

Software Engineering Project (CS223)  
**Test Report**  
(Unit and System)

Version: 1.0  
3-04-2018

**BOOK MANAGEMENT SYSTEM**  
THE LEARNING HUB | FACILITATING EDUCATION AT FINGERTIPS

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### Revision History

Date	Version	Description	People
1 Apr 2018	1.0	First draft	Project Group: 10
10 Apr 2018	2.0	Second draft	Satya Bhavsar Paridhi Gehlot
15 Apr 2018	3.0	Third draft	Project Group: 10

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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.

## **2.0 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.

## 3.0 Details of unit testing

### *Functions*

#### v 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

##### 2. 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

### 3. 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

### 4. 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

5. 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

6. 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

7. 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

8. 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
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9. 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

10. 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	Informs that there is no such resource	Pass	None

		registered	registered		
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#### 11. 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

#### 12. 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

#### v CLASS Staff

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

Sr no	Test case	Intended Result	Actual Result	Pass/Fail	Comments
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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

2. 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

v **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		
	<i>S</i>	<i>Enter password</i>	<i>Software crashes</i>	<i>Fail</i>	<i>Intended result is not obtained due to some error in code.</i>	<i>No such error</i>
	<i>Fadmin</i>	<i>Ask for password</i>	<i>Logged in</i>	<i>Fail</i>	<i>Faculty should not be logged in without asking for password.</i>	<i>SOLVED (This should be in add member)</i>

	(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	-	-	-	-	
	<i>Enter option (1.Book 2. Journal) Input=g</i>	<i>Incorrect option message</i>	<i>Press enter</i>	<i>Fail</i>	<i>Error message should be displayed for incorrect option</i>	<i>SOLVED</i>
	<i>Enter option (1.Book 2. Journal) Input = 12323fjk</i>	<i>Incorrect option message</i>	<i>Print "enter book id"</i>	<i>fail</i>	<i>Should print retry</i>	<i>SOLVED</i>
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	<i>Add Journal</i>	<i>Enter details</i>	<i>Enter details</i>	<i>Pass</i>	<i>None</i>	
2.2.1	<i>Enter author(abc)</i>	<i>Ask for title</i>	<i>Ask for title</i>	<i>Pass</i>		

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		
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#### 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	
	<i>S</i>	<i>Enter password</i>	<i>Software crashes</i>	<i>Fail</i>	<i>Intended result is not obtained due to some error in code.</i>	<i>No such error</i>
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
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1	Login (Staff)				Done already	
	<i>S</i>	<i>Enter password</i>	<i>Software crashes</i>	<i>Fail</i>	<i>Intended result is not obtained due to some error in code.</i>	<i>No such error</i>
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		<b>Pass</b>		
	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	

	<i>S</i>	<i>Enter password</i>	<i>Software crashes</i>	<i>Fail</i>	<i>Intended result is not obtained due to some error in code.</i>	<i>No such error</i>
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		
	<i>Fadmin</i>	<i>Ask for password</i>	<i>Logged in</i>	<i>Fail</i>	<i>Faculty should not be logged in without asking for password.</i>	<i>SOLVED</i>
	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					
	<i>B1</i>	<i>Cannot renew</i>	<i>Program terminates</i>	<i>fail</i>		<b>SOLVED</b>
	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					
	<i>Select pay fine option</i>	<i>Enter amount</i>	<i>Program terminates</i>	<i>Fail</i>	<i>Error in code</i>	<i>No such error</i>
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		
	<i>View history (no book issued)</i>	<i>No books issued yet</i>	<i>Press enter to continue</i>	<i>Fail</i>	<i>The message should be displayed that no history exists or no book issued yet</i>	<i>SOLVED</i>

#### 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
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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
<i>NONE</i>		

