CMSC 495 6380 PROJECT TEST PLAN & ICD

GROUP 7

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REVISION HISTORY TABLE

DATE	NAME	DESCRIPTION
06/20/2022	Ayodeji Onitilo	ICD
06/20/2022	Franklin Pokam	Test Cases
07/06/2022	Ayodeji Onitilo	ICD Dataflow

INTERFACE CONTROL DOCUMENT

Background

This project consists of developing a library management system by the students who are completing their capstone course (CMSC 495) at the University of Maryland Global Campus.This application will be a very basic one, but it will contain all the required functionalities of a library management system. For instance, students will be able to register, log in, rent out books, and librarians will have more privileges including issuing books to students, accessing students' accounts, as well as updating them. This document will highlight all the data types that are used in the necessary subsystems.

Interface Controls

This Interface Control Document (ICD) will highlight the low-level interface to the library management system database. This interface will allow users to access the library management system database given their respective privileges.

Interface control data from Input to GUI

		Name	Variable Type	Value	Default Value??
Input	GUI	username	String	"Akadabra"	""
Input	GUI	password	String	"LOyola345"	""
Input	GUI	Account Type	String	"Admin" "Student"	""
Input	GUI	Student ID	String	"001" to "3000"	""
Input	GUI	GUI launcher	main	Main page	""
Input	GUI	Exit on Close	Action listener	None, GUI shuts down	""
Input	GUI	Book ID	String	"001" to "2000"	""

Interface control data from output to GUI

		Name	**Variable type**	**Value Range**	**Default Value??**
GUI	Output	InvalidUsername	Error String	"Please choose a different username"	"Please choose a different username"
GUI	Output	LoginFailed	Error String	"Login Failed"	"Login Failed"
GUI	Output	InvalidBookRequest	Error String	"Book cannot be checked out"	"Book cannot be checked out"
GUI	Output	InvalidBookReturn	Error String	"Book cannot be Returned"	"Book cannot be Returned"
GUI	Output	UsernameRegistered	String	"Registration successful."	"Registration successful."
GUI	Output	Login Successful	String	"Successful login."	"Successful login."
GUI	Output	BookCheckedOut	String	"Check out successful."	"Check out successful."

GUI	Output	BookReturned	String	"Return successful."	"Return successful."

Interface control data from functions to GUI

		Name	**Type**	**Value Range**	**Default Value**
GUI	Functions	registerButton.setOnAction(new EventHandler<ActionEvent>()	EventHandler	Register new account	None
GUI	Functions	clearButton.setOnAction(new EventHandler<ActionEvent>()	EventHandler	Clear text fields	none
GUI	Functions	buttton.setOnAction(new EventHandler<ActionEvent>()	EventHandler	Confirm username and password	none
GUI	Functions	loginButton.setOnAction(new EventHandler<ActionEvent>()	EventHandler	Log Into Account	none

GUI	Functions	button	eventhandler	Get List of Books and Book Ids	none
GUI	Functions	Check out Book	String	"001" up to "2000"	
GUI	Functions	Return Book	String	"001" up to "2000"	

Interface control data from function to user data

		Name	Variable Type	Value Range	Default Value??
User Data	Functions	username	String	String of length 1-75	getUsername()
User Data	Functions	password	String	String of length12 (at least 12 characters)	getPassword()

User Data	Functions	Account Type	String	"student" or "admin".	getType()
Functions	User Data	authenticate	boolean	True/false	False

Interface control data from from function to book data

		Name	Type	Value Range	Default Value
Book Data	Functions	bookID	String	"001" up to "2000"	getBookID()
Book Data	Functions	title	String	bookTitle up to 150 characters	getTitle()
Book Data	Functions	year	Int	001 - 2022	getYear()
Book Data	Functions	author	String	Author's name; up to 200 characters	getAuthor()
Functions	Book Data	checkedOut	boolean	True or False	False
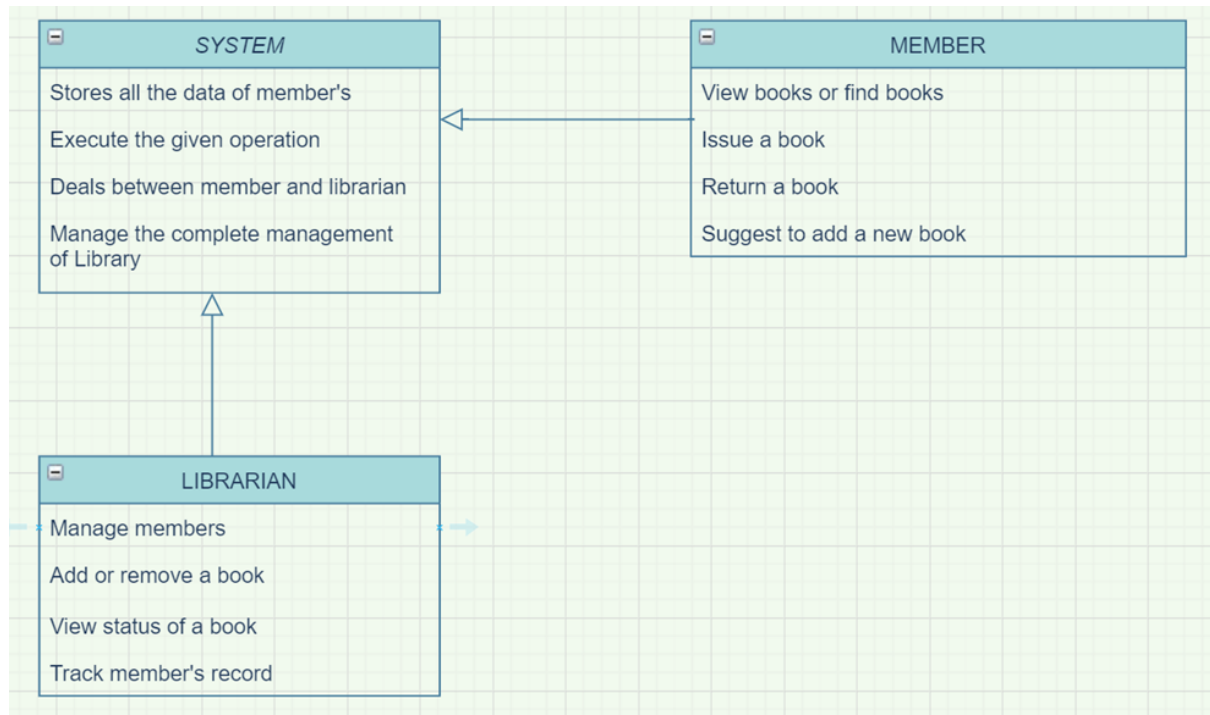
Data Types

Class BookDetails

String id; default value - null, **0 to 2000**

String authorName; default value - null, **0 to 2000**

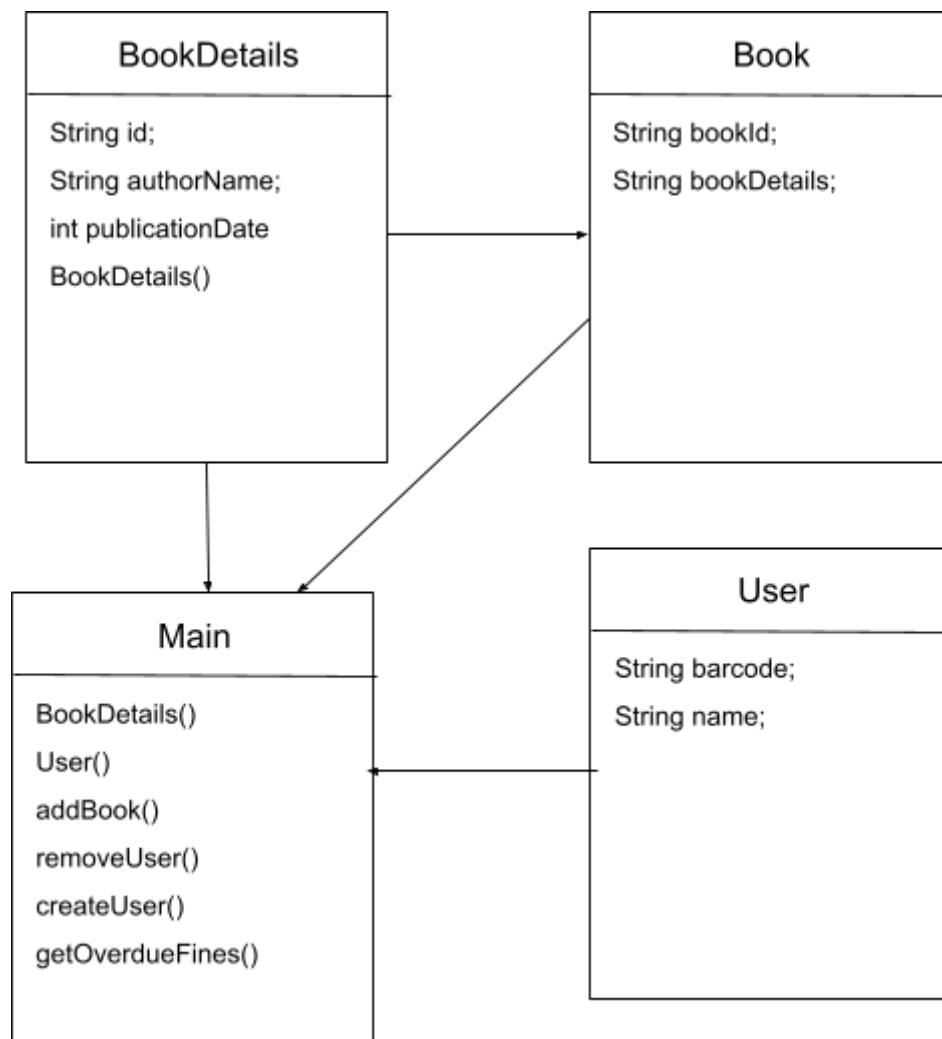int publicationDate; default value - 0, -2,147,483,648 to 2,147,483,647

Class Book

String bookId; default value - null, **1 to 2000**

String bookDetails; default value - null, **1 to 2000**

Class User

String name; default value - null, **1 to 3000**

BookDetails
String id; String authorName; int publicationDate BookDetails()

Book
String bookId; String bookDetails;

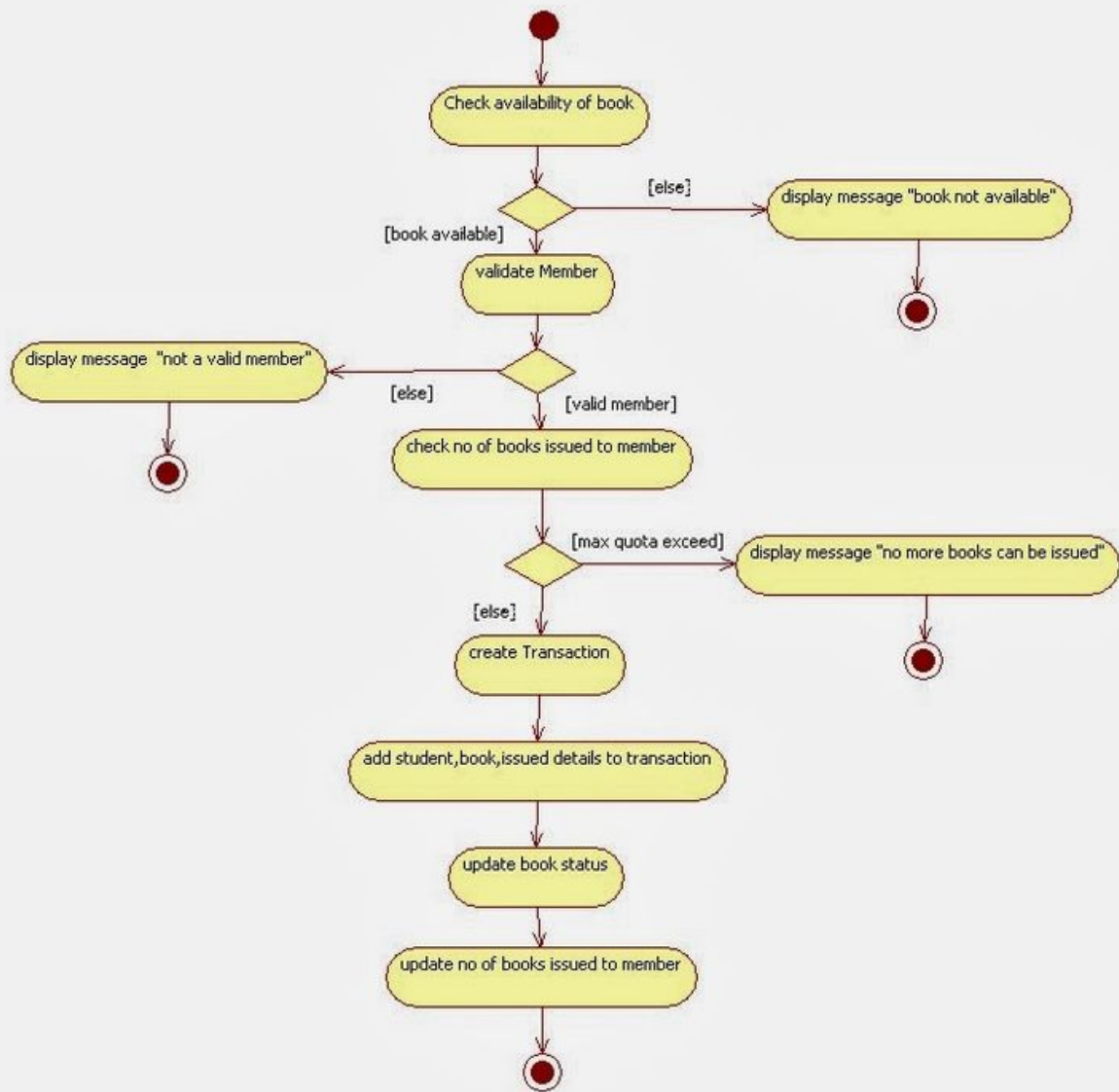| Main |
| --- |
| BookDetails()
User()
addBook()
removeUser()
createUser()
getOverdueFines() |

User
String barcode; String name;

Dataflow between subsystems

Input data and User data - The input system contains the login page where the user has to be authenticated before being allowed access to the library management system. When a user inputs the login info, the data is checked with the user data to ensure that the user is a valid user before being granted access to the system.

Output data and Book data - There is also exchange of information between the output data and book data. When the user requests information about a book, the book info is gotten from the book database and is then displayed through the output system to the user.

Check availability of book

[else] → display message "book not available"

[book available]

validate Member

display message "not a valid member" ← [else] [valid member]

check no of books issued to member

[max quota exceed] → display message "no more books can be issued"

[else]

create Transaction

add student,book,issued details to transaction

update book status

update no of books issued to member

Requirements

1-   The user (Student, and staff) can register and log in.

2-   The user can search books and check them in or out.

3-   The user can check the status of books: availability.

4-   The user can change the password and other profile details.

5-   The user can add books.

6-   The user can search books with the help of books title, authors name and

      ISBN.

7-   The user can manage and update the inventory of the books.

8-   The user can check and update the student's record.

9-   The user can delete books

10-   The user can delete users

11-   The user can delete users

Test CASES

Login Interface

Test Case Number	Requirement Number	Test Description	Expected Result	Actual Result	Pass/ Fail
1	1	Click Login button The user should enter a valid username and password using the login form. After entering login credentials, the user clicks on submit.	Software displays the main window.		

| 2 | 1, and 4 | Invalid username or password entered or both.

The user must be affiliated with the school (student, staff).

The user clicks on submit to enter username and password. | Error message is displayed.

User is asked to re-enter password or update login information. | | |

Book entry Interface

Test Case Number	Requirement Number	Test Description	Expected Result	Actual Result	Pass/ Fail

| 3 | 2, 5, 7,6, 3,8 | Check Status:

Check to see whether a book is available or not. The student is required to search a particular book in order to check its availability status.

The librarian must be logged in to complete the task.

The user clicks on search, then enters the book keyword, then a list of books appears. The user selects the specific book and checks how many are available. | The system displays the list of matching books with their availability status.

The librarian can generate the list of issued books. | | |

4	5, 7	Click on the add button to add a book The user clicks on add books, enter all the information in the GUI, then click save	The system displays the add form field, which is loaded by the librarian with book details and implementation, such as return date, etc… An error occurs when the wrong data is entered. For example, entering a number instead of a string of text should display an error message. However, a new book is added when everything checks out.		
5	9, 7 The user clicks on books, then searches the book, and clicks on delete to delete the book.	Click on DELETE to delete the book details	This action deletes the details of a book from the system.		

6	6, 7	Click on SEARCH to look for a book The user can search books using the book's title, author's name and ISBN. The search interface is displayed. Required information is entered: book title, ISBN, etc…	This displays the details of books. Displays error message when attempt fails. Displays the list of related books.		
7	3,6, 7,8	Click on update button to update book details	This action updates the book list from the system.		
8	1,2, 3, 4, 5, 6, 7, 8	Click on EXIT button	This action closes out the book issue form and displays the next form.		

Book Issue Interface

Test Case Number	Requirement Number	Test Description	Expected Result	Actual Result	Pass/Fail
9	3, 6	Check Status: Check to see whether a book is available or not. The student is required to search a particular book in order to check its availability status. The user must be logged in to complete the task.	The system displays the list of matching books with their availability status. The user can generate the list of issued books.		

10	5,7	Click on the add button to add a book	The system displays the add form field, which is loaded by the librarian with book details and implementation, such as return date, etc… An error occurs when the wrong data is entered. For example, entering a number instead of a string of text should display an error message. However, a book is added to the cart when everything checks out.		
11	1, 9	Click on DELETE to delete the book details	This action removes the book from the cart.		

12	6,7	Click on SEARCH to look for a book	This displays the details of books. Displays error message when attempt fails.		
		The user can search books using book's title, author's name and ISBN.	Displays the list of related books.		
		The user must be logged in.			
		The search interface is displayed.			
		Required information is entered: book title, ISBN, etc…			
13	2, 7,8	Click on update button to update book issue interface of the borrower	This action updates the list of books to be checked out.		

| 14 | 1, 2, 3, 4, 5, 6, 7, 8 | Click on EXIT button | This action closes out the book issue form and displays the next form. | | |

Book Return Interface

Test Case Number	Requirement Number	Test Description	Expected Result	Actual Result	Pass/Fail
15	6,7	Click on SEARCH student button	Search for Student's record. If it does not exist, display an error message. System displays user details.		
16	2, 7,9	Click DELETE button	This action should delete the details of the returned book(s) from the user's record.		

17	2, 7, 8	Click on UPDATE button	This updates the student's record and marks the newly returned book as available. This action clears the account. Displays an error message if it fails.		
18	6, 7	Click SEARCH button	This should display the details of the returned book(s). If failure, display the error message.		
19	1, 2, 3, 4, 5, 6, 7, 8	Click EXIT	This action closes the book return interface, and the student's record. Displays an error text if it fails. For example, if the book has not been scanned yet.		

User Account Interface (Staff/Students)

Test Case Number	Requirement Number	Test Description	Expected Result	Actual Result	Pass/Fail
20	1, 4	Click on the add button to add a user	A new user is added to the system.		
		All fields are filled with proper data.	Error message is displayed when the wrong type of data is entered		
21	1, 4, 10	Click on DELETE to delete the details of a user.	This action deletes the details of a user from the system.		

| 22 | 1, 4, 11 | Click on SEARCH to look for a user

You can search users using ID, names etc. | This displays the details of users.

 Displays error message when attempt fails. The user does not exist, or the wrong ID number. | | |
|----|----------|---------------------|---------------------|---|---|
| 23 | 4, 8 | Click on update button to update user information | This action updates the user information in the system. | | |
| 24 | 1, 2, 3, 4, 5, 6, 7, 8 | Click on EXIT button | This action closes out the user form and displays the next form. | | |