

## AMERICAN INTERNATIONAL UNIVERSITY–BANGLADESH (AIUB)

FACULTY OF SCIENCE AND TECHNOLOGY

#### DEPARTMENT OF COMPUTER SCIENCE

A PROJECT PROPOSAL ON

E-Library Management System

## Supervised By:

**Dr. S.M. Hasan Mahmud**

## Prepared By:

|  |  |
| --- | --- |
| Name | ID |
| MOON, MD. ASHIF MAHMUD | 18-36091-1 |
| NEPUN, SRIJON SARKER | 18-37940-2 |
| FAHIM, SHAH NAWAJ | 20-42794-1 |
| POLOK, SHAHRIAZ | 21-44604-1 |

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**Problem Statement**

UNIVERSITY\_A library systems are manually operated by a group of people. Many employeesare involved in the library management, such as keeping records regarding books and students(borrowers), manually checking books, keeping records on issued books, etc. All of these things have to be carried out manually. It's a considerably more severe difficulty if the library's content management is extensive. On the other hand, keeping a large maintenance staff can be expensive and inefficient for a library. Manual record- keeping is also not a reliable method.

A manual method makes it hard to find a book strictly at once from a borrower's standpoint since it is not cleanly organized. Sometimes the user might be searching for a book that is not available in the library. People become annoyed in these situations. Therefore, there should bea reliable way to manage the library system.

### Background Information

E-Library Management System is an application that refers to library systems that are generally small or medium in size. A librarian uses it to manage the library using a computerized systemto add new books, page sources, and other things.

The system includes different login options for students and faculties. All the books are arranged in such a way that anyone can quickly find a book they are searching for. This significantly reduces the time spent searching for books. In addition, they can instantly know if the books they are looking for are available in the library.

A trending segment is included in this system. It shows which books the majority of students and faculties have recently read. Apart from that, the system's algorithm recommends books based on what they have already read. Users can see how many times a book has been read andwho has read it. They are also able to see the books their friend has read.

Books and user maintenance modules are included in this system to track the users using the library and a detailed description of the library's books. It can receive orders to borrow books from users, keep track of the borrowed books, and collect fines for books returned after the duedate. With this computerized system, there will be no loss of book records or member records which generally happens when a non- computerized system is used.

These modules can help the librarian in managing the library with greater ease and efficiency than non- computerized library systems.

### Related/ Similar Software Systems

The E-Library Management System has several unique features that set it apart from other similar systems on the market.

Most systems do not provide login option for faculties. Only students are permitted to access them. But this system has different ways to login for faculties and students. The trending and recommend modules make it completely unique from any other systems available out there.

Furthermore, all of the algorithms used in the system are designed to be extremely efficient, ensuring that the system always operates at the fastest possible speed. It saves the users a largeamount of time.

### Justifications

1. The system offers a modern method of keeping records safe and secure.
2. It is more efficient with order-related things than the present paper-based system.
3. The system's database management is simple. That's why no professional staff is required.
4. The whole system saves a significant amount of time for both the user and the librarian.

II

Build a web portal to manage employee records for UNIVERSITY\_A.

### Objectives

1. Develop a system to replace the manual library management system.
2. Build a web portal that can be accessed by devices of all sizes.
3. Create a database that contains user and book information.
4. Offer users a reliable search option.
5. Assist users in discovering new books.
6. Create a user-friendly environment that is simple to understand.
7. Provide attractive user interfaces to help people traverse the system.

### Modules

|  |  |
| --- | --- |
| **Modules** | **Description** |
| User Management | User management module includes all operations related to user accounts – creation, deletion, edits, search and so on. |
| Records | This module tracks the users using the library and a detailed description of the library's books. |
| Recommend | Algorithms of this module recommend books based on what they have already read. |
| Trending | It shows which books the majority of students and faculties have recently read. |
| Placing Order | Users can register for a book they want to borrow. |
| Reminder | Remind users to return the borrowed books. |

**Scope**

\*\*\*If any scope changes are required by the client at a later date, then the scope, the time andbudget may also change.

|  |  |
| --- | --- |
| **In Scope** | **Out of Scope** |
| Design and development of web portal for employee data management system | Hosting server provision/ management |
| Testing of system | Database server provision/ management |
| Secure and manageable code | Security for application hosting and/or database server |
| Deployment | Network security |
| Inline Help file generation | Data entry |

### Deliverables

1. The complete web application along with all its database schemas
2. Help files

A structured project management approach is being followed.

**Note:** The time allotted here is subject to change based on client availability to give details toproject team.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Phases** | **Details** | **Duration** | **Cost** |
| **1** | Initial works | Define the project in detail based on targeted business case. Stakeholders need to be identified, information should be collected to understand feasibility and business values. | 1 weeks | 10,000 |
| **2** | Planning phase | Clearly define specific and attainable goals. We will set a timeline, decide on project milestones and determine project deliverables in this phase. Works will be done in collaboration of all team members. Project will be broken down into smaller parts in this phase for better handling. | 1 weeks | 20,000 |
| **3** | Execution phase | Project development team will be created and works will be handed down to appropriate resources. Project progress will be monitored based on the schedule created in the previous phase. Design, development and testing ofthe product will be done by the development team. | 7 weeks | 1,00,000 |
| **4** | Closing things up | Look back at things and determine success level of the project. | 1 week | 5,000 |
| **Total Time** | | | **10 weeks** | **1,35,000** |

### Product development work breakdown (7 weeks)

Traditional waterfall method is used for this breakdown.

**Note:** The time allotted here is subject to change based on client availability to give details/ guidance to the implementation team.

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Phases** | **Details** | **Duration** |
| **1** | Understand requirements | Requirements will be collected and documented in use case format. | 1/2 weeks |
| **2** | Architecture and design | Architecture of the product will be determined. Detailed design will be created to start the actual development. Technology platform will be decided. Design for data storage (database design) will be created. We will also create an initial test plan and test cases in this phase. | 1/2 weeks |
| **3** | Coding/  Implementation phase | Implementation of the use cases will be done based on established practices and standards. Unit testing may be enforced for cleaner code. | 5 weeks |
| **4** | Testing | Testing will be done based on test plan and test cases. User acceptance testing will be done in closed groups. Bug fixes and regression testing will be done here. | 1/2 weeks |

|  |  |  |  |
| --- | --- | --- | --- |
| **5** | Deployment | Deploy the system and make it live for general users. | 1/2 week |
| **Total Time** | | | **7 weeks** |

**---------------------------------------------------------------------------------------------------------------------------**

# System Requirements Specification

#### Library Management System 1.0

**Document Version 1.0**

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# Revision History & Intermediate Sign-offs

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| --- | --- | --- | --- | --- |
| **Author** | **Date** | **Reasons for changes** | **Version** | **Signatory [Name, Designation and Signature with date]** |
| Zaid Amin Rawfin | November 15,  2021 | First Draft | 0.1 |  |

1. **Sign-offs [version 1.0]**

I acknowledge that all the information provided here in this document are accurate and correctly represent the library management application we are trying to build for the university. I also acknowledge that any requirements not discussed in this document are beyond the scope of the project being undertaken and may incur additional charges/time/resources if those new requirements/features become necessary to implement.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **#** | **Name** | **Designation** | **Company** | **Signature with date** | **Document Version** |
| **1** |  |  |  |  | **1.0** |
| **2** |  |  |  |  |
| **3** |  |  |  |  |
| **4** |  |  |  |  |
| **5** |  |  |  |  |

# Introduction

### Purpose of the Document

This SRS document provides details of both functional and non-functional requirements for the **Library Management System** 1.0 (**LMS**1.0). This document intended to create a clear understanding among all stakeholders (both from client side and the service provider) regarding the system. It will also build a common platform for communication among the stakeholders.

LMS will be a web application/portal that will allow the librarians to manage the university library using a computerized system. Students will be able to borrow books and check their deadlines; see which books their friends have read and which books are trending. The portal will be multilingual supporting both English and Bangla.

### Document Conventions

The following conventions are used throughout the document -

* + 1. All technical terms are italicized.
    2. All abbreviations are written with bold-faced type.
    3. All figure descriptions are italicized.
    4. The terms System, portal and application are all used interchangeably throughout the document.

### Glossary

List of terms and abbreviations:

|  |  |
| --- | --- |
| **Term/Abbreviations** | **Definition/Full form** |
| Librarian | Any person who manages the books. |
| User | Anyone who will be given permission to access the system to carry out tasks |
| Database | Collection of all the information monitored by this system. |
| System | The web portal/application being developed |
| Intranet | A network connecting only devices (computers) within an organization, not visible to the outside world. |
| Stakeholder | Any person with an interest in the project who is not a developer. |
| Browser | A software that is used to view web pages and collect web pages from distant servers. |
| Availability | Availability of any system to the users for doing their tasks. |
| Scalability | Ability of a system to support the growing number of users. |

|  |  |
| --- | --- |
| DBMS | Database Management System - The software used to manage (store, update, delete, search) data. |
| RDBMS | Relational Database Management System - The software used to manage (store, update, delete, search) data in a structured way and in separate tables with columns representing attributes of an object and each representing specific object. Tables are usually linked together to form a complete set of data. |
| SRS | Software Requirement Specification - a document specifying different aspects and functionalities of a software system |
| SSL | Secure Socket Layer - Technology specifications (protocol) that defines how secure connection can be established between communicating computers using a network, especially the internet. |
| ER | Entity relation - a relational database term that denote the relations among objects/entities |

### Intended Audience

The intended users of this document are all stakeholders of the project. The implementing team will use this document to drive the development process. The client will use this document to verify if the concerned system is built according to their need.

### Project Information

**LMS1.0** will be a web application/portal to allow the **UNIVERSITY\_A** librarians keep records regarding books and students (borrowers). It will be a *responsive* web application so that it is usable from devices of all sizes - desktops, mobiles, tabs, and laptops.

The application will have easy to use and intuitive user interfaces so that anyone can without any difficulties. Students will be able to search and view any book information, keep track of their borrowed books, and get notified the returning deadlines with minimum efforts.

### Information for Readers

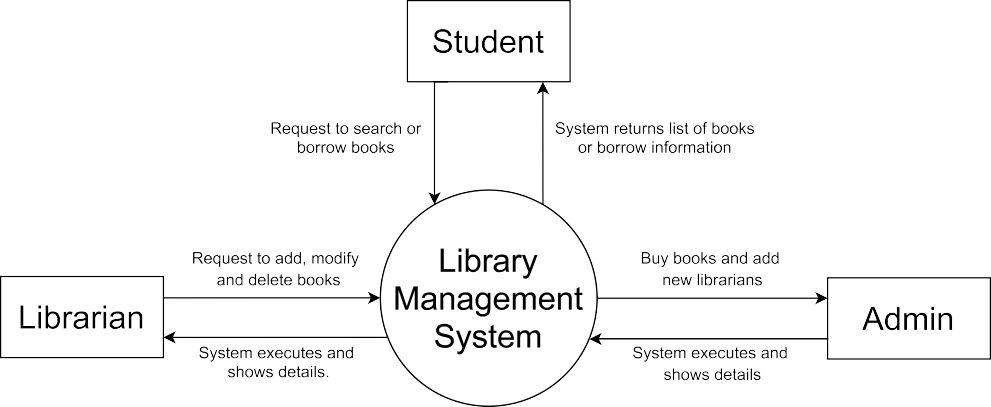
The rest of the document describes the product (**LMS**) in concern.

* Section 3 and 4 details out the product’s features and associated use cases.
* Section 5 describes the data that the product has to deal with.
* Section 6 deals with the external requirements of the system.
* Section 7 describes the other non-functional requirements of the system.
* In section 8, testing plan is discussed.
* In section 9, deployment related information is brieflydiscussed.

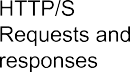
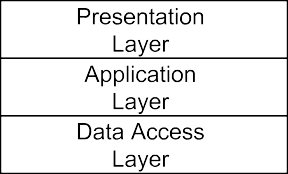
# Overall Description

### Product Perspective

**LMS1.0** is a new web-based system that will replace current paper-based record keeping regarding books and students (borrowers), manually checking books, keeping records on issued books, etc. The system will be hosted at server specified and maintained by the client. Figure 1 is a pictorial representation of the system (context diagram) that shows the system from a bird’s eye view. It shows its interactions with external entities. Different types of users will use the system. There detail descriptions will be discussed in the “User Classes and Characteristics” section.



***Figure 1*** *Context Diagram for LMS 1.0*



***Figure 2*** *Deployment and internal architecture*

The system will be deployed in a web server and will use a database server for data storage. Internally, the system will be composed of three layers - the presentation layer which will be responsible for displaying/collecting information and records from users, the application layer will implement the book search and book recommend logic and the data access layer will be responsible for dealing with the relational data store.

### Features

Features are listed below. **High**, **Medium,** and **Low** are used to indicate the importance of each feature.

|  |  |  |  |
| --- | --- | --- | --- |
| **Feature ID** | **Description** | **Priority** | **Requester** |
| **FE01** | Web based and accessible from devices (with internet connection) such as desktop, laptop, mobile and tablet PCs. | High |  |
| **FE02** | Accessible only to authenticated and authorized users | High |  |
| **FE03** | Student data management for example: personal details, book read history, borrow history and so on. It will also allow registered student search and viewing student list. | High |  |
| **FE04** | Report generation based on user needs. | Medium |  |
| **FE05** | User management and auditing user activities | High |  |

### User Classes and Characteristics

Following user classes are identified but the list is subject to change

|  |  |
| --- | --- |
| **User Class** | **Characteristics** |
| Student | This class users can search and borrow books, view and modify their own details, and view their borrow history. |
| Librarian | Users of this class will be solely responsible for entering/updating student data and add/modify books. They can do entry/updates only after a higher authority authorizes them to do so. |
| Admin | Someone, probably from the management/IT department who can view records of all students, can authorize data entry or updates. |
| Director | The supervising manager who can view all records of all students, can view user activity logs, can authorize data entry or updates, can generate variousreports. |

### Operating Environment

|  |  |
| --- | --- |
| **ID** | **Description** |
| OE01 | System will be web based and accessible from all types of browsers from any location and preferably at any time. |
| OE02 | All data (student, user data and so forth) must be kept in a secure relational database management system. |
| OE03 | System must be available preferably at all times. |

* 1. **Constraints**

|  |  |
| --- | --- |
| **ID** | **Details** |
| CO01 | MySQL ***RDBMS*** for data storage |
| CO02 | ***PHP*** for backend and ***ReactJS-bootstrap*** for frontend |
| CO03 | Data Encryption (***SSL***) must be used |
| CO04 | System response to user queries must be within 5 seconds of the initiation of the request, provided network and server |

### User Documentation

Documentation for users will be inline, available on each page of the system.

* 1. **Assumptions and Dependencies**

|  |  |
| --- | --- |
| **ID** | **Details** |
| DEP01 | Client interface will depend on ***ReactJS*** |
| DEP02 | ***mPDF*** will be used for ***PDF*** generation. |
| AS01 | Client browsers will be *JavaScript* enabled. |
| AS02 | Both application server and database servers will be hosted in a secure and protected environment to encounter intruders and natural disasters. |
| AS03 | Database hosting services will provide data backup facility. |

# Feature Details

The system will have mainly three components/modules - user management module, report module and student management module. Figure 3 shows the components of the system. The features of each module are discussed in detail in the subsequent sections.



***Figure 3*** *Component diagram for LMS 1.0*

### Web Based & Accessible from Devices of All Sizes [FE01]

##### Details

The system will be a *responsive* web portal, which will be accessible from devices (with internet connection) of all sizes such as desktop, laptop, mobile and tablet PCs.

##### User Actions and System Responses

Not applicable

##### Use cases

Not applicable.

### Accessible Only to Authenticated and Authorized Users [FE02]

##### 4.2.1 Details

The system will use role-based access to valid users of the system. Login will be used to provide access and then user class/ role will be used to allow access to specific resources on theportal.

### Librarian Data Management [FE03]

##### Details

The system will allow authorized users to perform librarian personal data management tasks such as adding a new book, modifying any book details, and modify borrow details of any user.

##### User Actions and System Responses

|  |  |
| --- | --- |
| **User Action** | **System Response** |
| Authorized Librarian requests to add a new book. | The system responds with book details entry form to collect data. |
| Authorized Librarian requests to edit a book detail. | The system looks up selected book and presents it to the user for edition in a form. |
| Authorized Librarian asks for a list of all registered students. | The system looks up all students from database and shows a paged students list. |
| Authorized Student wants to search for a book | The system shows a search form that allows user to search for a book. |
| Authorized Student wants to borrow for a book | The system shows a form that allows user to enter the book details to borrow. |

* + 1. **Use Cases**

|  |  |  |
| --- | --- | --- |
| **ID** | **Use Case** | **Details** |
| FE03\_UC01 | Add new student | The system opens up to add new student with options to save all sorts of records – student id, email, phone number and so on. It then validates and saves entered record and notifies user of success/failure |
| FE03\_UC02 | View student list | The system shows a list of students in paged format with configurable number of records per page. |
| FE03\_UC03 | Edit student record | The system retrieves record from database of intended student and presents it in a form for user to update. It then validates and saves entered record and notifies user of success/failure |
| FE03\_UC04 | Edit book record | The system retrieves record from database of intended book and presents it in a form for user to update. It then validates and saves entered record and notifies user of success/failure |
| FE03\_UC05 | Book search | The system shall provide a search form to search for book based on name or categories. It will present a list of books if record matching the criteria are found in the database. |
| FE03\_UC06 | Book record viewing | The system retrieves record of the intended book and shows and uneditable detailed view of the record. |

### Report Generation [FE04]

##### Details

The system will allow authorized users to generate reports of various types.

##### User Actions and System Responses

|  |  |
| --- | --- |
| **User Action** | **System Response** |
| Authorized User wants to generate report. | The system responds with a report form to specify criteria for report generation. It then generates a report with retrieves data. |
| Authorized user wants to print report | The system responds with a report form to specify criteria for report generation. It then generates a report allowing user to print. |

* + 1. **Use Cases**

|  |  |  |
| --- | --- | --- |
| **ID** | **Use Case** | **Details** |
| FE04\_UC01 | Generate report | The system displays a report form to specify criteria for report generation. It then generates a report with retrieves data and presents it to the user. |
| FE04\_UC02 | Print report | The system displays a report form to specify criteria for report generation. It then generates a report with retrieves data that has option for printing. When the user selects printing option, a pdf is generated and downloaded to user’s device. |

### Auditing and Logging User Activities [FE05]

##### Details

The system will allow authorized user with appropriate level of clearance to manage other users, such as allowing/ disallowing access, monitoring user activities for security and maintaining confidentiality.

##### User Actions and System Responses

|  |  |
| --- | --- |
| **User Action** | **System Response** |
| Authorized user wants to add a new book | The system responds with a user creation form |
| Authorized user wants to search for a book | The system presents a list of books matched with the search criteria. |
| Authorized user wants to borrow a book | The system presents information about borrowing the book. |
| Authorized user wants to monitor user activities | The system generates a report of user activities of the selected user. |

* + 1. **Use Cases**

|  |  |  |
| --- | --- | --- |
| **ID** | **Use Case** | **Details** |
| FE05\_UC01 | Add Book | The system displays form to enter the book detail. It then saves the book and notifies user of success/failure. |
| FE05\_UC02 | List Student | The system shows a list of registered students. |
| FE05\_UC03 | Deactivate user | From user list, the user selects the user to deactivate. The system deactivates the user and notifies results. |
| FE05\_UC04 | Activity report | The system shows the activities of the selected user retrieving them from the system log. The list will be sortable by date/activities and will be filterable. |

# Data

### Storage Requirements

* MySQL database server will be used for data storage and retrieval.
* Considering the worst-case scenario, each student record may take 7KB of data. Initially 500MB disk space may be required for 1000 student. It will increase based on the number of students.
* The above disk space requirement does not include the database system software space requirements or space requirements of Operating System or other needed software to run the server smoothly.
* Archival data should be stored on machines other than the productionmachine.

### Data Retention Policies

Data retention period will be decided based on government requirements.

### Data Backup

* Data backup must provide at the database host level.
* Application-level data backup may be provided if required by the client at additionalcost.

### Data Security

* Data must be secured so that hackers cannot access them
* Data must be user id and password protected (database user credential required to access besides the application-level user access protocol)
* Application’s communication with data store must be secured, preferably over an intranet/private connection
* All user passwords must be kept in the database in encrypted format.
* SQLInjection attack must be in consideration when accepting user input to be used in database access.
  1. **Data Transfer Requirements**

# External Interface Requirements

This section defines the system’s interfaces with hardware, software, data storage entities (***RDBMS***) and so on.

### User Interface Requirements

User interfaces have to be intuitive requiring very little training for users. The following are some of the requirements -

* Each page must have a **Help** button that will invoke inline help system to show help page for the current screen.
* Once logged in, all pages must at all times show all the menu items available for the current user.
* Color scheme must not strain the eyes of the users.
* All buttons must be big enough for users to easily click on them.
* All links must be easily visible and follow link-specific standards such as underlinedtext.
* All screens must be responsive to be usable from devices of all sizes.
* Non-standard HTML tags must not be used.
* Each screen should have appropriate titles.
* The pages must be supported by all major browsers
* User interface will use internationalization to support Bangla and English both.
* W3C guidelines for accessibility will be followed as much as possible.

### Hardware Interfaces

The system is a web application requiring internet connection. So, all hardware related to internet connectivity are included under this category. It will be hosted in server. So, server hardware is also in the list of hardware interfaces for the system.

### Software Interfaces

Not applicable at this time.

### Communications Requirements

The system is a web application. It will need the internet/intranet to communicate. It will use HTTP/S protocol for communication with clients (browsers).

### Licensing Requirements

Not Applicable

# Other Non-functional Requirements

### Performance Requirements

* The system has to provide responses within an acceptable amount of time, 5 seconds to be exact.
* As the number of users grows, the system must be able to scale to handle increasing load.
* As the datagrows, the system must be ableto handle quick entries, updates, or searches for data store.

### Security Requirements

* SSL for data security and safety
* Passwords must be kept encrypted inside user table.
* Application Server and Database server must be in a secure environment.
* Users must be forced to change passwords every 6 months.
* Strong passwords must be enforced by the system.

### Safety Requirements

* Application Server and Database server must be in a safe environment to guard them against any physical damage either caused by human factors or natural disasters**.**
* Standards for developing web applications.

### Quality Attributes

##### Applicable Standards

The system will be built based on current and feasible standards for building web application.

##### Structural Robustness

* + - * The system must be developed using MVC architecture for future maintenance.
      * Relations must be normalized to an acceptable level.

##### Usability

Usability of the software will be determined from conversation and interviews with user base. Furthermore, testing will be done to ensure fulfillment of usability criteria.

### Availability

System must have 99% uptime. Any downtime should be due maintenance or emergency situation arising from natural or man-made disasters.

# Testing Related Information

* The software must be tested at all levels of development.
* Unit testing will be used through PHPUnit
* Pages will be tested using Selenium IDE for broken links, data validation logic and soon.
* JMeter will be used for load testing and stress testing.
* Integration testing will be performed as needed.
* UI testing will be one ensure usability of each page

# Deployment Information

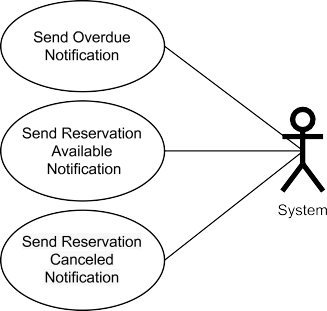
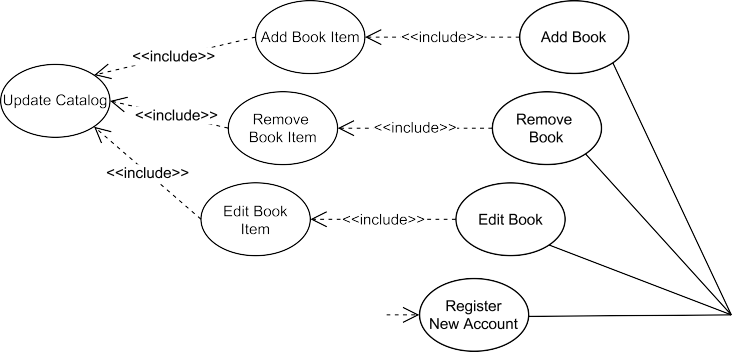
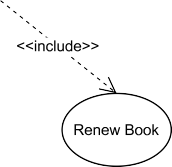
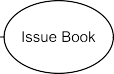
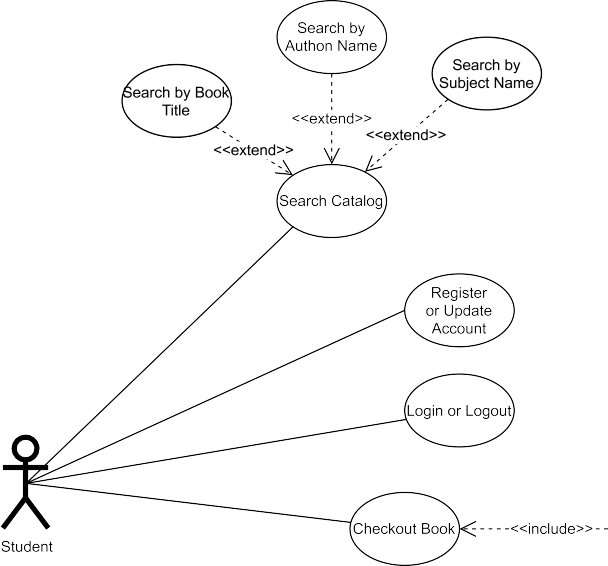
### Hosting requirements

The system should be hosted in a server that will be capable of handling simultaneous connections from clients. It should be able to handle increasing number of users.

### SSL requirements

SSL certificate must be installed for the domain that application can be reached at. It will ensure data security through encryption.

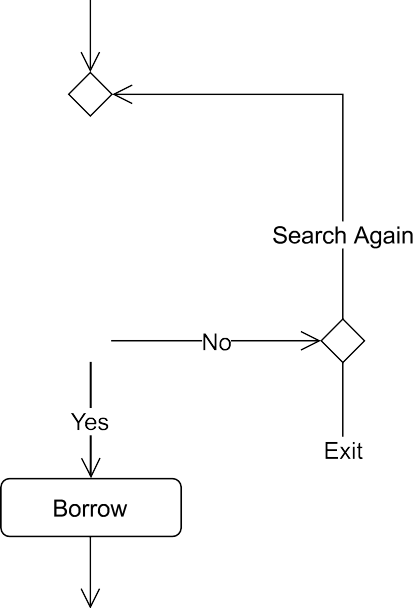
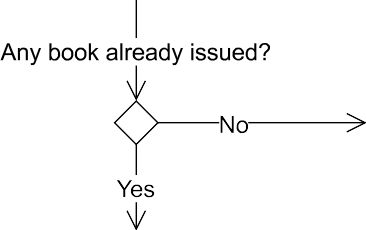
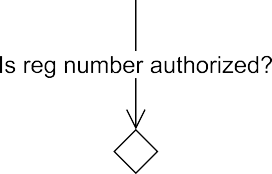
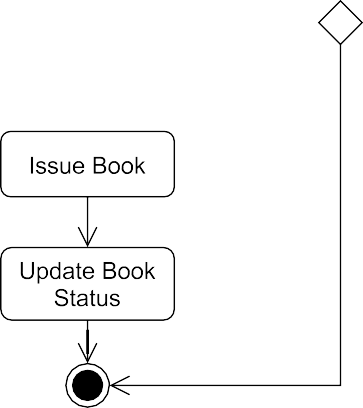
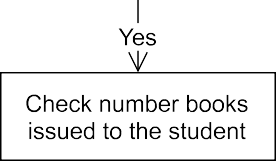
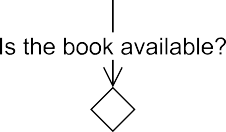
# Appendix A: Use Case Diagram



***Figure*** *Use Case Diagram*

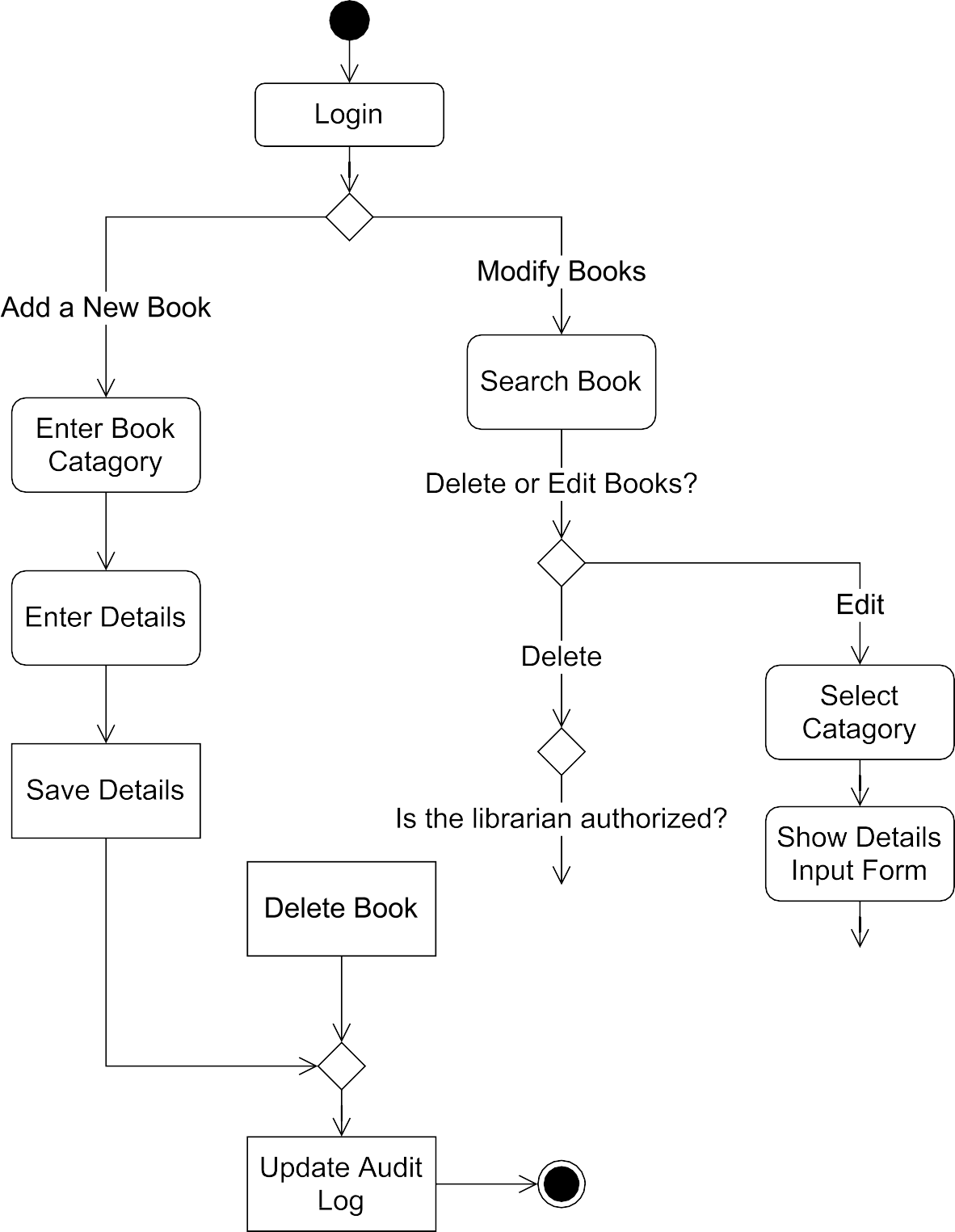
# Appendix B: Activity Diagram – Student

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***Figure*** *Student Activity Diagram*

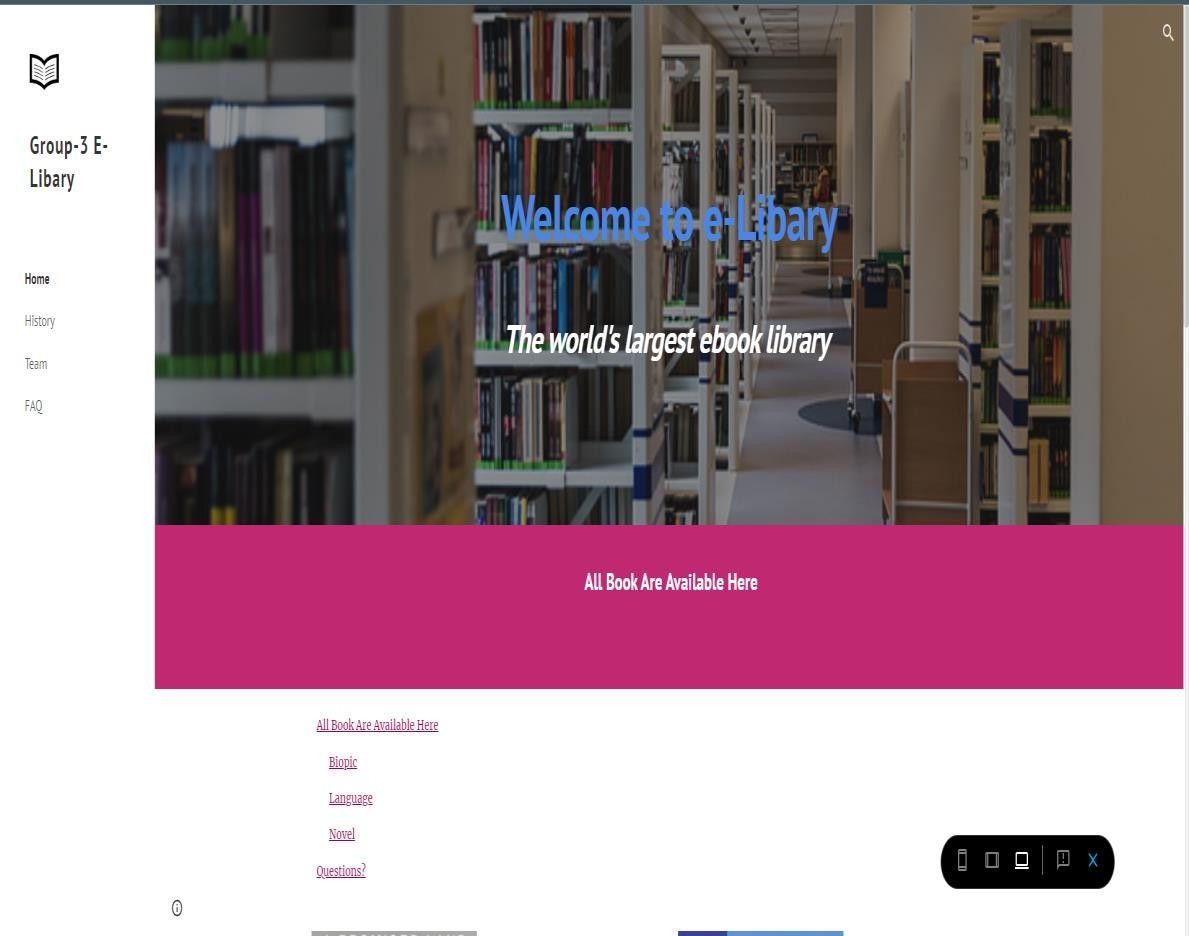
# Appendix C: Activity Diagram – Librarian



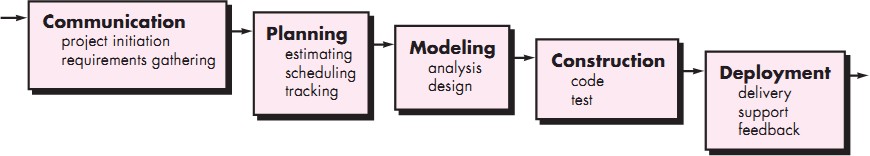
***Figure*** *Librarian Activity Diagram*

***UX Design***

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For our project we chose the Waterfall model. The waterfall methodology uses a sequential or linear approach to software development. The project is broken down into a sequence of tasks, with the highest-level grouping referred to as *phases*. The process of this model is quite functional. The waterfall technique is a structured process, with a list of specific tasks for each step, along with supporting documentation and exit requirements. Larger businesses frequently need to adopt SDLC methodology products, especially for more complex IT application projects. Due to the strict management requirements for budget, resources, deliverables, and scope, SIs also employ this strategy while developing IT applications for their clients. The steps of this model are as follows:



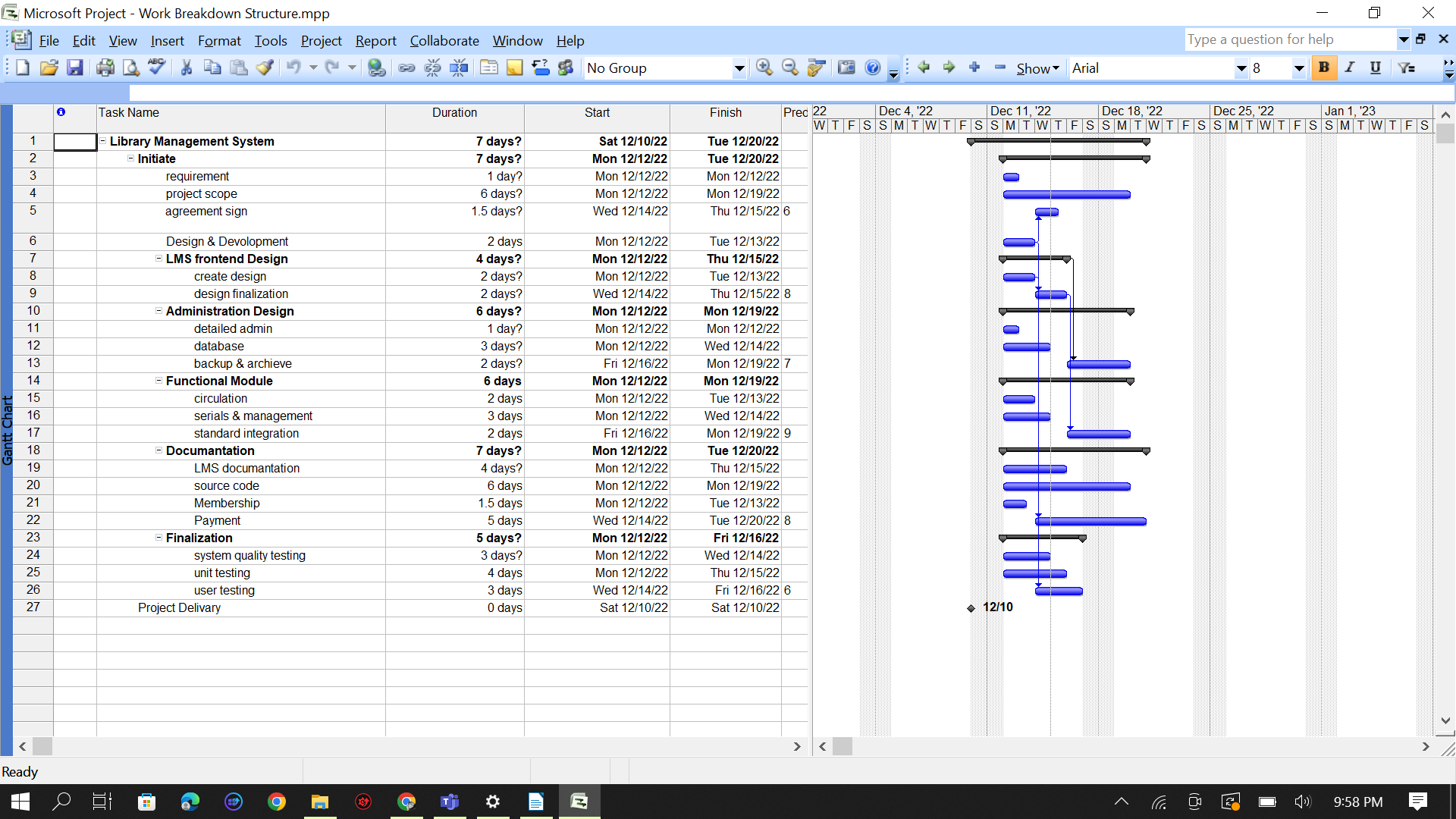
The reasons why we selected this model are plenty. The waterfall technique has the following advantages which suited best for our project model:

* Early requirements completion allows the team to fully define the project scope, develop a detailed timetable, and design the overall application.
* Because jobs can be divided to be completed in parallel or grouped to take use of resource

talents, resource utilization is improved.

* A better grasp of all the criteria and deliverables has led to a better application design.
* A thorough timeline and resource plan make it simpler to gauge the project's status.

*Work Breakdown Structure*

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**Testing**

**Test Case-1:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Project Name: E-library Management System | | Test Designed by: SHAH NAWAJ FAHIM | | |
| Test Case ID: 1 | | Test Designed date: 5/12/2022 | | |
| Test Priority: High | | Test Executed by: SHAH NAWAJ FAHIM | | |
| Module Name: Registration Session | | Test Executed date: 7/12/2022 | | |
| Test Title: Verify registration procedure with email ID | | | | |
| Description: Test website registration page | | | | |
| Precondition (If any): User must have an unique email ID and a valid password | | | | |
| Test Steps | Test Data | Expected  Results | Actual  Results | Status  (Pass/Fail) |
| 1. Go to the website  2. Select  "SIGNUP/LOGIN”  3. Select “Registration  here”  4. Select “Signup with  email”  5. Enter email ID  6. Slide to get email  code  7. Enter the code  8. Enter password  9. Enter Date of Birth  10. Enter Full Name  11. Click Signup | Email Address:  shahnawasfahim@gmail.com  Email Verification  Code: 063319  Password: shah12345 Birthday: 01/10/2000  Full Name:  SHAH NAWAJ FAHIM | User will be  Automatically  signed up to  his newly  created  account | As  expected , | Pass |
| Postcondition (If any): N/A | | | | |

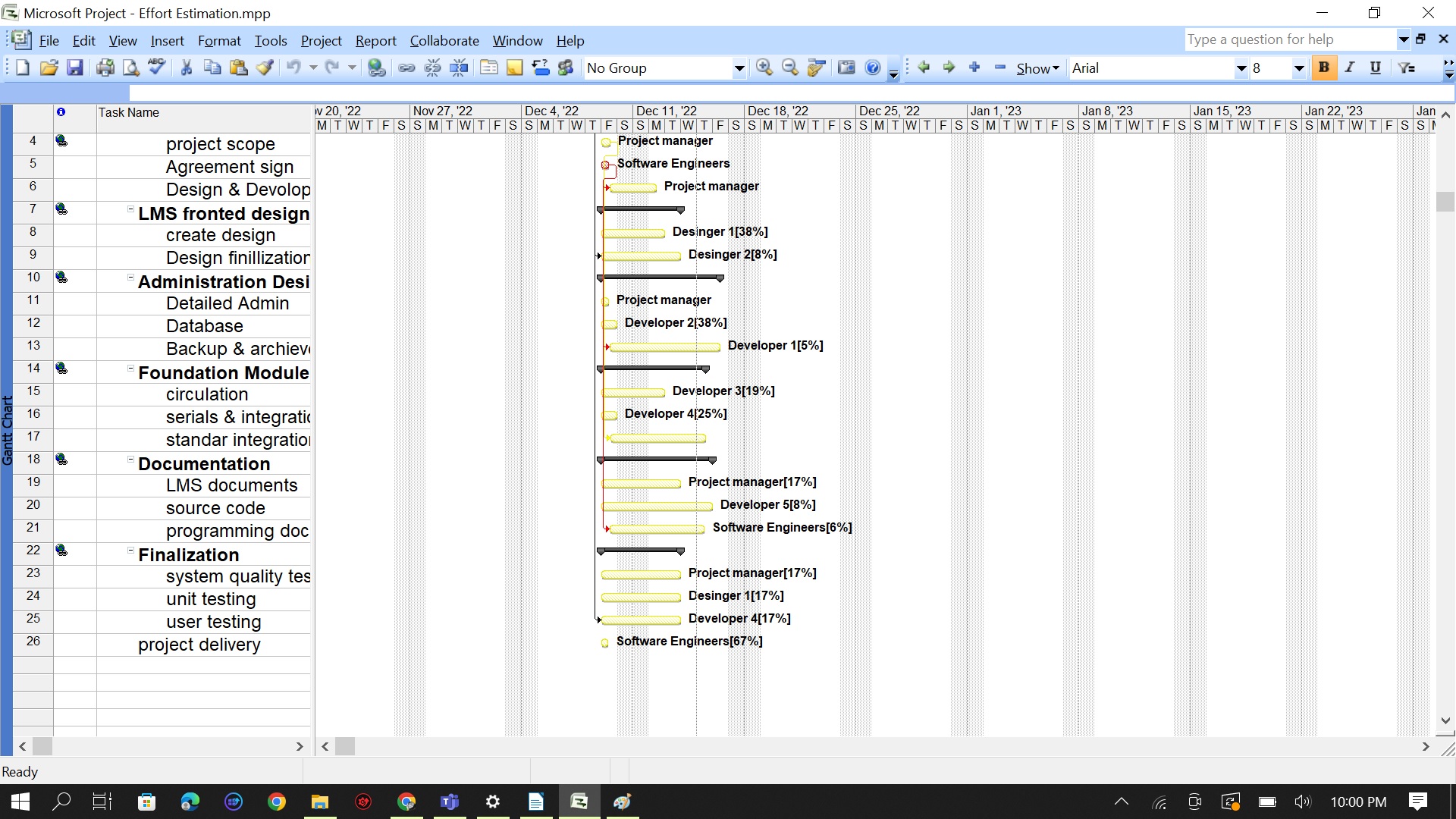
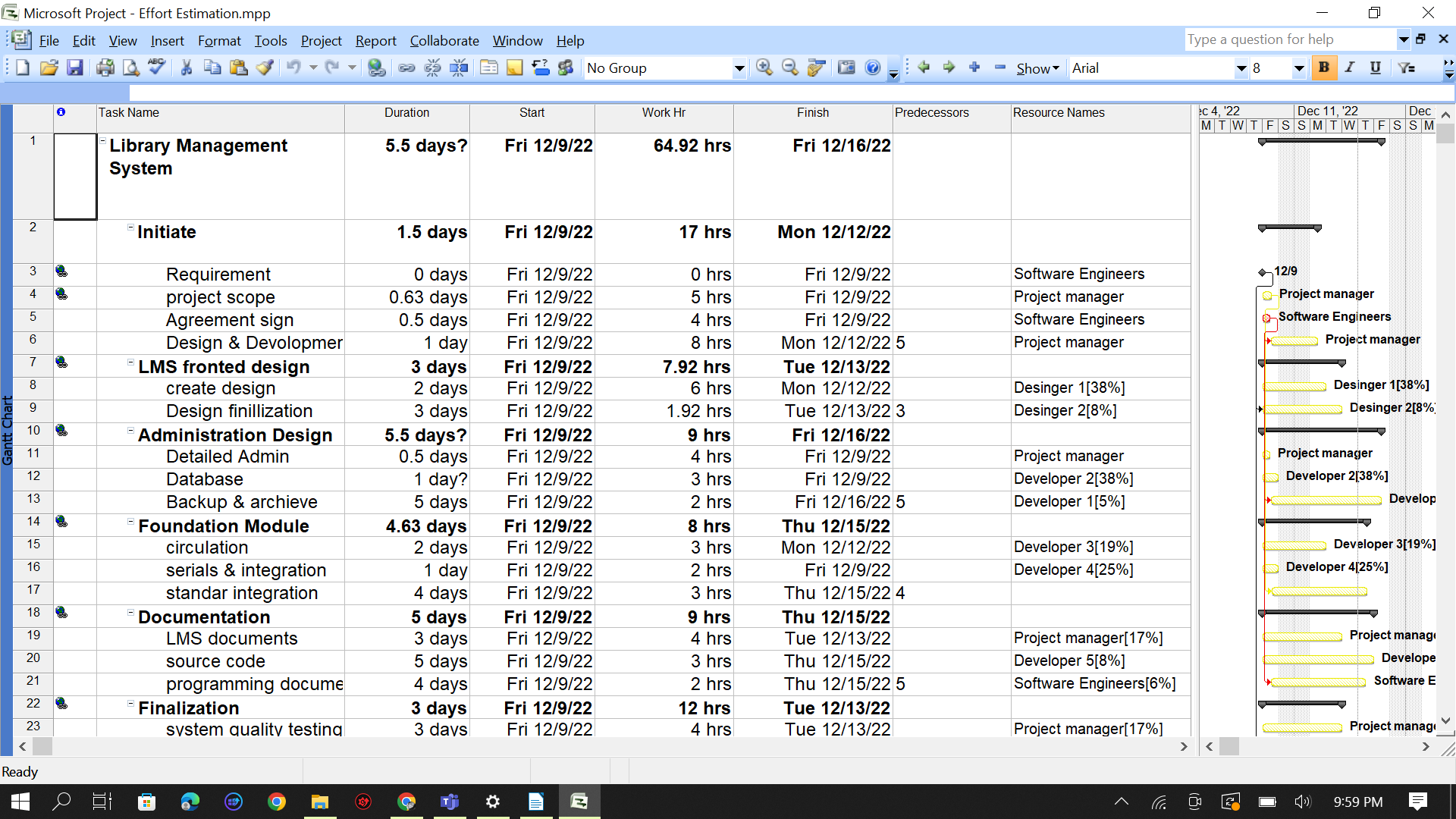
**Test Case-2:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Project Name: E-library Management System | | Test Designed by: Shah Nawaj Fahim | | |
| Test Case ID: 2 | | Test Designed date: 5/12/2022 | | |
| Test Priority: High | | Test Executed by: Shah Nawaj Fahim | | |
| Module Name: Booking and confirmation | | Test Executed date: 7/12/2022 | | |
| Test Title: Payment Gateway | | | | |
| Description: Test website booking route | | | | |
| Precondition (If any): User must select a payment method and provide necessary information. | | | | |
| Test Steps | Test Data | Expected  Results | Actual  Results | Status  (Pass/Fail) |
| 1. Go to the website  2. Login as an user  3. Select payment option  4. Fill the form with requird information  5. Click payment button. | Email Address:  shahnawasfahim@gmail.com  Email Verification Code:  063319  Password: shah12345  Birthday: 01/10/2000  Full Name:  SHAH NAWAJ FAHIM | The booking should be done successfully.  A modal will pop-up with a massage. | As  expected, | Pass |
| Postcondition (If any): N/A | | | | |

**Test Case-3:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Project Name: E-library Management System | | Test Designed by: Shah Nawaj Fahim | | |
| Test Case ID: 3 | | Test Designed date: 5/12/2022 | | |
| Test Priority: High | | Test Executed by: Shah Nawaj Fahim | | |
| Module Name: Make a membership | | Test Executed date: 7/12/2022 | | |
| Test Title: Membership service | | | | |
| Description: Test membership service of the website | | | | |
| Precondition (If any): User must have an unique email ID and a valid password | | | | |
| Test Steps | Test Data | Expected  Results | Actual  Results | Status  (Pass/Fail) |
| 1. Go to the website  2. Login as an user  3. Select get membership  button  4. Select time period  5. Press confirm button  6. payment method must be full-filled. | Email Address:  shahnawasfahim@gmail.com  Email Verification Code:  063319  Password: shah12345  Birthday: 01/10/2000  Full Name:  SHAH NAWAJ FAHIM | User will receive a membership confirmation mail. And will have unlimited access for a fixed period. | As  expected, | Pass |
| Postcondition (If any): N/A | | | | |

**Effort Estimation**

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**Resource**

