

**Tribhuvan University**

Faculty of Humanities and Social Sciences

**Online Music Library Platform**

**A PROJECT REPORT**

**Submitted To:**

**Department of Computer Application**

**Ratna Rajyalaxmi Campus**

***In partial fulfillment of the requirement for the Bachelor in Computer Application***

**Submitted By:**

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# SUPERVISOR’S RECOMMENDATION

I hereby recommend that this project prepared under my supervision by BISHAM RAJ PANDEY and BISHAL REGMI entitled “Online Music Library Platform” in partial fulfillment of the requirements for the degree of Bachelor of Computer Application is recommended for the final evaluation.

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# LETTER OF APPROVAL

This is to certify that the project prepared by BISHAM RAJ PANDEY and BISHAL REGMI entitled “Music Library Platform”, In partial fulfillment of the requirements for the degree of Bachelor in Computer Application has been evaluated in our opinion it id satisfactory in the scope and quality as a project for the required degree.

|  |  |
| --- | --- |
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# ABSTRACT

The purpose of the “Music Library Platform” is to make it easy for users to find music they like. This system aims to facilitate the discovery of music, along with providing a platform for artists to post music. The required software and hardware are readily available and easy to use

Key Words :

User-

Artist-

Moderators-

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# Introduction

## Background

The Music Streaming Platform is a web-based application that allows users to listen to songs, like or dislike them, and create playlists. Designed specifically for younger audiences with shorter attention spans, it introduces a unique preview-based listening system. Songs are played in short segments, encouraging quick engagement. The platform uses real-time data and recommendation algorithms to deliver personalized music suggestions. Both users and artists benefit from the interactive and user-friendly design.

## Problem Statement

The problems in current music streaming platforms are:

* Overwhelming content with poor personalization for new users
* Long tracks not engaging enough for younger audiences
* Ineffective or generic music recommendations
* Limited control for artists over preview and exposure

## Objectives

The objectives of the Music Streaming Platform are:

* To implement a short-preview based music recommendation system
* To offer a personalized experience using user behavior and preferences
* To allow users to build playlists from liked songs easily

## Scope and Limitation

### Scope

The scopes of Music Streaming Platform are :-

* Stream songs with smart preview-based auto-swiping
* Recommend music using hybrid collaborative and content-based filtering
* Allow users to like, playlist, and interact with songs
* Provide artists with tools to upload and set previews

### Limitation

The limitations of the Music Library Platform are:-

* Limited song selection in early versions
* Recommendations improve over time with more user data
* Preview system may not suit all genres or artists

## Report Organization

The report can be organized into 5 chapters which are given below:

Chapter 1: Includes introduction includes the brief introduction of the system, statement of problem, objectives, scope and limitation.

Chapter 2: Includes background study and literature review includes the previous work related to the systems and similar works were studied and are summarized.

Chapter 3: Includes system analysis and design includes different feasibility analysis and designed system architecture, system flow diagram, dataflow diagram.

Chapter 4: Includes implementation and testing includes various implementation method and tools and also contains description of testing.

Chapter 5: Includes conclusion and future recommendations includes outcomes of the system, conclusion to the system and description about what features can be added in the future.

# BACKGROUND STUDY AND LITERATURE REVIEW

## Background Study

Music streaming platforms have revolutionized the way people access and enjoy music, shifting from physical media and downloads to on-demand, cloud-based listening experiences. Beginning with early services like Pandora and Last.fm, and later evolving through major players such as Spotify, Apple Music, and YouTube Music, these platforms have introduced features like personalized playlists, curated recommendations, and artist interaction. As technology and user behavior have advanced, streaming apps have adapted to shorter attention spans, mobile-first access, and real-time engagement. In response to these trends, modern platforms are experimenting with new formats, such as song previews, swipe-based interactions, and AI-driven recommendations to enhance user retention. This evolution reflects a growing demand for more intuitive, engaging, and adaptive music experiences that cater to the preferences of younger, tech-savvy audiences.

In recent years, a noticeable shift has occurred in how younger audiences consume music, with a growing preference for shorter, more engaging formats driven by social media trends. Platforms like TikTok and Instagram Reels have played a significant role in popularizing brief, catchy music clips that go viral and influence listening habits. As a result, many artists now release songs with standout snippets designed to trend on these platforms, often prioritizing hook-heavy segments over traditional full-length compositions. This shift has challenged traditional music streaming platforms to adapt by incorporating features that support bite-sized content discovery and interactive user experiences. Our music streaming app is built with this transformation in mind, offering short previews, swipe-based liking mechanisms, and intelligent recommendation algorithms to cater to these emerging patterns of music consumption.

## Literature Review

The music streaming industry has undergone a significant evolution since the early 2000s, with platforms such as Pandora, Spotify, and Apple Music redefining how users discover and listen to music. These services leveraged algorithms to offer personalized recommendations, revolutionizing traditional radio-style listening. Over time, features like curated playlists, mood-based suggestions, and real-time activity tracking became integral to enhancing user engagement and satisfaction on streaming platforms.

Recommendation systems have remained at the core of user retention and satisfaction in music apps. Collaborative filtering, content-based filtering, and hybrid methods are commonly used to tailor music recommendations based on listening history, user preferences, and behavior patterns. However, younger audiences—especially those influenced by short-form content—demand quicker engagement, prompting platforms to experiment with features like song previews, story-style snippets, and interactive discovery interfaces.

Furthermore, user interactivity and seamless content navigation have become increasingly important in modern platforms. Swipe-based UI, short music segments, and real-time feedback mechanisms are being implemented to align with shorter attention spans and evolving content consumption habits. These trends illustrate the need for adaptable systems that prioritize personalized, fast-paced, and visually appealing experiences. By reviewing the progression of music streaming technologies and user expectations, developers can create platforms that effectively address modern user behavior and technological possibilities.

Machine learning and artificial intelligence (AI) have become crucial in advancing recommendation algorithms within music streaming platforms. Algorithms like matrix factorization, deep neural networks, and reinforcement learning are now utilized to predict user preferences more accurately. These intelligent systems analyze vast amounts of user data, including listening time, skip rate, likes, and playback frequency, to continuously refine recommendations. The application of such techniques allows platforms to deliver more personalized and engaging music discovery experiences.

Another major focus in recent developments is the inclusion of user-centric features, such as social sharing, collaborative playlists, and mood-based filtering. Studies indicate that users are more likely to engage with a platform that provides interactive and customizable experiences. Music applications are increasingly adopting intuitive interfaces and features like drag-and-drop playlist creation, song previews, and real-time collaboration to appeal to diverse user groups. These elements also foster a sense of community and help drive organic content discovery among users.

Moreover, the emergence of hybrid recommendation systems, which combine collaborative and content-based filtering techniques, has addressed some of the key limitations found in traditional models. By leveraging both user behavior and song metadata—such as genre, tempo, and mood—hybrid systems improve recommendation accuracy and cater to a broader audience, including new users with limited listening history. These systems have proven especially effective in reducing the cold-start problem and ensuring consistent user satisfaction across different user profiles.

# SYSTEM ANALYSIS AND DESIGN

## System Analysis

System analysis involves collecting and understanding information about the Music Library Platform to identify problems and suggest improvements. It's a problem-solving process that requires communication between users and developers. The analyst closely examines the current system, identifying issues and proposing solutions. These proposals are compared with the existing system, and the best one is chosen after user approval. Preliminary study gathers facts and conducts feasibility studies to guide further analysis and decision-making.

## Requirement Analysis

Requirement analysis was performed by examining existing systems. Systems like spotify, were examined and studied to gather requirements for the system.

### Functional Requirement

Function requirements define the fundamental actions that system must perform. The functional requirements for the system are divided into three categories, moderators, atist and users as well as further details, referred to as use cases. The Use case Diagram of the system is given below:

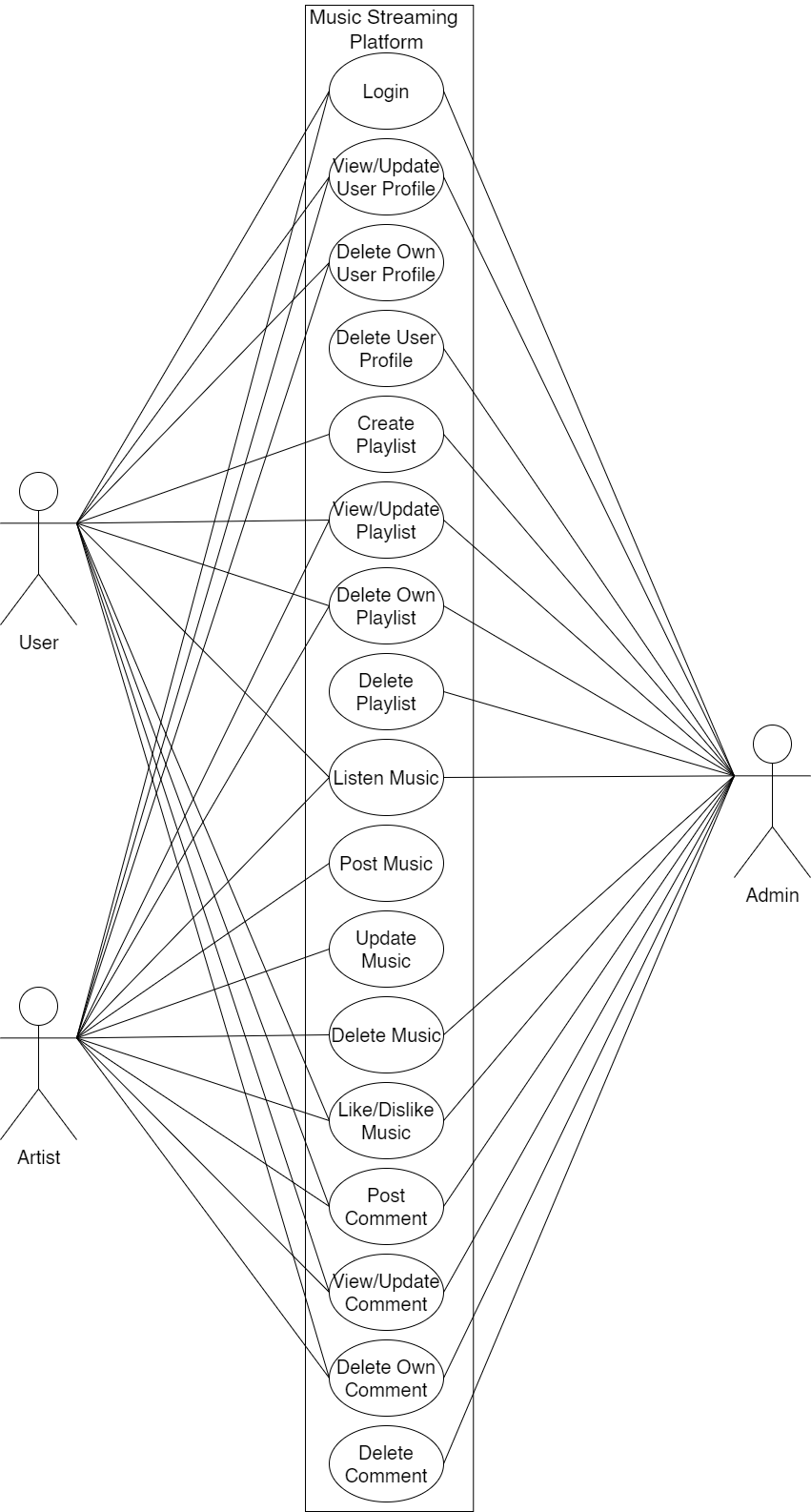


Figure 1:Use case Diagram of Online Music Library Platform

### **Non-**Functional Requirement

* Portability: Our system platform independent system so it can run in any browser.
* Security: There is a high security in keeping the information of user and transaction of money.
* Backup: In case of system failure there is database which will store all the information about all the client.
* User friendly: Our system is user friendly, it can be easily use and understand by user.

## Feasibility Analysis

A feasibility study aims to objectively and rationally uncover the strengths and weaknesses of an existing business or proposed venture, opportunities and threats present in the natural environment, the resources required to carry through, and ultimately the prospects for success.

### Technical Feasibility

As this system is built using the MERN stack—MongoDB, Express.js, React.js, and Node.js—it supports smooth integration, modular development, and scalability. These technologies are widely used and supported, making the system easy to deploy and maintain. MongoDB allows efficient handling of large volumes of user and music data. With this robust tech stack, the project is technically sound and feasible for implementation across various platforms.

### Operational Feasibility

Operational feasibility examines how effectively the proposed system will run in a real-world setting. The music streaming platform is designed to address common issues like limited personalization and slow content discovery.

* The system provides smooth performance and fast load times.
* Users will experience a seamless music browsing and recommendation process.
* The system efficiently uses the available resources to ensure reliable operation.

### Economic Feasibility

This system aims to deliver strong economic value to its users and stakeholders by minimizing costs while maximizing benefits.

* The platform is cost-efficient and uses open-source tools.
* Efficient management and automated recommendation reduce maintenance efforts.
* The long-term benefits, including user retention and satisfaction, outweigh initial development costs.

### Scheduling Feasibility

This seeks to assess the time that the proposed system will take to develop and implement.

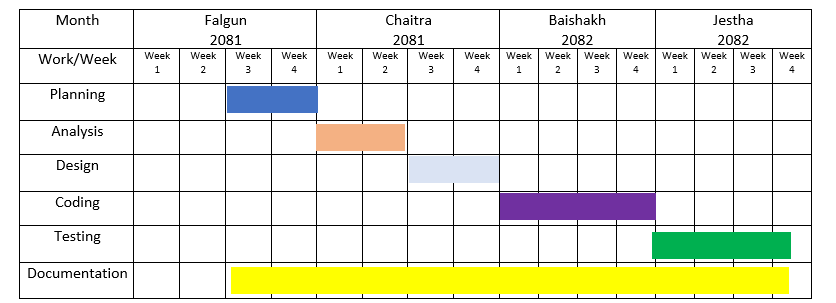
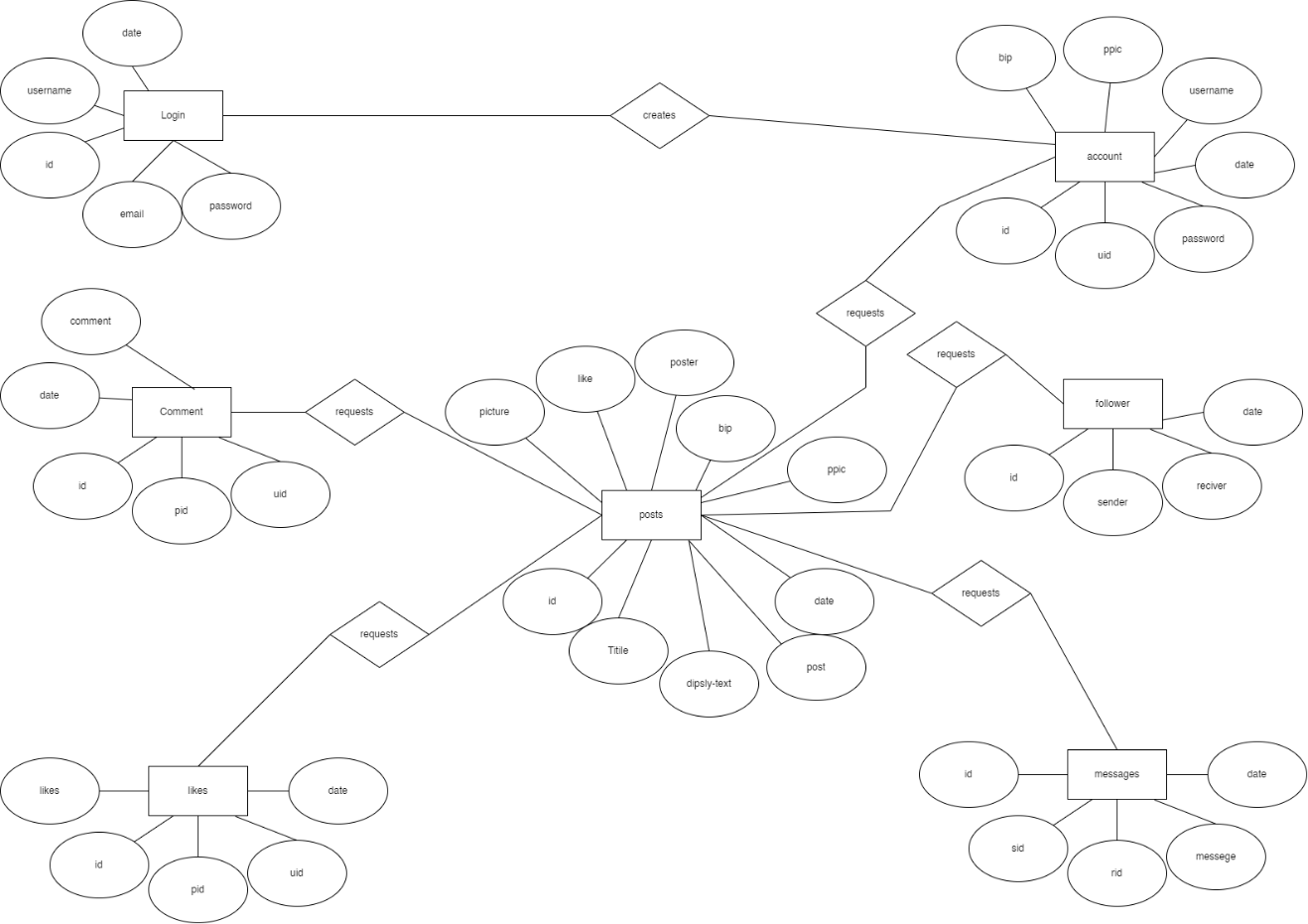
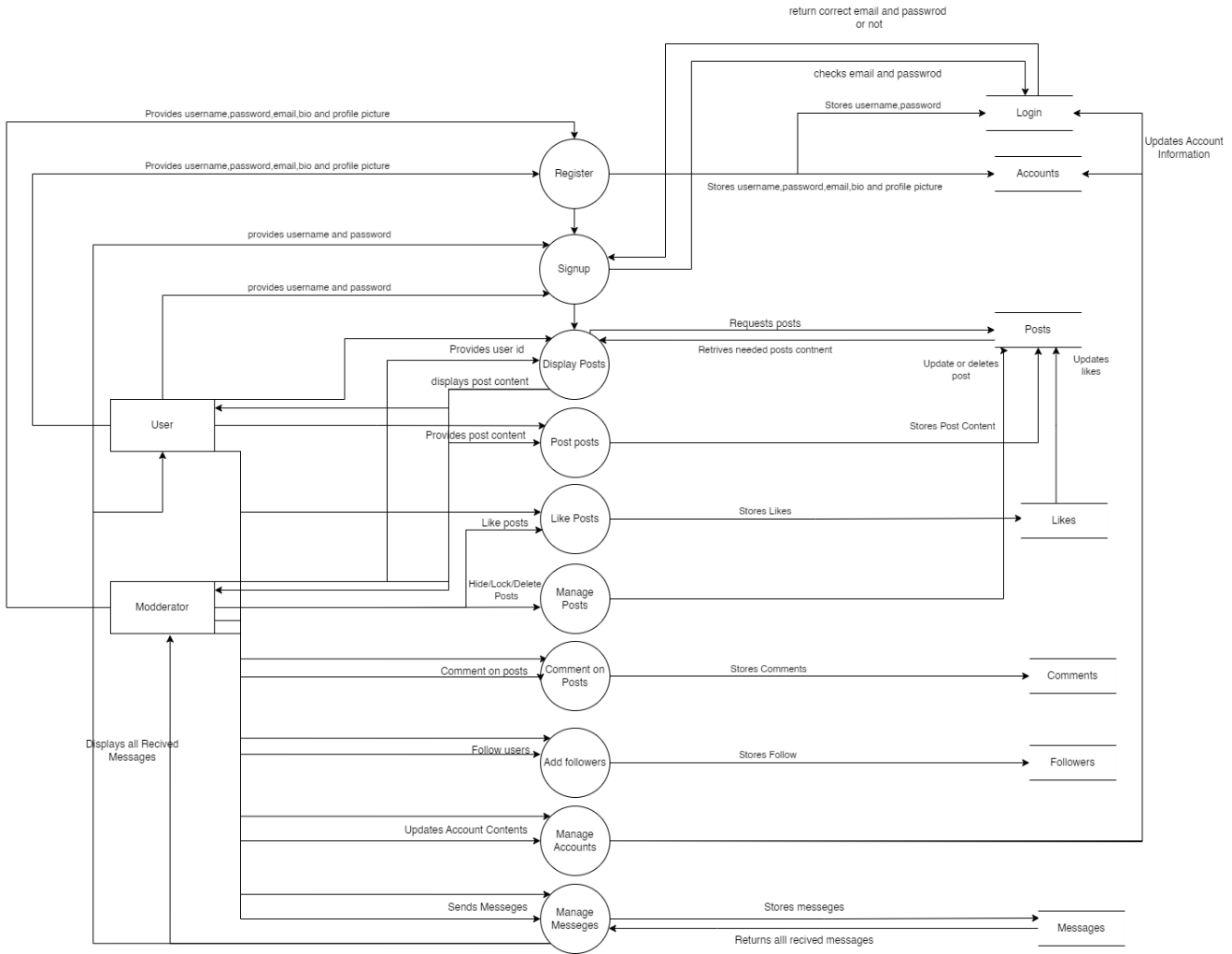
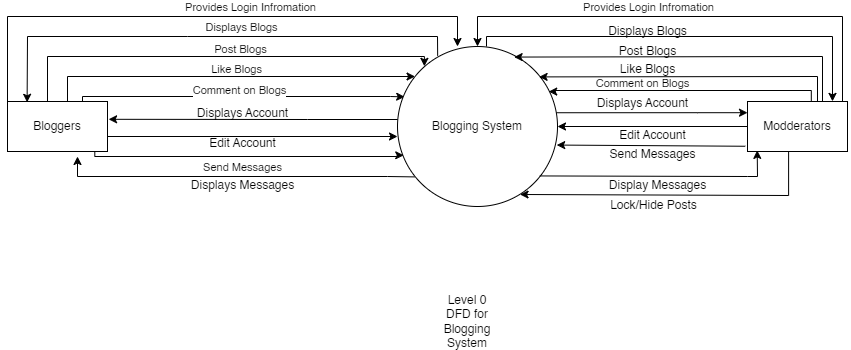


Figure 2: Gantt Chart of Online Music Library Platform

Data Modeling (ER-Diagram)



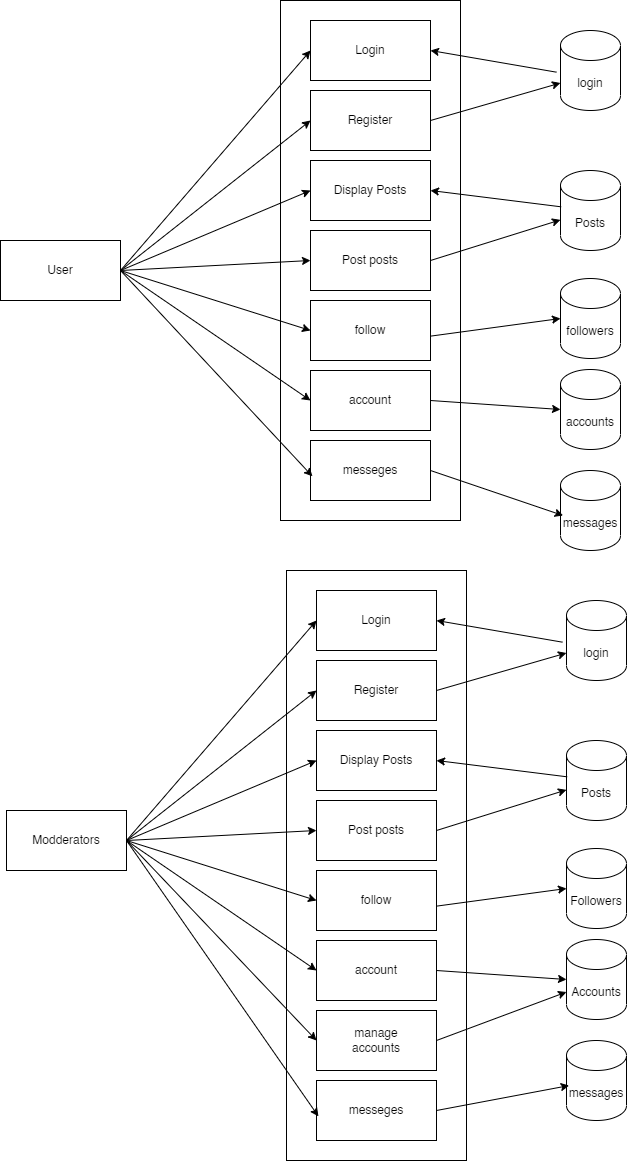
3.1.4. Process Modeling (DFD)



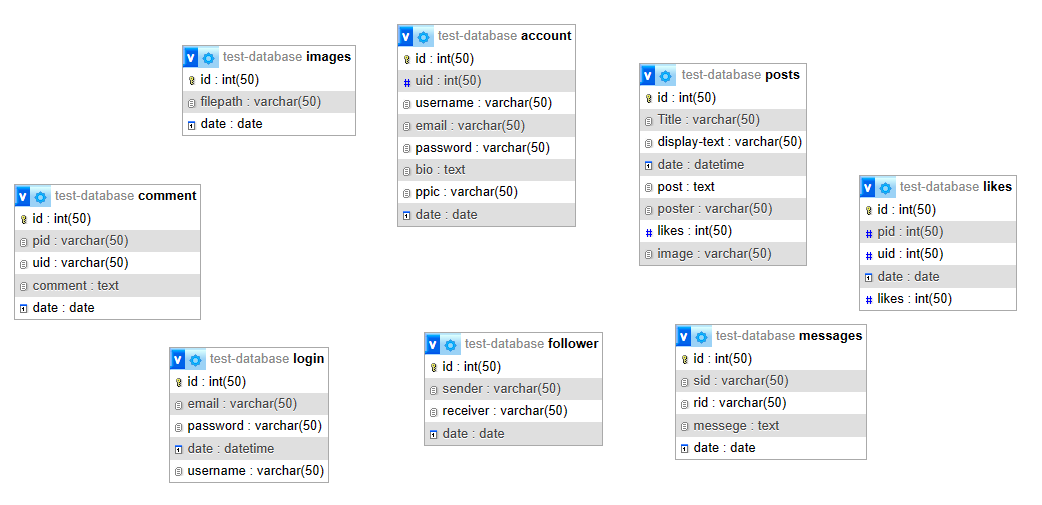
3.2. System Design

System design is the most creative and challenging. The System Design Document describe the system requirements, Operating, system and subsystem architecture, files and database design, input formats, output layouts, human-machine interface, detailed design, processing logic, and external interface.

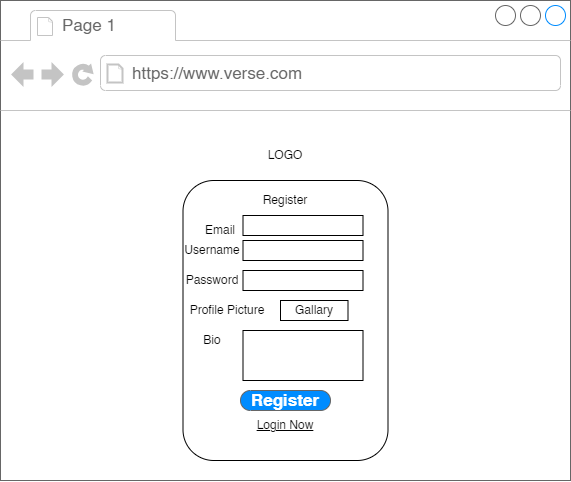
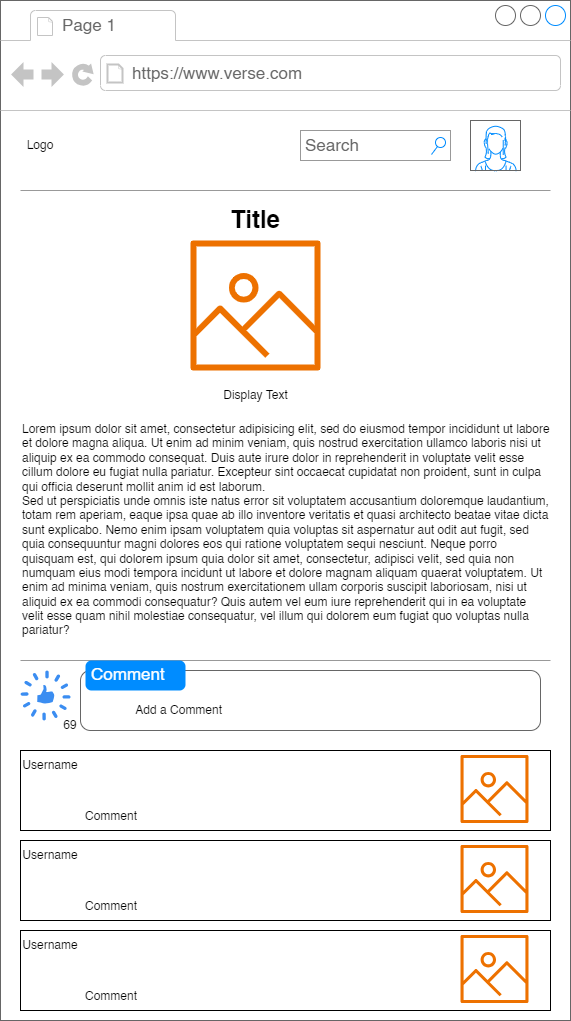
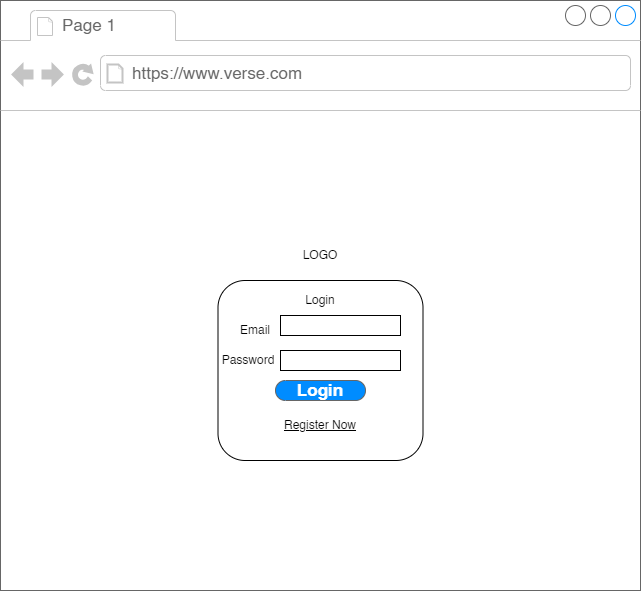
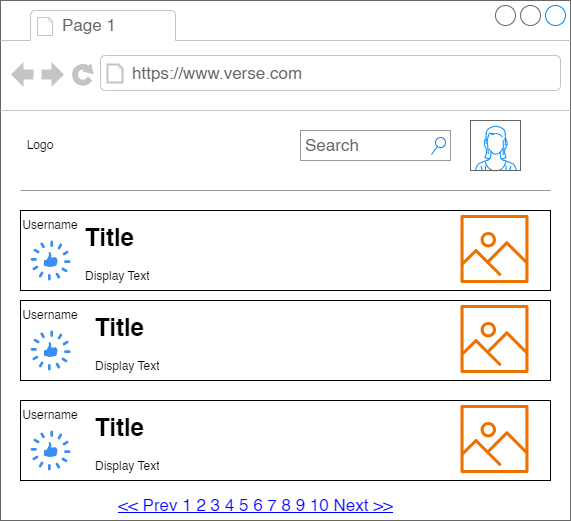
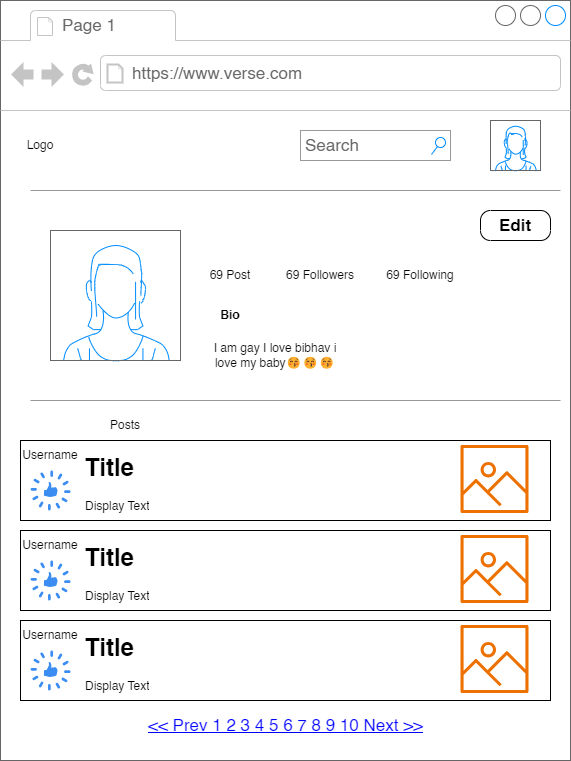
3.2.1. Architectural Design



3.2.2. Database Schema Design



3.2.3. Interface Design



3.2.4. Physical DFD

**CHAPTER 4: Implementation and Testing**

4.1. Implementation

The implementation phase involves the application of design specifications done before. The implementation involves coding of the system designs if this project, systems testing are live running. During implementation we start coding according to our requirement.

4.1.1. Tools Used

This project is developed using the tools, which are most suited for development of the PSTU web-based system. These tools are as follows:

HTML (For develeoping the basic structure of the site)

CSS (for designing and styling the html page)

Javascript(for making the site more responsive and adding additional functions)

PHP (For interacting with database)

MYSQL (For database Storage)

4.1.2. Implementation Details of Modules

There are various modules present in this system. They are

Login Module

The Login module facilitates the login process for registered users. The user provides their username and password which will lead them to the system.

Register Module

The Register module facilitates the registration process for new users. The user provides information such as username, email, profile picture etc.

Post Module

This module allows the user to post posts. The user provides information such as title, text image which is then stored and displayed to other users.

Display Module

This module allows the user to see the post other users have posted. This allows users to read other people's blogs

Account Module

This module allows the user to see their own account. This allows the user to change their username, password, profile picture etc.

4.2. Testing

The testing section is accomplished to validate the News portal System. The News Portal System is examined to test if the final system can work in keeping with what we have been waiting for and is free from any programming and logical errors. It additionally makes sure whether or not all of the system and requirements are met or not.

4.2.1. Test Cases for Unit Testing

Unit testing is a software program development method in which the smallest testable components of an application, know as units, are individually and independently scrutinized for correct operation. Below are the numerous tables for distinctive test case.

Table 1: Test case 1 Register

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.N** | **Test Case** | **Input** | **Expected Outcome** | **outcome** |
| 1 | Navigate to Register page | Path: http://localhost/codes/4th%20sem/unit-2-php/test/test-register.php | Register page should open | As expected i.e. Member is navigated to register in page of system |
| 2 | Provide own details | Email, username, password, profile picture, bio | Credential should be entered | As expected |
| 3 | Click register Button | Button clicked | User should be registerd | As Expected |

Table 2: Test case for login

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.N** | **Test Case** | **Input** | **Expected Outcome** | **outcome** |
| 1 | Navigate to Login page | Path: http://localhost/codes/4th%20sem/unit-2-php/test/test-login.php | Login page should open | As expected i.e. Member is navigated to login page of system |
| 2 | Provide details | Email and password | Credential should be entered | As expected |
| 3 | Click login Button | Button Clicked | User should log in | User is logged in |
| 4 | Provide wrong email | Wrong email and password | Credential should be entered | As expected |
| 5 | Navigate to register page | Link to go to register page is clicked | Register page should open | As expected i.e. Member is navigated to register page of system |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | **S.N.** | **Test Case** | **Input** | **Expected output** | **Output** | | **1** | **Navigated from login page** | **Button click ed** | **Redirected to display page** | **As expected** | | **2** | **Search for blogger** | **Blogger username** | **Failure** | **Not redirected to user** | | **3** | **Like post** | **Button clicked** | **Blogged like** | **As expected** | | **4** | **Redirected to test display page** | **Title clicked** | **Redirected to display page** | **As expected** | | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.N.** | **Test case** | **Input** | **Expected Outcome** | **Output** |
| **1** | **Redirected from test case** | **Button clicked** | **Success** | **As expected** |
| **2** | **Like post** | **Button clicked** | **If previously like unlike and vise versa** | **As expected** |
| **3** | **Display comments** |  | **Comment should be displayed** | **As expected** |
| **4** | **Post comments** | **Comment text** | **Comment should be posted** | **As expected** |
|  |  |  |  |  |

4.2.1. Test Cases for system Testing

System Testing is a from of software testing that is executed on a complete integrated system to assess the compliance of the system with the corresponding requirements.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sn | Test Case | **Test Data** | **Expected Outcome** | **outcome** |
| 1 | Check Register | Username, password, email  Profile picture, bio | User register | As expected |
| 2 | Check Login | Email, password | User login | As expected |
| 3 | Check display |  | Displays posts of all followed people | As expected |
| 4 | Check Posts | Title, display text, actual text, image | Post created and saved | As expected |
| 5 | Like posts | Button clicked | Post liked if unliked before, unliked if liked before | As expected |
| 6 | Find other users | username | Redirected to searched user account | failure |
| 7 | Comment on post | Comment text | Comment added | As expected |

**5. Conclusion and Future Recommendations**

**5.1. Lesson Learnt**

In creating the online blogging system, we've learned some important lessons. First, listening to users and making changes based on their feedback is crucial for improving the platform. Second, ensuring accessibility for all users, including those with disabilities, is essential. Third, having effective tools for content moderation helps maintain a positive community atmosphere. Lastly, staying adaptable and keeping up with trends is key for the platform's success in a fast-changing digital world.

**5.2. Conclusion**

In conclusion, the development of an online blogging system represents a significant opportunity to harness the power of digital technology for creative expression, information sharing, and community building. By providing users with user-friendly platforms to publish content, interact with audiences, and explore diverse topics, online blogging systems empower individuals and organizations to amplify their voices and connect with others on a global scale. While challenges such as content moderation, monetization, and accessibility remain, the evolving landscape of blogging continues to offer exciting possibilities for innovation and collaboration. As we move forward, it is essential to prioritize user experience, inclusivity, and ethical practices to ensure that online blogging systems continue to thrive as vibrant and valuable tools for communication and engagement in the digital age.

**5.3. Future Recommendations**

As the Project comes up with some limitation which can be improved in future and further more advancement can also be made. The different features that can be added are as follows:

Videos should also be able to be uploaded

Live support should be enabled.

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