**Library Management System**

Project Name: Library Management System

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Date: 24/11/2022

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Reviewed by: Robin Hood

1. **Test Objective or Aim:**

The objective of the test is to verify the functionality of **LIBRARY MANAGEMENT SYSTEM** the library system can easily maintain the records and the system can monitor the records of existing books, add books, Views books, return book, viewed issued book methods of functionality works according to the specifications and requirements.

Final product of the test includes:

1. Production ready software
2. A set of stable test scripts that can be reused for functional test.

**2) Scope of Testing:**

**a) Within the Scope:**

* Functional Testing

|  |  |  |
| --- | --- | --- |
| **Module Name** | **Applicable Roles** | **Description** |
| Login | Librarian | Only Librarian can login the system |
| Add books | Librarian | New books can be added |
| Issue books | Librarian | The books that are issued can be recorded in the system. |
| View Books | Librarian | The books that are present in the library can be viewed in the system. |
| View Issued books | Librarian | The books that are issued can be viewed in the system. |
| Return Books | Librarian | The books that are issued can be taken back |
| Logout | Librarian | Only Librarian can logout the system |

**b) Out of Scope:**

* Non- Functional Testing (Stress Testing, Performance Testing).
* Automation Testing.
* User Interface.
* Hardware Interface.
* Software Interface.
* External Interface.
* Cross Browser Testing.

**3)Test Strategy:**

**a) Levels of testing**:

In this project, we have two types of level testing and each and levels we have to check the code of units are executing or not.

I. System Testing: In this level of testing, we test where tester evaluates the whole system against the specified requirements.

II. User Acceptance Testing (UAT): In this level of testing, we are test where client or customer test the software with real time business scenarios or real time environment.

**b) Types of testing:**

* Black box testing: Testers examines the all module functionality of the software without looking into internal structure of code
* Functional Testing: Testing the functionality of add books, view books, return books, methods in LIBRARY MANAGEMENT SYSTEM in the website
* Smoke Testing: Testing the features add books, add books, view books, return books of the website before doing one round of rigorous testing.
* Exploratory Testing: We will explore the site that all functionalities like add books, view books, return books working fine or not.

**c) Test Design Techniques:**

* Boundary value Analysis(BVA): Boundary testing is the process of testing between extreme ends or boundaries between partitions of the input values.
* Equivalence Class Partitioning(ECP): Equivalence Class Partitioning is the input units are divided into equivalent partitions that can be used to derive test cases which reduces time required for testing because of small numbers of test cases.
* Error Guessing:
* Technique used to find bugs in a software application based on testers prior experience.
* In guessing errors when we don’t follow specific rules.
* Depends on tester analytical skills and experience.

d) **Terminology:**

* Test Plan
* Test Case
* Test Scenario
* Defect Log
* RTM- Requirements Traceability Matrix

**e) Area planned for Automation**:

* For this project automation is beyond the scope so, area planned for automation is not required.

**f) List of automation tools**:

* Not specified in scope so, automation tools are not required.

**4) Exit and Entry criteria:**

**Entry criteria**:

The Entry criteria are need to be done after the code implementation is performed

* Complete or partially testable code is available
* Requirements are defined and approved
* Availability of sufficient test data
* Test cases are developed and reviewed
* Test environment is ready

**Exit criteria**:

* 100% test scripts executed
* Pass rate should be 95%
* No critical defects left
* 95% of medium severity defects were closed
* Remaining bugs were fixed

5) **Test deliverables**:

|  |  |  |
| --- | --- | --- |
| Before testing | During testing | After testing |
| Test plan document | Test tool | Test results and reports |
| Test case document | Test data | Defect report |
| Test design document | RTM | Installation guidelines |
| Test requirement document |  | Release notes |

* Before Testing
* During Testing
* After Testing

**6)Roles and Responsibility:**

|  |  |
| --- | --- |
| Roles | Responsibility |
| Test Lead | * Manage the whole project * Risk management * Define the direction |
| Test Engineer | * Write test cases * Execute the test cases * Report the defects * Identifying the test design techniques |
| SQA Members | * Taking in charge of quality assurance. * Confirms whether the testing process is meeting the requirements . |

**7) Risks and mitigation**  a)Risk and contingency:

* <Tester> will define the prerequisites that must be met before Load Testing can start.
* <Tester>will indicate what is required and will verify suitability of test data.

  b) Risk and mitigation:

* Meet outstanding prerequisites
* Review test plan and modify components (that is, scripts)
* Clear database

**8)Schedule:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Task | Members | Estimate effort | Start Date | End Date |
| Create the test specification | Test designer | 17 man-hour | 25/11/2022 | 31/12/2022 |
| Perform test execution | Tester, Tester administrator | 13 man-hour | 03/01/2023 | 04/01/2023 |
| Test report | Tester | 10 man-hour | 05/01/2023 | 10/01/2023 |
| Test delivery | SQA Members | 15 man-hour | 15/01/2023 | 17/03/2023 |
| Total |  | 55 man-hour |  |  |

**9)Hiring and Training:**

* Minimum 1 years of experience in manual testing
* Database basic knowledge is needed
* 6 Weeks of training should be given under the domain and application
  + - * + Manual testing.
        + Application.

**10) Test Environment:**

|  |  |  |
| --- | --- | --- |
| No. | Resources | Descriptions |
| **1.** | Server | Need a Database server, to store data |
| **2.** | Test tool | Develop a Test tool which can auto generate the test result |
| **3.** | Network | Setup a LAN Gigabit and 1 internet line with the speed at least 10 Mb/s |
| **4.** | Computer | At least 4 computer run Windows 10, Ram 2GB, CPU 4.7GHZ, Etc.. |
| **5** | MS Excel | Test case preparation, test case execution, defect management, test reporting, checklist of test |
| **6** | MS Word | Test plan preparation. |

**11) Assumption:**

Exploratory Testing would be carried out once the build is ready for testing

1. Performance testing is not considered for this estimation.

• Test case design activities will be performed by QA Group

• Test environment and preparation activities will be owned by Dev Team

• Dev team will provide Defect fix plans based on the Defect meetings during each cycle to plan

**12) Approval Information**

Project Manager: reviews the content of the Test Plan, Test Strategy and Test Estimates signs off on it.

Test Manager: Reviews the test cases, Test conditions and Test data, test report

The Names and Titles of all persons who must approve this plan.

Signature:

Name: Robin Hood

Role: Project Manager

Date: 13/01/2023

**13) Test Metrics:**

* Passed Test Cases percentage: (no. of passed test cases/no of executes test cases) \*100
* Failed Test cases percentages: (no. of failed test cases/no. of executed test cases) \*100
* Fixed Defect percentage: (Defect fixed /defect reported) \* 100
* Defects deferred percentage: (Defects deferred / defects reported) \* 100
* Accepted defect percentage: (no. of defects reported/no. of defects reported) \* 100
* Critical defects percentages: (Critical defects/ total defects reported) \* 100
* Average time for to Dev team to repair defects: (Total time taken to bug fix/no. of bugs)
* \*TC – Test Cases
* \*No- Number
* DEV- Developer team

**ECP AND BVA OF LIBRARY MANAGEMENT SYSTEM**:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SNO** | **Conditions** | **Valid Partition** | **Invalid Partition** | **Valid Boundaries** | **Invalid Boundaries** |
| 1 | User Name | 5 to 100 | <5 , >100 | 5 to 25  25 to 50  50 to 75 | 4  101 |
| 2 | Password | 9 to 100 | <9 , >100 | 9 to 27  27 to 54  54 to 81 | 8  101 |
| 3 | Id number | 1 to 100 | <1 , >100 | 1 to 50  50 to 100 | 0  101 |
| 4 | Book name | 1 to 100 | <1 , >100 | 1 to 50  50 to 100 | 0  101 |
| 5 | Book id | 1 to 100 | <1 , >100 | 1 to 50  50 to 100 | 0  101 |
| 6 | Taken by | 1 to 100 | <1 , >100 | 1 to 50  50 to 100 | 0  101 |
| 7 | Issued to | 1 to 100 | <1 , >100 | 1 to 50  50 to 100 | 0  101 |
| 8 | Returned by | 1 to 100 | <1 , >100 | 1 to 50  50 to 100 | 0  101 |