Noakhali Science and Technology University

Institute Of Information Technology

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Table of Contents of Online Library Management System

STLC Of Online Library Management System(OLMS)

STLC (Software Testing Life Cycle)

STLC stand for Software Testing Life Cycle. Software testing is a process of executing a program or application with the intent of finding the software bugs. It can also be stated as the process of validating and verifying that a software program or application or product: Meets the business and technical requirements that guided it's design and development.

STLC has different phase like

- Requirement analysis
- Test Planning and strategies
- Test case development
- Environment Setup
- Test Execution
- Test Cycle Closure

STLC of online library management system

The purpose of the project is to maintain the details of books and library members of both IIT students and Teachers. The main purpose of this project is to maintain an easy circulation system between students and the libraries. Online Seminar Library Management System basically an online platform base library which help student that student can easily request for a book, collect book from library, show their info like (fine, address, phone number) etc. They can also see the availability of books by using book details. IIT Officer maintain the library, collect fine which is auto calculated in this system, see students all details easily. Moreover, the user can check all these features from their home and overall maintenance online library is easier and more reliable. In STLC we use this project, intent of finding bug. All the phase describe for online library management system.

Requirement analysis of OLMS

This is the first phase of STLC. QA team collect requirement for testing from user. Then write these like a list. Collect both functional and non-functional requirement. In case of any confusion the QA team may setup a meeting with the clients and the stakeholders.

Functional Requirement

1. Admin and student show the book list and search book

2. Admin and Student view their dashboard
3. Admin and Student can edit their profile
4. Admin add books
5. Admin delete books
6. Admin edit books
7. Admin approves the new book
8. Admin update Books details
9. Student can request for one book at a time using the book identification number
10. Admin search a student by student first name or username
11. Admin and student change their username
12. Student see their expired date user dashboard
13. Student see their fine list in the user dashboard
14. Student & admin can recover their password
15. Admin can see student's details
16. Student can provide feedback
17. Admin see the feedback
18. Admin add and delete the announcement
19. Admin take fine manually
20. Students see an announcement

Non-functional requirement

1. Admin and Student email must be unique
2. Admin and student username must be unique
3. Students take a book at a time
4. Students send one book request to library at a time
5. Admin And student can change their profile picture with in 10 second
6. Search book within 5 second
7. Change username both admin and student

Test Planning and strategies

Test Planning phase starts soon after the completion of the Requirement Analysis phase. In this phase the QA manager or QA Lead will prepare the Test Plan and Test Strategy documents.

Unit testing Definition

- Define: Test individual unit of SMS
- Tested by: Developer
- Methodology: Test individual unit of SMS

Integration and System Testing

- Definition: Integration testing test two or more than two integrated models System testing test functional and nonfunctional user requirement
- Tester by: Tester
- Methodology: It is used for integrated model, functional and nonfunctional user requirement.

Performance Testing

- Definition: It measure performance / response under critical, load and stress condition
- Tested by: Tester
- Methodology: Measure performance under critical, stress and load system

Regression Testing

- Definition: Used to uncover new errors in existing functionality after changes have been made
- Tested by: Tester
- Methodology: Test system response after functional enhancements in existing system

Test Case Development

Test case for Student login page

Test Case ID	Test Scenario	Test steps		Test Data	Expected result	Actual Result	Pass/ Fail
TC1	Check Student Login with valid data	1	Go to Library Management System	Username=nishat1234 Password=123	User should log in into an application	As expected	Pass
		2	Click Login as Student				
		3	Enter Username or email				
		4	Enter password				
		5	Click Login				
TU2	Check Student Login with invalid data	1	Go to Library Management System	Username=nishat21 Password=12345	User should not Login into an application	As expected	Pass
		2	Click Login as Student				
		3	Enter Username or email				
		4	Enter password				
		5	Click Login				

Test case for Admin login page

Test Case ID	Test Scenario	Test steps		Test Data	Expected result	Actual Result	Pass/ Fail
TC3	Check Admin Login with valid data	1	Go to Library Management System	Username=nishat1234 Password=123	User should log in into an application	As expected	Pass
		2	Click Login as Admin				
		3	Enter Username or email				
		4	Enter password				
		5	Click Login				
TU4	Check Admin Login with invalid data	1	Go to Library Management System	Username=nishat21 Password=12345	User should not Login into an application	As expected	Pass
		2	Click Login as Admin				
		3	Enter Username or email				
		4	Enter password				
		5	Click Login				

Books page Test case for student

Test Case ID	Test Scenario	Test steps		Test Data	Expected result	Actual Result	Pass /Fail
TC5	On click of the search button	1	Enter the book identification number	Id=11 or Book name=math	Show the books hole information	As expected	Pass
		2	Click search button				
TU6	On click of search button providing invalid book id	1	Enter invalid book name	Name=kkk	Books not found	As expected	Pass
		2	Click search button				
TU7	On click of search button providing invalid book id	1	Enter the book identification number	Id=100	Books not found	As expected	Pass
		2	Click search button				
TU8	On click of the request button	1	Enter the Book identification number	Id=11	Request send successfully, or you have already a panding book request	As expected	Pass
		2	Click request number				
TU9	On click of the request button with invalid book id	1	Enter the invalid book id	Id=0	Book is not available in the library	Out of stock	Fail
		2	Click request number				

Admin/Student profile page

Test Case ID	Test Scenario	Test steps		Test Data	Expected result	Actual Result	Pass /Fail
TC10	Show admin/student profile info with click on my account button	1	Click my account button		Show profile info of admin/student	As expected	Pass
TU11	On click of the camera button	1	Click my account button	Choose file=nishat.jpg	Image upload in profile successfully	As expected	Pass
		2	Click camera button				
		3	Choose an image from the device				
		4	Click upload button				
		5	Click ok				
TU12	On click of the remove profile	1	Click my account button		Profile image remove successfully	As expected	Pass
		2	Click camera button				
		3	Click the remove profile button				
TU13	Change username of admin/student with valid data	1	Click change username button	Old username=nishat1, New username=nishat1234	Admin/student username change successfully	As expected	Pass
		2	Enter the old username				
		3	Enter the new username				
		4	Click submit button				
		5	Click ok button				
TU14	Change username of admin/student with invalid data	1	Click the change username button	Old username=nishat12, New username=nishat1234	old username doesn't match or username is not unique	The username is not unique	pass
		2	Enter old username				
		3	Enter new username				
		4	Click submit button				
		5	Click ok button				
TU15	Change password of admin/student with valid data	1	Click the change password button	Old password=123 New password=1234 Confirm new password=1234	Admin/student password change successfully	As excepted	Pass
		2	Enter old password				
		3	Enter new password				
		4	Confirm new password				
		5	Click submit data				
		6	Click ok button				
TU16	Change password of admin/student with invalid data	1	Click change password button	Old password=123, New password=12345, Confirm password=12377	Old passwords don't match user password, or new passwords and confirm passwords don't match	New password and confirm password don't match	pass
		2	Enter old password				
		3	Enter new password				
		4	Confirm new password				
		5	Click submit button				

Edit profile of admin/student

Test Case ID	Test Scenario	Test steps		Test Data	Expected result	Actual Result	Pass /Fail
TC17	Edit admin/student profile information	1	Click edit profile	First name=nishat Last name= Tamanna Contract=01204858 534 Password=111 Confirm password=111	Should edit profile successfully	As expected	Pass
		2	Enter first name(if need)				
		3	Enter last name(if need)				
		4	Enter contract(if need)				
		5	Type new password				
		6	Confirm password(must)				
		7	Click save button				
		8	Click ok button				
TU18	Edit admin/student profile information through invalid data	1	Click edit profile button	Password=111, Confirm password=123	Password doesn't match, carefully provide password	As expected	Pass
		2	Enter first,last,contract(if needed)				
		3	Type new password				
		4	Confirm password				
		5	Click save button				

Book request page for student test case

Test Case ID	Test Scenario	Test steps		Test Data	Expected result	Actual Result	Pass/ Fail
TC19	On click of book request button	1	Click more option menu	N/A	Show the book list info with the previous book info, show book request dashboard	As expected	Pass
		2	Click the book request button				
TU20	On click of the delete button	1	Enter book id	Book id =11	Book doesn't present without approval	As expected	Pass
		2	Click ok				
TU21	On click of the delete button with invalid book id	1	Enter book id	Book id=11111	Book doesn't present without approval	As expected	pass
		2	Click ok				

Test case of Issue information, fine history, feedback for student

Test Case ID	Test Scenario	Test steps		Test Data	Expected result	Actual Result	Pass /Fail
TC22	On click of issue information button	1	Click more option menu	N/A	Show the all issued book information	As expected	Pass
		2	Click issue information				

TU23	On click of fine history button	1	Click more option menu	N/A	Show all fine history previous and present	As expected,	Pass
		2	Click fine history				
TU24	On click of feedback button	1	Click more option menu	Feedback message=this is a helpful online library	Feedback send successfully	As expected,	Pass
		2	Click feedback option				
		3	Enter the feedback message				
		4	Click submit button				
		5	Click ok				
TU25	On click of the feedback button provide no message	1	Click feedback option	Feedback message=N/A	Feedback doesn't send successfully	Feedback send successfully	Fail
		2	Enter no feedback message				
		3	Click submit button				
		4	Click ok button				

Test case of Log out page for admin/student

Test Case ID	Test Scenario		Test steps	Test Data	Expected result	Actual Result	Pass /Fail
TC26	Click logout button	1	Click on the user icon, open two option	N/A	Should log out successfully	As expected	Pass
		2	Click logout option				
		3	Click ok button				

Test case of Book page view for admin

Test Case ID	Test Scenario		Test steps	Test Data	Expected result	Actual Result	Pass /Fail
TC27	On click of the search button	1	Enter the book identification number	Id=9 or Book name=math	Show the books hole information	As expected	Pass
		2	Click search button				
TU28	On click of search button providing invalid book id	1	Enter invalid book name	Name=oo	Books not found	As expected	Pass
		2	Click search button				
TU29	On click of search button providing invalid book id	1	Enter the book identification number	Book Id=105	Books not found	As expected	Pass
TU30	Check delete button with valid book id	1	Enter book id	Book id=6	Book delete successfully	As expected	Pass
		2	Click delete button				
		3	Click ok				
TU31	Check delete button with invalid book id	1	Enter book id	Book Id=1000	Book is n't available in library	As expected	pass
		2	Click delete button				
		3	Click ok				
TU32	On click of update button providing valid data	1	Enter book id	Book id=9	Show books details information	As expected	Pass
		2	Click update button				

| TU33 | On click of update book button providing invalid data | 1 | Enter book id | Book id=111 | Book isn't available in library | Unexpected error show | Fail |
| | | 2 | Click update button | | | | |

Test case of Update book for admin

Test Case ID	Test Scenario	Test steps		Test Data	Expected result	Actual Result	Pass /Fail
TC34	On click of update book info button	1	Click update book button	Book name=math, Edit author=A.K Edit edition=12, Edit total book=20, Edit department=IIT	Book update successfully	As expected	Pass
		2	Edit book name(if need)				
		3	Edit author(if need)				
		4	Edit edition(if need)				
		5	Enter total book(if need)				
		6	Edit department(if need)				
		7	Click update book info button				
		8	Click ok button				
TU35	On click of update book info button without edit	1	Click update book button	N/A	Previous information not changes or not edit any book information	Book update successfully	Fail
		2	Edit book name(if need)				
		3	Edit author(if need)				
		4	Edit edition(if need)				
		5	Enter total book(if need)				
		6	Edit department(if need)				
		7	Click the update book info button				
		8	Click ok button				

Test case of Student info for admin

Test Case ID	Test Scenario	Test steps		Test Data	Expected result	Actual Result	Pass /Fail
TC36	Show student list with all information	1	Click student_info button	N/A	Show all student list info	As expected	Pass
TU37	On click of search button	1	Click student_info button	Username=nishat11	Show all info of nishat11	As expected	Pass
		2	Enter username				
		3	Click search button				
TU38	Check search button providing session	1	Click student_info button	Session=2017-18	Show all student info which	No result show	Fail
		2	Enter session				

		3	Click search button		student session 2017-18		
TU39	Check search button providing student roll	1	Click student_info button	Roll=BKH1825006ff	Show student information which roll=Roll	No result show	Fail
		2	Enter student roll				
		3	Click search button				
TU40	Check search button providing student edu mail	1	Click student_info button	Tamanna.nstu.bd.com	Show student information which has same mail as provided	No result show	Fail
		2	Enter student edu mail				
		3	Click search button				

Test case of Add book by admin

Test Case ID	Test Scenario	Test steps		Test Data	Expected result	Actual Result	Pass/ Fail
TC41	On clicking add book button	1	Click more option button	N/A	Show the add book details form	As expected	Pass
		2	Click the add book button				
TU42	On clicking add button	1	Click more option	Accession no=12, Title of the book=math, Name of author=xyz, Book edition=6, Quantity of book =25, Department=BGE	Add books in book database , show it book list successfully	As expected	Pass
		2	Click add book button				
		3	Enter Accession no				
		4	Enter title of the book				
		5	Enter name of author				
		6	Select book edition				
		7	Enter book status				
		8	Enter quantity of book				
		9	Select department				
		10	Click add button				
TU43	On clicking add button with invalid data	1	Click more option	Accession no=12, Title of the book=math, Name of author=xyz, Book edition=N/A, Quantity of book =25, Department=BGE	Select book edition carefully	As expected	Pass
		2	Click add book button				
		3	Enter Accession no				
		4	Enter title of the book				
		5	Enter name of author				
		6	Select book edition				
		7	Enter book status				
		8	Enter quantity of book				
		9	Select department				
		10	Click add button				

Test case of add student by admin

Test Case ID	Test Scenario	Test steps		Test Data	Expected result	Actual Result	Pass/ Fail
TC44	On clicking add student button	1	Click more option button	N/A	Show the student registration form	As expected	Pass
		2	Select add student button				
TU45	On clicking add button	1	Enter the first name	First name=nishat, Last name=tasnim, Department=IIT, Session=2017-18, Roll number=BKH1825 006F, Username=nishat@ 32, Password=123, Confirm password=123	Add student successfully in datthe abase, and show in student list successfully	As expected	Pass
		2	Enter the last name				
		3	Select department				
		4	Select session				
		5	Enter the roll number				
		6	Enter username				
		7					
		8	Enter password				
		9	Confirm password				
		10	Click add button				
		11	Click ok button				
TU46	On clicking add button with invalid data	1	Enter the first name	First name=nishat, Last name=tasnim, Department=IIT, Session=2017-18, Roll number=BKH1825 006F, Username=nishat@ 32, Email=nishat@gma il.com Password=1234, Confirm password=123	Username or email isn't unique, password and confirm don't match	User name already taken, please take other username	Pass
		2	Enter the last name				
		3	Select department				
		4	Select session				
		5	Enter the roll number				
		6	Enter username				
		7	Enter email				
		8	Enter password				
		9	Confirm password				
		10	Click add button				
		11	Click ok button				

Test case of Book request info page by admin

Test Case ID	Test Scenario	Test steps		Test Data	Expected result	Actual Result	Pass/ Fail
TC47	On click of book request info button	1	Click more option	N/A	Show the student book request information or there is	As expected	Pass
		2	Select book request info				
		5					

						no pending book request		
TU48	On click of approve button	1	Click more option	N/A		Show the approve info form	As expected	Pass
		2	Select book request info					
		3	Click approve button					
TU49	On click of confirm book button	1	Click approve button	Approve status=yes, Borrowed book date=17-02-2022, Return book date=20-02-2022		Book successfully approve and update issue book database	As expected	Pass
		2	Enter approve status					
		3	Enter borrowed book date					
		4	Enter return book date					
		5	Click confirm book button					
		6	Click ok button					
TU50	On click of confirm button using invalid data	1	Select approve button	Approve status=N/A Borrowed book date=17-02-2022, Return book date=20-02-2022		Book doesn't approve successfully	Book approve successfully	Fail
		2	Enter borrowed book date					
		3	Enter return book date					
		4	Click confirm book button					

Test case of Issue information by admin

Test Case ID	Test Scenario	Test steps		Test Data	Expected result	Actual Result	Pass/ Fail
TC51	On click of issue information	1	Click more option button	N/A	Show the issed book list borrowed by student from library	As expected	Pass
		2	Select issue information				
TU52	On click of take book button	1	Click issue information button	N/A	Book taken from student successfully, and update quantity of this book is book table in the database	As expected	Pass
		2	Click take book button				
		3	Click ok button				
TU53	On click of take book button	1	Click issue information button	N/A	Book doesn't taken from student successfully, take book with some fine, update the expired book list	As expected	Pass
		2	Click take book button				

Test case of Expired book information by admin

Test Case ID	Test Scenario	Test steps		Test Data	Expected result	Actual Result	Pass /Fail
TC54	On click of expired book information	1	Click more option menu	N/A	Show all expired book list	As expected	Pass
		2	Select expired book information				
TU55	On click of take book button in expired book information	1	Click take book button	N/A	Show exact fine for this expired book	As expected	Pass
		2	Show the total fine for this book form				
TU56	On click of paid button	1	Take exact fine for this book	Fine=20tk	Successfully receive this book from the student with fine	As expected	Pass
		2	Click fine paid button				
		3	Click ok button				
TU57	On click of paid button not providing exact fine	1	Take exact fine for this book	Fine=15tk	Take exact fine	As expected	Pass
		2	Click fine paid button				
		3	Click ok button				
TU58	On click of not paid button	1	Take fine from student/not	Fine=10 or N/A	Fine not provided or total fine not provided	As expected	Pass
		2	Click not paid button				
		3	Go to expired book information page				

Announcement by admin test case

Test Case ID	Test Scenario	Test steps		Test Data	Expected result	Actual Result	Pass/ Fail
TC59	On click of announcement button	1	Click more option menu	N/A	Show announcement list	As expected	Pass
		2	Click announcement option				
		3	Show all announcement list				
TU60	On click of submit button in announcement page	1	Write any announcement	21st February is a public holiday	Announcement successfully added in homepage , update announcement database successfully	As expected	Pass
		2	Click submit button				
		3	Click ok button				
TU61	Check delete button in announcement page	1	Click delete button in announcement page	N/A	Successfully delete this announcement	As expected	Pass
		2	Click ok button				

Forget password admin and student

Test Case ID	Test Scenario	Test steps		Test Data	Expected result	Actual Result	Pass/ Fail
TC62	Click on forget password	1	Click forget password	nishattasnim337@ gmail.com	Password reset successfully	Password don't change	Fail
		2	Enter email address mail				
		3	Click send button				

Environment Setup

This phase includes the setup or installation process of software and hardware which is required for testing the application.

- Hardware: Dual Core or above machines
- Software: Microsoft Windows XP installed

Test Execution and Bug Reporting

Before starting the Test Execution phase the Test Environment setup should be ready. In Test Execution phase the test cases are executed in the testing environment. While execution of the test cases the QA team may find bugs which will be reported against that test case. This bug is fixed by the developer and is retested by the QA

Test case template

No	Scenario	complexity	Responsible tester	Date of Execution	Status (Pass/Fail)	Bug Id	Severity	Status
1	Admin and student show the book list and search book	Medium	Tamanna	17/02/22	Pass			
2	Admin and Student view their dashboard	Low	Tamanna	17/02/22	Pass			
3	Admin and Student can edit their profile	Complex	Tamanna	17/02/22	Pass			

No	Scenario	complexity	Responsible tester	Date of Execution	Status (Pass/Fail)	Bug Id	Severity	Status
4	Admin add books	Medium	Tamanna	17/02/22	Pass			
5	Admin delete books	Low	Tamanna	17/02/22	Pass			
6	Admin approves the new book		Suvo	18/02/22	Pass			
7	Admin update Books details	Medium	Tamanna	17/02/22	Pass			
8	Student can request for one book at a time using the book identification number	Complex	Tamanna	17/02/22	Pass			
9	Admin search a student by student first name or username	Medium	Suvo	18/02/22	Pass			
10	Admin and student change their username	Complex	Suvo	18/02/22	Pass			
11	Admin and student change their password	Medium	Suvo	18/02/22	Pass			
12	Student see their expired date user dashboard	Complex	Tamanna	17/02/22	Pass			
13	Student see their fine list in the user dashboard	Complex	Suvo	18/02/22	Pass			
14	Student & admin can recover their password	Complex	Tamanna	17/02/22	Fail	1001	High	Student/admin can't recover their password

No	Scenario	complexity	Responsible tester	Date of Execution	Status (Pass/Fail)	Bug Id	Severity	Status
15	Admin can see student's details	Low	Suvo	18/02/22	Pass			
16	Student can provide feedback	Low	Tamanna	17/02/22	Pass			
17	Admin see the feedback	Low	Suvo	18/02/22	Pass			
18	Admin add and delete the announcement	Medium	Suvo	18/02/22	Pass			
19	Admin take fine manually	Medium	Tamanna	17/02/22	Pass			
20	Students see an announcement	Low	Suvo	18/02/22	Pass			
21	Send book request with invalid book id	Low	Tamanna	17/02/22	Fail	1002	Medium	Out of stock
22	Send Feedback without typing any message	Medium	Suvo	18/02/22	Fail	1003	Medium	Feedback sends successfully
23	Update book providing invalid information	Complex	Suvo	18/02/22	Fail	1004	Medium	Unexpected error
24	Update book without edit book information	Complex	Tamanna	17/02/22	Fail	1005	Medium	Update book successfully
25	Search students using session	Medium	Suvo	18/02/22	Fail	1006	Low	Can't see students details
26	Search students using roll	Medium	Suvo	18/02/22	Fail	1007	Low	Can't see students details
27	Search students using edu mail	Medium	Suvo	18/02/22	Fail	1008	Low	Can't see students details
28	Confirm book without provide	Complex	Tamanna	17/02/22	Fail	1009	High	Book approve successfully

| 29 | Show the expired book list information | Medium | Tamanna | 17/02/22 | Pass | | | |
| 30 | Approve book successfully | Medium | Tamanna | 17/02/22 | pass | | | |

Bug Report

Bug ID	Bug Title	Priority	Expected result	Actual Result	Environment	Severity
1001	Student & admin can recover their password	Complex	Student/admin can recover their password	Student/admin can't recover their password	Windows10	High
1002	Send book request with invalid book id	Low	Book id is invalid	Out of stock	Windows10	Medium
1003	Send Feedback without typing any message	Medium	Feedback sends failed	Feedback sends successfully	Windows10	Medium
1004	Update book providing invalid information	Complex	Information invalid	Unexpected error	Windows10	Medium
1005	Update book without edit book information	Complex	Book doesn't update successfully	Update book successfully	Windows10	Medium
1006	Search students using session	Medium	Can see students details	Can't see students details	Windows10	Low
1007	Search students using roll	Medium	Can see students details	Can't see students details	Windows10	Low
1008	Search students using edu mail	Medium	Can see students details	Can't see students details	Windows10	Low
1009	Confirm book without provide approve the status	Complex	Book doesn't approve successfully	Book approve successfully	Windows10	High

Test Cycle Closure

In order to start the Test Cycle Closure activity, the Test Execution phase should be completed. In Test Cycle phase the QA team will meet and discuss about the testing artifacts.

Test Cycle	Number of test case	Number of test case executed	Number of test case not executed	Test case pass	Test case fail
Cycle 01	15	15	0	14	1
Cycle 02	15	15	0	14	1
Cycle 03	20	20	0	14	6
Cycle 04	8	8	0	8	0
Cycle 05	4	4	0	3	1
Total	62	62	0	53	9