Software Engineering Project (CS223)

**Test Report**

(Unit and System)

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**BOOK MANAGEMENT SYSTEM**

**THE LEARNING HUB | FACILITATING EDUCATION AT FINGERTIPS**

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|  |  |  |  |

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# 1.0 Introduction

## 

## 1.1 Purpose

This *Unit and System* Test Report provides a summary of the results of test performed as outlined within this document.

# 

# Test PLAN

* + - 1. For unit testing, we will be testing major or important functions that we have implemented in the software.
      2. For system testing, we will be running tests for some of the major functionalities/ features of the software.

# Details of unit testing

*Functions*

* **CLASS Library**

1. void Library:: AddMember()

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sr no | Test case | Intended Result | Actual Result | Pass/Fail | Comments |
| z | Id Already exists | Does not accept and asks again to input id | Does not accept and asks again to input id | Pass | None |
| 2 | New Id | Accepts new entry | Accepts new entry | Pass | None |

1. void Library:: AddNewResource()

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sr no | Test case | Intended Result | Actual Result | Pass/Fail | Comments |
| 1 | Id Already exists | Does not accept and asks again to input id | Does not accept and asks again to input id | Pass | None |
| 2 | New Id | Accepts new entry | Accepts new entry | Pass | None |

1. Faculty\* Library::get\_user\_faculty(string Id)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sr no | Test case | Intended Result | Actual Result | Pass/Fail | Comments |
| 1 | Registered Id | Returns a pointer to the respective object | Returns a pointer to the respective object | Pass | None |
| 2 | Unregistered Id | Returns null pointer | Returns null pointer | Pass | None |
| 3 | Id does not exist | Returns null pointer | Returns null pointer | Pass | None |
| 4 | Id is not of faculty but of student or staff | Returns null pointer | Returns null pointer | Pass | None |

1. Phd\* Library::get\_user\_phd(string UserId)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sr no | Test case | Intended Result | Actual Result | Pass/Fail | Comments |
| 1 | Registered Id | Returns a pointer to the respective object | Returns a pointer to the respective object | Pass | None |
| 2 | Unregistered Id | Returns null pointer | Returns null pointer | Pass | None |
| 3 | Id does not exist | Returns null pointer | Returns null pointer | Pass | None |
| 4 | Id is not of Phd but of NonPhd or staff or Faculty | Returns null pointer | Returns null pointer | Pass | None |

1. NonPhd\* Library::get\_user\_nonphd(string UserId)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sr no | Test case | Intended Result | Actual Result | Pass/Fail | Comments |
| 1 | Registered Id | Returns a pointer to the respective object | Returns a pointer to the respective object | Pass | None |
| 2 | Unregistered Id | Returns null pointer | Returns null pointer | Pass | None |
| 3 | Id does not exist | Returns null pointer | Returns null pointer | Pass | None |
| 4 | Id is not of NonPhd but of Phd or staff or Faculty | Returns null pointer | Returns null pointer | Pass | None |

1. Staff\* Library::get\_user\_staff(string UserId)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sr no | Test case | Intended Result | Actual Result | Pass/Fail | Comments |
| 1 | Registered Id | Returns a pointer to the respective object | Returns a pointer to the respective object | Pass | None |
| 2 | Unregistered Id | Returns null pointer | Returns null pointer | Pass | None |
| 3 | Id does not exist | Returns null pointer | Returns null pointer | Pass | None |
| 4 | Id is not of Staff but of Student or Faculty | Returns null pointer | Returns null pointer | Pass | None |

1. void Library::RemoveMember(string Id)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sr no | Test case | Intended Result | Actual Result | Pass/Fail | Comments |
| 1 | Registered Id | Removes corresponding Member | Removes corresponding member | Pass | None |
| 2 | Unregistered Id | Informs that there is no such member registered | Informs that there is no such member registered | Pass | None |
| 3 | Your Id | Cannot delete yourself message displayed | Cannot delete yourself message displayed | Pass | None |
| 4 | Admin Id | Cannot delete | Cannot delete admin message displayed | Pass | None |

1. void Library::RemoveResource(string Id)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sr no | Test case | Intended Result | Actual Result | Pass/Fail | Comments |
| 1 | Registered Id | Removes corresponding resource | Removes corresponding  resource | Pass | None |
| 2 | Unregistered Id | Informs that there is no such resource registered | Informs that there is no such resource registered | Pass | None |

1. Resource\* Library::search\_by\_author(string author)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sr no | Test case | Intended Result | Actual Result | Pass/Fail | Comments |
| 1 | There exists a resource with that author name | Returns pointer to that object | Returns pointer to that object | Pass | None |
| 2 | No such resource available | Informs that there is no such resource registered | Informs that there is no such resource registered | Pass | None |

1. Resource\* Library::search\_by\_Title(string title)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sr no | Test case | Intended Result | Actual Result | Pass/Fail | Comments |
| 1 | There exists a resource with that title | Returns pointer to that object | Returns pointer to that object | Pass | None |
| 2 | No such resource available | Informs that there is no such resource registered | Informs that there is no such resource registered | Pass | None |

1. Resource\* Library::search\_by\_Id(string Id)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sr no | Test case | Intended Result | Actual Result | Pass/Fail | Comments |
| 1 | There exists a resource with that Id | Returns pointer to that object | Returns pointer to that object | Pass | none |
| 2 | No such resource available | Informs that there is no such resource registered | Informs that there is no such resource registered | Pass | None |

1. set<Resource\*> Library::search\_by\_tag(const vector<string> &tags)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sr no | Test case | Intended Result | Actual Result | Pass/Fail | Comments |
| 1 | There exists a resource with any tag | Returns set of all such resources found | Returns set of all such resources found | Pass | none |
| 2 | No such resource available | Returns empty set | Returns empty set | Pass | None |

* **CLASS Staff**

1. bool Staff::IssueResource(string UserId, string ResourceId, Library &)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sr no | Test case | Intended Result | Actual Result | Pass/Fail | Comments |
| 1 | Registered UserId and ResourceId and resource is available | Successfully issues book to the user | Successfully issues book to the user | Pass | none |
| 2 | Unregistered Id(User or Resource) or resource is not available | Informs that | Informs that | Pass | none |

1. void Staff::ReturnResource(string UserId, string ResourceId, Library &)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Sr no | Test case | Intended Result | Actual Result | | Pass/Fail | Comments |
| 1 | Registered UserId and ResourceId and resource was issued to the user | Successfully returns/accepts resource from the user | Successfully issues book to the user | | Pass | none |
| 2 | Unregistered Id(User or Resource) or resource was not issued to that Userid | Informs that | | Informs that | Pass | none |

* **CLASS User**

1. void User::payfine(int fine)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sr no | Test case | Intended Result | Actual Result | Pass/Fail | Comments |
| 1 | If fine paid is less than or equal to the fine on the user. | It accepts the fine | It accepts the fine | Pass | none |
| 2 | Fine paid is more than fine on the user | Informs that and does not accept the extra money paid | Informs that and does not accept the extra money paid | Pass | none |

# 4.0 Details of system testing

## 4.1   add/ view/ search resources

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Step** | **TEST STEP/**  **INPUT** | **Intended Result** | **Actual Result** | **Pass/Fail** | **Comments** | **PROGRESS** |
| 1 | Login (Staff) |  |  |  |  |  |
| 1.1 | Enter id |  |  |  |  |  |
|  | (Non-existing id) | Wrong id | Wrong id | Pass |  |  |
|  | *S* | *Enter password* | *Software crashes* | *Fail* | *Intended result is not obtained due to some error in code.* | *No such error* |
|  | *Fadmin* | *Ask for password* | *Logged in* | *Fail* | *Faculty should not be logged in without asking for password.* | *SOLVED (This should be in add member)* |
|  | (Existing id) | Enter password | Enter password | Pass |  |  |
| 1.2 | Enter password |  |  |  |  |  |
|  | (Wrong password) | Incorrect password.  Try again... | Incorrect password. Try again... | Pass |  |  |
|  | Correct password | Successfully logged in | Successfully logged in | Pass |  |  |
| 2 | Add New Resource | - | - | - | - |  |
|  | *Enter option (1.Book 2. Journal)*  *Input=g* | *Incorrect option message* | *Press enter* | *Fail* | *Error message should be displayed for incorrect option* | *SOLVED* |
|  | *Enter option (1.Book 2. Journal)*  *Input = 12323fjk* | *Incorrect option*  *message* | *Print “enter book id”* | *fail* | *Should print retry* | *SOLVED* |
| 2.1 | Add book | Asking for details | Asking for details | Pass |  |  |
| 2.1.1 | Enter id |  |  | - |  |  |
|  | Invalid id | ID should start with 'B' | ID should start with 'B' | Pass | Try again  (5 times) |  |
|  | Already existing id | This id already exists | This id already exists | Pass | Try again |  |
|  | Valid id | Next step | Next step | Pass |  |  |
| *2.2* | *Add Journal* | *Enter details* | *Enter details* | *Pass* | *None* |  |
| *2.2.1* | *Enter author(abc)* | *Ask for title* | *Ask for title* | *Pass* |  |  |
| *2.2.2* | *Enter title(abc)* | *Ask for ID* | *Ask for ID* | *Pass* |  |  |
| *2.2.3* | *Enter ID(J444)* | *Journal should be added* | *Message saying No such book/journal exists. This ID already exists. Asks for ID over and over again.* | *Fail* | *The functionality add journal doesn’t work.* | *SOLVED* |
| 3 | View All Resource | Print details of every resource | Print details of every resource | Pass |  |  |
| 4 | Search by Author | - | - | - | - |  |
|  | (name of author: exists) | Details of resource | Details of resource | Pass |  |  |
|  | (name of author: don’t exist) | No such resource exists | No such resource exists | Pass |  |  |
| 5 | Search by Title | - | - | - | - |  |
|  | (exists) | Details of resource | Details of resource | Pass |  |  |
|  | (does not exists) | No such resource exists | No such resource exists | Pass |  |  |
| 6 | Search by Id | - | - | - | - |  |
|  | (exists) | Details of resource | Details of resource | Pass |  |  |
|  | (does not exists) | No such resource exists | No such resource exists | Pass |  |  |
| 7 | Search by Tag | - | - | - | (subject name) |  |
|  | (exists) | Details of resource | Details of resource | Pass |  |  |
|  | (does not exists) | No such resource exists | No such resource exists | Pass |  |  |

## 4.2  Add new member and search and view : staff

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Step** | **TEST STEP/**  **INPUT** | **Intended Result** | **Actual Result** | **Pass/Fail** | **Comments** | **PROGRESS** |
| 1 | Login (Staff) |  |  |  | Done already |  |
|  | *S* | *Enter password* | *Software crashes* | *Fail* | *Intended result is not obtained due to some error in code.* | *No such error* |
| 2 | Add New Member |  |  |  |  |  |
|  | (New details) | Member added | Member added | Pass |  |  |
|  | (Existing details) | Id already exists | Id already exists | Pass |  |  |
| 3 | View All Members | Print details of every member | Print details of every member | Pass |  |  |
| 4 | View Profile of a Member |  |  |  |  |  |
|  | Existing id | Print details | Print details | Pass |  |  |
|  | Non-existing id | Invalid input | Invalid input | Pass | Try again |  |

## 

## 4.3  issue resource : staff

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Step** | **TEST STEP/**  **INPUT** | **Intended Result** | **Actual Result** | **Pass/Fail** | **Comments** | **PROGRESS** |
| 1 | Login (Staff) |  |  |  | Done already |  |
|  | *S* | *Enter password* | *Software crashes* | *Fail* | *Intended result is not obtained due to some error in code.* | *No such error* |
| 2 | Issue Resource |  |  |  |  |  |
| 3 | Enter resource id |  |  |  |  |  |
|  | (non- existing) | Invalid id | Invalid id | Pass | Try again |  |
|  | (existing) | Next step | Next step | Pass |  |  |
| 4 | Enter user id |  |  |  |  |  |
|  | (non- existing) | Invalid id | Invalid id | Pass | Try again |  |
|  | (existing) | Enter details of resource | Enter details of resource | Pass |  |  |
| 5 | Enter Date |  |  |  |  |  |
|  | (invalid format) | Invalid input | Invalid input | Pass | Try again |  |
|  | (valid format) | Issued | Issued | Pass |  |  |

## 

## 4.4 return resource:staff

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Step** | **TEST STEP/**  **INPUT** | **Intended Result** | **Actual Result** | **Pass/Fail** | **Comments** | **PROGRESS** |
| 1 | Login (Staff) |  |  |  | Done already |  |
|  | *S* | *Enter password* | *Software crashes* | *Fail* | *Intended result is not obtained due to some error in code.* | *No such error* |
| 2 | Return Resource |  |  |  |  |  |
| 3 | Enter User Id |  |  |  |  |  |
|  | Non | Invalid id | Invalid id |  | Try again |  |
|  | exists | Next step | Next step |  |  |  |
| 4 | Enter Resource Id |  |  |  |  |  |
|  | Non | Invalid id | Invalid id | Pass | Try again |  |
|  | Not issued | User does not hold this item | User does not hold this item | Pass |  |  |
|  | correct | Next step | Next step | Pass |  |  |
| 5 | Enter Date |  |  |  |  |  |
|  | Return date < issue | Invalid date |  | **Pass** |  |  |
|  | correct | returned | returned | Pass |  |  |

## 

## 4.5  See user history : staff

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Step** | **TEST STEP/**  **INPUT** | **Intended Result** | **Actual Result** | **Pass/Fail** | **Comments** | **PROGRESS** |
| 1 | Login (Staff) |  |  |  | Done already |  |
|  | *S* | *Enter password* | *Software crashes* | *Fail* | *Intended result is not obtained due to some error in code.* | *No such error* |
| 2 | Enter user id |  |  |  |  |  |
|  | Non | Invalid input | Invalid input | Pass |  |  |
|  | exists | Print details | Print details | Pass |  |  |

## 4.6 renew resource : faculty

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Step** | **TEST STEP/**  **INPUT** | **Intended Result** | **Actual Result** | **Pass/Fail** | **Comments** | **PROGRESS** |
| 1 | Login (Faculty) |  |  |  |  |  |
| 1.1 | Enter id |  |  |  |  |  |
|  | Non-existing id | Invalid id | Invalid id | pass |  |  |
|  | *Fadmin* | *Ask for password* | *Logged in* | *Fail* | *Faculty should not be logged in without asking for password.* | *SOLVED* |
|  | Existing id | Next step | Next step | pass |  |  |
| 1.2 | Enter password |  |  |  |  |  |
|  | Wrong password | Invalid id | Invalid id | pass |  |  |
|  | Correct password | Logged in | Logged in | pass |  |  |
| 2 | Renew Resource |  |  |  |  |  |
| 2.1 | Enter Resource Id |  |  |  |  |  |
|  | *B1* | *Cannot renew* | *Program terminates* | *fail* |  | SOLVED |
|  | Res don’t exist | Invalid id | Invalid id | pass |  |  |
|  | Not issued |  | Cannot renew | pass |  |  |
|  | Already renewed once | Cannot renew | Cannot renew | pass |  |  |
|  | correct | renewed | renewed | pass |  |  |

## 

## 4.7  Pay fine : faculty

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Step** | **TEST STEP/**  **INPUT** | **Intended Result** | **Actual Result** | **Pass/Fail** | **Comments** | **PROGRESS** |
| 1 | Login (Faculty) |  |  |  |  |  |
| 2 | Pay fine |  |  |  |  |  |
|  | *Select pay fine option* | *Enter amount* | *Program terminates* | *Fail* | *Error in code* | *No such error* |
| 3 | Enter amount |  |  |  |  |  |
|  | Amount <= total fine | paid | paid | pass |  |  |
|  | Amount > total fine | Extra money paid | Extra money paid | pass |  |  |

## 

## 4.8 edit profile : student

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step** | **TEST STEP/**  **INPUT** | **Intended Result** | **Actual Result** | **Pass/Fail** | **Comments** |
| 1 | Login (Student) |  |  |  |  |
| 2 | Enter id |  |  |  |  |
|  | Non-existing id | Invalid id | Invalid id | Pass |  |
|  | Existing id | Next step | Next step | Pass |  |
| 3 | Enter password |  |  |  |  |
|  | Wrong password | Invalid password | Invalid password | Pass |  |
|  | Correct password | Logged in | Logged in | Pass |  |
| 4 | Edit profile |  |  |  |  |
| 5 | Choose what to edit |  |  |  |  |
|  | (new detail) | Successfully edited | Successfully edited | pass |  |

## 

## 4.9  view issue history : student

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Step** | **TEST STEP/**  **INPUT** | **Intended Result** | **Actual Result** | **Pass/Fail** | **Comments** |  |
| 1 | Login (Student) |  |  |  | Done |  |
| 2 | View history | Print history | Print history | pass |  |  |
|  | *View history*  *(no book issued)* | *No books issued yet* | *Press enter to continue* | *Fail* | *The message should be displayed that no history exists or no book issued yet* | *SOLVED* |

## 4.10           Remove member : staff

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Step** | **TEST STEP/**  **INPUT** | **Intended Result** | **Actual Result** | **Pass/Fail** | **Comments** | **PROGRESS** |
| 1 | Login (Staff) |  |  |  |  |  |
| 2 | Remove member  (enter user id) |  |  |  |  |  |
|  | Non existing | Invalid id | Invalid id | pass |  |  |
|  | exist | Successfully deleted | Successfully deleted | pass |  |  |
|  | Existing (Sadmin) | Cannot be deleted as it is admin | Successfully deleted and software crashes | Fail | Deletion of admin should be prevented | SOLVED |

**4.11 View Profile/See your history/Edit profile: Faculty**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step** | **TEST STEP/**  **INPUT** | **Intended Result** | **Actual Result** | **Pass/Fail** | **Comments** |
| 1. Login(Faculty) |  | Password should be asked | No password asked. Menu for faculty is displayed. |  | SOLVED |
| 2. choose option | Option=1,2,3 | The program should perform function given by options 1,2,3 | Program terminates | Fail | No such error |

# 4.12 See your history/view profile/edit your profile/pay fine/ renew book

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Step** | **TEST STEP/**  **INPUT** | **Intended Result** | **Actual Result** | **Pass/Fail** | **Comments** |
| 1. Login(Phd Student) |  | Password should be asked | No password asked. Menu for Phd student is displayed. |  | No such error |
| 2. choose option | Option=1,2,3,4,5 | The program should perform function given by options 1,2,3,4,5 | Program terminates | Fail | No such error |

# 5.0       Unresolved test instances

|  |  |  |
| --- | --- | --- |
| Test Case ID | Summary of Defect | Why not resolved |
| *NONE* |  |  |
|  |  |  |