**Chapter 5 Testing**

**5.1 Testing Introduction**

The fourth stage/phase of the SDLC is testing. The process to identify and find out bugs and errors in a program is called software/application testing. Programs and applications can be verified and validated by software testing. One of the important stage/phase of SDLC is testing. Different errors are identified during testing and these errors can be fixed after the testing is successfully done. Actual result/output and expected result/output is also compared and evaluated. Some of the testing used in software testing are:

* Blackbox Testing
* Unit Testing
* Performance Testing
* Regresstion Testing

Blackbox Testing and Unit Testing are the testing I have selected to perform for this project.

5.2 Blackbox Testing

It is a software testing technique where the tester is not concerned with the internal code structure of the software but with the actual and expected result. Both functional and non-functional can be performed but mostly functional is performed in blackbox testing. It is also known as behavioral testing.

Test Plan

To test the features of the employee management system, a test plan has been created. At least (10) ten features will be tested.

Features tested are:

* Register/Login
* CRUD Functions

**Test Cases for User/Administrator:**

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| **Project Title:** Employee Management System | | | | | | | |
| **Test Case ID:** EMS01 | | | | **Designed By:** Shovan Raj Joshi | | | |
| **Test Title:** Login Verification | | | | **Date of Design:** June 14th, 2019 | | | |
| **Test Description:** Testing the login of a user | | | | **Executed By:** Shovan Raj Joshi | | | |
| **Date of Execution:** June 24th, 2019 | | | |
| **Pre-Condition:** Valid data/details should be entered by the user. | | | | | | | |
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| **Step S.N.** | **Test Steps** | **Test Data** | **Expected Result** | | **Actual Result** | **Status** | **Remarks** |
| 1 | Go to Login form |  | Should direct to Login form. | | Login form was displayed. | Pass | Completed |
| 2 | Enter valid username | ShovanRJ |  | |  |  |  |
| 3 | Enter valid password | Arch404 |  | |  |  |  |
| 4 | Click on the Login button |  | Should direct to Dashboard if username and password is valid. | | Dashboard was displayed. | Pass | Completed |

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| **Project Title:** Employee Management System | | | | | | | |
| **Test Case ID:** EMS02 | | | | **Designed By:** Shovan Raj Joshi | | | |
| **Test Title:** Registering a user | | | | **Date of Design:** June 14th, 2019 | | | |
| **Test Description:** Testing to register a user into the web application | | | | **Executed By:** Shovan Raj Joshi | | | |
| **Date of Execution:** June 24th, 2019 | | | |
| **Pre-Condition:** Valid data/details should be entered by the user. | | | | | | | |
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| **Step S.N.** | **Test Steps** | **Test Data** | **Expected Result** | | **Actual Result** | **Status** | **Remarks** |
| 1 | Go to Register Form |  | Should direct to Login form. | | Login form was displayed. | Pass | Completed |
| 2 | Enter username | shovan |  | |  |  |  |
| 3 | Enter password | arch |  | |  |  |  |
| 4 | Click on Register Button |  | A message saying that a user has been created should be displayed. | | The message was displayed. | Pass | Completed |

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| **Project Title:** Employee Management System | | | | | | | |
| **Test Case ID:** EMS03 | | | | **Designed By:** Shovan Raj Joshi | | | |
| **Test Title:** To View all existing projects | | | | **Date of Design:** June 18th, 2019 | | | |
| **Test Description:** Testing the display of all products | | | | **Executed By:** Shovan Raj Joshi | | | |
| **Date of Execution:** June 24th, 2019 | | | |
| **Pre-Condition:** | | | | | | | |
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| **Step S.N.** | **Test Steps** | **Test Data** | **Expected Result** | | **Actual Result** | **Status** | **Remarks** |
| 1 | Click on the button ( Project ) |  | Should direct to add project form. | | Form to add project was displayed. | Pass | Completed |
| 2 | Click on the view button in menu strip. |  | Should direct to view project form. | | Form to view project was displayed. | Pass | Completed |
| 3 | Click on the button (View Project Details) |  | All the existing projects and its details were expected to be displayed | | All the existing projects and its details were displayed. | Pass | Completed |

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| **Project Title:** Employee Management System | | | | | | | |
| **Test Case ID:** EMS04 | | | | **Designed By:** Shovan Raj Joshi | | | |
| **Test Title:** To add project and its details. | | | | **Date of Design:** June 18th, 2019 | | | |
| **Test Description:** Testing the display of details of a product | | | | **Executed By:** Shovan Raj Joshi | | | |
| **Date of Execution:** June 24th, 2019 | | | |
| **Pre-Condition:** Valid data/details should be entered by the user. | | | | | | | |
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| **Step S.N.** | **Test Steps** | **Test Data** | **Expected Result** | | **Actual Result** | **Status** | **Remarks** |
| 1 | Click on the button ( Project ) |  | Should direct to add project form. | | Form to add project was displayed. | Pass | Completed |
| 2 | Enter Project name | Cerberus |  | |  |  |  |
| 3 | Enter Project description | Retrieve Intel from Kandahar |  | |  |  |  |
| 4 | Enter Project’s start date. | 2019-06-30 |  | |  |  |  |
| 5 | Enter project’s end date | 2019-09-24 |  | |  |  |  |
| 6 | Click on the button (Save) |  | A message saying that the project has been added should be displayed. | | The message was displayed. | Pass | Complete |

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| **Project Title:** Employee Management System | | | | | | | |
| **Test Case ID:** EMS05 | | | | **Designed By:** Shovan Raj Joshi | | | |
| **Test Title:** To update product details. | | | | **Date of Design:** June 18th, 2019 | | | |
| **Test Description:** Testing the display of details of a product | | | | **Executed By:** Shovan Raj Joshi | | | |
| **Date of Execution:** June 24th, 2019 | | | |
| **Pre-Condition:** Valid data/details should be entered by the user. | | | | | | | |
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| **Step S.N.** | **Test Steps** | **Test Data** | **Expected Result** | | **Actual Result** | **Status** | **Remarks** |
| 1 | Click on the button ( Project ) |  | Should direct to add project form. | | Form to add project was displayed. | Pass | Completed |
| 2 | Click on the update button in menu strip. |  | Should direct to update project form. | | Form to update project was displayed. | Pass | Completed |
| 3 | Select the existing project ID form the combo box. | 01 |  | |  |  |  |
| 4 | Enter Project name | Cerberus123 |  | |  |  |  |
| 5 | Enter Project description | Retrieve Intel from Kandahar |  | |  |  |  |
| 6 | Enter Project’s start date. | 2019-06-30 |  | |  |  |  |
| 7 | Enter project’s end date | 2019-12-24 |  | |  |  |  |
| 8 | Click on the button (Update) |  | A message saying that the project details has been updated should be displayed. | | The message was displayed. | Pass | Complete |

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| **Project Title:** Employee Management System | | | | | | | |
| **Test Case ID:** EMS06 | | | | **Designed By:** Shovan Raj Joshi | | | |
| **Test Title:** To delete product and its detail. | | | | **Date of Design:** June 18th, 2019 | | | |
| **Test Description:** Testing the display of details of a product | | | | **Executed By:** Shovan Raj Joshi | | | |
| **Date of Execution:** June 24th, 2019 | | | |
| **Pre-Condition:** Valid data/details should be entered by the user. | | | | | | | |
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| **Step S.N.** | **Test Steps** | **Test Data** | **Expected Result** | | **Actual Result** | **Status** | **Remarks** |
| 1 | Click on the button ( Project ) |  | Should direct to add project form. | | Form to add project was displayed. | Pass | Completed |
| 2 | Click on the delete button in menu strip. |  | Should direct to delete project form. | | Form to delete project was displayed. | Pass | Completed |
| 3 | Select the existing project ID form the combo box. | 01 |  | |  |  |  |
| 4 | Enter Project name | Cerberus123 |  | |  |  |  |
| 8 | Click on the button (Delete) |  | A message saying that the project details has been deleted should be displayed. | | The message was displayed. | Pass | Complete |

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| **Project Title:** Employee Management System | | | | | | | |
| **Test Case ID:** EMS07 | | | | **Designed By:** Shovan Raj Joshi | | | |
| **Test Title:** To View all existing assignment | | | | **Date of Design:** June 18th, 2019 | | | |
| **Test Description:** Testing the display of all products | | | | **Executed By:** Shovan Raj Joshi | | | |
| **Date of Execution:** June 24th, 2019 | | | |
| **Pre-Condition:** | | | | | | | |
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| **Step S.N.** | **Test Steps** | **Test Data** | **Expected Result** | | **Actual Result** | **Status** | **Remarks** |
| 1 | Click on the button ( Project ) |  | Should direct to add assignment form. | | Form to add assignment was displayed. | Pass | Completed |
| 2 | Click on the view button in menu strip. |  | Should direct to view assignment form. | | Form to view assignment was displayed. | Pass | Completed |
| 3 | Click on the button (View Assignment Details) |  | All the existing assignments and its details were expected to be displayed | | All the existing assignments and its details were displayed. | Pass | Completed |

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| **Project Title:** Employee Management System | | | | | | | |
| **Test Case ID:** EMS08 | | | | **Designed By:** Shovan Raj Joshi | | | |
| **Test Title:** To assign assignment | | | | **Date of Design:** June 18th, 2019 | | | |
| **Test Description:** Testing the display of details of a product | | | | **Executed By:** Shovan Raj Joshi | | | |
| **Date of Execution:** June 24th, 2019 | | | |
| **Pre-Condition:** Valid data/details should be entered by the user. | | | | | | | |
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| **Step S.N.** | **Test Steps** | **Test Data** | **Expected Result** | | **Actual Result** | **Status** | **Remarks** |
| 1 | Click on the button ( Assignment ) |  | Should direct to add assignment form. | | Form to add assignment was displayed. | Pass | Completed |
| 2 | Select employee id from existing employees. | 01 |  | |  |  |  |
| 3 | Select project id from existing projects. | 04 |  | |  |  |  |
| 3 | Enter Project Name | Winterfell |  | |  |  |  |
| 4 | Enter Assignment date. | 2019-06-14 |  | |  |  |  |
| 5 | Click on the button (Save) |  | A message saying that the assignment has been added should be displayed. | | The message was displayed. | Pass | Complete |

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| **Project Title:** Employee Management System | | | | | | | |
| **Test Case ID:** EMS09 | | | | **Designed By:** Shovan Raj Joshi | | | |
| **Test Title:** To delete assignment and its details. | | | | **Date of Design:** June 18th, 2019 | | | |
| **Test Description:** Testing the display of details of a product | | | | **Executed By:** Shovan Raj Joshi | | | |
| **Date of Execution:** June 24th, 2019 | | | |
| **Pre-Condition:** Valid data/details should be entered by the user. | | | | | | | |
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| **Step S.N.** | **Test Steps** | **Test Data** | **Expected Result** | | **Actual Result** | **Status** | **Remarks** |
| 1 | Click on the button ( Assignment ) |  | Should direct to add assignment form. | | Form to add assignment was displayed. | Pass | Completed |
| 2 | Click on the delete button in menu strip. |  | Should direct to delete assignment form. | | Form to delete assignment was displayed. | Pass | Completed |
| 3 | Select the existing assignment ID form the combo box. | 11 |  | |  |  |  |
| 4 | Enter Project name | Winterfell |  | |  |  |  |
| 8 | Click on the button (Delete) |  | A message saying that the assignment details has been deleted should be displayed. | | The message was displayed. | Pass | Complete |

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| **Project Title:** Employee Management System | | | | | | | |
| **Test Case ID:** EMS10 | | | | **Designed By:** Shovan Raj Joshi | | | |
| **Test Title:** To add salary and its details. | | | | **Date of Design:** June 18th, 2019 | | | |
| **Test Description:** Testing the display of details of a product | | | | **Executed By:** Shovan Raj Joshi | | | |
| **Date of Execution:** June 24th, 2019 | | | |
| **Pre-Condition:** Valid data/details should be entered by the user. | | | | | | | |
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| **Step S.N.** | **Test Steps** | **Test Data** | **Expected Result** | | **Actual Result** | **Status** | **Remarks** |
| 1 | Click on the button ( Salary ) |  | Should direct to add salary form. | | Form to add salary was displayed. | Pass | Completed |
| 2 | Select employee id from existing employees. | 02 |  | |  |  |  |
| 3 | Enter Salary Amount | 2000 |  | |  |  |  |
| 4 | Enter Salary Bonus | 250 |  | |  |  |  |
| 5 | Enter Salary Payday | 2019-08-01 |  | |  |  |  |
| 6 | Click on the button (Save) |  | A message saying that the salary has been added should be displayed. | | The message was displayed. | Pass | Complete |

5.2 Unit Testing

Individual units or components of the software are tested in unit testing. The main purpose of this testing is to test the software’s each unit is performed according to the design and validate them. Unit testing is very important is helps to evaluate the software. All the testing was passed and was successful.



 

   

  