# **Practical – 9**

**AIM: Study of various software testing methods and design test cases for selected application.**

1. **Software Testing Methods**

There are various software testing methods used to ensure the correctness, reliability, and performance of a software application. Based on the selected project, the following testing methods are applicable:

**a. Unit Testing**

* Testing individual components or functions in isolation.
* Ensures that each function/module behaves as expected.
* Example: Testing user login validation function.

**b. Integration Testing**

* Focuses on checking the interaction between integrated modules.
* Ensures data flow between different components (e.g., login module to dashboard).
* Example: After login, check if the correct user dashboard is loaded.

**c. System Testing**

* Tests the entire application as a whole to verify that it meets requirements.
* Example: Testing the full flow from user registration to viewing reports.

**d. Acceptance Testing**

* Conducted to validate the software against business requirements.
* Performed by end users or clients.
* Example: Verifying if user can successfully filter and view data reports.

**e. Regression Testing**

* Ensures that new updates don’t break existing functionality.
* Example: After adding a new report format, check if login and search still work.

1. **Design of Test Cases for the Application**

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| --- | --- | --- | --- | --- | --- |
| **Test Case ID** | **Module** | **Test Scenario** | **Input** | **Expected Output** | **Result** |
| TC\_01 | Login | Login with valid credentials | Username: admin, Pass: 123 | Redirect to dashboard | Pass/Fail |
| TC\_02 | Login | Login with invalid password | Username: admin, Pass: abc | Show error message | Pass/Fail |
| TC\_03 | Registration | Register new user | User info filled | Registration success message | Pass/Fail |
| TC\_04 | Search | Search for a user | Username: Rishi | Display matching user info | Pass/Fail |
| TC\_05 | Report Generation | Generate activity report | Select date range | Show report with correct data | Pass/Fail |
| TC\_06 | Dashboard | View dashboard after login | User logged in | Show user statistics and summary | Pass/Fail |
| TC\_07 | Filter | Apply filter on user list | Filter: "Active users" | Show filtered results | Pass/Fail |

**Conclusion:**

The testing phase is crucial to ensure that all functionalities of the application work as expected. By applying unit, integration, system, and acceptance testing methods, and designing test cases for core modules, we can verify the correctness and reliability of the application before deployment.