Kingdom of Saudi Arabia
Majmaah University
Ministry of Higher Education
College of Science in Zolfi
Dept. of Computer Science

My books

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Graduation project

Submitted in partial fulfilment of the requirements
for the award of
Bachelor degree
of the
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Supervisor: T.Chafika Laabidi Ouni

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Dept. of Computer Science
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Abstract

"My Books" is a mobile based application. It is will be designed to provide its services through simple and easy interface that allows its users to interact with the application as easily and comfortably as feasible in such a way that reduces the time and efforts.
My book application is where users can find used books and allows users to check out various books that their owners wish to sell through their offer, the application consists of list of books displayed in various categories

Acknowledgement

I would like to thank my supervisor (T.Chafika Laabidi Ouni) who gave invaluable assistance, advice, continuously guided us and support to help us along way.

And last but not least, I would send warmest words of thanks and appreciation to my university for helping me to achieve my dream. Thank you so much for all, and ultimately, I hope that I will be exactly as they thought about me.

MAJMAAH UNIVERSITY,
COLLEGE OF SCIENCE AL ZULFI,
DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION

(CERTIFICATE BY ASMA)

This is to certify that the project titled **"MY BOOKS"** submitted by me (**Asma Abdullah Almutairi**, **351204627**) under the supervision of **T.Chafika Laabidi Ouni** for award of Bachelor degree of the Majmaah University carried out during the Semester 1, 2018-19 embodies my original work.

Signature in full: ----------

Name in block letters: ASMA ABDULLAH ALMUTAIRI

Student ID:351204627

Date

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1. Introduction

1.1. Overview

The current trend in our life is to automate every possible aspect of our life, as the great benefits of doing so in compared with the classical manuals techniques, evolution of technology has positively impacted everyone's life, we decide in this semester to work over one of important automated application "My Books" is a mobile based application. It is will be designed to provide its services through simple and easy interface that allows its users to interact with the application as easily and comfortably as feasible in such a way that reduces the time and efforts. My Books application will let users quickly and easily search, browse, get book details, and buy many of used books to saving money rather than buying new books with high prices.

1.1.1. Abstract system description

My book application is where users can find used books and allows users to check out various books that their owners wish to sell through their offer, the application consists of list of books displayed in various categories. The user may browse through these books as per categories, If the user likes a book he/ she can add it and wait for users to agreement and inform user about date delivery. The User can view the books based on their names or price in increasing or decreasing order.

The Users must first register into the system and then is eligible to check out the books and upload their used books that willing to sell.

1.2.Problem definition

The problem that the application will tackle, that many of students in university buy the necessary books for courses and use it, and after completion of them become of little importance, with the presence of many students at the same time who are looking for such books that may be prices are not suitable for them but they need it, at a lower price, Our application will overcome this problem and provide books used to sell to those who need it.

1.2.1. Goals

The application aims to create a database of used books that allows easy access and search by users .The Goals of my book application is to create mobile application that concerned to sell used books not needed to facilitate and reduce the cost to students who need books and encouraging book circulation among individuals and help them find books at low prices.

1.2.2. Literature review

The Figure 1.1 shown the main windows for Mstaml application

Figure 1-4Mstaml application

Mstaml App: It is an application to sell used items in all kinds it Showing Price for item , it has easy communication and Support Arabic language but sometimes There is no accuracy in photography and the interfaces not user Friendly.

The Figure 1.2 shown the main windows for heraj application

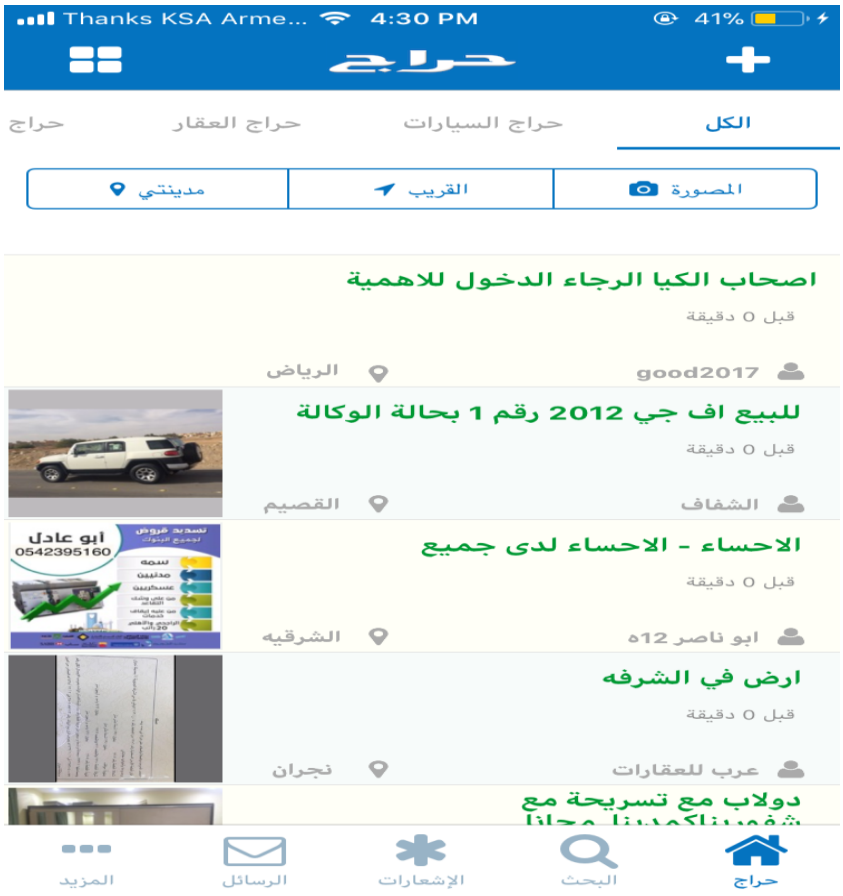

Figure 1-5 heraj application

Haraj App: The app is Specialized for sale of cars, appliances and real estate, the app is easy to communicate and has a friendly user interface and support Arabic language but in this app the price not available for all items and the images are not accuracy.

Table 1-6 Comparison between the previous works

	App Mstaml	Haraj App	My Books App
Dedicated to sell used book	×	×	✓
Photo Accuracy	×	×	✓
Arabic Interface	✓	✓	✓
Price Showing	✓	×	✓

1.2.3. Data collection

There are many ways for data collection that can be used to analysis, the most commonly used methods for that is the questionnaire.

The questionnaire: It is commonly used in the study of computer science because it is based on the identification of the user problems and desires that wan to achieve in the new systems.

Based on the above, we will collect data using (questionnaire method). A random sample of students was selected to identify their views on the project idea. The questionnaire is designed depending on the Google Forms. The questionnaire contains a set of questions that explain the advantages of the "My Book" application and the requirements of the users. Results are collected and analyzed so that we can clarify the views about these features and add features if they are presented from the project proposal. Using the above method, we collected the data using the first method (questionnaire method). A random sample was selected and a total number of the sample was (66). The questionnaire was distributed through Google Drive within the Kingdom of Saudi Arabia. The following figure shows a sample questionnaire that has been designed based on the features to be added to my book application, and we will review the questions and answers as follows:

Are you having trouble with used book?

Do you suffer from high book prices?

Do you want to sell your used books?

Do you want to have an application for selling used and surplus book?

The results of the questionnaire

The results of the questionnaire, which included students of the Faculty of Education and Science in Zulfi, about the development of "My book" application, which included (66) people, most of them agree the idea of development an application as shown from the previous answers listed in the apendix , and after the trust in God we

will move on to the next step In the research that represents the basic of the project which establish project plan.

One of the most difficult that face me in this research is finding advantages and disadvantages. As these applications are similar in features, because they work in the same scope is the field of sale and purchase for customers.

Comparison between the previous works of this app and the current application:

1.2.4. Objectives

The objectives of this project are as follows:

- makes easy for both buyer and seller to make deals on Books.

- To implement an android mobile application to buy used books.

-Provide a database of used books and the ease of searching through them

- Increase book circulation among individuals in easy way

1.2.5. Critical success factors

The application will provide students and other users with their needs of books at a lower price

1.2.6. Organization chart and responsibilities

Figure 1-6 Organization chart and responsibilities

1.3. General rules (assumptions)

- The app users should know how to handle mobile applications
- **Non-Functional Requirement**

  Non-functional requirements or sometimes quality attributes Our application must be:

  Security: The application is secure because all data will be saved in secure database and no one can login to the system without having username and password.

  Usability: Our application is easy to use because it is consisting of easy screen connected in easy way to understand all services.

  Availability: Our application is available 24/7 that mean we need only connection to the internet to use it.

2.System analysis

2.1.Introduction

Analysis involves studying the system and seeing how they interact with the entities outside as well as inside the system [1]. It is the process of studying a procedure or business to identify its goals and purposes and create systems and procedures that will achieve them in an efficient way [2]. The system analysis process includes requirements analysis.

2.2.Description of Data Flow Diagram (DFD)

A data flow diagram (DFD) is traditional visual representation of the information flows within a system it illustrates how data is processed by a system in terms of inputs and outputs and focus is on the flow of information, where data comes from, where it goes and how it gets stored [3].

Data Flow Diagrams show the flow of data from external entities into the system, and from one process to another within the system.

2.2.1. Context Diagram

Context diagram is data flow diagram as the zero level. It is a simple representation of the whole system and all external entities that interact with a system. Figure 1 shows the context diagram of My Books application, showing the app in the middle, as well as the input and output of the system according to the user.

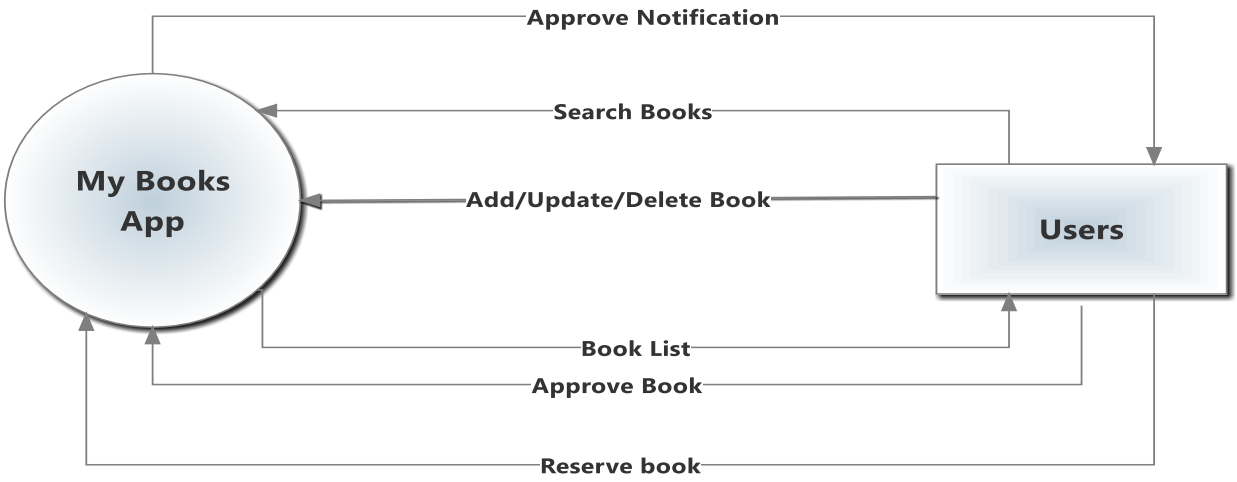

Figure 2-1 Context diagram

2.2.2. Overview diagram (level 0)

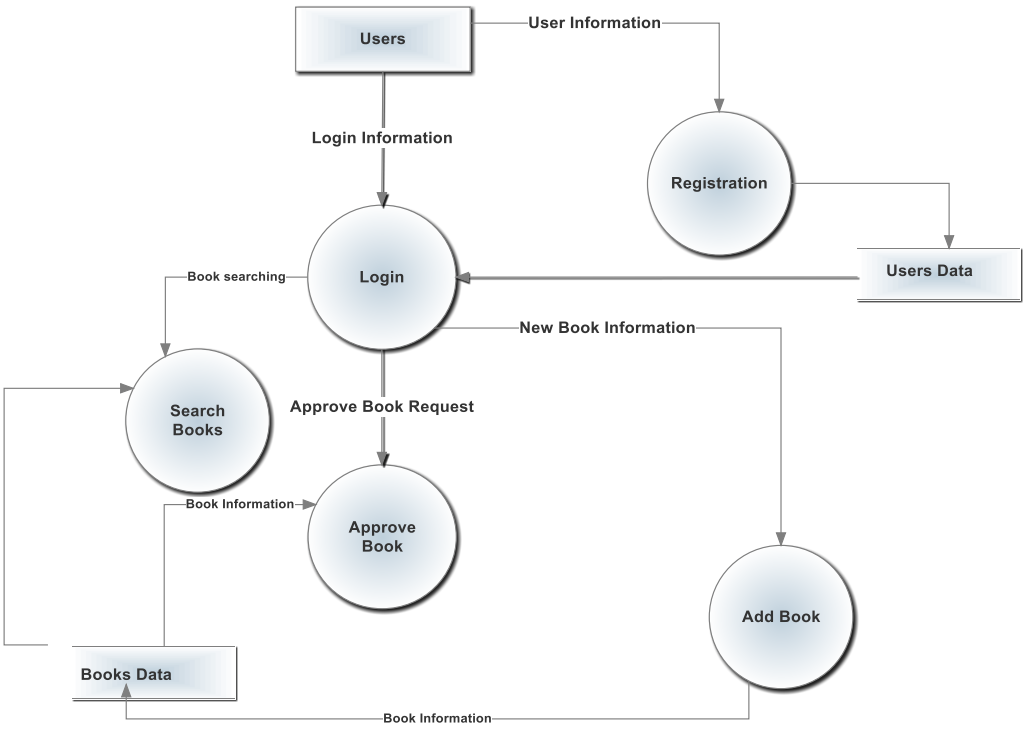

Figure 2-2 Overview diagram (level 0)

2.2.3. Detailed DFDs

Login/Register DFD

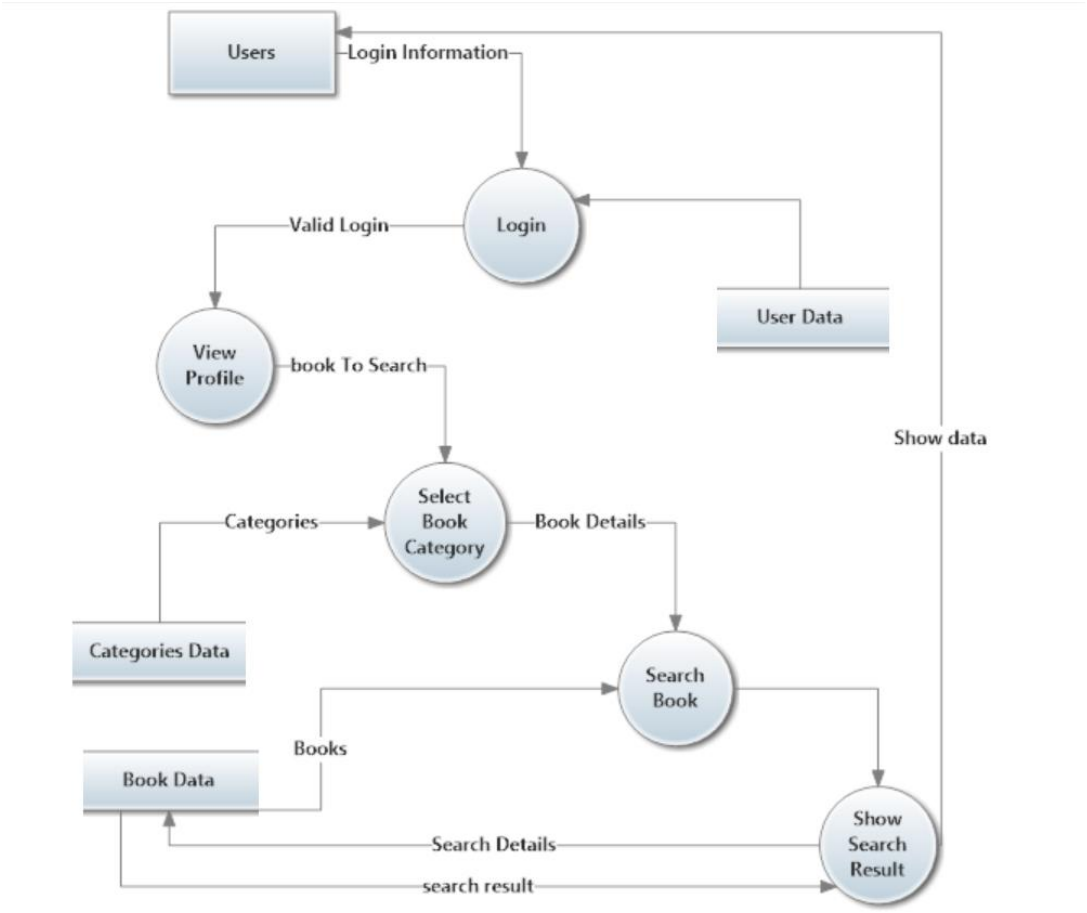

Figure 2-3 Detailed DFDs

2.3.Entity Relationship Diagram (ERD)

The Entity Relationship Model is one of the common methods of conceptualizing a relational database. It relies on dividing the system into entities Each entity has certain properties that describe and define it, the relationships between these entities must be defined and represented by a reference called the entity relationship [4].

2.3.1. Description of Entities

- Users entity is used to store app user's information.
- Books entity which represent books added to app.
- Book images entity which represent book images.
- Categories entity which represent Categories of book.

2.3.2. Description of relations

- Every user in the application can add one or more book to sell,
- The book that added may has one or many images.
- Every book added by user belong to one category
- The User can reserve one or more book.
- The Book reserved by many users.

2.3.3. Drawing ERD

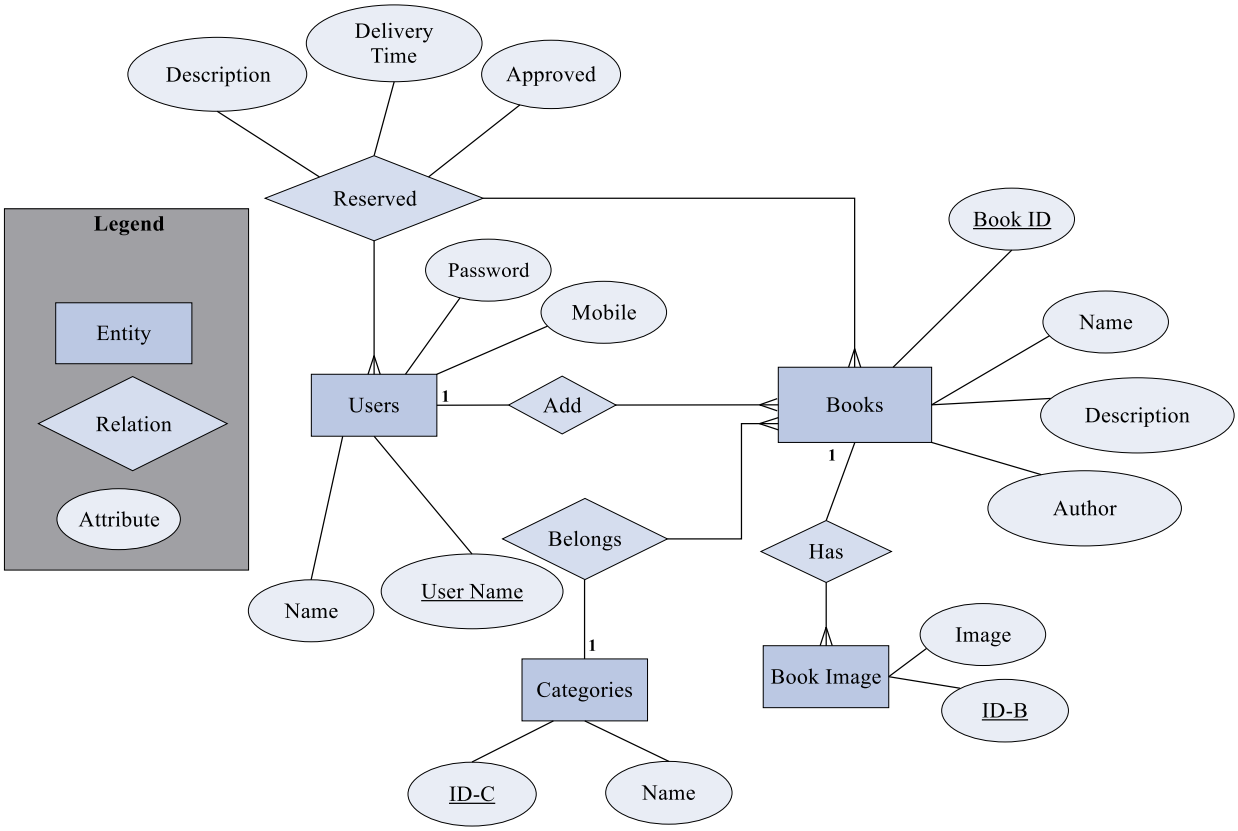

Figure 2-4 ERD

2.4.Structure Diagram

2.4.1.Class Diagram

a class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among objects.[6]

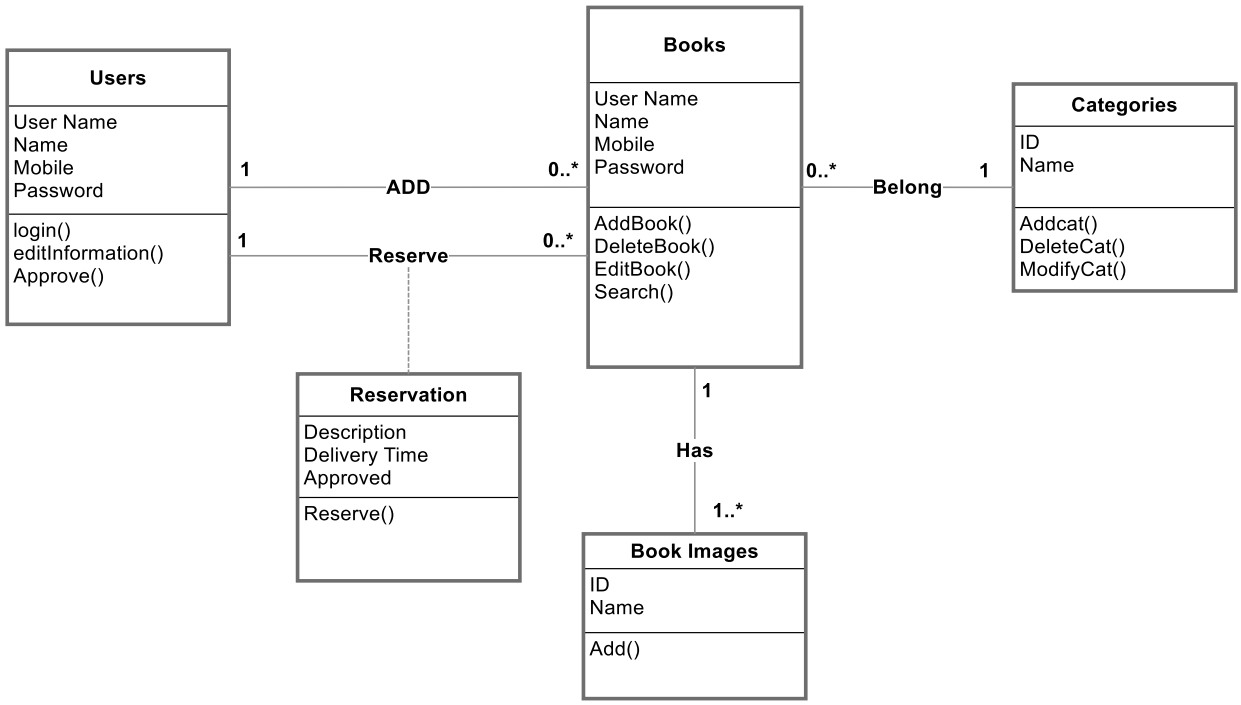

Figure 2-5 Class Diagram

2.5.Behavior diagram

2.5.1. use case Diagram

A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved. A use case diagram can identify the different types of users of a system and the different use cases and will often be accompanied by other types of diagrams as well[7].

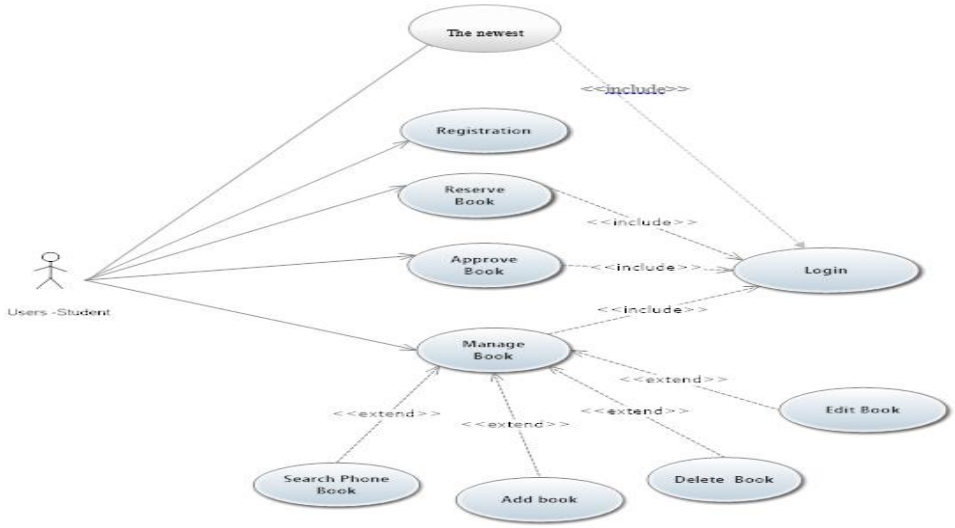

Figure 2-6 Use Case Diagram

2.5.2. Activity Diagram

Activity diagrams are graphical representations of workflows of stepwise activities and actions. with support for choice, iteration and concurrency. In the Unified Modeling Language, activity diagrams are intended to model both computational and organizational processes (i.e., workflows), as well as the data flows intersecting with the related activities[8].

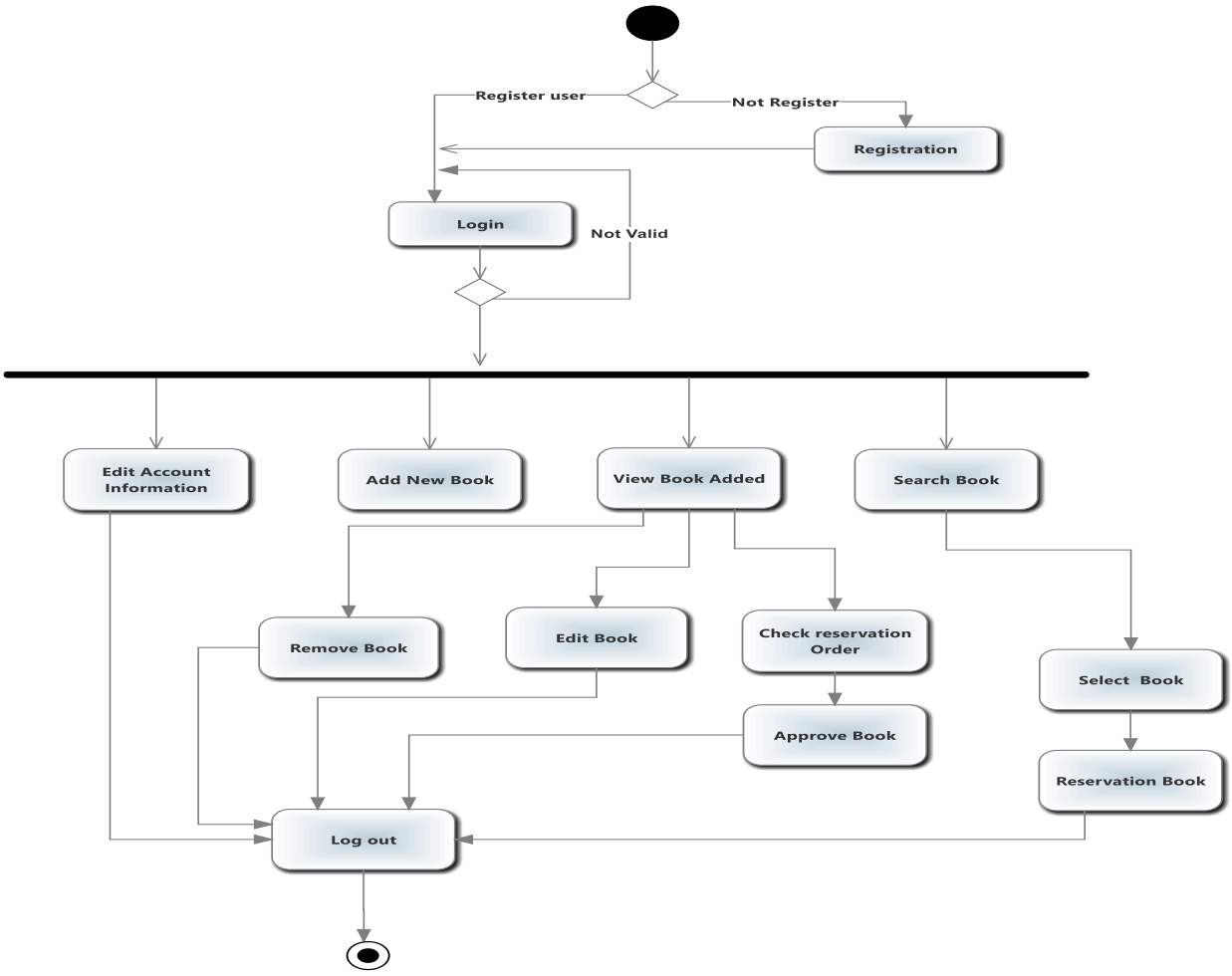

Figure 2-7 Activity Diagram

2.5.3. State Diagram

A state diagram is a type of diagram used in computer science and related fields to describe the behavior of systems. State diagrams require that the system described is composed of a finite number of states[9]

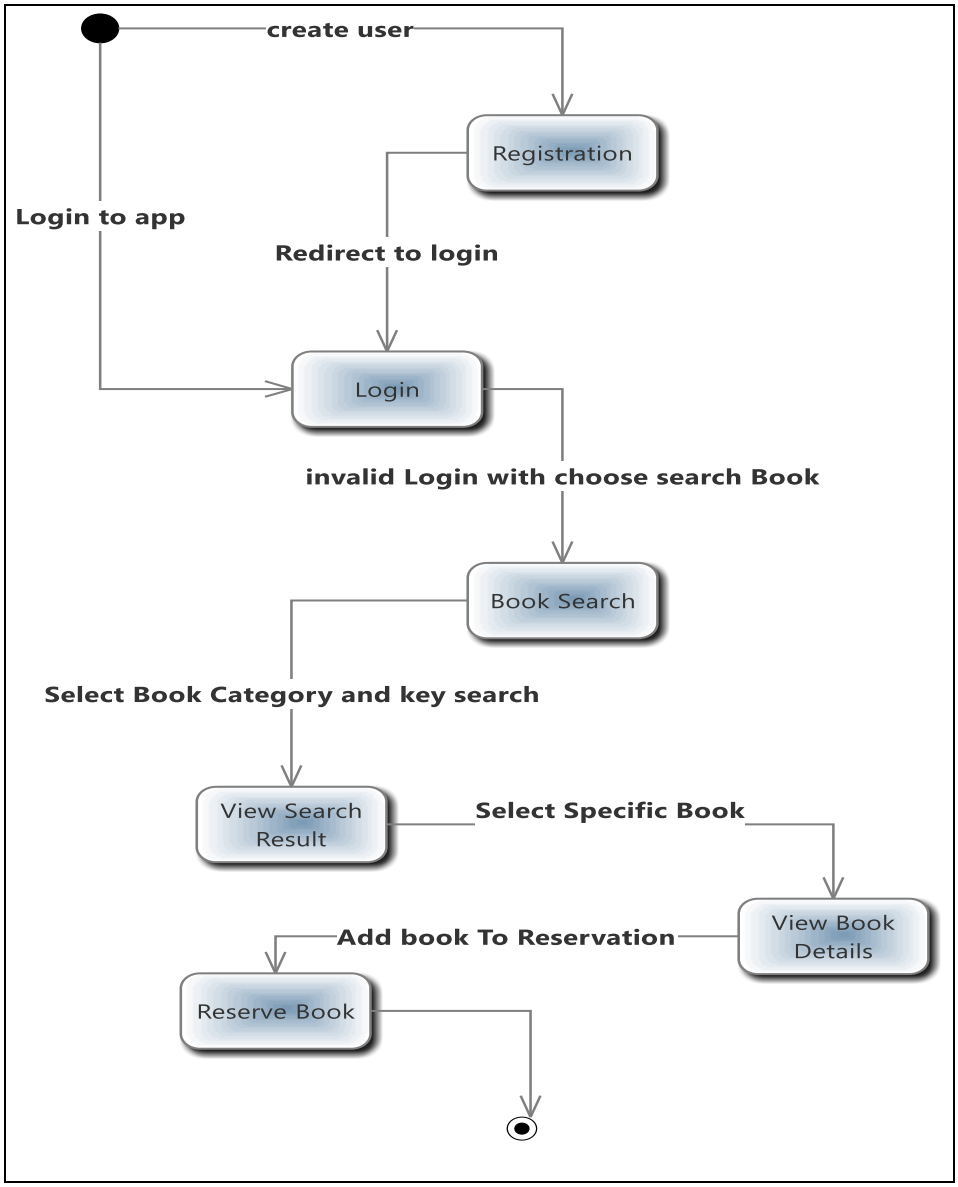

Figure 2-8 State Diagram

2.6.Interaction Diagram

2.6.1. Sequence Diagram

A sequence diagram is a form of interaction diagram which shows objects as lifelines running down the page, with their interactions over time represented as messages drawn as arrows from the source lifeline to the target lifeline. Sequence diagrams are good at showing which objects communicate with which other objects; and what messages trigger those communications. Sequence diagrams are not intended for showing complex procedural logic[10].

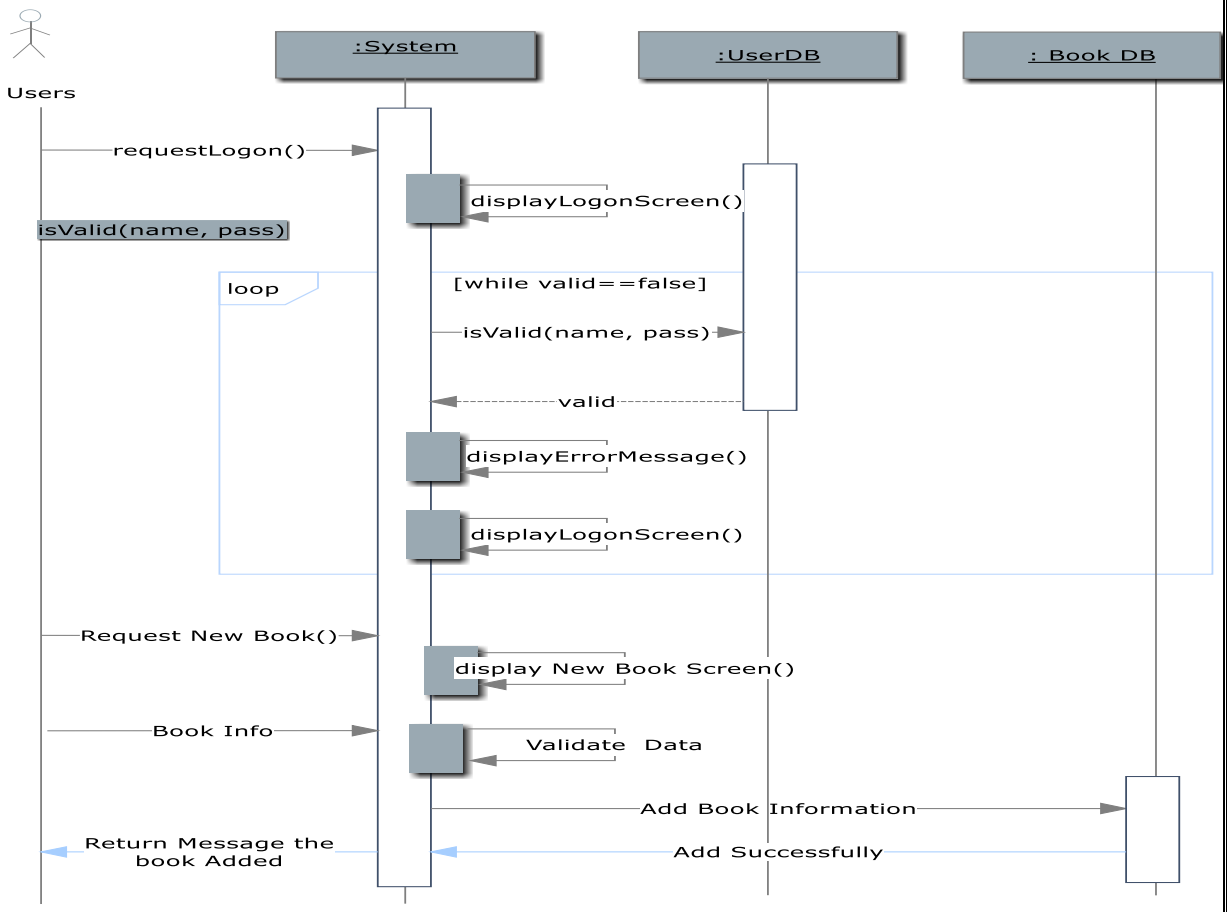

Figure 2-9 Sequence Diagram

3.System design

System design is an abstract representation of the system components and their relationships, which describe the aggregated functionality and performance of the system. It consists of design activities that produce system specifications satisfying the functional requirements that were developed in the system analysis process. System design specifies how the system will be accomplished.

3.1.Description of procedures and function

- **Registration**
    - If User has account will can login direct
    - If User does not have account must Registration in application.

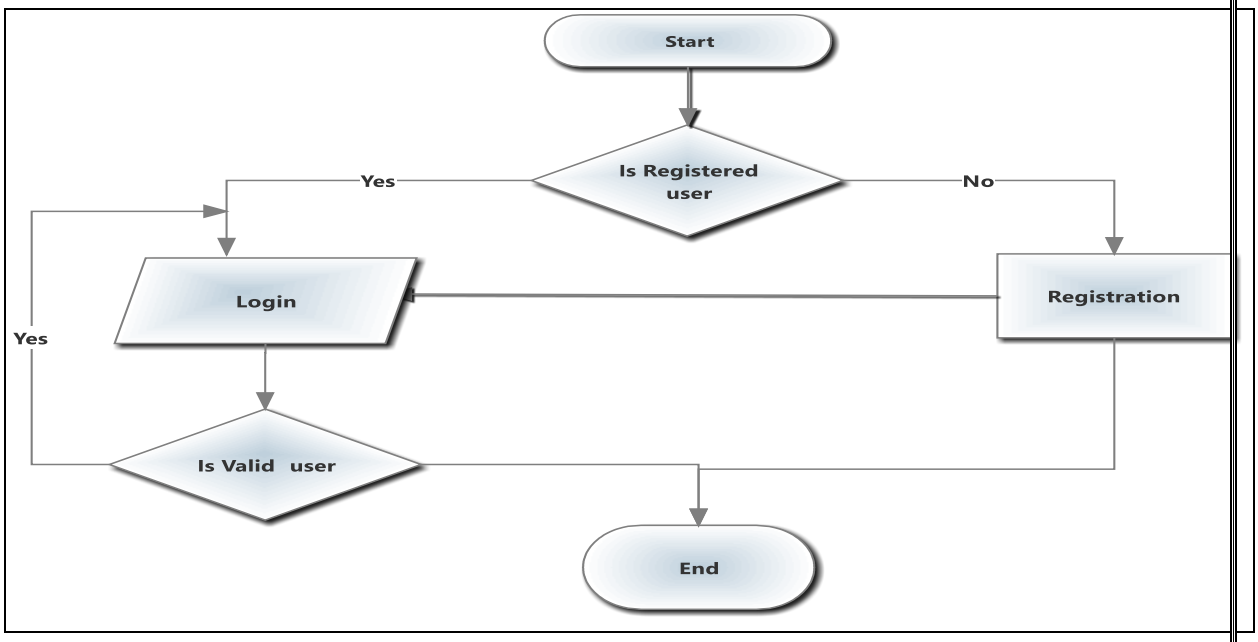

Figure 3-1 Registration Description

- **Add book**

  - The user should be login to the application by username and password
  - The application check if the credentials is valid or not
  - The user can add new book information.

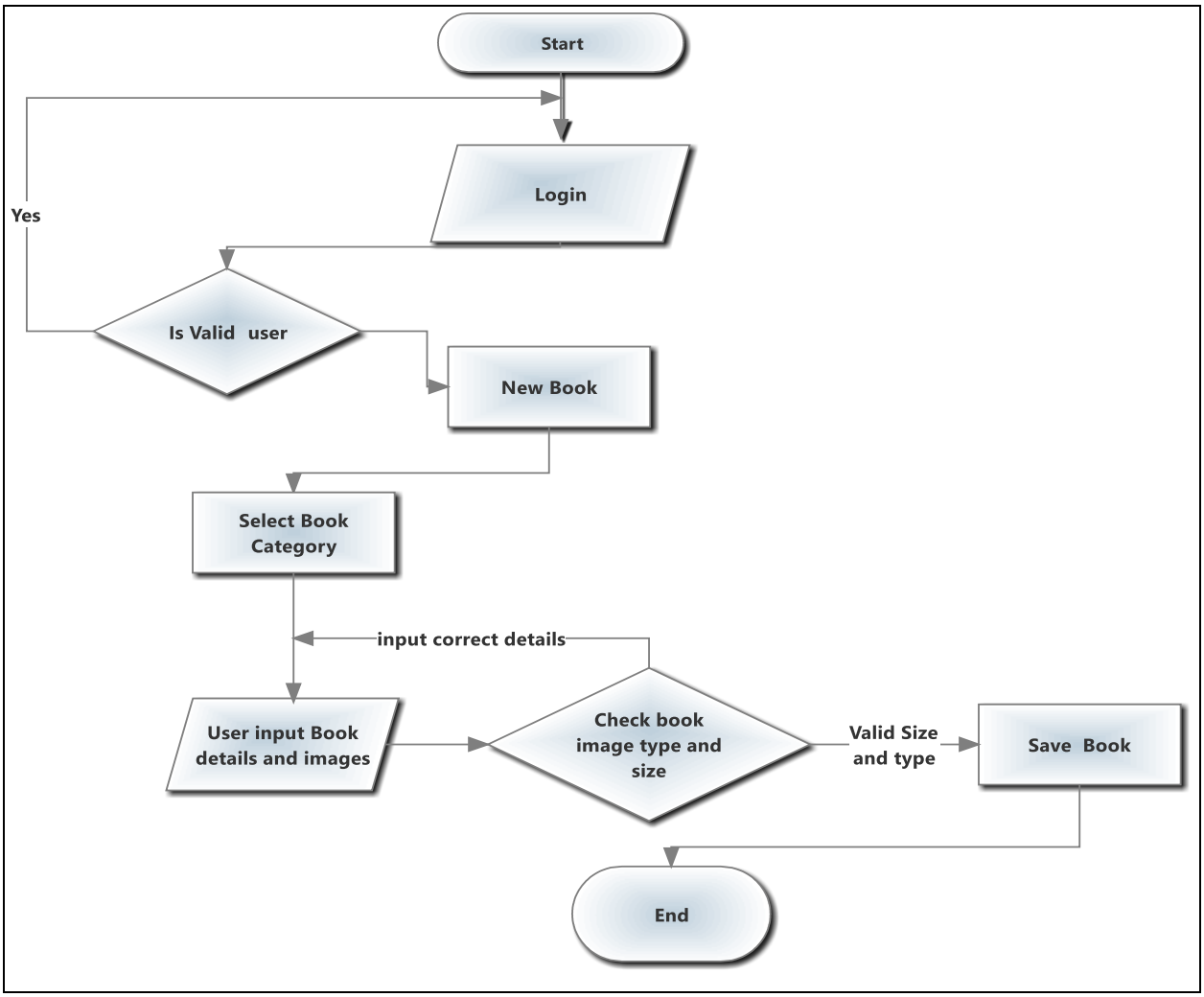

Figure 3-2Add Book Description

· Reserve book

- The user can make search on any information related to book
- The user can select any book and added to reservation.

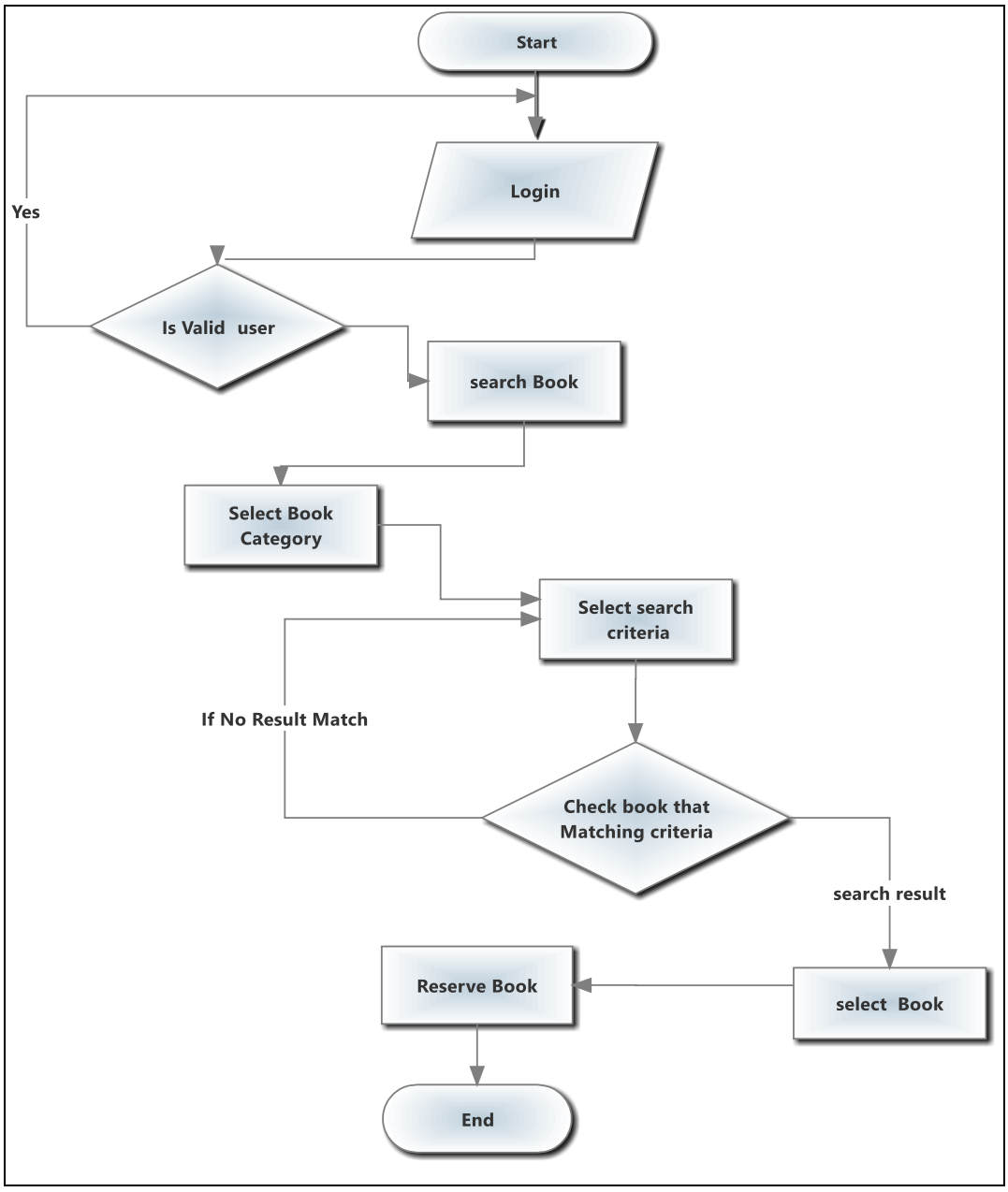

Figure 3-3 Reserve book Description

3.2.Relation database schema

3.2.1. Tables

Tables needed in the application are:

- Users
- Books
- Book images
- Categories
- Reservation

3.2.2. Attributes

Table 3-1 Users Table

Attribute	Data Type	Constraints
User Name	Varchar	Primary Key
Name	Varchar	
Mobile	Varchar	
Password	Varchar	

Table 3-2 Books Table

Attribute	Data Type	Constraints
Book ID	Integer	Primary Key
Book Name	Varchar	
Description	Varchar	
Author	Varchar	
Category ID	Integer	Foreign Key

Table 3-3 Book images Table

Attribute	Data Type	Constraints
ID	Integer	Primary Key
Book ID	Integer	Foreign Key
Image	Image	

Table 3-4 Categories Table

Attribute	Data Type	Constraints
ID	Integer	Primary Key
Name	Varchar	

Table 3-5 Reservation Table

Attribute	Data Type	Constraints
User Name, Book ID		Primary Key
User Name	Varchar	Foreign Key
Book ID	Integer	Foreign Key
Description	Varchar	
Delivery Time	Time	
Approved	Varchar	

3.2.3. Relations

- Every user can add one or more book to sell,
- The book has one or many images.
- Every book belongs to one category
- The User can reserve one or more book.
- The Book reserved by many users.

3.3.Hardware and software requirements

3.3.1. Software requirements

- **My SQL** → It is used to build the database and perform tasks. It is a relational database management system to store data and retrieve it beside other functions.

- **Android Studio** → It is a multi-language software development environment. It is focuses on building an open development platform comprised of extensible framework. It used for supporting programming languages such as Java Scheme which will be used in that application.

3.3.2. Hardware requirements

- Mobile device
- Personal computer

3.4.Screens

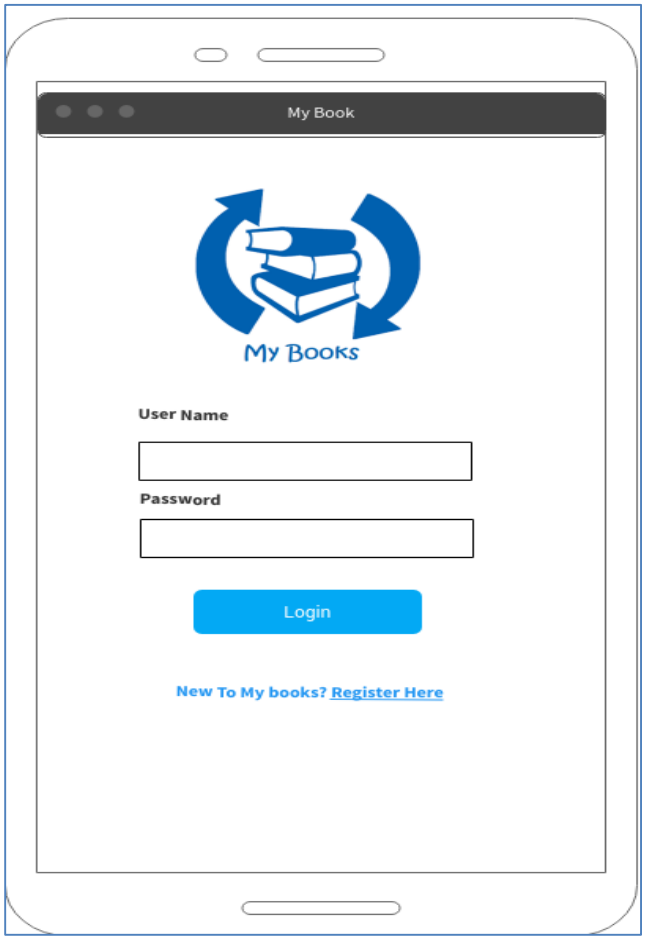

Figure 3-4 Login Screen

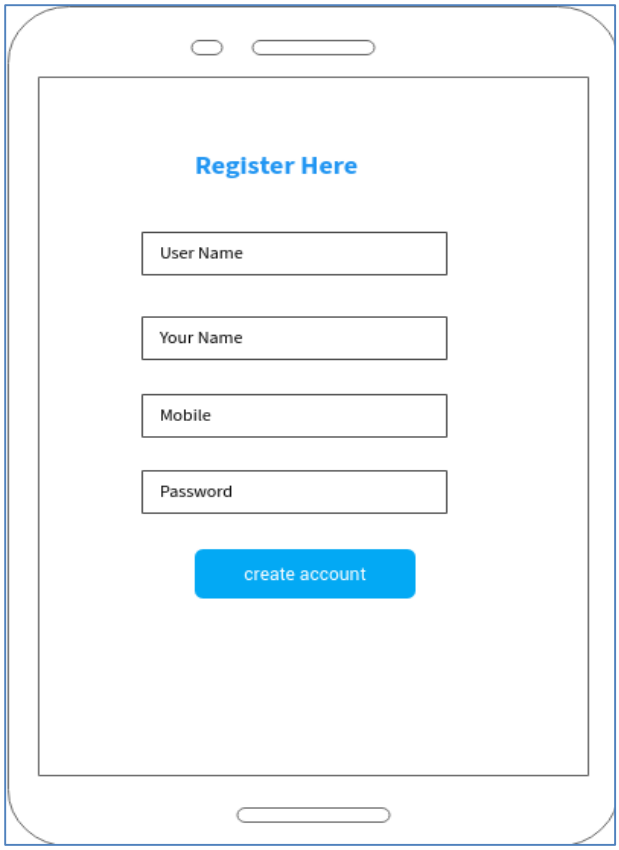

Figure 3-5 Registration Screen

Screen user

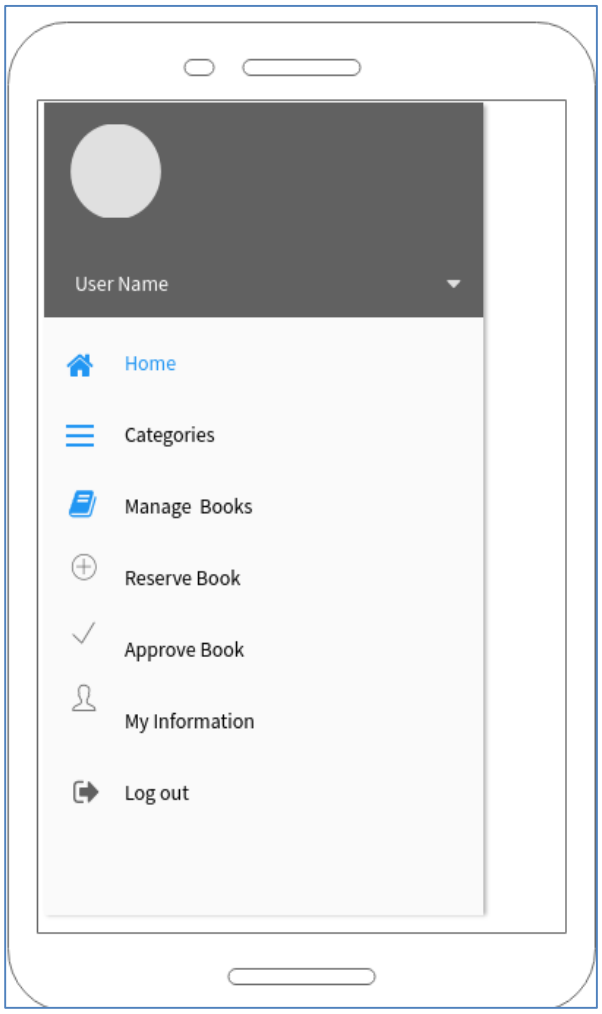

Figure 3-6 User Screen

Book category

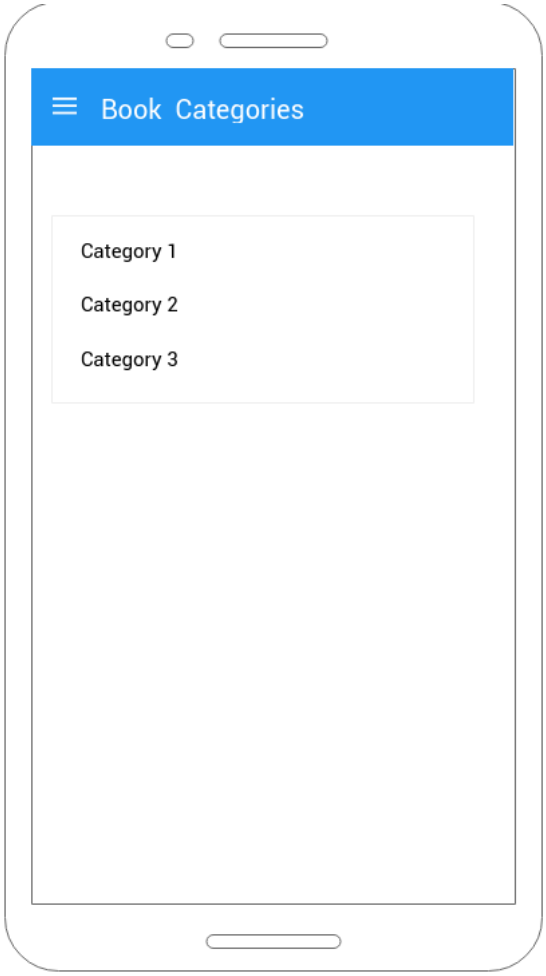

Figure 3-7 Book category Screen

I used https://mockflow.com/ for design[5]

4.Implementation and testing

4.1 introduction

A programming language implementation is a system for executing computer programs. In this project, we use Android studio as editor and MySQL as Database, and we have many layouts to display information and tables for save data.

4.2 Procedures

1. Database connection Code

```
package com.example.arwa.mybooks;
import java.sql.*;
public class DatabaseConn {

    Connection conn;
    String dbusername="mybooks_user";
    String dbpassword="12345";
    String
urlconn="jdbc:mysql://10.0.2.2:3306/mybookdb";


    public Connection open ()
    {
        try {

             conn =
DriverManager.getConnection(urlconn,dbusername,dbpas
sword);
            return conn;
        }

        catch (SQLException e)
        {
            e.printStackTrace();
            return null;

    }
```

2. Insert Book Code

```
if (check_is_empty())
{
   new Thread(new Runnable() {

      @Override
      public void run() {
         try {

            Class.forName("com.mysql.jdbc.Driver");
            dbconn = new DatabaseConn();
            dbconn.open();
            PreparedStatement sql_statment;
            sql_statment = dbconn.conn.prepareStatement("INSERT INTO
books(BookName,Author,Description,Price,CategoryID,UserName,created_date)
VALUES"+"(?,?,?,?,?,?,?)", Statement.RETURN_GENERATED_KEYS);
            sql_statment.setString(1, BookName.getText().toString());
            sql_statment.setString(2, Author.getText().toString());
            sql_statment.setString(3, Description.getText().toString());
            sql_statment.setDouble(4,
Double.valueOf(Price.getText().toString()).doubleValue());
            sql_statment.setInt(5, selected_cat);
            sql_statment.setString(6, UserPrefs.getString("User_UName_L", null));
            Calendar ca2 = Calendar.getInstance();
            Timestamp sqlDate2 = new Timestamp(ca2.getTime().getTime());
            sql_statment.setTimestamp(7, sqlDate2);
            int sql_result = sql_statment.executeUpdate( );
            ResultSet rs = sql_statment.getGeneratedKeys();


            if (sql_result>0)
            {
               if (rs.next()){
                  t=rs.getInt(1);
                  System.out.println(t);
          if(image1.getDrawable() != null){
            if(bt_image1!=null)
            {
               byte[] img1 = ByteImage(bt_image1);
               sql_statment = dbconn.conn.prepareStatement("INSERT INTO
bookimages(BookID,Image) VALUES"+"(?,?)");
               sql_statment.setInt(1,t);
               sql_statment.setBytes(2, img1);
               sql_statment.executeUpdate();
            }

          }
```

3. Change password Code

```
public void change_password() {
    set_error_null();
    new Thread(new Runnable() {

        @Override
        public void run() {
            try {

                Class.forName("com.mysql.jdbc.Driver");
                dbconn = new DatabaseConn();
                dbconn.open();
                PreparedStatement sql_statment;
                sql_statment = dbconn.conn.prepareStatement("update users set
password=? where userName=?");

                sql_statment.setString(1, password.getText().toString());
                sql_statment.setString(2, UserPrefs.getString("User_UName_L",
null));
                int sql_result = sql_statment.executeUpdate();

                if (sql_result>0)
                {

                    new Handler(Looper.getMainLooper()).post(new Runnable() {
                        @Override
                        public void run() {


                            Toast.makeText(getActivity().getApplicationContext(),
getString(R.string.update_confirm), Toast.LENGTH_LONG).show();
                            SharedPreferences.Editor editor = UserPrefs.edit();

editor.putString("User_Password_L",password.getText().toString());
                            editor.apply();

                        }});

                }

                sql_statment.close();
                dbconn.Close();
            }
            catch (Exception e)
            {
                System.out.println(e.getMessage());
```

```
            }
        }

    }).start();

}
```

4.3 Reports

1 Bookimage Table

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	**ID**	int(11)			No	*None*		AUTO_INCREMENT
2	**BookID**	int(11)			No	*None*		
3	**Image**	longblob			No	*None*		

Figure 4-1 bookimages Table

2- Books Table

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	**BookID**	int(11)			No	*None*		AUTO_INCREMENT
2	**BookName**	varchar(100)	latin1_swedish_ci		No	*None*		
3	**Description**	varchar(500)	latin1_swedish_ci		No	*None*		
4	**Author**	varchar(100)	latin1_swedish_ci		No	*None*		
5	**CategoryID**	int(11)			No	*None*		
6	**Price**	decimal(10,0)			No	*None*		
7	**UserName**	varchar(50)	latin1_swedish_ci		No	*None*		

Figure 4-2 books Table

3-Categories Table

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	**ID**	int(11)			No	*None*		AUTO_INCREMENT
2	**Name**	varchar(200)	latin1_swedish_ci		No	*None*		

Check all *With selected:* Browse Change Drop Primary Unique

Figure 4-3 categorise Table

4-Reservation Table

	#	Name	Type	Collation	Attributes	Null	Default	Comments
☐	1	**UserName** 🔑	varchar(50)	latin1_swedish_ci		No	*None*	
☐	2	**BookID** 🔑	int(11)			No	*None*	
☐	3	**Description**	varchar(300)	latin1_swedish_ci		No	*None*	
☐	4	**DeliveryTime**	datetime			No	*None*	
☐	5	**Approved**	varchar(10)	latin1_swedish_ci		No	*None*	

Figure 4-4 reservation Table

5-Users Table

	#	Name	Type	Collation	Attributes	Null	Default	Comments
☐	1	**UserName** 🔑	varchar(50)	latin1_swedish_ci		No	*None*	
☐	2	**Name**	varchar(200)	latin1_swedish_ci		No	*None*	
☐	3	**Mobile**	varchar(20)	latin1_swedish_ci		No	*None*	
☐	4	**Password**	int(50)			No	*None*	

Figure 4-5 users Table

4.4Layouts

1-Login Interface:

This interface enable the user to make logging into the application by using username and password.

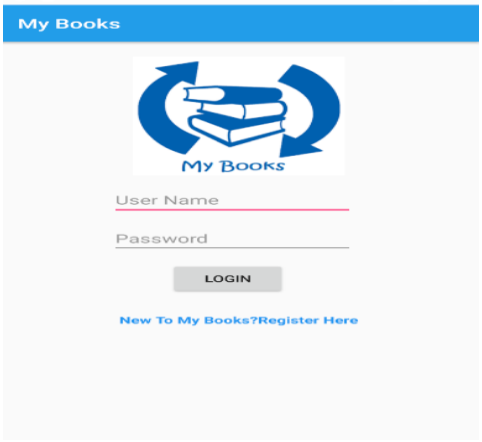

Figure 4-6 Login Screen

2-Registration Interface:

This interface enable the new user to make an account by making registration in the application by entering the special information about the user.

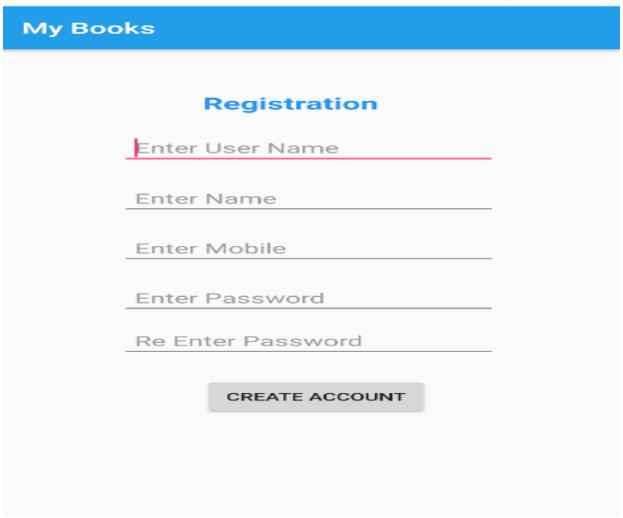

Figure 4-7 Registration Screen

3-Home page for user

This interface is presenting all available books for the user and we can say that it is the home page.

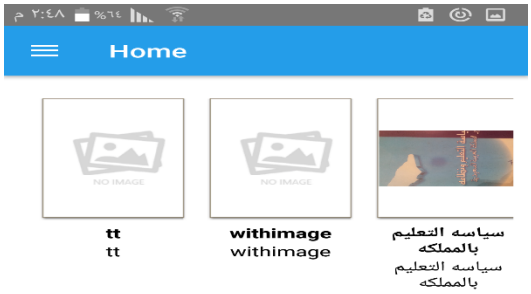

Figure 4-8 Home page for user Screen

4-Menu for user:

This interface is the control panel for the user that he/she can do all operation through this interface.

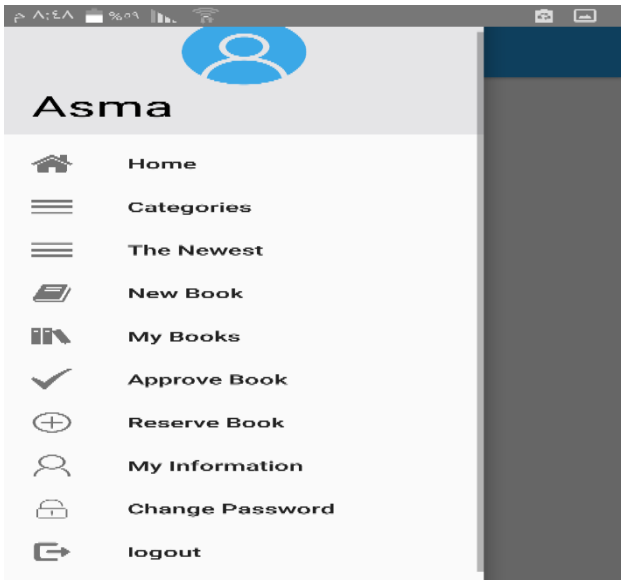

Figure 4-9 Menu for user Screen

5-Book category

This interface is for exploring all categories about books in the application.

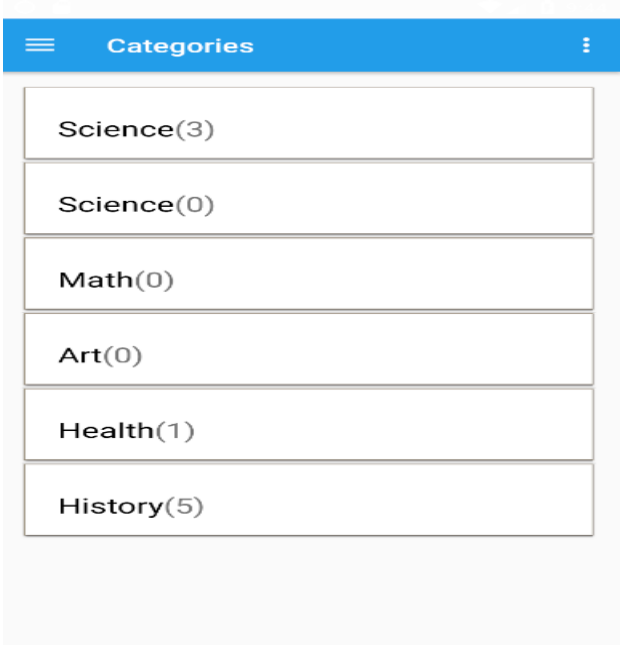

Figure 4-10 Book category Screen

6-Book in category:

This interface explores all books in the specified category.

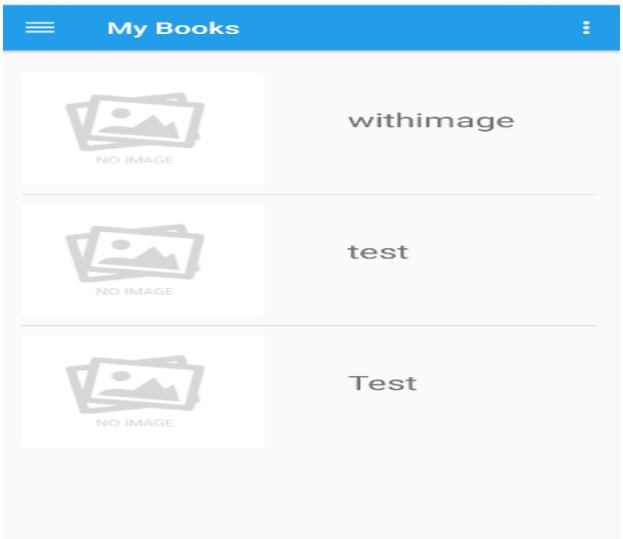

Figure 4-11 Book in category Screen

7-Reserve book

From this screen the user can reserve book

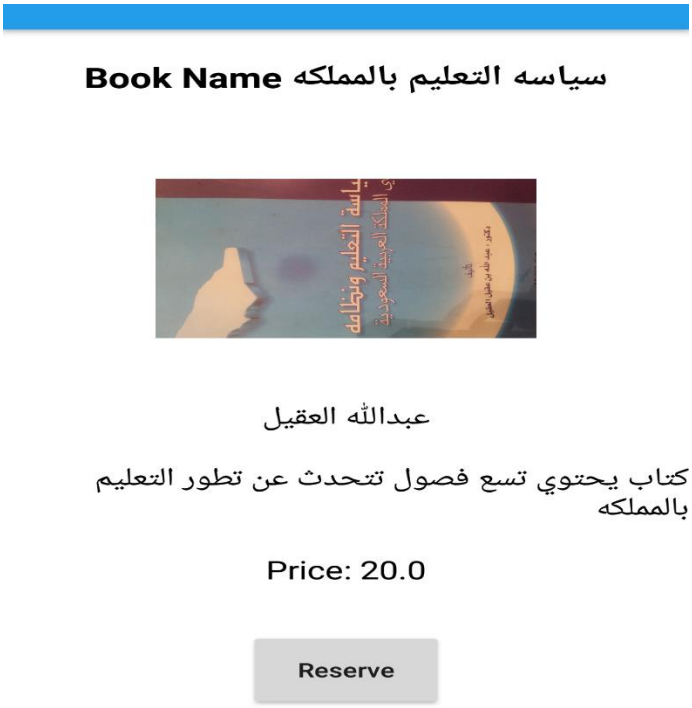

Figure 4-12 Reserve book Screen

8-Add new book

This interface is using for adding new book into specify category.

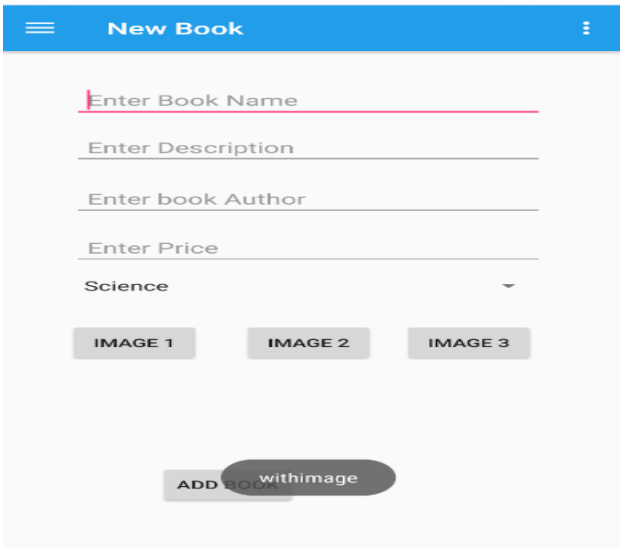

Figure 4-13 Add new bookScreen

9-Show my book

This interface is using for showing the user all books.

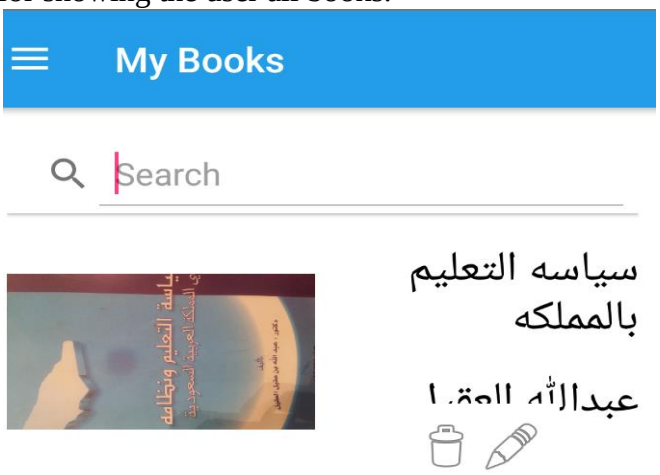

Figure 4-14 Show my book Screen

10-Approved book

Use this interface to book books There are two options for approval or rejection if they agree to an option Displays the delivery details screen from the date of delivery, time, and mobile phone number after pressing save option

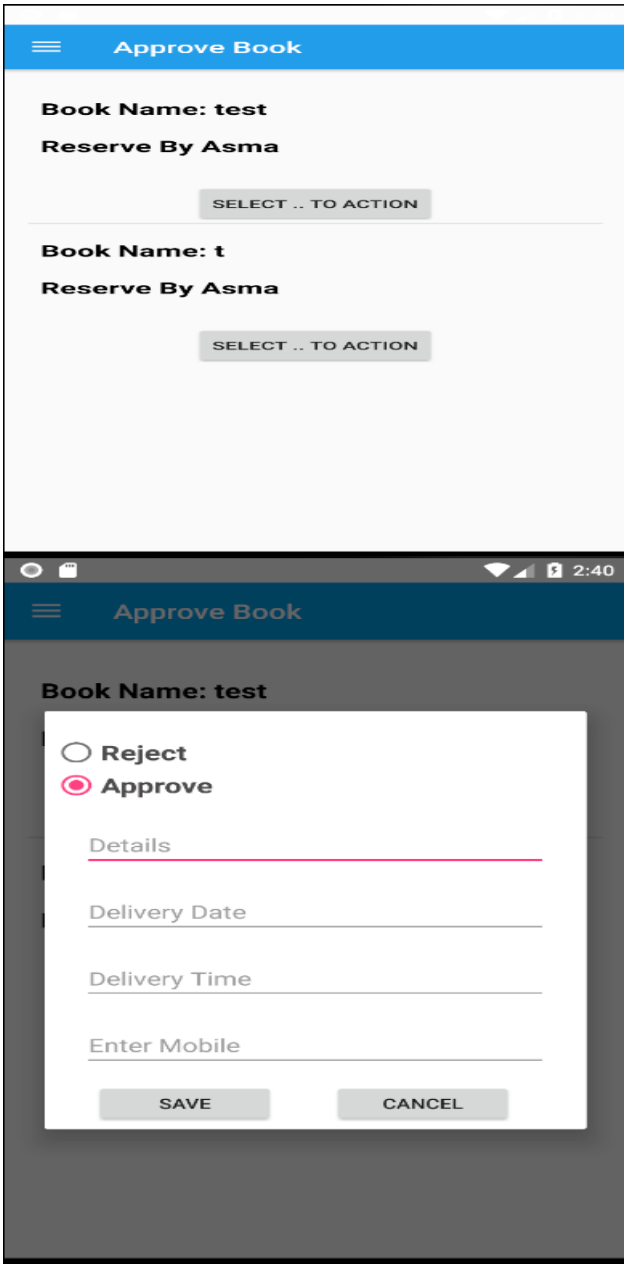

Figure 4-15 Approved book Screen

11-Show my information

This interface is for showing the user the special personal information.

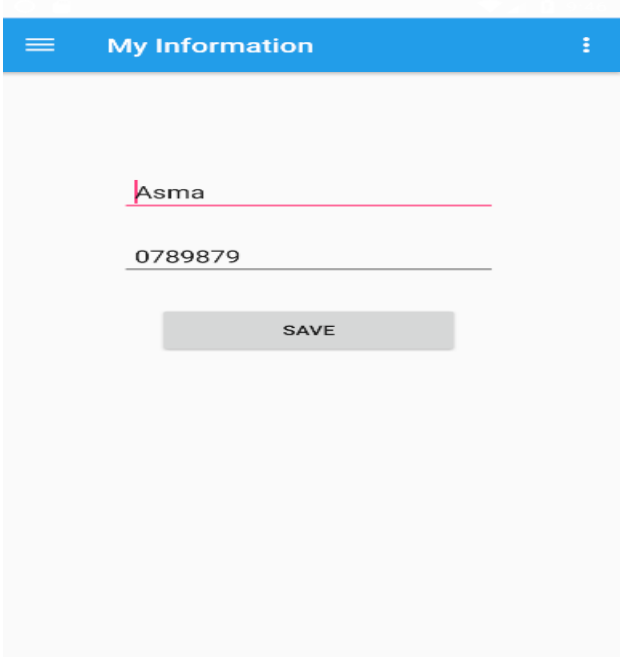

Figure 4-16 Show my information Screen

12-Change password

This interface is for changing the password for the user to save the account.

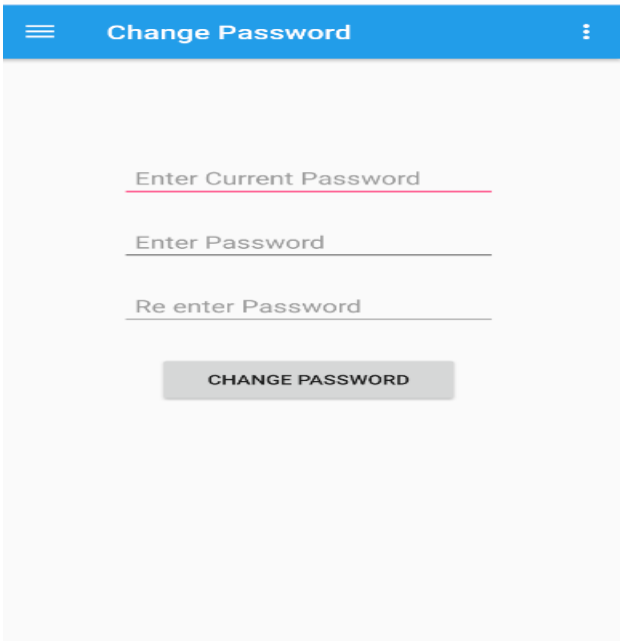

Figure 4-17 Change password Screen

4.5 Reports Layouts

1-Login Interface:

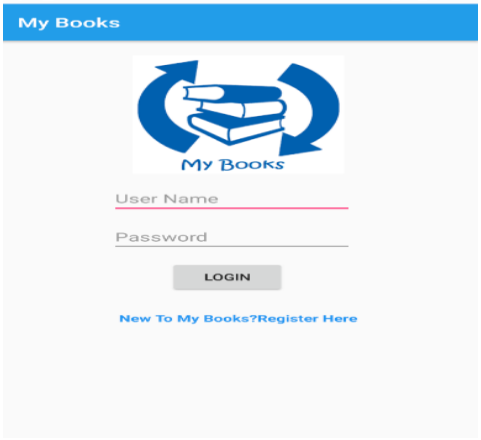

Figure 4-18 Login screen

This interface enable the user to make logging into the application by using username and password.

2-Registration Interface:

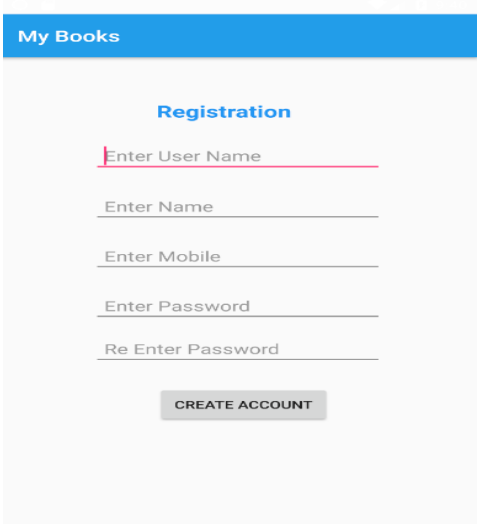

Figure 4-19 Registration screen

This interface enable the new user to make an account by making registration in the application

by entering the special information about the user.

3-Home page for user

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Figure 4-20 Home page screen

This interface is presenting all available books for the user and we can say that it is the home page.

4-Menu for user:

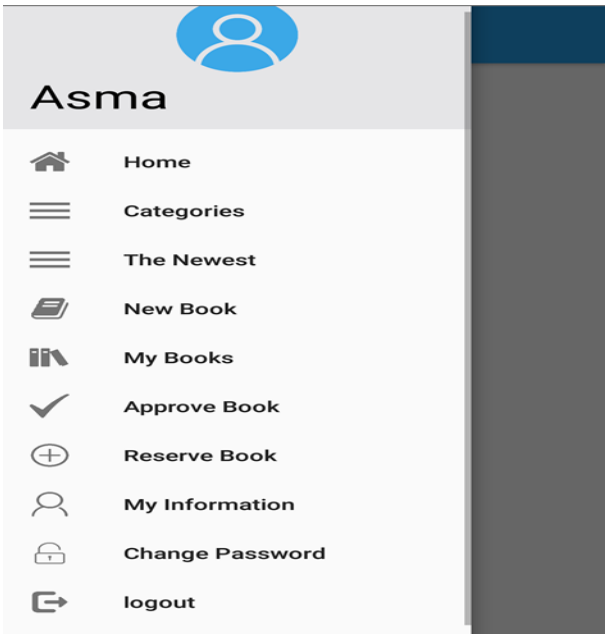


Figure 4-21Menu for user screen

This interface is the control panel for the user that he/she can do all operation through this interface

5-Change password

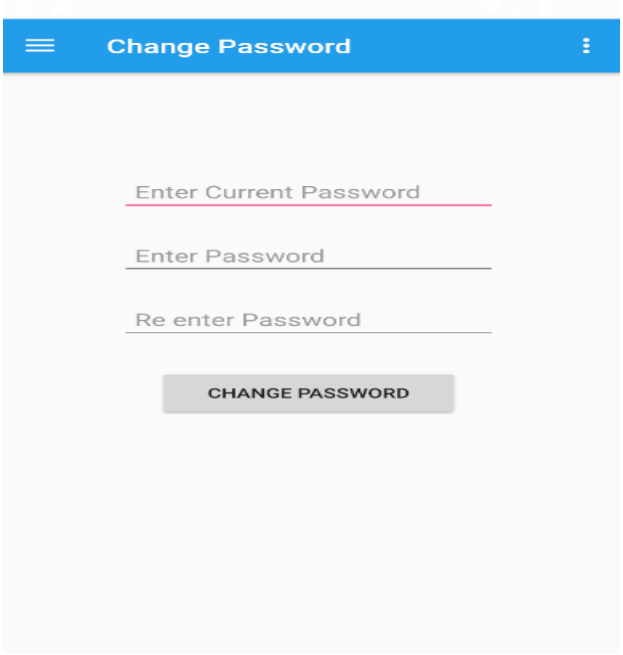


Figure 4-22 Change password Screen

This interface is for changing the password for the user to save the account.

6-Approved book Screen

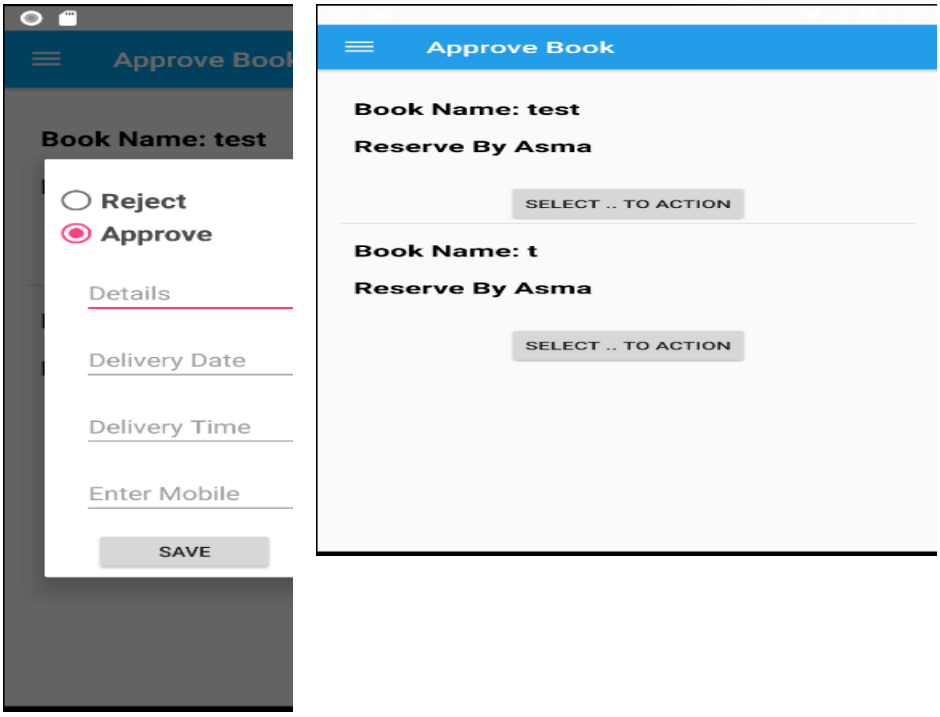


Figure 4-23 Approed book screen

Use this interface to book books There are two options for approval or rejection if they agree to an option Displays the delivery details screen from the date of delivery, time, and mobile phone number after pressing save option

5.Conclusion and Feature Work

"My Books" is a mobile based application where everyone can register in application and can view the books based on their names or price.

My books application is providing a database of books used, so that they are available to all and enable them to search through several criteria to reach their need of books at a lower cost.,After finishing of constructing this application which involve much used books in multiple categories we are working to upgrade the application in future to new books also, in addition to add new ideas of new items to sell them through the application related to books such as DVDs or e-books.

6.References

[1] https://en.wikipedia.org/wiki/System

[2] https://en.wikipedia.org/wiki/Systems_analysis

[3] https://www.visual-paradigm.com/tutorials/data-flow-diagram-dfd.jsp

[4] https://www.lucidchart.com/pages/er-diagrams

[5] I used https://mockflow.com/ for design

[6] https://en.wikipedia.org/wiki/Class_diagram

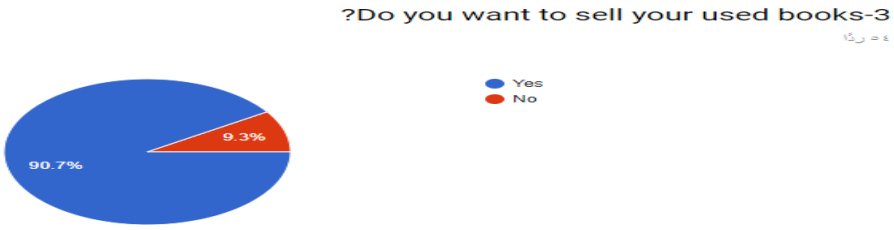
[7] https://en.wikipedia.org/wiki/Use_case_diagram

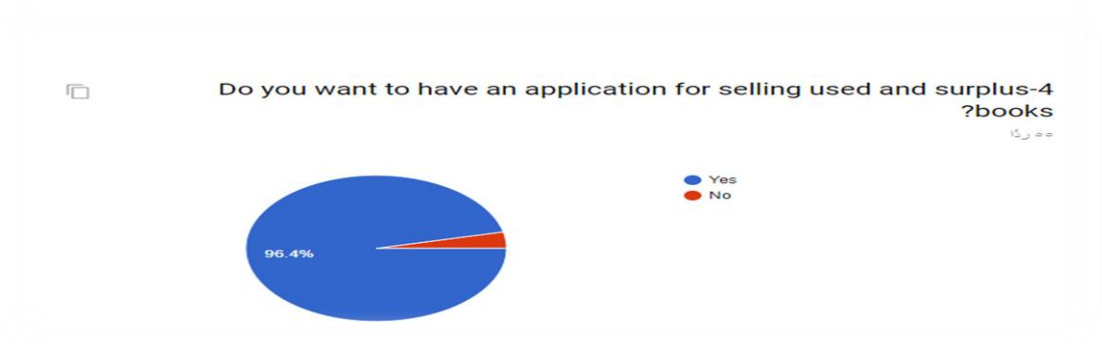
[8] https://en.wikipedia.org/wiki/Activity_diagram

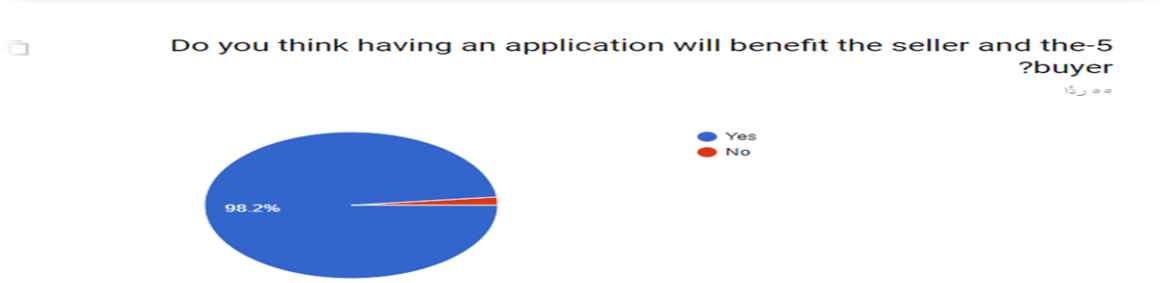
[9] https://en.wikipedia.org/wiki/State_diagram

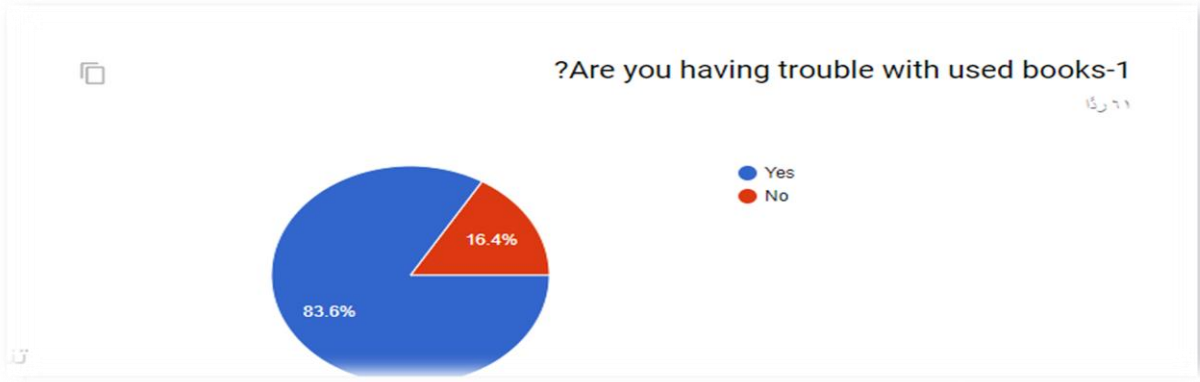
[10]http://www.sparxsystems.com.au/resources/uml2_tutorial/uml2_sequence diagram.html

1. Appendixes A: Questionnaire




Do you want to have an application for selling used and surplus-4 books?
Yes
No
96.4%


Do you think having an application will benefit the seller and the-5 buyer?
Yes
No
98.2%


?Are you having trouble with used books-1
Yes
No
16.4%
83.6%

Appendixes B: Functional and Non-Functional Requirement

Here, we elicit the functional requirements the functional requirements are these functionalities that are visible to the actors participate to the system. Non-functional requirements have a standard that the system must satisfy it.

Functional Requirement

Initially the users should register in the application. After the registration, they will use the system based on their account credentials (username, password).

The User will be able to do the following

- Registration in application
- Should be login to the application by username and password before try to perform any operation.
- Can edit his account information.
- Add, update and delete book information
- Approve book buying ordering to delivery
- Make search on any information related to book
- Sell Book By reservation it.