**The test cases were named as follows:**

**LMS (Library Management System) TC (Test Case) A.B (A is an integer representing a use case, B is an integer representing a path)**

**LMSTC1.1 – Login Successfully to LMS:**

Description: A registered user is able to login to the system. (Admins don’t need registry)

Pre-conditions: User is not logged in but registered to the system (unless User is an Administrator)

Post-conditions: User is logged in

Data required: The corresponding main page of the user, based on their user type, is opened.

**LMSTC1.2 – Login to LMS Unsuccessful:**

Description: A registered user enters incorrect information and so cannot login to the system. Or an unregistered user is attempting to login. (Admins don’t need registry)

Pre-conditions: User is not logged in and has incorrect credentials either through mistype or a lack of registration. (Admins may only be the former)

Post-conditions: User is still not logged in

Data required: User is on the login page still and with an error message.

**LMSTC2.1 – Logout Successfully from LMS:**

Description: A currently logged in user logs out from the system.

Pre-conditions: User is logged in and on his main page, alternatively user has accepted LMSTC2.2’s warning message.

Post-conditions: User is not logged in

Data required: User is returned to the login page.

**LMSTC2.2 – Warning Given Upon Early Termination:**

Description: A currently logged in user wishes to exit the system without logging out, so the system gives a warning to confirm logout.

Pre-conditions: User is logged in and attempts to exit application

Post-conditions: User is still logged in

Data required: User is given a warning to logout from the system before exiting application.

**LMSTC3.1 – Member Successfully Searches a Book:**

Description: A currently logged in member searches for a book with the given name

Pre-conditions: Member is logged in and on the member main page, with a book name written out

Post-conditions: Member is still logged in and in the same page but with his query results

Data required: A table is shown on the Member Main Page with the instances of the searched book name in the database.

**LMSTC3.2 – Librarian Successfully Searches a Book:**

Description: A currently logged in Librarian searches for a book with the given name

Pre-conditions: Librarian is logged in and on the librarian main page, with a book name written out

Post-conditions: Librarian is still logged in and in the same page but with his query results

Data required: A table is shown on the Librarian Main Page with the instances of the searched book name in the database.

**LMSTC3.3 – Book Search Result is Not Found:**

Description: A currently logged in member or librarian searches for a book with the given name, however that book is not registered in the system so a book not found message is displayed instead

Pre-conditions: Member or Librarian is logged in and on the member or librarian main page respectively, with a book name written out

Post-conditions: Member is still logged in and in the same page but with an error message

Data required: An error message clarifying the searched book is not in the system is shown on the Member or Librarian Main Page (determined which through the starting point).

**LMSTC4.1 – Member Successfully Checks Out a Book:**

Description: A currently logged in member on the Check-Out Page checks out a book with its barcode.

Pre-conditions: Member is logged in and on the Check-Out Page

Post-conditions: Member is still logged in and on the same page but with a “Successful” message

Data required: A message titled “Successful” is shown on the Check-Out Page and that corresponding book is now tagged borrowed for the member.

**LMSTC4.2 – Member Cannot Check Out a Book:**

Description: A currently logged in member on the Check-Out Page cannot check out a book with its barcode. (The book is not borrowed by someone else)

Pre-conditions: Member is logged in and on the Check-Out Page

Post-conditions: Member is still logged in and on the same page but with an error message

Data required: A message defining an error is shown on the Check-Out Page (Book might not exist or the member might be blocked)

**LMSTC4.3 – Member Successfully Navigates to and from the Checkout Page:**

Description: A currently logged in member on the Member Main Page or the Check-Out Page goes back or forth between these pages

Pre-conditions: Member is logged in and on the Check-Out Page (or the Main Member Page)

Post-conditions: Member is still logged in but on the opposite page

Data required: Member is either moved to the Check-Out Page from the Main Member Page or vice versa.

**LMSTC5.1 – Member Adds Book To Waiting List:**

Description: A currently logged in member on the Check-Out Page cannot check out a book with its barcode because it is already borrowed so they add it to their waiting list instead through a message. Member must click “Yes” on the message. Upon selecting “No” he is directed to the main page under LMSTC4.3’s jurisdiction.

Pre-conditions: Member is logged in and on the Check-Out Page with a popup message that their desired book is already borrowed

Post-conditions: Member is still logged in and on the same page but with a “Successful” message

Data required: A message to notify the successful addition of the book the member’s waiting list is shown on the Check-Out Page, the book is tagged reserved for the member.

**LMSTC6.1 – Member Successfully Checks In a Book:**

Description: A currently logged in member on the Check-In Page checks in a book with its barcode.

Pre-conditions: Member is logged in and on the Check-In Page

Post-conditions: Member is still logged in and on the same page but with a “Successful” message

Data required: A message titled “Successful” is shown on the Check-In Page and that corresponding book is now tagged read for the member.

**LMSTC6.2 – Member Cannot Check In a Book:**

Description: A currently logged in member on the Check-In Page cannot check in a book with its barcode.

Pre-conditions: Member is logged in and on the Check-In Page

Post-conditions: Member is still logged in and on the same page but with an error message

Data required: A message defining an error is shown on the Check-In Page (Book might not exist)

**LMSTC6.3 – Member Successfully Navigates to and from the Check-In Page:**

Description: A currently logged in member on the Member Main Page or the Check-In Page goes back or forth between these pages

Pre-conditions: Member is logged in and on the Check-In Page (or the Main Member Page)

Post-conditions: Member is still logged in but on the opposite page

Data required: Member is either moved to the Check-In Page from the Main Member Page or vice versa.

**LMSTC7.1 – Member Successfully Views His Book:**

Description: A currently logged in member views his books that tagged wither borrowed, read, or reserved by the member.

Pre-conditions: Member is logged in and on the member main page with an option from the drop down menu selected

Post-conditions: Member is still logged in and in the same page but with his query results

Data required: A table is shown on the Member Main Page with the instances of the tagged books for that member in the database.

**LMSTC8.1 – System Notifies Member of Book Availability:**

Description: A book tagged borrowed for one member but tagged reserved for another member is checked in by the first member, immediately a message is sent to the second member.

Pre-conditions: The same book tagged borrowed for one member is tagged reserved for another member is now tagged read for the initial member

Post-conditions: The member who has the book tagged reserved receives a message upon first login

Data required: A message to notify the availability of the book in the member’s waiting list is shown on that members Main Page upon login.

**LMSTC9.1 – System Issues Late Fine:**

Description: A repeated process of incremental fine is issued on a member that has had a book tagged borrowed for more than 20 days, repeated daily. The cycle is broken when the book is tagged read for that member or 20 increments have occurred.

Pre-conditions: A book tagged borrowed for one member is tagged that way for at least 20 days

Post-conditions: A fine value is added incrementally to that members account (visible by that member)

Data required: A message to notify the availability of the book in the member’s waiting list is shown on that members Main Page upon login.

**LMSTC9.2 – System Blocks Check-Out Due To Fine:**

Description: After 20 increments of a fine was issued to a member, the systems blocks them from checking out any more books.

Pre-conditions: A book tagged borrowed for one member is tagged that way for at least 40 days

Post-conditions: A fine is no longer issued but that member is now blocked from checkouts.

Data required: Member will realize their blocked status when they fail to checkout more books.

**LMSTC10.1 – Member Pays Fine:**

Description: A currently logged in member notices their blocked status and the amount of fine they have and pays it to remove the status. Without an outside payment system the only requirement is pressing the button called pay.

Pre-conditions: Member is logged in and on the member main page, with fine amount written out and pressed pay

Post-conditions: Member is still logged in and in the same page but with his fine amount zero and “Successful” message

Data required: A “Successful” message is shown on the Member Main Page with fine amount showing zero for that member