**fFigma :** [**https://www.figma.com/design/BGEVWzFPUjp3mqbV5N2AcB/Library-Management-System-(Community)?node-id=102-154&t=Z6GjeHl3iBT8LUoX-1**](https://www.figma.com/design/BGEVWzFPUjp3mqbV5N2AcB/Library-Management-System-(Community)?node-id=102-154&t=Z6GjeHl3iBT8LUoX-1)

**Functional Requirement**

In the context of the Library Management System, the functional requirements of the system are Login

credentials, Add and Edit Resources, Add and edit resource publication, Add and edit resource author,

Add and edit resource subscriber, Resource issue, Resource Return, Add/Remove users, Issue Notice,

View Profile. Firstly, the system should provide a secure login mechanism, allowing users to access

the system using unique credentials such as usernames and passwords. This ensures that only authorized individuals can interact with the system. Administrators should have the capability to add new resources

to the library database, including books, journals, and other materials. They should also be

able to edit existing resource information, such as titles, descriptions, and availability status. In addition,

the system should enable administrators to manage resource publication details, such as the

publisher's name, publication date, and ISBN. This information helps in categorizing and organizing

resources effectively. Administrators should also be able to add and update author information associated with library resources. This includes the author's name, biographical details, and other relevant metadata, facilitating efficient searching and filtering of resources.

Furthermore, the system should allow administrators to add new subscribers to the library and manage

their information. This includes subscriber names, contact details, and subscription status. It ensures

accurate record-keeping and communication with library patrons. To facilitate the borrowing process,

the system should provide functionality for librarians to issue resources to subscribers. This involves

assigning borrowed resources to specific individuals, updating the resource status to "borrowed," and

maintaining a record of issued resources for tracking purposes. Subscribers should also be able to return

borrowed resources to the library. The system should facilitate the return process, update the resource

status to "available," and handle any associated fines or penalties if applicable. Moreover, administrators

should have the authority to add new users to the system, such as librarians and staff

members, as well as remove users who no longer require system access. This ensures proper user management

and security. The system should also provide a mechanism for administrators to issue notices

or reminders to subscribers. These notices can include due date reminders, overdue notices, reservation

notifications, or any other relevant information to keep subscribers informed and engaged. Lastly, both

administrators and subscribers should have access to their profile information. This includes personal

details, borrowing history, preferences, and any additional user-specific settings. The ability to view

and manage profiles enhances user engagement and customization. By clearly defining and addressing

these functional requirements, the Library Management System can be developed and implemented

with the necessary features and actions required to effectively manage library resources and provide a

seamless user experience.

**3.1.2 Non-Functional Requirement**

In addition to the functional requirements, the Library Management System also requires the consideration

of non-functional requirements. These requirements focus on the characteristics and qualities of

the system that contribute to its overall performance, usability, security, reliability, and maintainability.

Analyzing and addressing these non-functional requirements are crucial for ensuring an optimal

user experience and efficient system operation. Analyzing the Non-functional requirements of the

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website Library Management System, the TABLE 3 shows the elements requirements that must be implemented

on the project:

No. Requirements Features

1 Security Users will be able to access the system using authorized username and password.

Only authorized user can have access to change their profile content or

password,

2 Usability The system should be user friendly and easy to use and understand.

3 Performance Every feature presented by the system has quick response time.

4 Reliability Users will be able to get the information about the activities of the organization.

5 Maintainability

System needs to be maintained for high performance. Updating database,

monitoring and error handling should be carried out daily.

**Use case diagram**

During the implementation of the project, a case diagram was created to visualize the relationships and

interactions within the application. Figure 8 represents this case diagram, which serves as a visual representation

of the system's functionality and the actors involved. The diagram depicts the primary actors,

such as administrators, librarians, and subscribers, who interact with the system to perform various

tasks and activities. The use cases illustrated in the diagram represent the specific functionalities

available to the actors within the system. These use cases include actions like logging in, managing resources,

handling user profiles, issuing and returning resources, and sending notices. The case diagram

provides a clear overview of the system's architecture, showcasing the flow of information and actions

between different components. By utilizing this diagram, developers and stakeholders can gain a better

understanding of the system's structure and functionality

, facilitating the successful implementation of

the Library Management System. (Hammad, 2020.)

**Feasibility Analysis**

Feasibility Analysis, also referred to as a Feasibility study, is a comprehensive evaluation of key factors

related to a project. It encompasses economic, technological, and operational aspects, as well as

FIGURE 8. Case diagram

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the project's time frame, to determine its potential for success. By conducting a feasibility analysis,

project stakeholders can assess the viability and practicality of the project, considering factors such as

financial resources, technical capabilities, and operational requirements. This analysis aids in making

informed decisions regarding the project's feasibility, allowing for effective resource allocation and

risk mitigation. (Osarome, 2011.)

**3.2.1 Technical Feasibility**

Technical feasibility study assesses the viability of a system from a technical perspective. It examines

whether the developed system is technically feasible and capable of meeting the required standards of

reliability, accuracy, and security. This evaluation considers the system's architecture, infrastructure,

compatibility with existing technologies, and the availability of necessary resources. The goal is to ensure

that the proposed system can be implemented effectively and will operate efficiently within the

desired technical framework. By conducting a technical feasibility study, project stakeholders can determine

the system's technical feasibility and make informed decisions regarding its development and

implementation. (Osarome, 2011.)

**3.2.2 Economical Feasibility**

The Economical Feasibility study assesses whether a system is economically viable. In the case of this

system, it utilizes existing resources and technologies without the need for additional hardware or software

interfaces. Moreover, the software used is freely available, further reducing costs. Based on these

factors, it can be concluded that the project is economically feasible. The absence of significant financial

investments and the utilization of cost-effective solutions contribute to the project's viability. By

conducting an Economical Feasibility study, stakeholders can make informed decisions regarding the

project's financial feasibility and ensure that it aligns with the available resources and budget.

**3.2.3 Operational Feasibility**

The operational feasibility of the Library Management System is supported by user-friendly interfaces

like HTML and CSS, which create an intuitive environment for both technical and non-technical users.

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These interfaces enable users to access the LMS from any web browser, ensuring ease of use and accessibility.

Additionally, the system exhibits quick response times, enhancing its operational feasibility.

These factors contribute to the overall efficiency and usability of the system, making it operationally

feasible. By considering operational feasibility, project stakeholders can ensure that the system

meets user expectations and can be effectively utilized in real-world scenarios. (Osarome, 2011.)

**3.2.4 Schedule Feasibility**

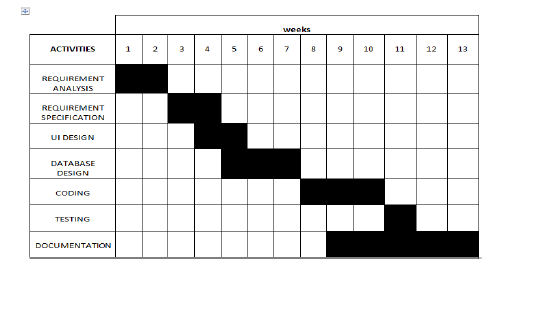
In the Gantt chart below, there is data of different tasks performed and their schedules while working

on the project. The requirement analysis was conducted for two week’s time. Requirement specification

and user interface was done in three weeks time. Database design, coding, testing and documentation

respectively took nine weeks timeframe in total. Also, the time taken to create and complete the

overall project is also shown in Table 4 below.



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| id | username | password | update | delete |

admin

payments

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| id | Type – donation/  Penalty/  booklost | Payee\_id | note | amount | Status  Received/  not | update | delete |

Fees

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| id | fee | amount  Penalty\_fee\_per\_day  Book\_lost\_fee | date | update | delete |

Subscriber

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| id | Full\_name | address | nic | Mobile\_no | email | occupation | Date\_joined | update | delete |

Subscriber\_books

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| id | Subs\_id | Subs\_name | Book\_id | Book\_name | Borrowed\_date | return\_date | returned\_date | delay | Penalty\_amount | Penalty \_status  Received/not | Book\_Status  Received/lost | Lost\_amount | Lost\_amount\_status  Received/not | update | delete |

Book\_details

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| id | isbn | name | author | Publish\_date | publishers | No\_of\_pages | lang | price | Added\_date | Status  Available/lost/not\_available | update | delete |