EVEREST ENGINEERING COLLEGE

(AFFILIATED TO POKHARA UNIVERSITY)

SANEPA-2, LALITPUR

[SUBJECT CODE: CMP 390]

A MINOR PROJECT MID-TERM REPORT ON

"LIBRARY MANAGEMENT SYSTEM"

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ABSTRACT

Library Management System is a system which maintains the information about the books present in the library, their authors, the members of library to whom books are issued, library staff and all. This is very difficult to organize manually. Maintenance of all this information manually is a very complex task. This project has many features which are generally not available in normal library management system like facility of user login and a facility of teacher's login. It also has a facility of admin login through which the admin can monitor the whole system. It has also the facility where student after logging in their account can see list of books issued and its issue date and return date and also the students can request the librarian to add new books by filling the book request form. The librarian after logging into his account i.e. admin account can generate various reports such as student report, issue report, teacher report and book report. Overall this project of ours is being developed to help the student as well as staff of library to maintain the library in the best way possible and also reduce the human efforts.

Contents

LIST OF TABLES

Table No. Pages

LIST OF FIGURES

Figure No. **Pages**

CHAPTER 1: INTRODUCTION

1.1Background

Library Management System is all about organizing managing the library and library- oriented tasks. Library Management System is an application which refers to library systems which are generally small or medium in size. Manual library management system is vulnerable to human error. It's very difficult to store data stored in books secured and safe; as we know the paper can be torn apart or in worst scenario pages get eaten by bugs. The answer for this problem is the enhancement of technology by developing the "Library Management System". It is used by librarian to manage the library using a computerized system.
The project "Library Management System" which mainly focuses on basic operation in a library. If user's position is admin the user is able to generate different kinds of reports like list of books, issued books, returned, even calculate fine and notify the users about the delay, overdue by sending the SMS. This task carried out manually will be tedious. The admin can easily update, add or remove users or book from the database. Books and user's maintenance modules are also included in this system which would keep track of the users using the library and also a detailed description about books a library contains.

The library management system is nowadays essential for schools, colleges, private libraries and other organization. Library management system helps the member/users in better learning by providing quick access to the library system. With advance library software they can easily search the book they want, request, return the book if date is expired to return the book, then they have to pay fine. They will get the notification from the system through SMS/Email related to fine. It is an automatic system that reduce the work burden of staff through single click. The main aim of this project is providing an easy to handle and reduce the time and effort that occurs in manual system. In other hand it saves the time of users as well. They can easily get the book as they need or return without staying in line.

1.2 Problem Statement

Many libraries are operated manually by a group of people. These people keep records regarding the books and users (borrowers), checks the books and keep records on issued books. All these things have to be carried out manually and if the library is very large, proper records keeping will be becoming a major problem as manual record keeping has never been a reliable method because people tend to forget things. Also, the problem of space consuming erupts after the number of records become large the space for physically storage of file and records also increases if no computerized system is implemented. Another major disadvantage is that to prepare the list of books borrowed, returned and the available books in the library takes at least a day to complete this process. In most of the cases as a result of human error there may be loss and damages of records due to not using a computerized system in the library.

Other's problems of the existing system are:

- Fast reports generation is not possible
- Tracing a book is difficult
- Information about issue/return of the books is not properly maintained
- Time consuming and inefficiency
- Lacks of security
- Difficult to search records

1.3 Objectives

Objectives of Library Management System are:

- To build a web-based system for managing general activities in a library like book borrowing, issued, return, pay fine.

1.4 Project Features:

The main features of our project are listed as below;

- Simple, clear search interface for all users
- Admin can send Mail/SMS to users
- Keep records of complete information of a book like book name, author name, book id etc.
- Automatic fine fees collection
- Books are categorized into different department

1.5Feasibility:

1.5.1 Technical feasibility:

It is mainly concerned with the specification of the equipment's and the software, which successfully satisfies the end-users requirement. We can say that it is technically feasible, since there will not be much difficulty in getting required resources for the development and maintaining the system as well.

1.5.2 Economic feasibility:

Economic feasibility is most frequently used for evaluation of the effectiveness of the system. More commonly known as cost/benefit analysis that procedure is to determine the benefit and saving that are expected from a system and compare them with costs, decision is made to design and implement the system. Our project is economically feasible in every sense that it takes less effort, less time and nominal cost.

1.5.3 Operational feasibility:

It provides sufficient support for the users. Our project is operationally feasible since there is no need for special training of staff members and whatever little instructing on this system is required can be done so quite easily and quickly as it is essentially. Operational feasibility is therefore one of the key elements of a feasibility study.

1.5.4 Time feasibility:

As it has been more probable (as per the requirements, functions and performance specification of the system) that the project can be completed within the given time frame, it is considered that the undertaking this project is feasible in the context of time.

1.6. System requirement:

1.6.1 Software Requirement:

- OS: Windows
- XAMPP Server
- Google Chrome

1.6.2 Hardware requirement:

- PC with minimum RAM, mobile etc.

CHAPTER 2: LITERATURE REVIEW

Before the advent of computer in modern age there are different methods of keeping records in the library in manual form. After the invention of computer different research have carried out various approach on an automated library management system in which this project is as well all about. The first library management system to be reviewed is the KOHA, (1999). KOHA is the most functionally advanced open-source integrated library system. KOHA functionality has been adopted by thousands of libraries worldwide, each adding features and functions depending the capability of the system. The major setback of the library management system is that it is a web based and as a result it is not security conscious.

Neelakadan, Srinivasa, (2010) in their study developed a system using KOHA open-source software to develop an update database of books and other resources. The outcome of the system they developed has: function of search options to know the availability of books in the library, borrowed books etc by which they can get the complete details about the books. However, therefore features: report generation, calculate fine of overdue books, SMS technologies, reserve book are missing [1].

Ashotosh Tripathi and Ashish Srivastaval, (2012) developed a system which is a library management system for monitoring controlling the transactions in a library. In their study they came up with a system which mainly focuses on basic operation in a library like adding new member, new books and updating new information, searching books and return books. On the other hand, the others features are still missing [2].

Prabhakar kumar, Rahul Kumar, Vikram Singh, (2014) developed a library management system which aims in developing a computerized system to maintain all the daily work of the library. By the virtue of their research work, the system developed entails many features which are generally not available in normal library management system like facility of user's login, facility of teacher’s login and allowing users to reserve books via online, user borrowing book, implementing email technologies to the website, implementing SMS technologies to the system. . The system developed also has a facility of admin login through which the admin can monitor the whole system [3] .

CHAPTER 3: METHODOLOGY

3.1 Introduction:

This chapter describes the methodology used for the development of our project. To make any task done within a certain time frame with set of proper objectives and outputs, it is important to follow certain principles and guidelines. So, as to make our project work done smoothly and consistently, we have followed the principles of Agile.

3.1.1 Model Used:

We have used Agile Model for the development of our project. Agile model refers to the software development approach based on iterative model. In Agile, the tasks are divided into time boxes (small time frames) which typically lasts for one to four weeks to deliver specific features for a release which helps to minimize the risks of the project and reduces the project delivery time. Iterative approach is taken and working software build is delivered after each iteration. Each build is incremental in terms of features, the final build holds all the features required by the customer.

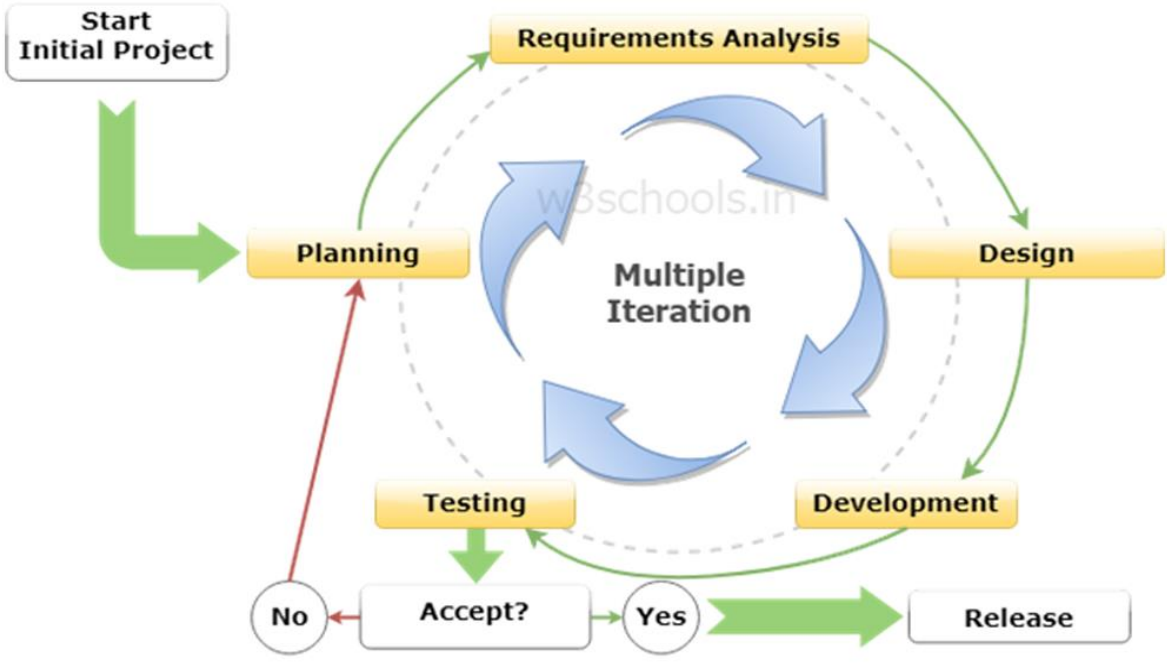


Figure 1: Agile Model

Planning: In this phase, you must plan the time and effort needed to build this project and plan where the team gets together.

Requirements Analysis: In this phase define the requirements for the iterations of the project.

Design: In the design phase, make user flow diagram, use case diagram etc.

Development: In this phase, after defining the requirements the work begins. Designers and developers start working on their project. The product will undergo various stages of improvements.

Testing: In this phase, the Quality Assurance team examines the products performance and looks for the bug.

Feedback: After releasing the product, the last step is feedback. In this, the team receives feedback about the product and works through the feedback.

Among different frameworks of Agile Methodology, we use Scrum framework in our project because it focuses on empowering teams to work together. Scrum has three primary artifacts i.e., Product Backlog, Sprint Backlog, Increment.

There are three actors in Scrum:

1. **Scrum Master:** The Scrum can set up the master team who has the responsibility of completing the team setup and management of sprint meetings.

2. **Product Owner:** The product owner makes the product backlog and oversee the delivery at the end of every iteration.

3. **Scrum Team:** The Scrum team manages the work and organizes the work to complete the sprint or cycle.

3.2 Hardware and software requirement

- Hardware Requirement: General PC, mobile etc.
- Software Requirement: XAMPP Server, Windows, Google Chrome

3.3 Proposed System Design

3.3.1 ER Diagram

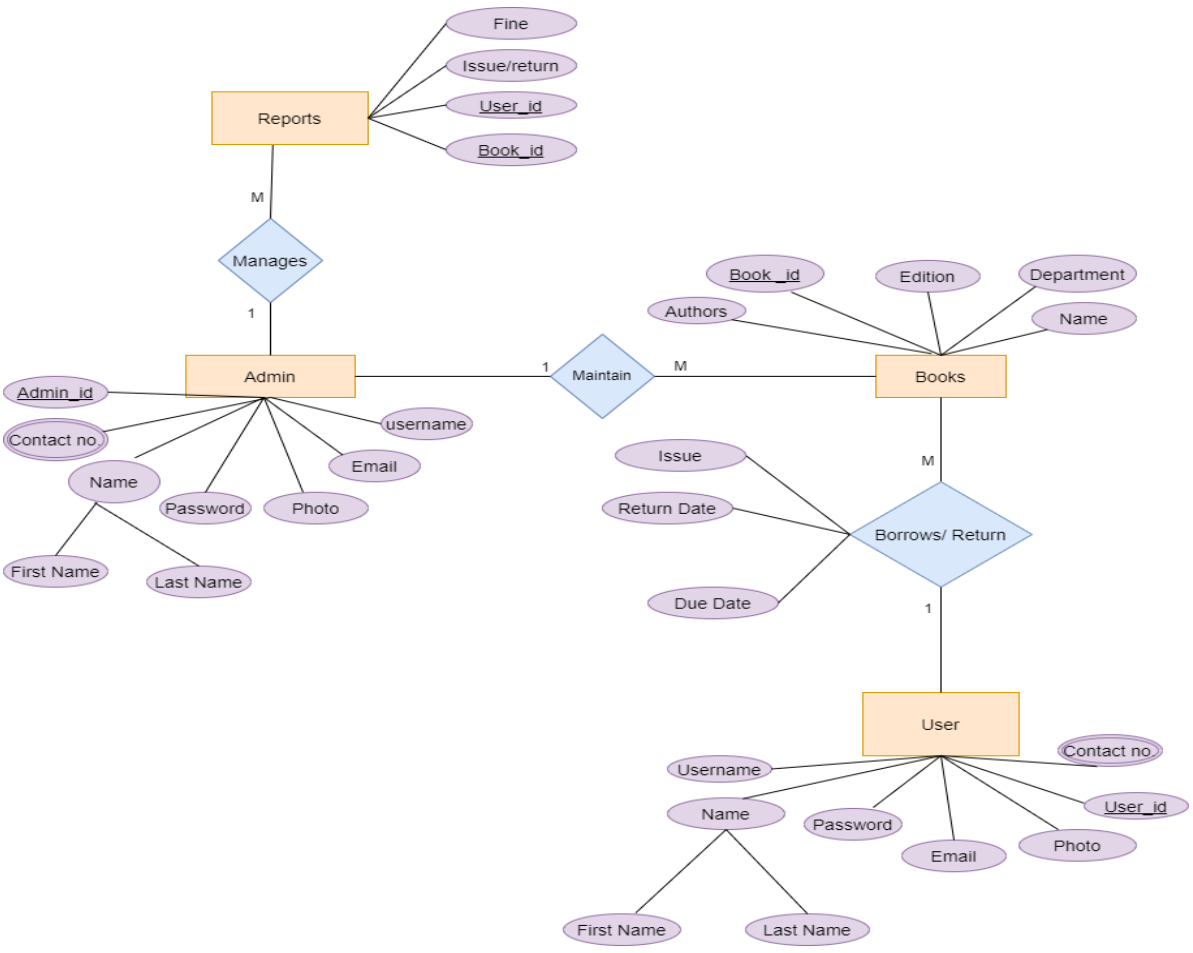


Figure 2: ER Diagram

3.3.2 Use Case Diagram

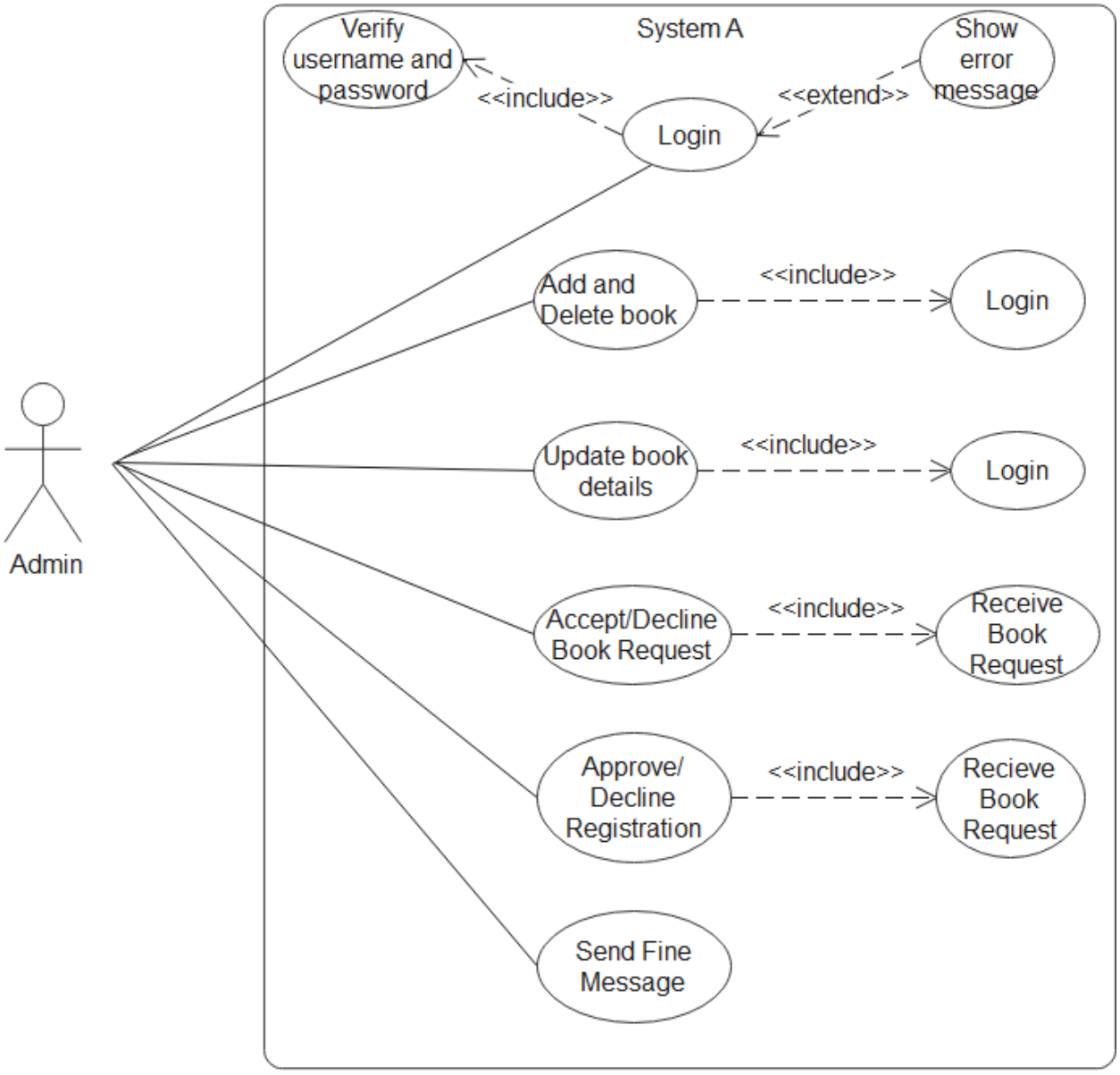


Figure 3: Use case Diagram for Admin

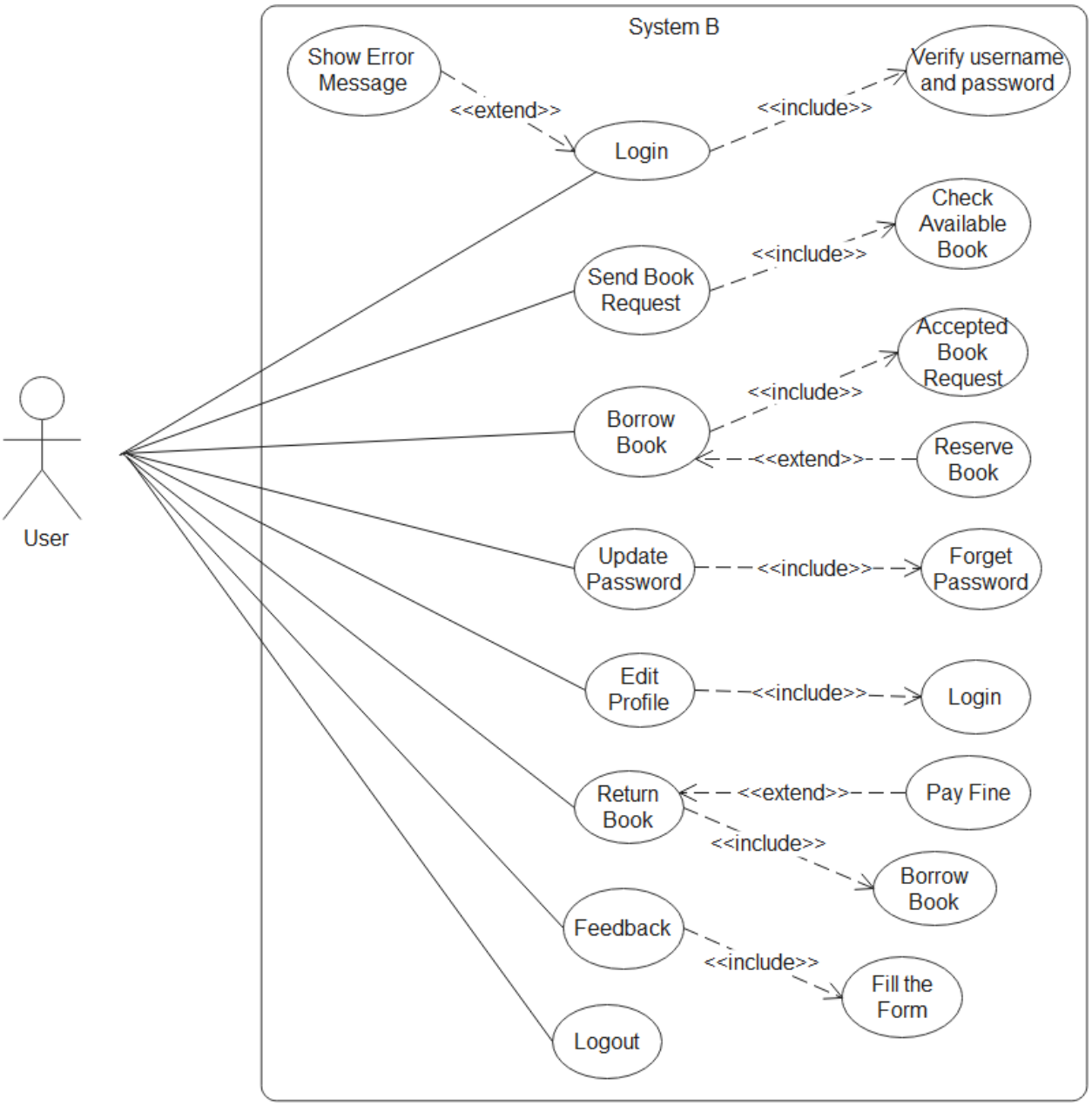


Figure 4: Use Case Diagram for User

Use Case Selection	Description
Use Case name	Login
Primary Actors	Admin/ User
Main Success Scenario	1. Admin/ User visit the website to access library services. 2. User sign-up to get registered if they are already registered then they can login.
Pre-condition	Admin / User must enter the correct information to login.
Post-condition	Admin / User can easily logout from the system.
Quality Required	To get login into the system must have Correct information of username and password.

Table 1: Contract for Authentication

Use Case Selection	Description
Use Case name	Profile
Primary Actors	Admin/ User
Main Success Scenario	1. Admin /User have to login the system. 2. They can go to profile page, then they can update their profile information.
Pre-condition	They must have login the system.
Post-condition	They can logout the system after finishes the work.
Quality Required	They must login and can update the profile.

Table 2: Contract for update profile

Use Case Selection	Description
Use case name	Manage User information
Primary Actor	Admin
Main Success Scenario	1. Once, the admin logged in into the system, admin can view the detail information of users. 2. Admin can send the message to the user about fine if the return date of book gets expired. 3. Admin can decide whether the user request for book should be accept or not.
Pre-condition	Admin must be logged in to see the detail information about the user.
Post-condition	Admin can logout from the system after viewing the user information.
Quality Required	Admin must login into the system.

Table 3: Contract for Manage User Information

Use Case Selection	Description
Use Case name	Borrow Book
Primary Actors	User
Main Success Scenario	1. After login into the system, the user can search the book 2. After finding the book that they want, they can simply request for book. 3. After accepting the book request, the user can borrow the book.
Pre-condition	They have to login into the system.
Post-condition	Users can give feedback and logout from the system.
Quality Required	Users have to login and must accept the book request by the admin.

Table 4: Contract for Borrow the book

Use Case Selection	Description
Use Case name	Manage Books
Primary Actor	Admin
Main Success Scenario	1. Login into the system, the admin manages the books i.e., view books, add books, delete books, update books information. 2. Admin can decide whether the book request should accept or not send by users.
Pre-condition	Admin can check the availability of books and books information.
Post-condition	Admin can simply logout the system.
Quality Required	Admin have to login and check the availability and details of books.

Table 5: Contract for Manage Books

3.3.3 Activity Diagram

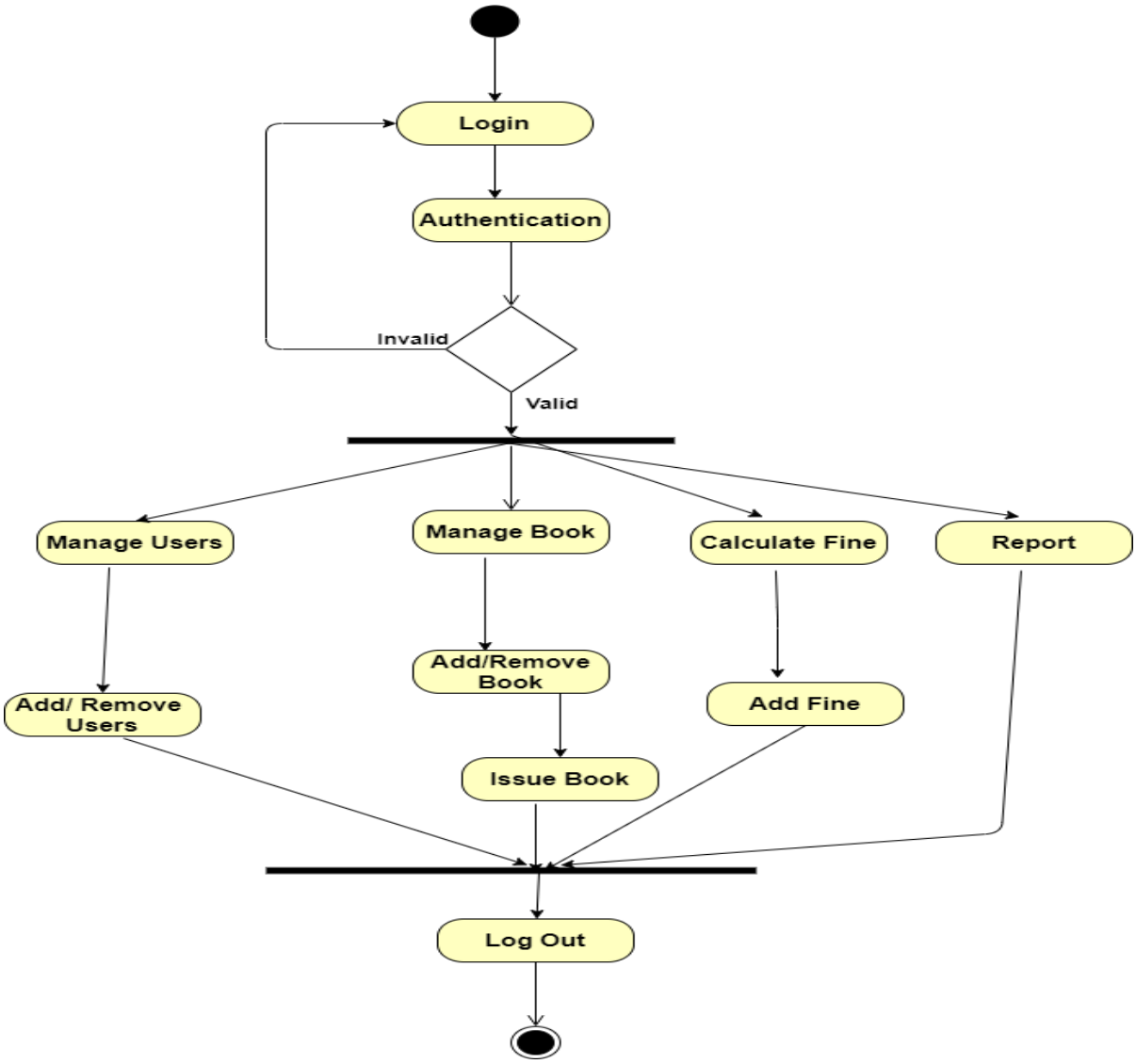


Figure 5: Activity diagram for Admin

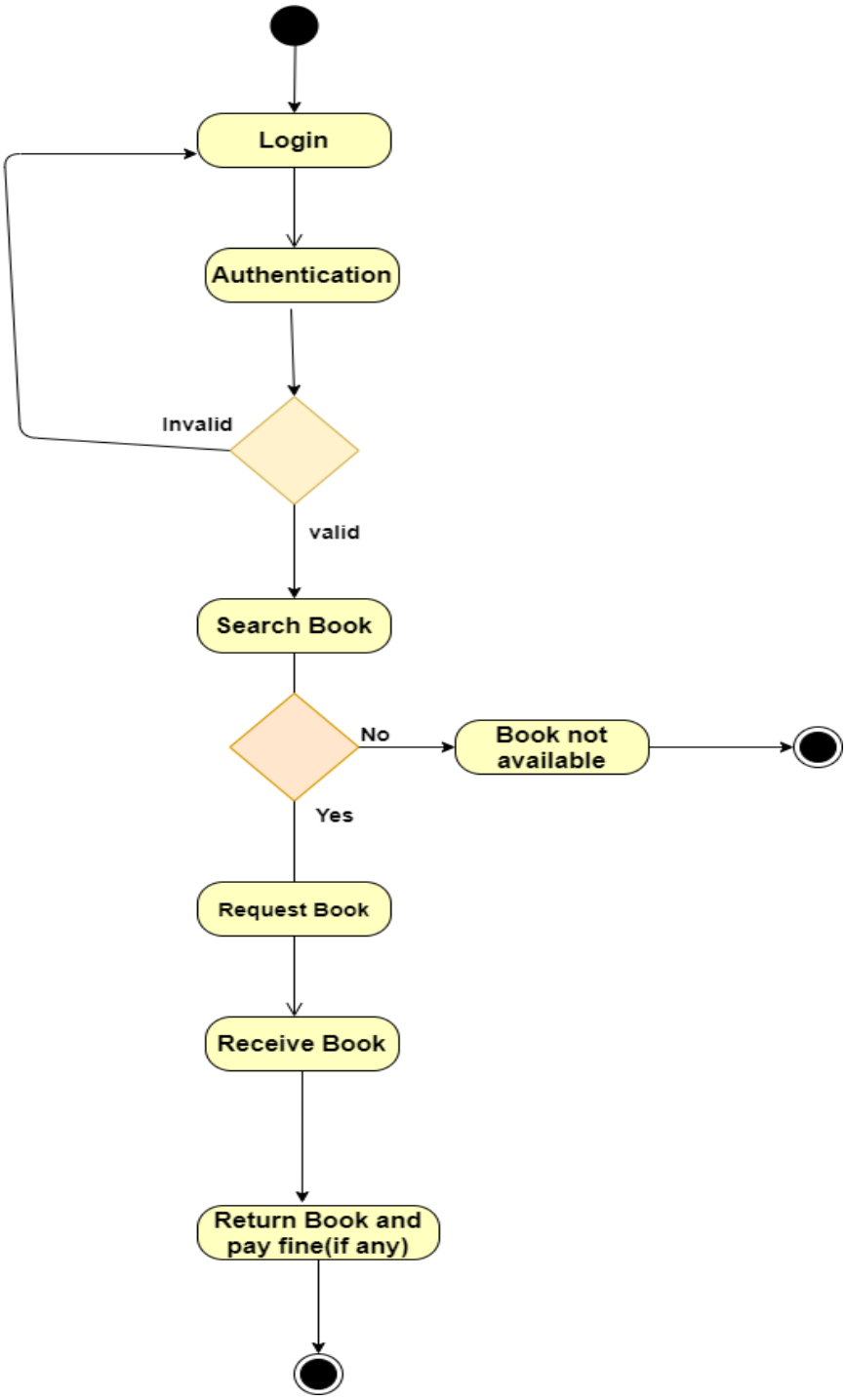


Figure 6: Activity Diagram for User

3.4 Project Block Diagram

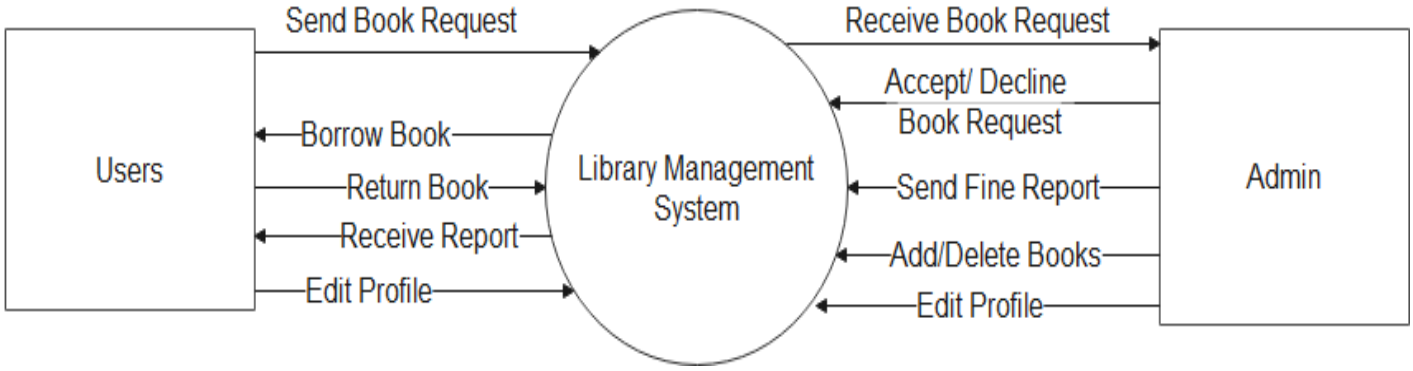


Figure 7: Block Diagram

3.4.1 Zero Level DFD

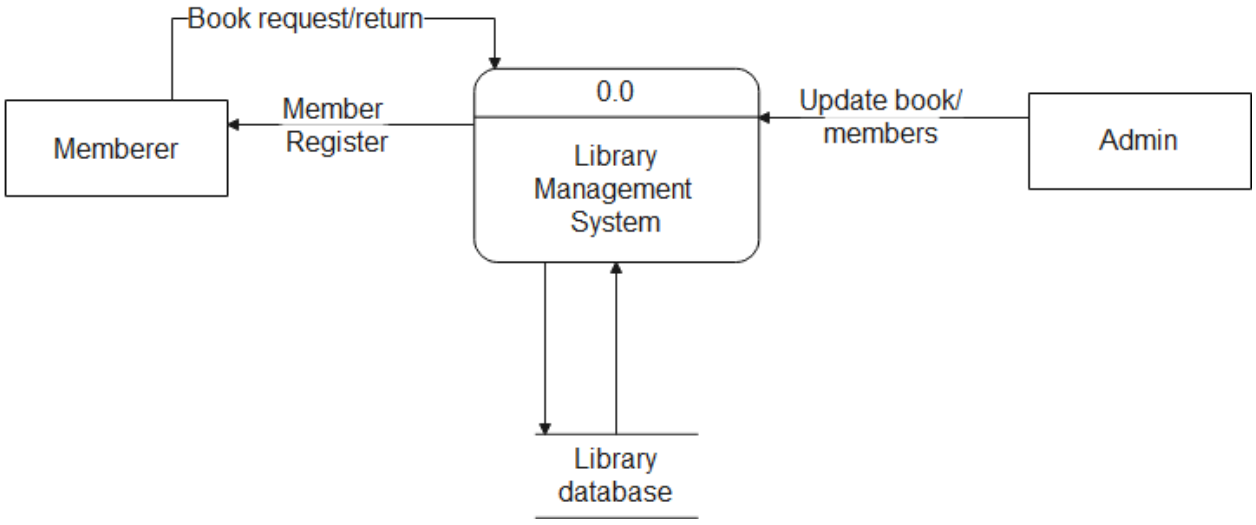


Figure 8: Zero Level DFD

3.5 Working Principle

3.5.1 Flowchart

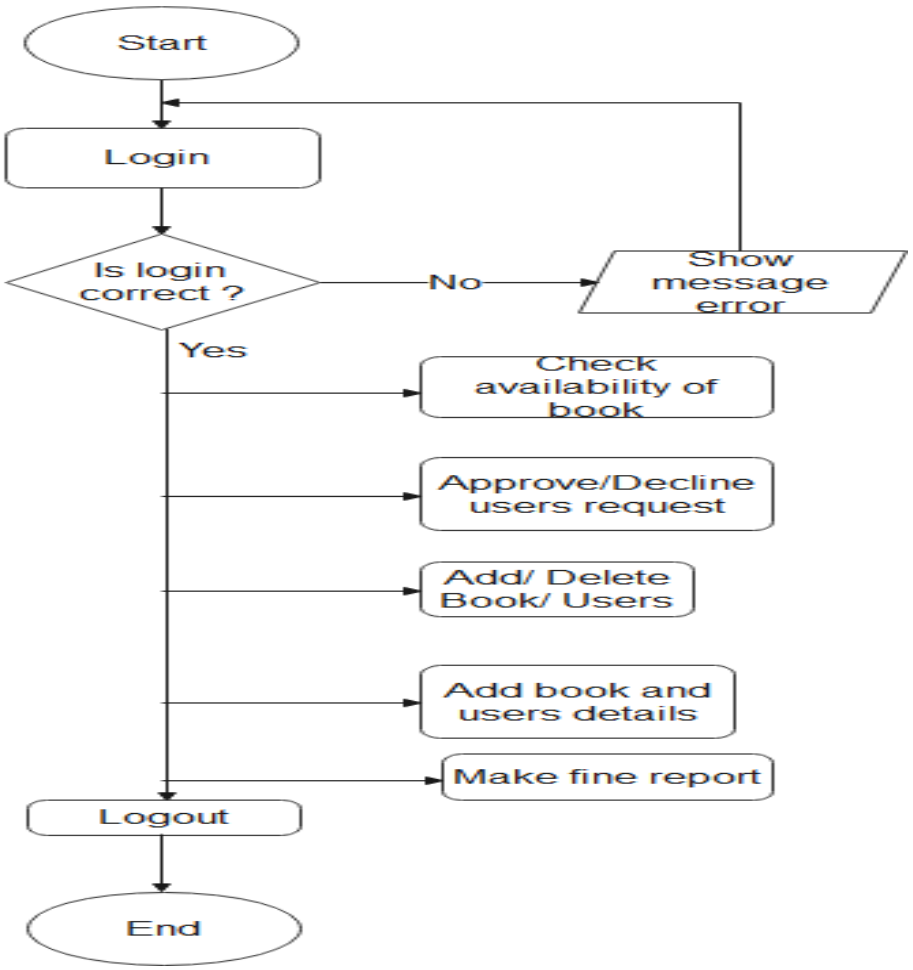


Figure 9: Flowchart for Admin

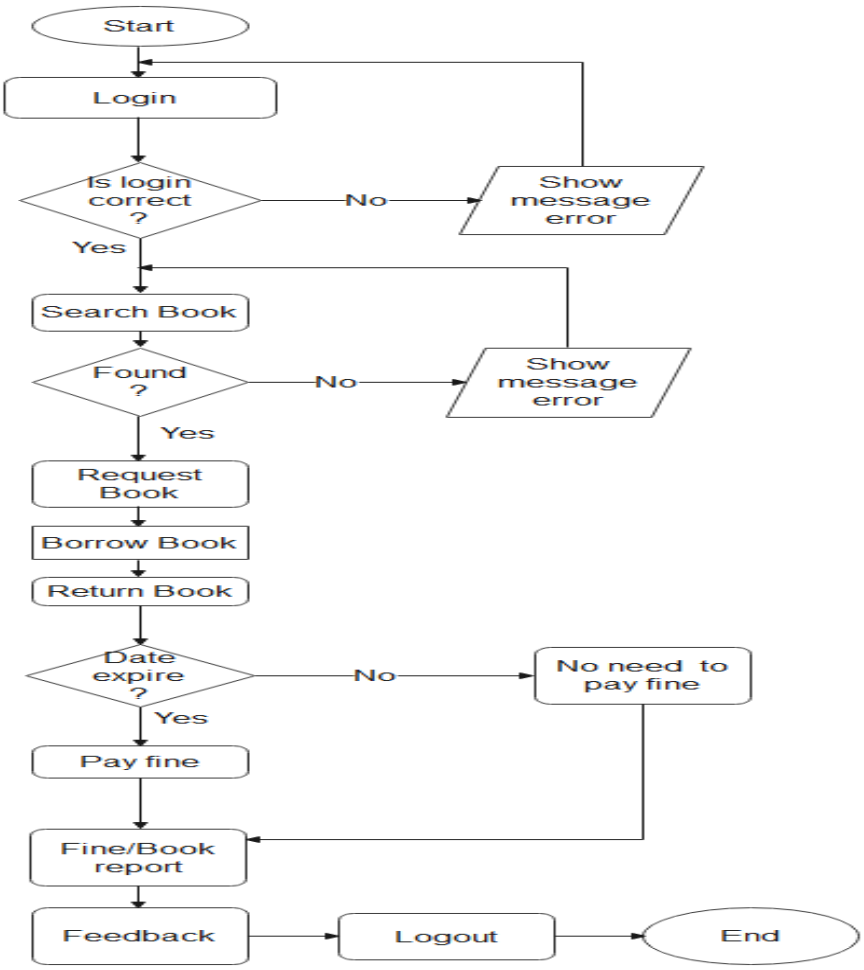


Figure 10: Flowchart for Users

In Library Management System ‘admin’ and ‘user’ plays vital role in whole system. Their roles are defined as follows:

Admin

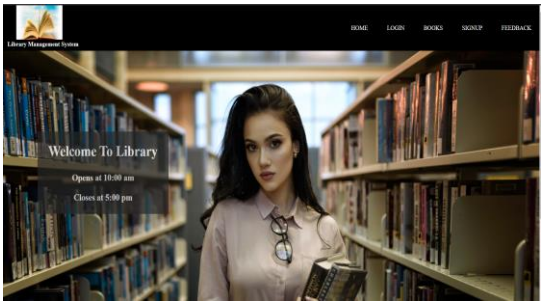
In this module, the admin can manage the books, add new books, remove books and also manage the student records. Admin decided that the users borrow the book or not by approving/declining the student request. Admin can handle all the records of the students, books, etc. Also, admin send the notification to the user about the due date, fine fess report for those who didn’t return the book at the due date.

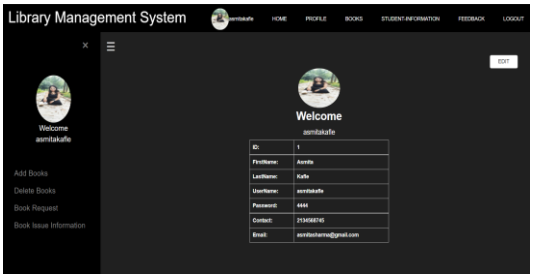
User

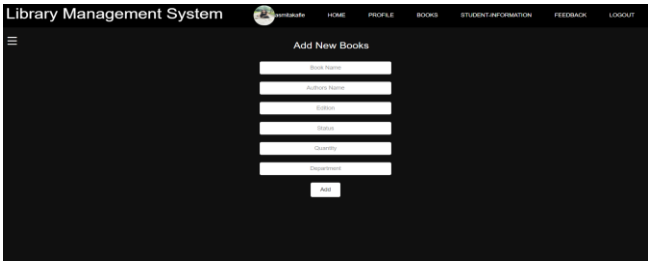
In this module, the user has to fill the registration form and then get into login. For borrowing the books, the user must be registered and also accepted the book issue request by the admin. After logging the users can see their account and they can search the book from the list of books and can borrowing the book by requesting and after accepting the request they can borrow the book and should be returned within a given time. If the users can’t return the book within a given time, then the users have to pay the fine and also the users can give feedback for this system by going to the feedback page.

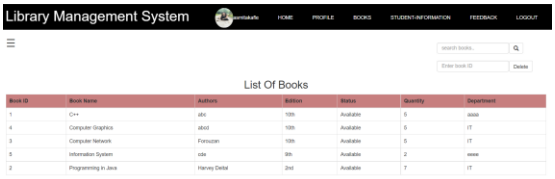
CHAPTER 4: RESULT AND ANALYSIS

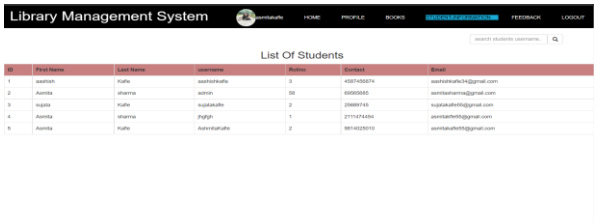
4.1 Expected Output:

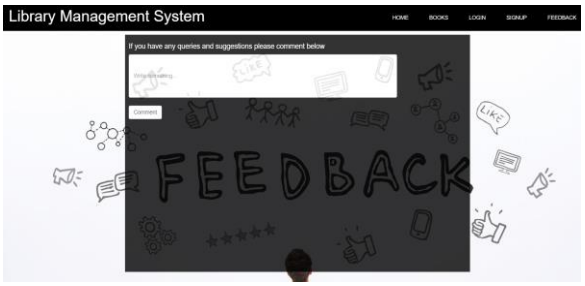


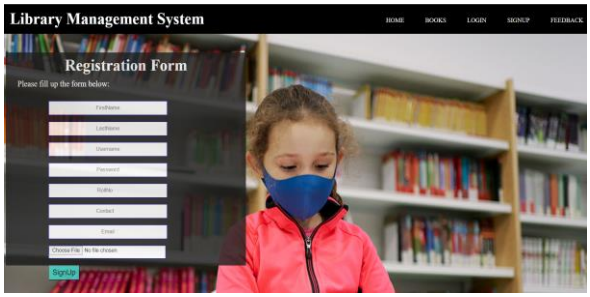












4.2 Budget Analysis:

S.N	PARTICULARS	
1.	Hourly cost per programmer	Rs. 150
2.	No. of hours per day	3 hours
3.	No. of working day per week	4 days
4.	Project period	22 weeks
5.	No. of programmer	2
6.	Total programming cost	Rs. 37,000
7.	Total project cost	Rs. 40,000

Table 6: Budget Analysis

4.3 Work Schedule

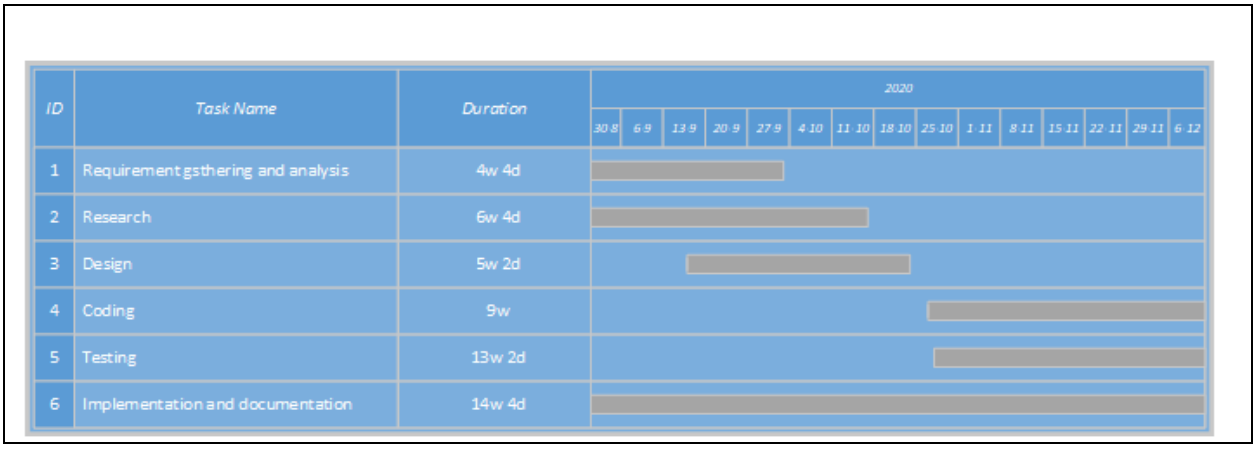


Table 7: Gantt Chart

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