enter valid user details with a weak password. 2. Click the "Register" button.	Weak password (e.g., Name: Alice Smith, Email: alice@example.	User registration should fail due to a weak password, and an error message	User registration fails due to a weak password, and an error message	Pass

					com, Password: weak).	is displayed.	is displayed.	
UT-004	User Registration	User Registration with Existing Email	The user is on the registration page.	1. Enter valid user details with an email that is already registered. 2. Click the "Register" button.	Existing email (e.g., Name: Mark Johnson, Email: existing@email.com, Password: newpwd123).	User registration should fail due to the existing email, and an error message is displayed.	User registration fails due to the existing email, and an error message is displayed.	Pass
UT-005	User Registration	User Registration with Special Characters in the Name	The user is on the registration page.	1. Enter user details with special characters in the name field. 2. Click the "Register" button.	Name with special characters (e.g., Name: Robert #Smith, Email: robert@example.com, Password: strongpwd123).	User registration should fail due to special characters in the name, and an error message is displayed.	User registration fails due to special characters in the name, and an error message is displayed.	Pass

User login:

Test Case ID	**Name of Module**	**Test Case Description**	**Pre-conditions**	**Test Steps**	**Test Data**	**Expected Results**	**Actual Results**	**Test Result**

UT-01	User Login	Verify that a user can log in with a valid username and password.	User must be a registered user**.**	1. Navigate to the login page. 2. Enter a valid username in the username field. 3. Enter a valid password in the password field. 4. Click the Login button.	Valid username and password Username: John Doe Password: securepwd123	User is successfully logged in.	User is successfully logged in.	Pass
UT-02	User Login	Verify that a user cannot log in with an empty username.	User must be a registered user.	1. Navigate to the login page. 2. Leave the username field blank. 3. Enter a valid password in the password field. 4. Click the Login button.	Empty username. Username: Password:123	An error message is displayed indicating that the username is required.	An error message is displayed indicating that the username is required.	Pass

UT-03	User Login	Verify that a user cannot log in without entering a username and password.	User must be a registered user.	1. Navigate to the login page. 2. Click the Login button.	No username and password entered. Username: Password:	An error message is displayed indicating that the username and password are required.	An error message is displayed indicating that the username and password are required.	Pass
UT-04	User Login	Verify that a user cannot log in with an empty password.	User must be a registered user.	1. Navigate to the login page. 2. Enter a valid username in the username field. 3. Leave the password field blank. 4. Click the Login button.	Empty password Username: John Doe Password:	An error message is displayed indicating that the password is required.	An error message is displayed indicating that the password is required.	Pass

UT-05	User Login	Verify that a user cannot log in with a valid username and password that do not match.	User must be a registered user.	1. Navigate to the login page. 2. Enter a valid username in the username field. 3. Enter an incorrect password in the password field. 4. Click the Login button.	Valid username and incorrect password. Username;John Doe Password:123	An error message is displayed indicating that the username and password do not match.	An error message is displayed indicating that the username and password do not match.	Pass

Report found item:

Test Case ID	**Name of Module**	**Test Case Description**	**Pre-conditions**	**Test Steps**	**Test Data**	**Expected Results**	**Actual Results**	**Test Result**
UT-01	Report Found Item	Verify the ability to report a found item with valid inputs.	User is logged in and navigated to the "Report Found Item" form.	1. Enter valid item category. 2. Enter valid founder name. 3. Enter valid item name. 4. Enter valid contact number. 5. Upload a valid image of the found item. 6. Add a valid description of	- Item Category: Electronics - Founder Name: John Doe - Item Name: Laptop - Contact Number: 123-456-7890 - Description: Laptop found in the library.	Found item should be successfully reported, and a confirmation message should be displayed.	Found item reported successfully. Confirmation message displayed.	Pass

				the found item. 7. Click on the "Submit" button.				
UT-02	Report Found Item Integration	Verify the integration of the "Report Found Item" form with the database.	User has submitted the found item form.	Check the database for the reported item	None	Found item data should be stored in the database	Found item data is stored in the database.	Pass
UT-03	Report found item front-end	Verify the user interface and user experience of the "Report Found Item" form.	User is on the "Report Found Item" form page. .	1. Check the layout and alignment of the form fields. 2. Verify the upload functionality for images 3. Verify error messages for missing or invalid inputs.	None	Form fields should be well-organized, image upload should work, and appropriate error messages should be displayed for invalid inputs.	Form fields are organized, image upload works, and correct error messages are displayed for invalid inputs.	Pass
UT-04	Image Validation	Verify the validation of uploaded images in the	User is on the "Report Found Item" form page.	Attempt to upload an image with an unsupported	Invalid Image: test.txt	Form should reject the invalid image file and display an	Form rejects the invalid image file and	Pass

		"Report Found Item" form.		format (e.g., .txt file).		error message.	displays an appropriate error message.	
UT-05	Field Length Validation	Verify the maximum length validation for various fields in the "Report Found Item" form.	User is on the "Report Found Item" form page.	Attempt to input data exceeding the maximum allowed length for each field.	- Founder Name: A name with more than 50 characters. - Item Name: A name with more than 50 characters. - Contact Number: A number with more than 15 digits.	Form should reject input data exceeding the maximum allowed length and display an error message.	Form rejects input data exceeding the maximum allowed length and displays appropriate error messages.	Pass
UT-06	Duplicate Submission	Report found item form reset	Verify the functionality of the "Reset" button in the "Report Found Item" form.	User has entered data in the form fields.	None	Form fields should be cleared/reset to the default state.	Form fields are cleared/reset to the default state.	Pass

Reporting Lost Item:

Test Case ID	**Name of Module**	**Test Case Description**	**Pre-conditions**	**Test Steps**	**Test Data**	**Expected Results**	**Actual Results**	**Test Result**
UT-01	Reporting Lost Item	To test the functioning of posting a lost item report	User is logged into the system and is on the 'Report Lost Items' page	1. Enter the details of the items (category, title, description). 2. Click on the save/ upload button	Category : Electronics Title: Ear pods Description: Blue color pTron buds	Lost item report should be successfully posted	The Lost item report should be successfully posted	Pass
UT-02	Reporting lost item	To test system's validation for mandatory fields when filling report	User is logged in and is on the 'Report Lost Item' page	1. Leave one or more mandatory fields empty 2. Click on Save/upload button	Title: lost Phone Description: Black Samsung A55. Left in cafeteria	The system should display error message indicating that mandatory fields are empty	An error message is displayed and report not posted	Pass

UT-03	Reporting lost item	To test character limit for title in lost item report	User is logged in and is on the 'Report Lost Item' page	1. Enter the title exceeding the character limit 2. Click on save/upload	Category: Books Title: And to my Nephew Alber I leave the island what I won off fatty hagan in a Poker Game Description: Lost in classroom no 304	The system should prevent posting a report with such a long title	An error message is displayed indicating the exceeded limit of title	Pass
UT-04	Reporting Lost item	To test the system's behavior when user attempts to post using invalid data	User is logged in and is on the 'Report Lost Item' page	1. Enter invalid data in one or more fields 2. Click on save/submit button	Category: Jewelry Title: @#$%#ring Description: Left in the gym	System should prevent posting a report	An error message is displayed and report is not posted	Pass

UT-05	Reporting Lost item	To test item's response when user successfully posts multiple lost item	User is logged in and is on the 'Report Lost Item' page	1. Enter valid data for each report (at least 2 reports) 2. Click on save/submit button	Report 1: Category: Clothing Title: Lost Jacket Description: Left in the gym Report 2: Category: Accessories Title:Lost sunglasses Description: Left on the bus	Multiple lost item reports should be successfully posted and user should receive confirmation message for each report	Multiple lost item reports are successfully posted and user receives confirmation message for each report	Pass
UT-06	Reporting Lost item	Testing the integration with user authentication	User is logged in and is on the 'Report Lost Item' page	1. Log out of the system 2. Attempt to report lost item without logging in	User's authentication status: Unauthorized User account details: N/A	System should prevent unauthenticated users,	Unauthenticated users are redirected to login page	Pass