

Project Workbook

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04/05/2017

Declaration

I hereby certify that this material, which I now submit for assessment on the programme of study leading to the award of Ordinary Degree in Computing in the Institute of Technology Blanchardstown, is entirely my own work except where otherwise stated.

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Dated: 04/05/17

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Title: Primary School Library

Client: Our Lady of Victories

1. Project Overview

Our Lady of Victories (OLV) Primary School holds a “Books for Tots” book lending scheme which is run by a local parent of a child from the school. The parent currently uses a paper based recording system for the books, which OLV roughly receives 40 books. The parent keeps track of which student has taken a book out on loan, when the book was returned, if the student has taken out another book and the current condition. This project proposes that a Graphical User Interface (GUI) be used in replacement of this time consuming and redundant recording system. This will allow the parent to use a database system to keep track of everything that they need to record for the books, and will ultimately improve the overall quality, efficiency and effectiveness of the “Books for Tots” scheme.

2. Sprint 0

2.1 Sprint Planning:

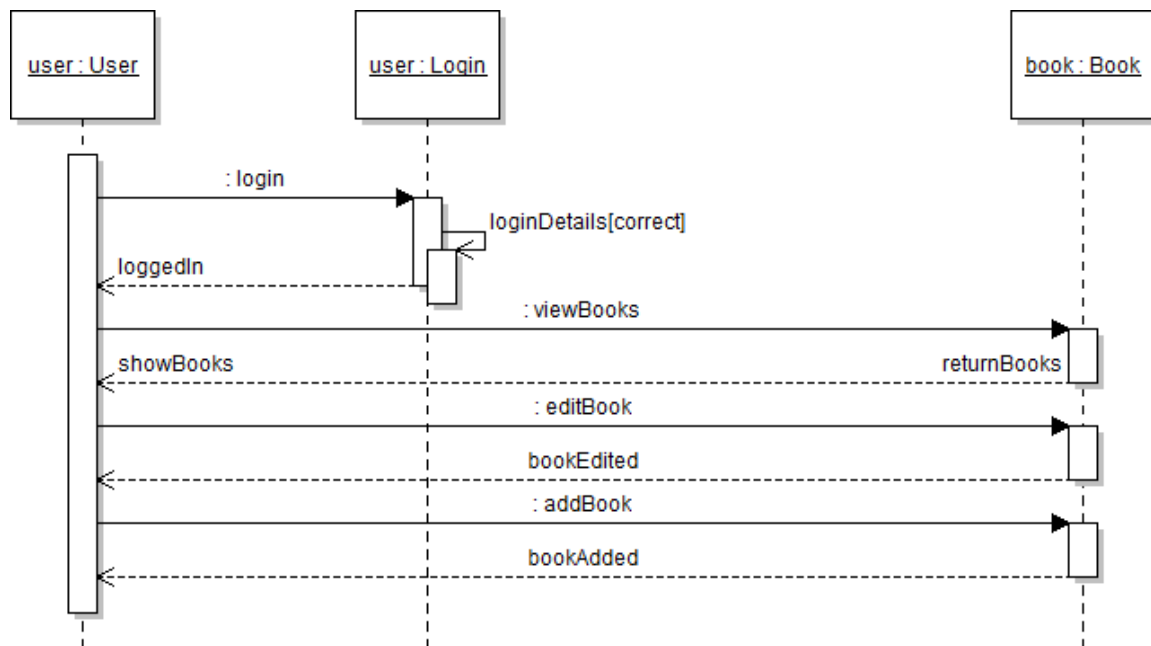
The goal for this sprint was to get the login and the main graphical user interface (GUI) completed. This included being able to log into the system with the required username and password from the database, and display the main GUI afterwards. With the main GUI, the current entries in the database would be displayed in the text fields, with the option to go to the next entry, with the text fields updating.

Product Backlog				
User Story / Requirement	Priority	Estimate	Status	Assigned to Sprint
Login GUI: Create the login GUI	High	1hr	In Progress	Yes
Login GUI: User is able to log into the system	High	2hr	In Progress	Yes
Main GUI: Create the main GUI	High	3hr	In Progress	Yes
Main GUI: Show the database in text fields	Medium	2hr	In Progress	Yes
Main GUI: add books from the GUI and update database	High	1hr	On hold for next sprint	No
Main GUI: edit book details and update database	Medium	2hr	On hold for next sprint	No
Main GUI: Exception handling	Medium	1hr	On hold for next sprint	No
Main GUI: Exception handling for database entries	Medium	2hr	On hold for next sprint	No
Login GUI: Exception handling	Medium	2hr	On hold for next sprint	No
Database: Create the database that will be connected to GUI's	High	1hr	In Progress	Yes
Database: Add values into the different tables	Medium	1hr	In Progress	Yes
Admin GUI: Create the GUI that the admin will see	Medium	2hr	On hold for next sprint	No
Admin GUI: Allow admin to change usernames and passwords	Medium	3hr	On hold for next sprint	No

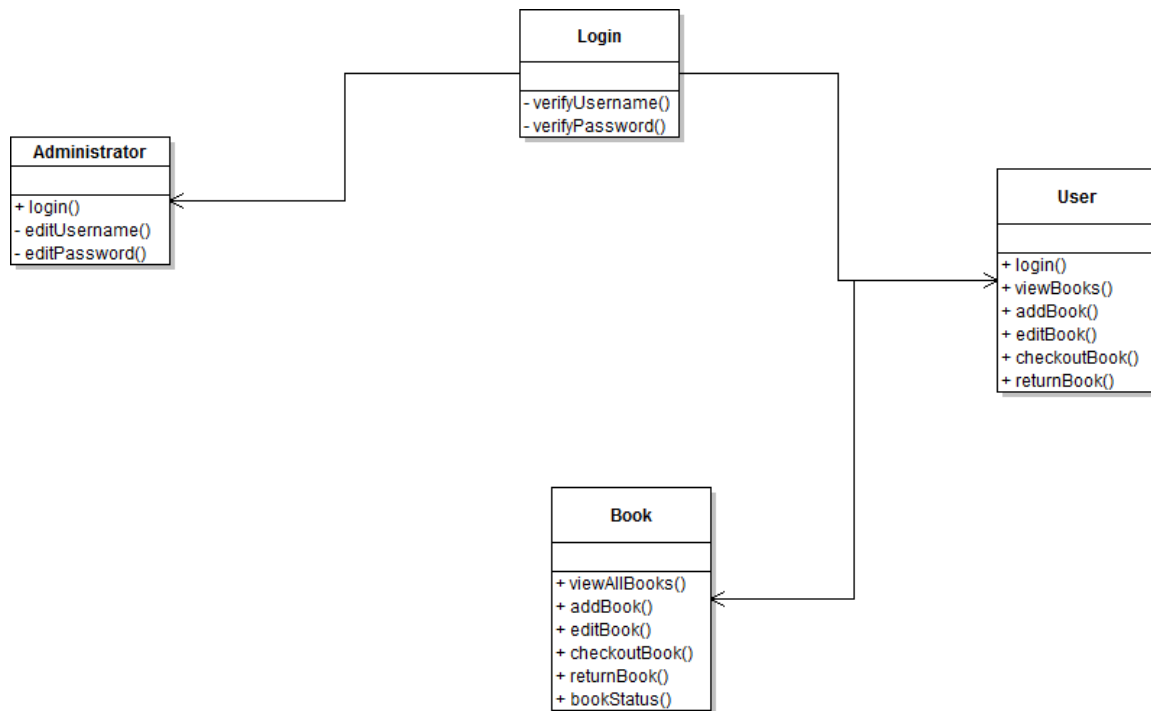
Sprint Backlog									
Backlog Item	Tasks	Responsible	Status	Session 1	Session 2	Session 3	Session 4	Sprint Review	
Login GUI	Create the login GUI	Nikos	In progress	1					
	Connect login GUI to the database	Nikos	In progress	1					
Main GUI	Create the main GUI	Eoghan	In progress	1					
	Show book details in text fields	Eoghan	In progress	1					
Database	Create database	Joseph	In progress	1					
	Insert values into book table and user table	Joseph	In progress	1					

2.2 System Design:

User Sequence Diagram:



Class diagram:



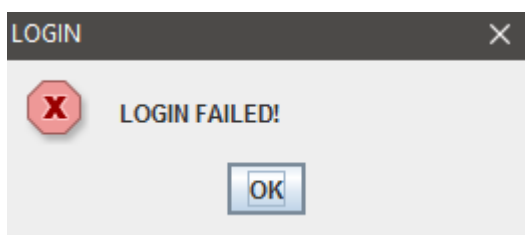
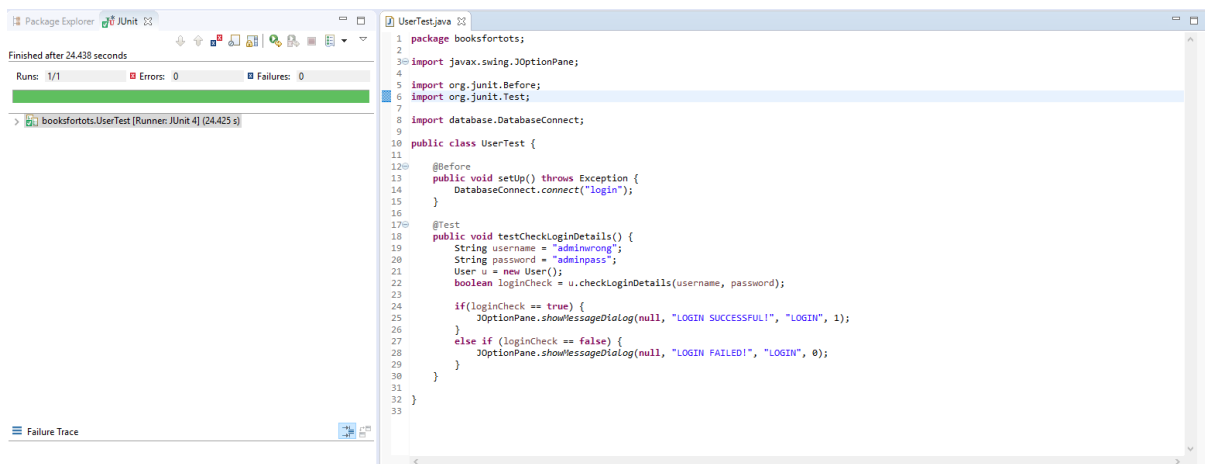
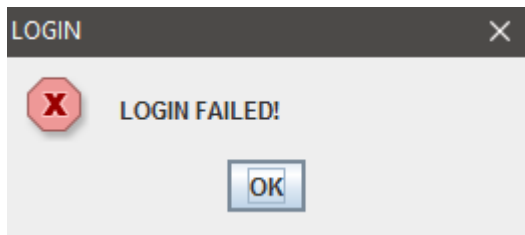
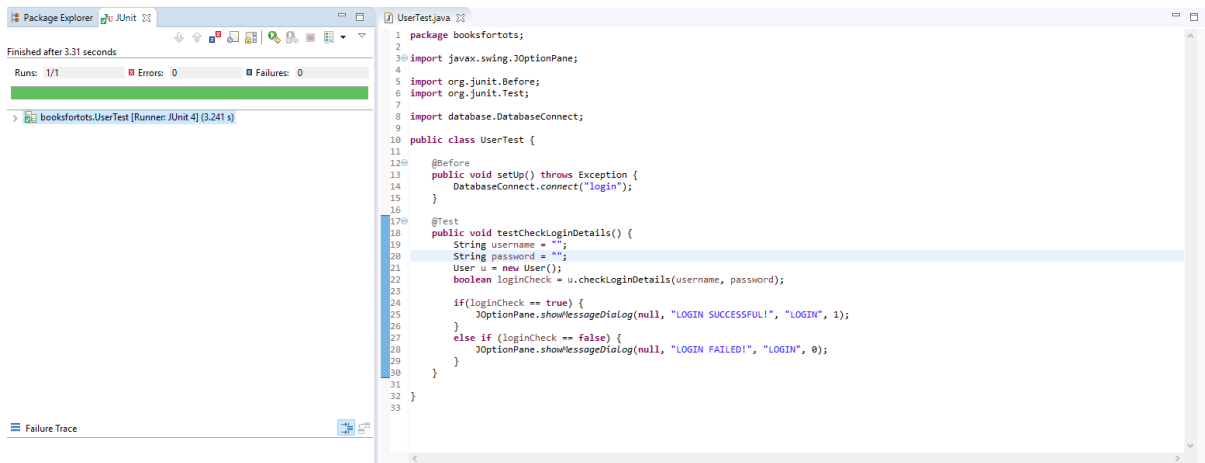
2.3 Software Testing:

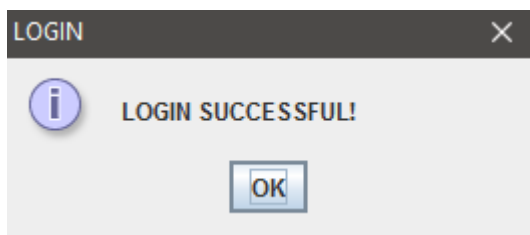
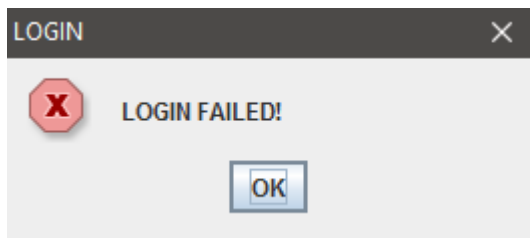
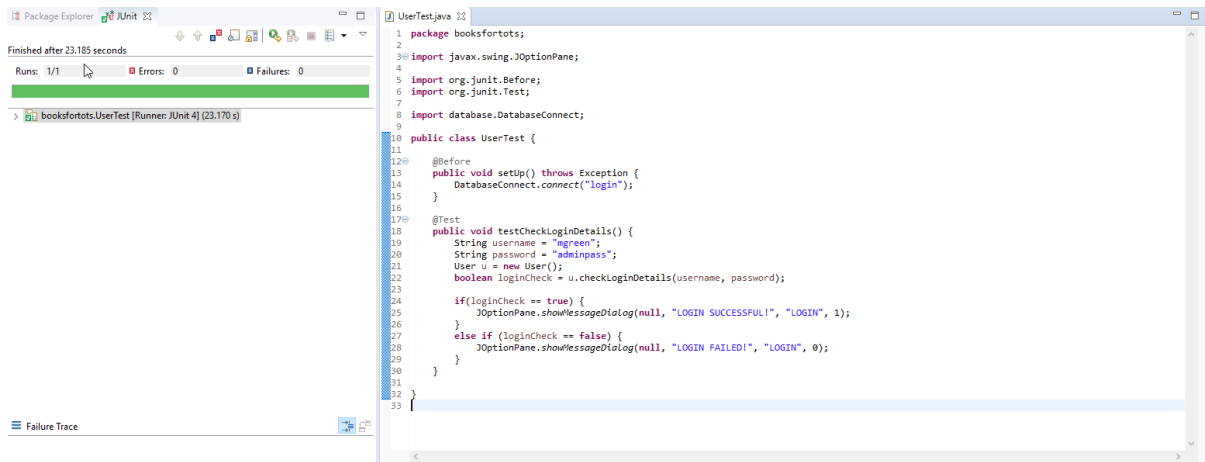
Black Box testing was used to test the login functions of the system. To test the username and password features of the login function, we tested them through the graphical user interface, as this method provides the user with an error message if the details are incorrect. Below are the results of the testing.

#	Input	Expected Result	Result
1	The username/password is blank	Login! Error	Pass
2	The username is a number	Login! Error	Pass
3	The password is a number	Login! Error	Pass
4	The username is correct but the password isn't	Login! Error	Pass
5	The password is correct but the username isn't	Login! Error	Pass

6	The username and password are correct (mgreen, password)	Show main GUI	Pass
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JUnit was used to test the login functions even further to ensure that everything worked as expected. Below are screenshots of the results.



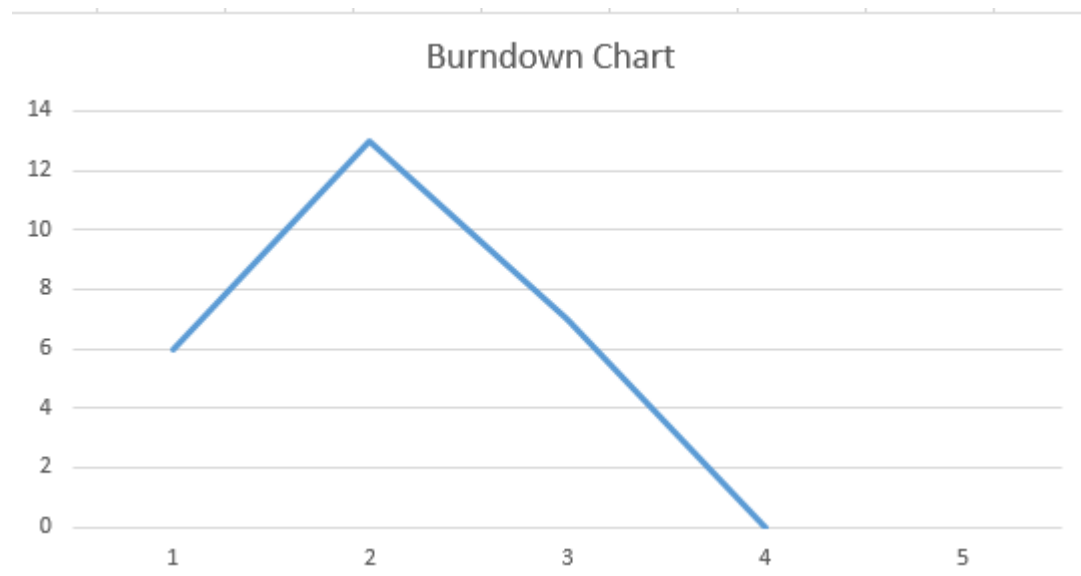


2.4 Sprint Review:

At the end of the first sprint, the database for the Books for Tots scheme was completed, and the inventory of books had been added to the designated book table. The users table was also created, as required by the administrator and the user. The graphical user interface was able to connect to the database and as required, and was also able to display the relevant book information in the GUI's text fields. The buttons for going to the next and previous book had also been completed as requested. The

login functions for the GUI had not been completed at the end of the first sprint due to a database connection error, however, this was quickly fixed and the user is able to log into the system.

Product Backlog				
User Story / Requirement	Priority	Estimate	Status	Assigned to Sprint
Login GUI: Create the login GUI	High	1hr	Complete	No
Login GUI: User is able to log into the system	High	2hr	Complete	No
Main GUI: Create the main GUI	High	3hr	Complete	No
Main GUI: Show the database in text fields	Medium	2hr	Complete	No
Main GUI: add books from the GUI and update database	High	1hr	In Progress	Yes
Main GUI: edit book details and update database	Medium	2hr	In Progress	Yes
Main GUI: Exception handling	Medium	1hr	In Progress	Yes
Main GUI: Exception handling for database entries	Medium	2hr	In Progress	Yes
Login GUI: Exception handling	Medium	2hr	In Progress	Yes
Database: Create the database that will be connected to GUI's	High	1hr	Complete	No
Database: Add values into the different tables	Medium	1hr	Complete	No
Admin GUI: Create the GUI that the admin will see	Medium	2hr	In Progress	Yes
Admin GUI: Allow admin to change usernames and passwords	Medium	3hr	In Progress	Yes

[illegible]

3. Sprint 1

3.1 Sprint Planning

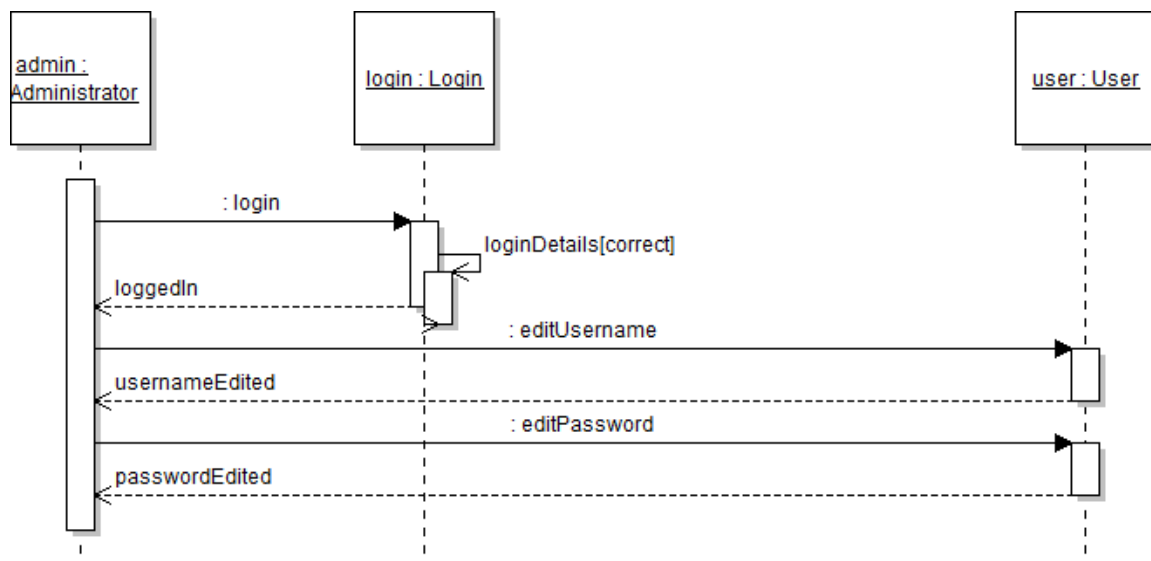
The goal for this sprint was to get a completed product finished in time. This included creating the graphical user interface that the administrator would see when they log in with their details, and allowing them to change the user's username and password. The user will now be able to add a book and delete a book. Exception handling and testing for all graphical user interfaces and inputs were carried out during this sprint.

Product Backlog				
User Story / Requirement	Priority	Estimate	Status	Assigned to Sprint
Login GUI: Create the login GUI	High	1hr	Complete	No
Login GUI: User is able to log into the system	High	2hr	Complete	No
Main GUI: Create the main GUI	High	3hr	Complete	No
Main GUI: Show the database in text fields	Medium	2hr	Complete	No
Main GUI: add books from the GUI and update database	High	1hr	Complete	Yes
Main GUI: Exception handling	Medium	1hr	In Progress	Yes
Main GUI: Exception handling for database entries	Medium	2hr	In Progress	Yes
Login GUI: Exception handling	Medium	2hr	In Progress	Yes
Database: Create the database that will be connected to GUI's	High	1hr	Complete	No
Database: Add values into the different tables	Medium	1hr	Complete	No
Admin GUI: Create the GUI that the admin will see	Medium	2hr	In Progress	Yes
Admin GUI: Allow admin to change usernames and passwords	Medium	3hr	In Progress	Yes

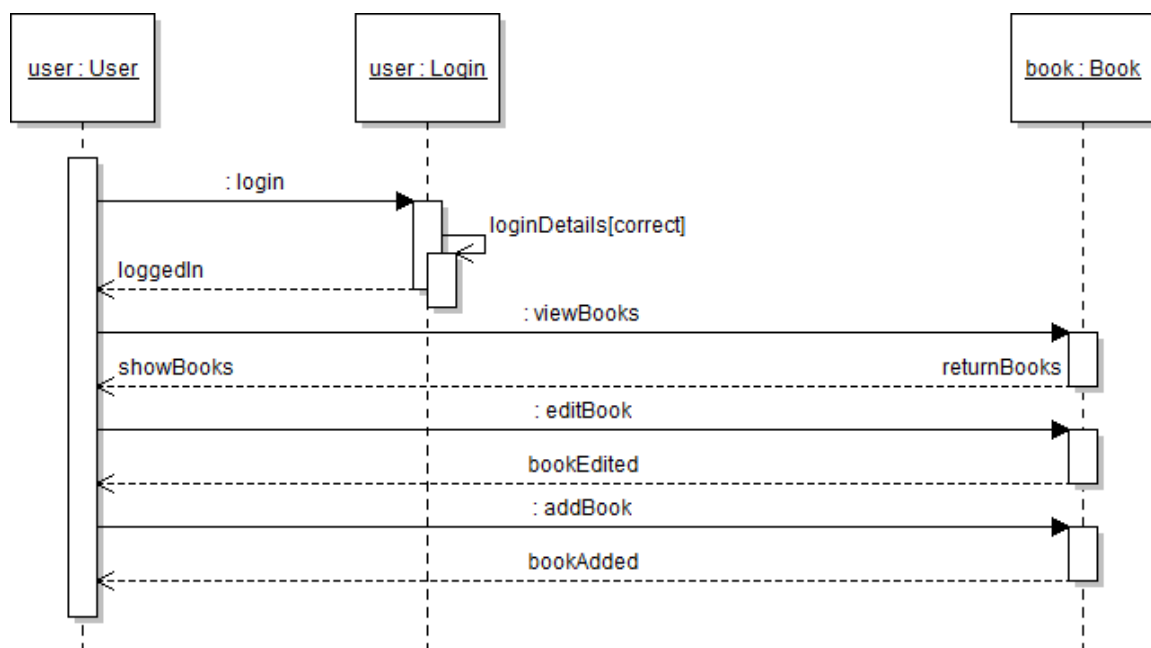
Backlog Item	Tasks	Responsible	Status	Session 1	Session 2	Session 3	Session 4	Sprint Review
Login GUI	Exception handling and testing	Nikos	In Progress	1				
Main GUI	Exception handling and testing	Eoghan	In Progress	1				
	Allow user to add books	Eoghan	In Progress	2				
	Allow user to delete books	Eoghan	In Progress	2				
Admin GUI	Create Admin GUI	Joseph	In Progress	2				
	Exception handling and testing	Joseph	In Progress	1				
	Allow admin to change user details	Joseph	In Progress	3				

3.2 System Design

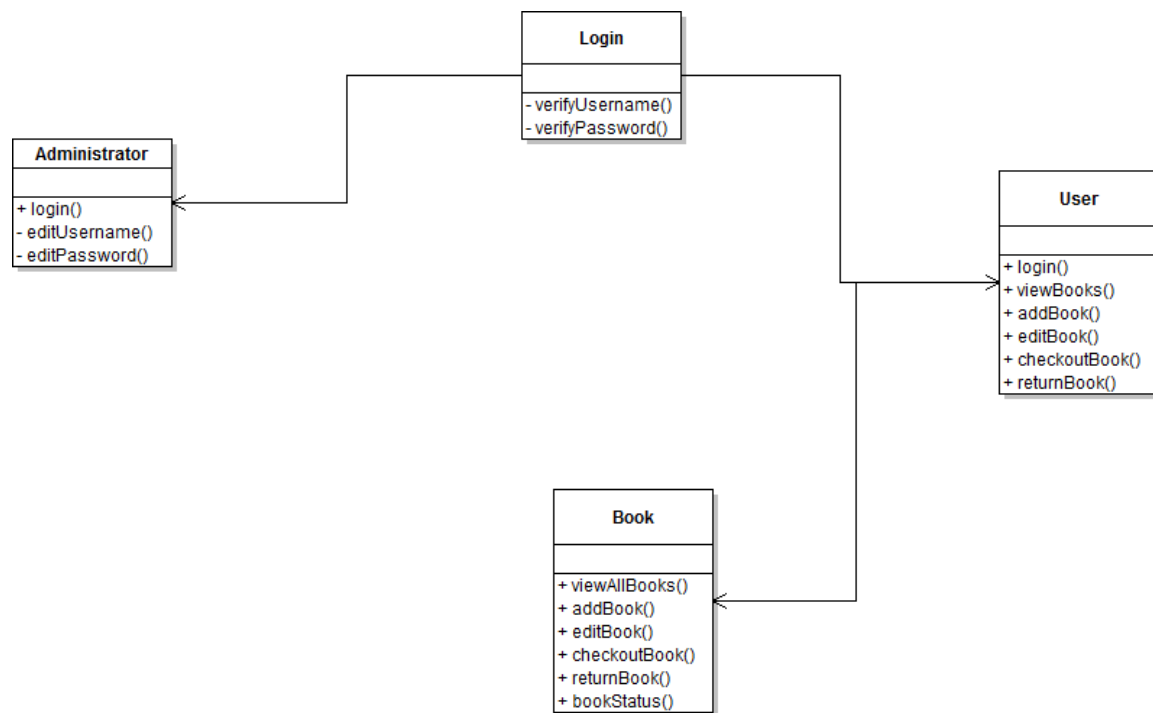
Admin Sequence Diagram:



User Sequence Diagram:



Class Diagram:



3.3 Software Testing:

Black Box testing was used to test the login functions of the system. To test the username and password features of the login function, we tested them through the graphical user interface, as this method provides the user with an error message if the details are incorrect. This was also implemented with the addition of the admin graphical user interface. Below are the results of the testing.

#	Input	Expected Result	Result
1	The username/password is blank	Login! Error	Pass
2	The username is a number	Login! Error	Pass
3	The password is a number	Login! Error	Pass
4	The username is correct but the password isn't	Login! Error	Pass

5	The password is correct but the username isn't	Login! Error	Pass
6	The username and password are correct (mgreen, password)	Show main GUI	Pass
7	The username is admin, and the password is password	Login! Error	Pass
8	The username is mgreen, and the password is adminpass	Login! Error	Pass
9	The username and password are correct (admin, adminpass)	Show admin GUI	Pass

With the admin graphical user interface, they are able to change the username and the password of the currently existing user, mgreen. Below are the results of the tests carried out. The username and password changed to test and testpass in this instance.

#	Input	Expected Result	Result
1	The username/password is blank	Login! Error	Pass
2	The username is a number	Login! Error	Pass
3	The password is a number	Login! Error	Pass
4	The username is correct but the password isn't	Login! Error	Pass
5	The username is mgreen and the password is testpass	Login! Error	Pass

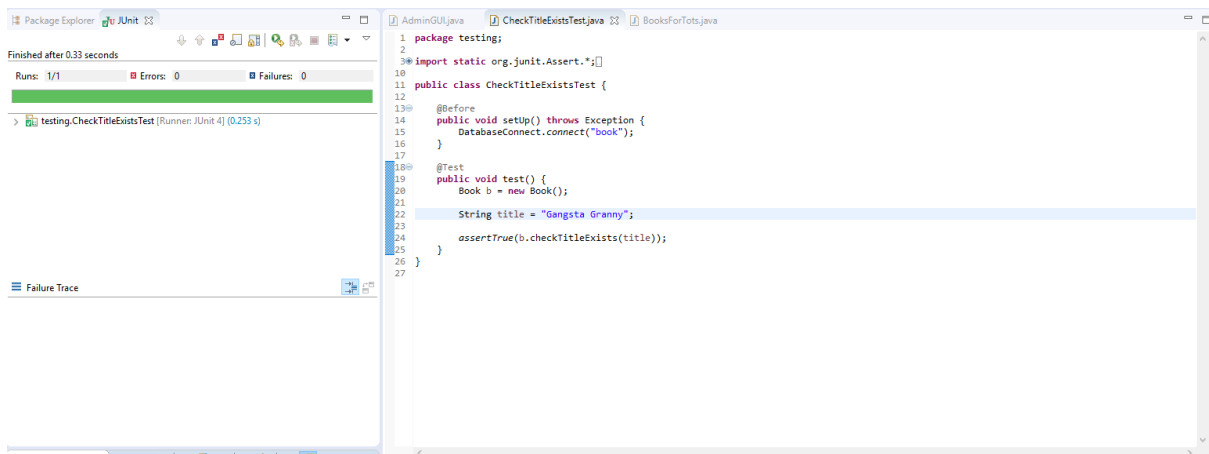
6	The username is test and the password is password	Login! Error	Pass
7	The username is mgreen and the password is password	Login! Error	Pass
8	The username is test and the password is testpass	Display main GUI	Pass

With the user graphical user interface, they are able to add books to the database. However, if the books title already exists, or the date format is incorrect, they will be told there is an error.

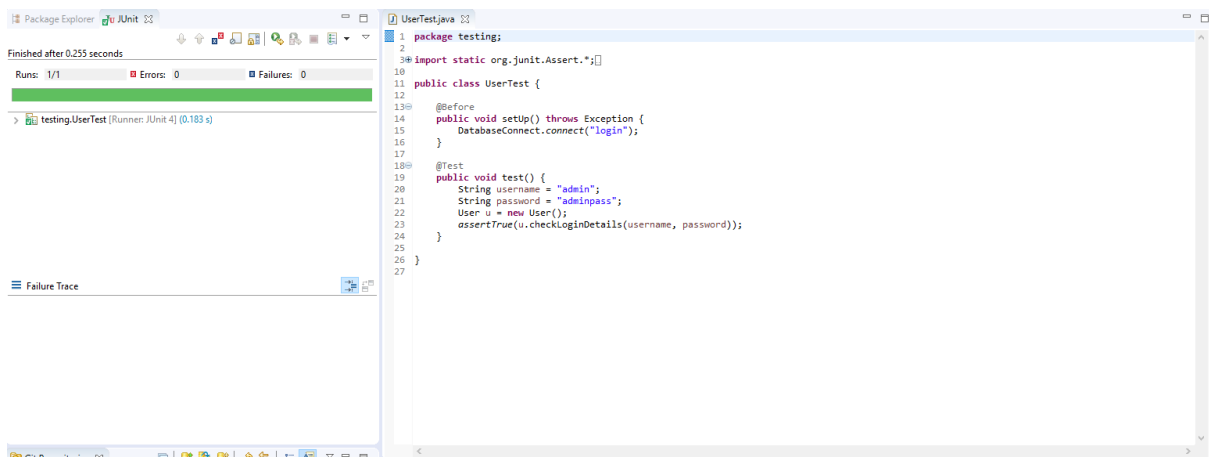
#	Input	Expected Result	Result
1	Book title already exists in the database	Error	Pass
2	Release date format is in dd/mm/yyyy	SQL Error	Pass
3	Release date format includes characters instead of numbers	SQL Error	Pass
4	Release date format includes a mixture of numbers and characters	SQL Error	Pass
5	Loan date format is in dd/mm/yyyy	SQL Error	Pass
6	Loan date format includes characters instead of numbers	SQL Error	Pass
7	Loan date format includes a mixture of numbers and characters	SQL Error	Pass

8	Return date format is in dd/mm/yyyy	SQL Error	Pass
9	Return date format includes characters instead of numbers	SQL Error	Pass
10	Return date format includes a mixture of numbers and characters	SQL Error	Pass
11	All fields meet the proper credentials	Book added	Pass

Junit was used to test adding a book with the same title. Below are screenshots of the results



Junit was used to test the admin username and password, below is a screenshot of the result

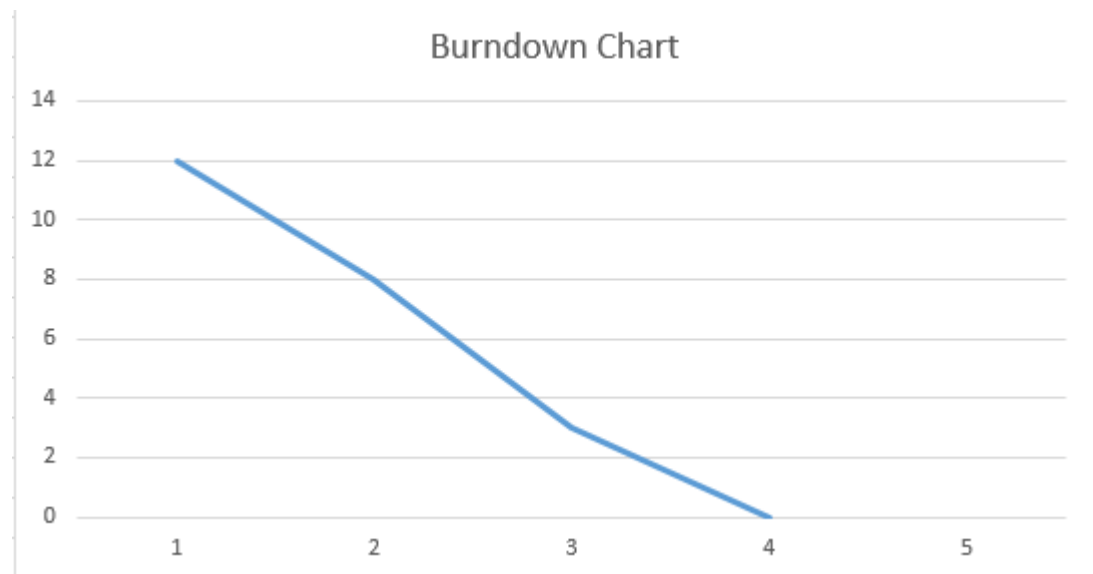


3.4 Sprint Review:

At the end of the final sprint, the entire program was finished. The user is able to add books to the database from the graphical user interface, and will not be able to add a book if a book title already exists or if any of the date formats are wrong. The user is now able to delete a book from the database. When the administrator logs into the system, they will now see their own dedicated GUI. This allows them to change the user's username and password if required. This will then update the database accordingly and the user will not be able to log in with their old username and password.

Product Backlog				
User Story / Requirement	Priority	Estimate	Status	Assigned to Sprint
Login GUI: Create the login GUI	High	1hr	Complete	No
Login GUI: User is able to log into the system	High	2hr	Complete	No
Main GUI: Create the main GUI	High	3hr	Complete	No
Main GUI: Show the database in text fields	Medium	2hr	Complete	No
Main GUI: add books from the GUI and update database	High	1hr	Complete	No
Main GUI: Exception handling	Medium	1hr	Complete	No
Main GUI: Exception handling for database entries	Medium	2hr	Complete	No
Login GUI: Exception handling	Medium	2hr	Complete	No
Database: Create the database that will be connected to GUI's	High	1hr	Complete	No
Database: Add values into the different tables	Medium	1hr	Complete	No
Admin GUI: Create the GUI that the admin will see	Medium	2hr	Complete	No
Admin GUI: Allow admin to change usernames and passwords	Medium	3hr	Complete	No

Backlog Item	Tasks	Responsible	Status	Session 1	Session 2	Session 3	Session 4	Sprint Review
Login GUI	Exception handling and testing	Nikos	In Progress	1	0	0	0	Accepted
Main GUI	Exception handling and testing	Eoghan	In Progress	1	0	0	0	Accepted
	Allow user to add books	Eoghan	In Progress	2	1	0	0	Accepted
	Allow user to delete books	Eoghan	In Progress	2	1	0	0	Accepted
Admin GUI	Create Admin GUI	Joseph	In Progress	2	1	0	0	Accepted
	Exception handling and testing	Joseph	In Progress	1	2	1	0	Accepted
	Allow admin to change user details	Joseph	In Progress	3	3	2	0	Accepted



Appendix A – Project Diary

9th of February 2017:

The group was given the initial version of the requirements document. Joseph and Eoghan reviewed the sample requirements document that was uploaded by the lecturer on moodle. As a team, we collaborated on the layout of the requirements document and we assigned a different task to each individual based on their strengths.

16th of February 2017:

On that date, the team gathered to discuss about the scope of the project and started working on it. There were few difficulties at the beginning on what was required for the scope. Nikos on his part researched online for the scope of a library system.

(http://www.academia.edu/10360207/The_Scope_Due_to_library_management_system)

As a team, we began to work on the scope of the requirements document, which was then completed by Eoghan.

We then continued with the walkthrough scenarios and as a team, we wrote the user part of the document. Joseph volunteered to write the admin part of the walkthrough scenarios. In addition to this, we started as a team working on the system requirements.

20th of February 2017:

Joseph and Eoghan worked on the user functional requirements of our library system. Josep was assigned with the task of finishing writing the user functional requirements and then write the admin part of the functional requirements.

Eoghan created the two sequence diagrams (User & Admin), a class diagram and a use case diagram. He used Violet UML Editor to create the diagrams.

23rd of February 2017:

Nikos added the diagrams created by Eoghan to the requirements document. Joseph and Nikos began to work on the system functional requirements. The user graphic interface design was done by Niko and the Technical Requirements and Feasibility was done by Joseph.

24th of February 2017:

Joseph added to the system functional requirements, wrote the conclusion and the non-functional requirements. Nikos did the table of contents for the requirements document. Eoghan and Niko were assigned to keep a diary of the meetings that the team had for the requirements document.

2nd of March 2017:

On the second of March, the group assigned tasks for the first project Sprint. Eoghan was assigned to creating the main graphical user interface, Nikos was tasked with creating the login graphical user interface and Joseph was assigned to work on the database that the system will use.

9th of March 2017:

The group met outside of college to continue working on the system. Eoghan and Joseph worked on the layout and design of the main graphical user interface, adding various text fields, buttons, labels and menu items, while Nikos continued to work on the login graphical user interface. Eoghan connected the main GUI to the database.

16th of March 2017:

Nikos finished the design of the login GUI, while Eoghan finished the coding for displaying the database in the text fields. Joseph began work on designing the graphical user interface for the administrator for Sprint 1.

23rd of March 2017:

Nikos connected the login GUI to the systems database. Eoghan created the sequence and class diagrams required for the project workbook while Joseph worked on the rest of the project workbook. The team also met for their first Sprint review with the lecturer and discussed what went wrong and what was working with the system overall.

30th of March 2017:

Beginning of the second and final sprint. Joseph began to work on the design of the admin GUI.

Eoghan began to work on the add book function to the main GUI. Nikos began the error handling and exception phase of the login GUI.

6th of April 2017:

Eoghan continued to work on the add book function with help from Nikos. Joseph finished the admin GUI design and began working on allowing the admin to change usernames and passwords.

13th of April 2017:

Eoghan and Nikos finished getting the add book feature to work with the database and began helping Joseph allow the admin to change usernames and passwords. Eoghan also worked on the delete book function of the main GUI.

20th of April 2017:

Changing username and password was now completed, as was deleting books from the database.

Testing the final product before the demonstration began.