



Tribhuvan University
Faculty of Humanities and Social Sciences

A PROJECT REPORT ON

ConnectMe: A Niche Social Media Platform

Submitted to
Department of Computer Application
Ambikeshwari Campus

In partial fulfillment of the requirements for the Bachelors in Computer Application

Submitted by

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Supervisor's Recommendation

I hereby recommend that this project prepared under my supervision by Manish Bhusal entitled **“ConnectMe: A Niche Social Media Platform”** in partial fulfillment of the requirements for the degree of Bachelor of Computer Application is recommended for the final evaluation.

SIGNATURE

Mr. Nabraj Basel

SUPERVISOR



Tribhuvan University
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Ambikeshwari Campus

LETTER OF APPROVAL

This is to certify that this project prepared by Manish Bhusal entitled “**ConnectMe: A Niche Social Media Platform**” in partial fulfillment of the requirements for the degree of Bachelor in Computer Application has been evaluated. In our opinion it is satisfactory in the scope and quality as a project for the required degree.

SIGNATURE of Supervisor Mr. Nabraj Basel	SIGNATURE of HOD/ Coordinator Mr. Nabraj Basel
SIGNATURE of Internal Examiner	SIGNATURE of External Examiner

Abstract

The purpose of this project is to provide a social media platform where users can create, share, and engage with communities based on common interests. ConnectMe allows users to post content, edit, view, and delete their posts, fulfilling the core CRUD (Create, Read, Update, Delete) functionalities. It ensures structured content management and user-friendly interaction. The system serves as a foundation for future enhancements, such as community-based discussions, user engagement features, and personalized dashboards. Git and GitHub were used for version control and collaboration, ensuring efficient project management and scalability.

Keywords:

Social Media Platform, CRUD Operations, Community Engagement, ASP.NET MVC, Database Management, User Interaction

Acknowledgement

I would like to express my sincere gratitude to my supervisor, Mr. Nabraj Basel, for his valuable guidance, continuous support, and insightful suggestions throughout the development of this project, **ConnectMe**. His mentorship played a crucial role in helping me successfully implement the project and gain a deeper understanding of web development and database management.

I would also like to extend my appreciation to my professors and colleagues for their encouragement and constructive feedback, which contributed significantly to the improvement of this project.

Lastly, I am grateful for the opportunity to work on this project, which has allowed me to apply my knowledge of ASP.NET MVC, MSSQL, HTML, CSS, and JavaScript in a practical setting, enhancing my skills in software development.

Manish Bhusal

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1. Chapter 1: Introduction

1.1 Introduction

ConnectMe is a social media platform designed to enable users to create and join communities based on shared interests. It provides a space where users can engage through posts, comments, and discussions, fostering meaningful interactions. The platform allows users to post content, edit, read, and delete posts, fulfilling the core **CRUD (Create, Read, Update, Delete)** operations.

The primary goal of **ConnectMe** is to create an organized and interactive space where users can connect with like-minded individuals, share knowledge, and participate in discussions

within their communities. The system also ensures that user-generated content remains manageable and structured.

The platform has been developed using **ASP.NET MVC** for the backend, **MSSQL** for database management, and **HTML, CSS, and JavaScript** for the front-end, ensuring a responsive and user-friendly interface. Git and GitHub have been used for version control and collaboration. While the current version primarily focuses on CRUD operations for posts, future enhancements can include additional features like user authentication, community management, and real-time interactions.

1.2 Problem Statement

In today's digital era, social media platforms play a significant role in connecting people, yet many existing platforms lack dedicated spaces for structured, topic-based discussions. Users often struggle to find well-organized communities where they can engage in meaningful conversations without distractions.

Additionally, most social media platforms do not provide **simplified content management** for users, leading to issues such as:

- **Lack of dedicated spaces for communities:** Users cannot easily find or create interest-based communities tailored to specific topics.
- **Limited content control:** Many platforms do not allow users to efficiently manage their posts, making it difficult to edit or delete content when needed.
- **Scattered engagement:** Users find it challenging to track discussions and contributions within their communities.

To address these challenges, **ConnectMe** was developed as a **community-driven** platform with structured post management, ensuring users can create, edit, and delete content within their communities seamlessly. It serves as a foundation for building a scalable and user-friendly social media experience while providing a structured environment for discussions.

1.3 Objectives

The primary objectives of the **ConnectMe** project are:

- To develop a **social media platform** that enables users to create and join communities based on shared interests.
- To implement **CRUD (Create, Read, Update, Delete) functionality** for posts, allowing users to create, edit, and delete their content seamlessly.
- To provide a **user-friendly and interactive platform** for discussions, engagement, and content sharing.

- To ensure **structured content management**, making it easy for users to organize and interact with posts within their communities.
- To lay the foundation for **future enhancements**, including user authentication, real-time engagement, and advanced community features.

1.4 Scope and limitation

Scope

- **User Engagement:** Users can create, edit, and delete posts within their communities.
- **Community Management:** Users can join and interact within different communities based on their interests.
- **Content Moderation:** Basic content management allows users to maintain relevant discussions.
- **Scalability:** The platform is designed with extendability in mind, allowing additional features to be integrated in the future.

Limitation

- **Limited Features:** Currently, the project focuses only on CRUD operations for posts; other features like real-time messaging, notifications, and advanced community moderation are yet to be implemented.
- **No Advanced User Authentication:** The current version does not include advanced security features like multi-factor authentication.
- **No Monetization or Online Payment:** The platform does not support payment systems for premium features or advertisements.
- **Internet Dependency:** Users require an active internet connection to access and interact with the platform.

1.5 Report Organization

The report is structured as follows:

- **Chapter 1:** Introduction – Provides an overview of the ConnectMe project, including the problem statement, objectives, scope, and limitations of the system.
- **Chapter 2:** Background Study – Discusses the concepts and technologies related to social media platforms. It includes a literature review that examines similar systems to compare features and functionalities.
- **Chapter 3:** System Analysis and Design – Covers the system architecture, database schema, and interface design. It includes various diagrams such as use case diagrams, data flow diagrams (DFD), and entity-relationship (ER) diagrams to explain system functionality.
- **Chapter 4:** Implementation and Testing – Details the tools, technologies, and frameworks used in the project. It also explains the project implementation process, including algorithms and test cases used to validate system performance.
- **Chapter 5:** Conclusion and Future Enhancements – Summarizes the lessons learned throughout the development of the ConnectMe platform. It provides recommendations for future improvements, including potential features like real-time messaging, user authentication, and enhanced community interactions.

2. Chapter 2: Background Study & Literature Review

2.1 Background Study

The **ConnectMe** platform is designed to provide users with an interactive social media experience where they can create and join communities, share posts, and engage in discussions. The idea of this project originated from the limitations of traditional online forums and the need for a structured yet engaging platform where users can connect based on shared interests.

In traditional social media and online communities, some common issues arise:

- **Lack of personalization:** Users often face difficulty finding relevant content that aligns with their interests.
- **Limited control over content visibility:** Many platforms prioritize engagement-driven algorithms rather than community-driven content.
- **No dedicated communities for niche topics:** While larger platforms like Facebook and Reddit allow for communities, many users find them either too broad or too cluttered with unrelated content.
- **Poor content management:** Posts often get buried under new content, making it hard to track past discussions.

ConnectMe aims to solve these problems by allowing users to create and manage focused communities, ensuring a personalized and structured interaction within interest-based groups.

2.2 Literature Review

The development of **ConnectMe** is influenced by various existing social networking and online community models. The evolution of social media platforms has shown a shift from general-purpose networks to community-driven interactions.

Social Media and Community Models

1. **Early Online Communities:** Early platforms like forums, bulletin boards, and Usenet allowed users to communicate based on common interests, but they lacked modern interactivity, real-time updates, and user engagement features.
2. **Rise of Modern Social Media:** Platforms like Facebook, Twitter, and Reddit have integrated social networking with algorithm-driven content visibility, allowing users to engage dynamically.
3. **Niche Community Platforms:** Websites like Discord and Reddit Communities provide interest-based interaction models where users can join and contribute to specific topics.

Technology Trends in Social Media Development

- **Personalized Feeds:** Modern platforms employ AI-driven recommendations for content curation based on user activity and preferences.
- **Data Security and Privacy:** With increasing concerns over data privacy, platforms implement user authentication and access controls to ensure secure interactions.
- **Decentralized Communities:** Unlike algorithm-driven content visibility, decentralized platforms focus on user-driven discussions where content remains relevant and easily accessible.

By analyzing existing social media structures, ConnectMe is built as a hybrid solution that bridges the gap between traditional forums and algorithm-driven platforms, providing a community-focused, personalized user experience.

3. Chapter 3: System Analysis and Design

3.1 System Analysis

It is a process of collecting and interpreting facts, identifying the problems, and decomposition of a system into its components.

System analysis is conducted for the purpose of studying a system or its parts in order to identify its objectives. It is a problem-solving technique that improves the system and ensures that all the components of the system work efficiently to accomplish their purpose.

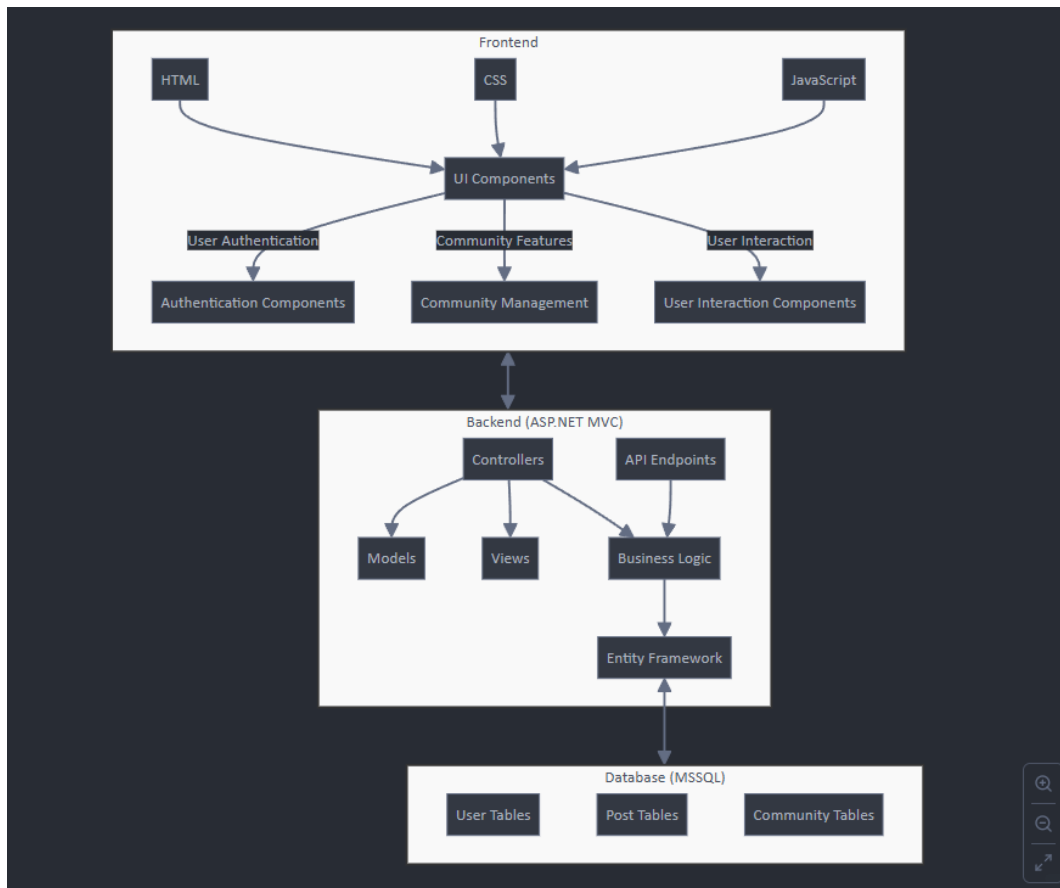
The system will be analyzed based on user needs, focusing on creating a platform that is intuitive, secure, and easily scalable. The analysis will include:

- a. **User Requirements:** Understanding the needs of users seeking niche communities.
- b. **Functional Requirements:** Defining CRUD operations, user authentication, and community management.
- c. **Non-Functional Requirements:** Ensuring the platform is secure, responsive, and user-friendly.

3.2 System Design

The system design will involve:

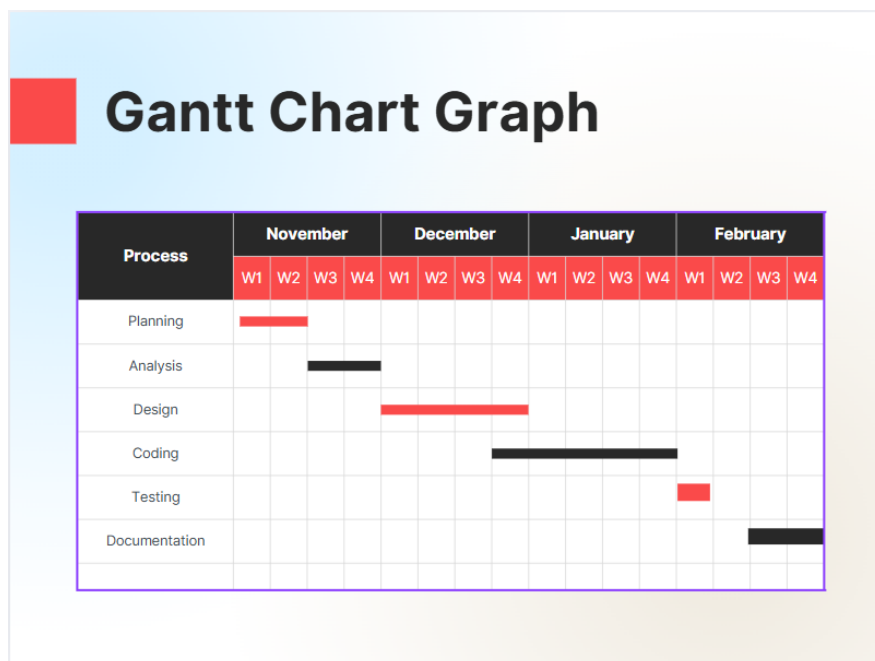
- **Frontend:** Developed using HTML, CSS, and JavaScript, providing the necessary UI components for user authentication, community management, and user interaction.
- **Backend:** Built with ASP.NET MVC, handling CRUD operations for the post feature, API requests, and business logic.
- **Database:** Implemented using MSSQL, managed through Entity Framework, supporting CRUD operations for posts and user data management.



3.2.1 Project Schedule

The tentative time schedule to accomplish this project along with task are as shown in the figure below:

Gantt Chart:



3.2.2 Process Scheduling(DFD)

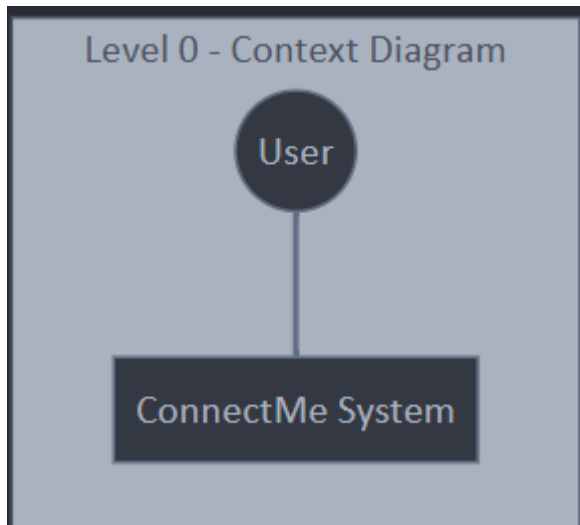


Fig: Context Diagram of ConnectMe

The context diagram showing the user interacting with the ConnectMe system.

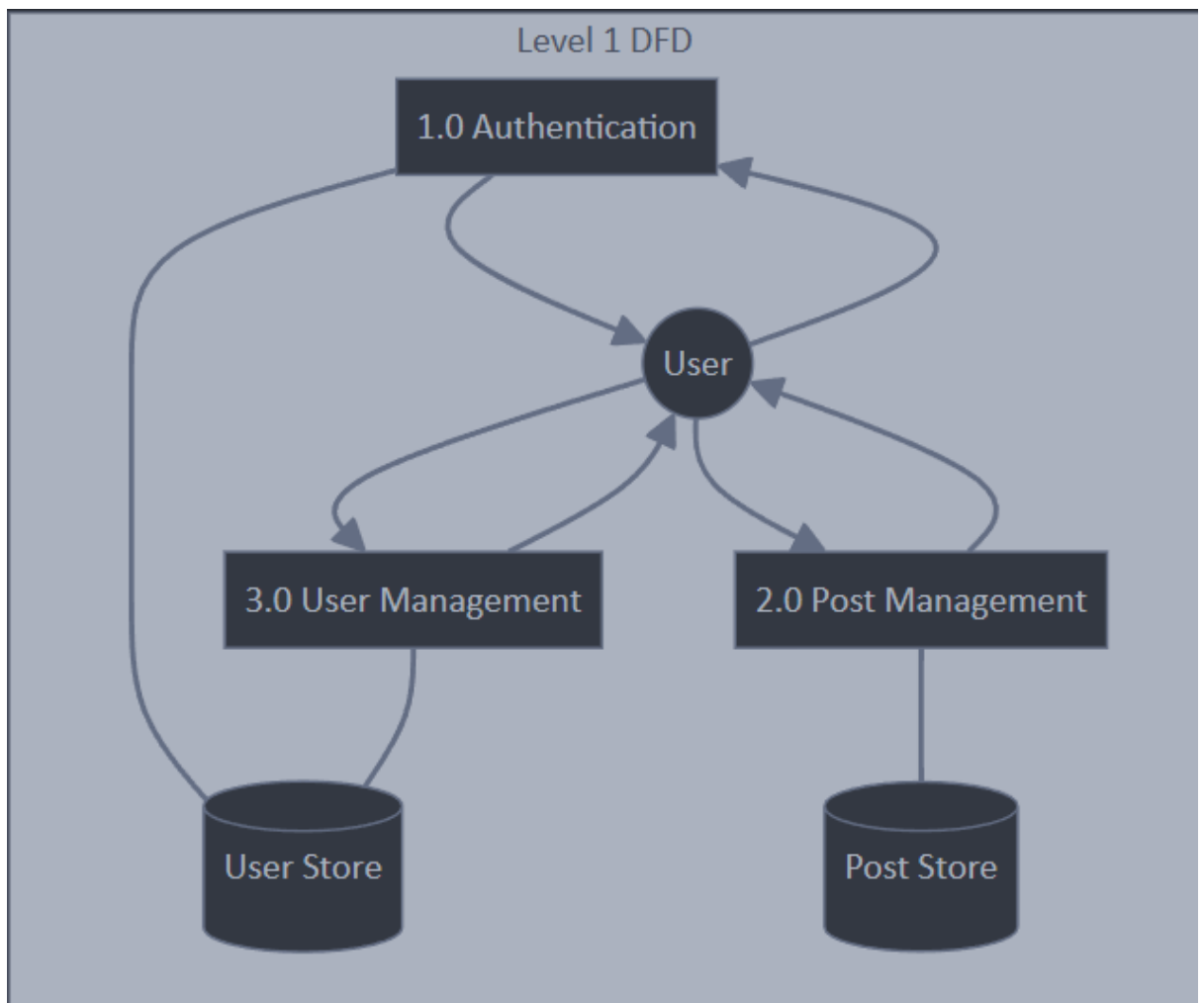


Fig: Level 1 DFD of ConnectMe

3.2.3 Database Design:

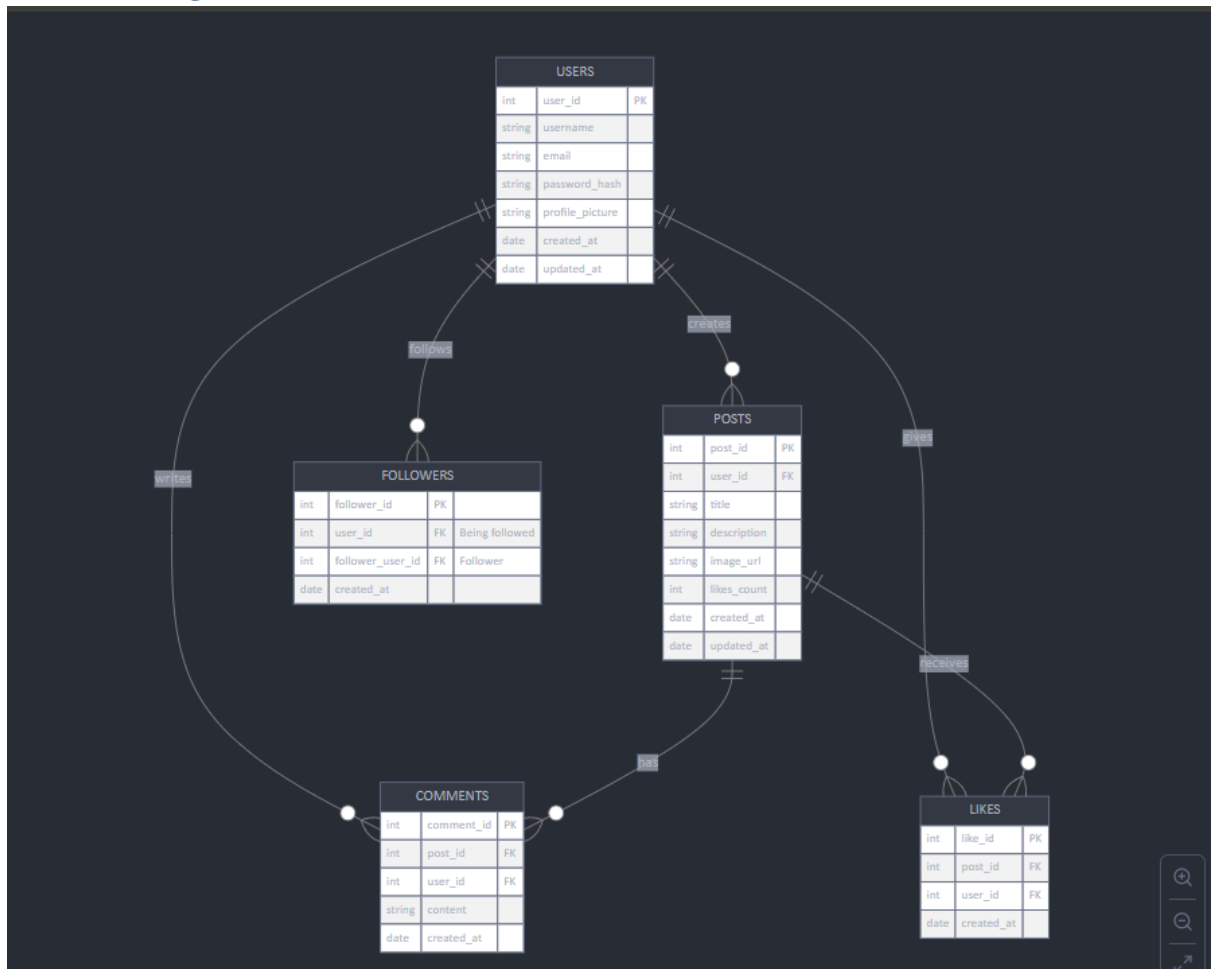


Fig: Database Schema Design of ConnectMe

4. Chapter 4: Implementation and Testing

4.1 Implementation

4.1.1 Tools Used

Frontend Tool:

The frontend of the ConnectMe application is designed using HTML, CSS, JavaScript, and Bootstrap. These technologies provide the structure, styling, and interactivity of the application. Bootstrap, a popular CSS framework, is used for creating a responsive, mobile-first interface. It includes pre-designed components and layouts that allow for the efficient development of web pages and web apps. The use of Bootstrap ensures that the application is user-friendly and works seamlessly on both desktops and mobile devices.

Backend and Database Tool:

The backend of ConnectMe is built using **ASP.NET MVC**, a powerful framework for developing dynamic, data-driven websites. ASP.NET MVC handles the business logic, API requests, and CRUD operations for posts and user data. The database is managed using **MSSQL**, a robust relational database management system. The application interacts with MSSQL through **Entity Framework**, which simplifies database operations by mapping database tables to objects in the application.

The **Git** version control system is used to manage and track changes in the project codebase, enabling collaboration and ensuring version control throughout the development process.

Software Used

- **Visual Studio** is used as the primary Integrated Development Environment (IDE) for writing and debugging the application's code.
- **GitHub** is used for version control and collaborative development, ensuring code integrity and easy access to the project files.
- **MSSQL Server Management Studio** is used for managing the database and performing administrative tasks.

The development of ConnectMe makes use of these popular, reliable technologies, ensuring that both the frontend and backend are implemented effectively for an optimal user experience.

4.2.1 Test Cases for Unit Testing

Table: Test Case for Post Model CRUD Operations

S.N	Input Test Data	Expected Result	Actual Result	Remarks
1	Title: "Test Post", Description: "This is a test post", Image: [No Image]	Post is created successfully with title and description, no image	Post created with title and description, image field remains empty	Pass
2	Title: "Sample Post", Description: "This is a sample description", Image: [Image File]	Post is created successfully with title, description, and image	Post created with title, description, and image displayed correctly	Pass
3	Title: "", Description: "Description only", Image: [No Image]	Post creation should fail due to missing title	Error displayed: "Title is required"	Pass
4	Title: "Valid Title", Description: "", Image: [No Image]	Post created successfully with title, empty description, and no image	Post created with title only, description field is empty	Pass
5	Title: "Another Post", Description: "Post with an image", Image: [Invalid Image File]	Image upload fails due to invalid file format	Error displayed: "Invalid image file format"	Pass
6	Title: "Updated Post", Description: "Updated description", Image: [Updated Image]	Post is updated successfully with new title, description, and image	Post updated with new content, image successfully updated	Pass
7	Title: "Post to be deleted", Description: "Content for deletion", Image: [No Image]	Post is deleted successfully	Post removed from database, no record found	Pass

5. Chapter 5: Conclusion and Future Recommendations

5.1 Lesson Learnt / Outcome:

The primary objective of this project was to create a functional social media platform that allows users to create and manage posts within communities. This included the ability to interact with the database to display, edit, and delete content. The most important lesson learned was the management of time, understanding the complexity of different system components, and prioritizing tasks accordingly. A software developer must always conduct thorough research in their daily work, focusing on efficiency and choosing the most effective solutions for each problem. This project emphasized the importance of choosing the right technologies and components for efficient development and functionality.

5.2 Conclusion:

Completing this project has been a fulfilling experience, providing both challenges and learning opportunities. The ConnectMe platform was developed to meet the needs of users who wish to engage with others in shared-interest communities. The application was designed using **HTML, CSS, JavaScript, ASP.NET MVC, and MSSQL**.

The development of this project taught valuable skills in system analysis and design, such as using interface diagrams to design user-friendly systems, understanding database handling with Entity Framework, and designing applications that prioritize user experience by hiding technical complexities. The project has reinforced the significance of making applications intuitive and accessible for users, ensuring a smooth and seamless experience.

5.3 Future Recommendations:

The success of ConnectMe will be determined by its user engagement and the continuous improvement based on user feedback. Future developments will focus on the following areas:

- **Enhanced User Features:** Additional functionalities such as user roles and permissions can be added to allow more control over content and community management.
- **User Interaction Improvements:** Introducing features such as comment moderation, likes, and share options will foster greater interaction among users.
- **Database Upgrades:** The database will be refined and upgraded regularly to optimize performance and support future features.
- **Admin Panel Enhancements:** Advanced features for administrators, such as user analytics, post management, and more granular control over communities, will be implemented.
- **Real-Time Notifications:** Implementing real-time notifications for users regarding new posts, comments, and community activities could enhance the user experience.

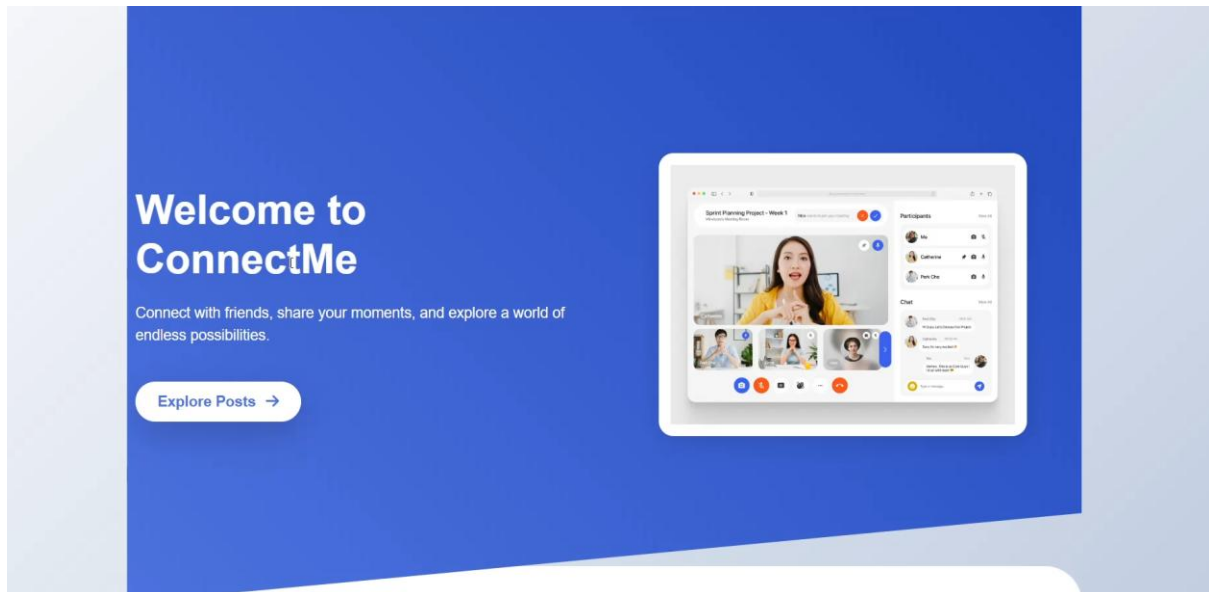
- **Mobile Application:** Expanding the platform into a mobile application for iOS and Android will further broaden its accessibility and usability.

These updates and additions will help the platform evolve into a more robust, user-friendly system, expanding its capabilities to meet the needs of its growing user base.

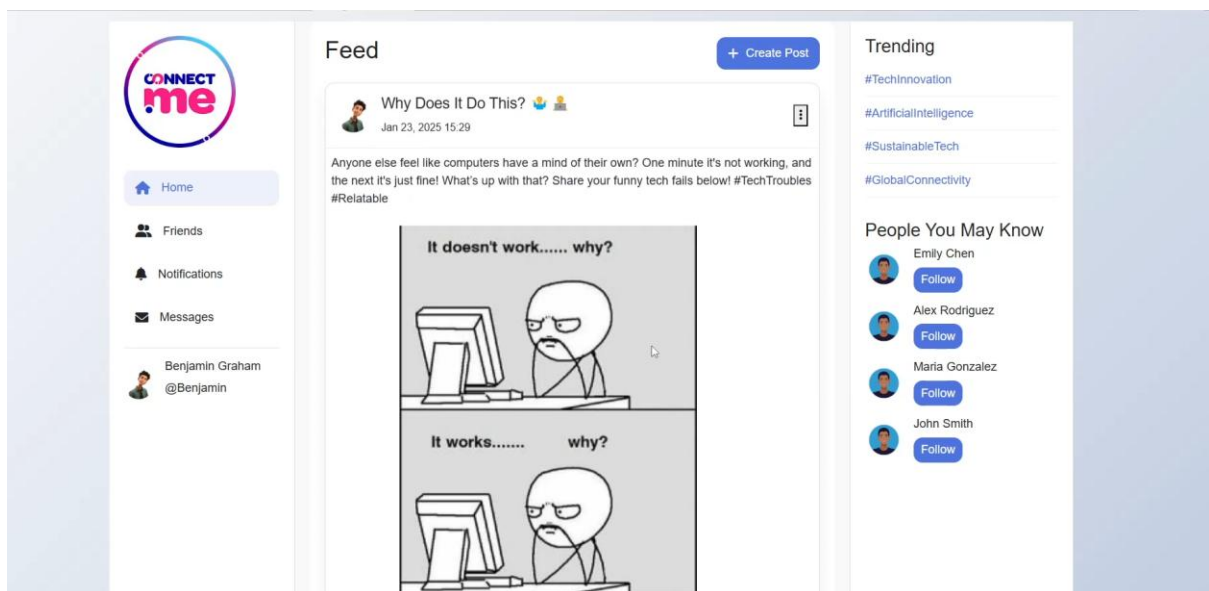
Appendices

Screenshots:

This is the home page. Once users log in, they are taken directly to the feed section.



This is where users can see posts shared by others. They can like, comment, and share the posts they see here.



This section allows users to share their own content with others.

Feed

+ Create Post

Create a New Post

testing

testing testing

Add Photo

Post

This is where everything is stored. All the content uploaded by users is saved in a Microsoft SQL database.

The screenshot shows the Microsoft SQL Server Management Studio interface. The 'Object Explorer' on the left displays the database structure for 'HPManis (66)'. The 'Query Editor' in the center contains a SQL query that selects the top 1000 posts from the 'Posts' table, including columns for PostId, Title, Description, ImagePath, CreatedAt, and UpdatedAt. The 'Results' pane at the bottom displays the query output as a table with 13 rows.

PostId	Title	Description	ImagePath	CreatedAt	UpdatedAt
1	AI and the Future of Work	Robots are not here to steal our jobs, but they sure...	NULL	2025-01-23 12:00:52.0033333	2025-01-23 06:31:53.6142393
2	Curious Cat in the Quiet Woods	This fluffy little explorer seems lost in thoughts, enj...	https://cdn.leonardo.ai/users/4aa906f-a7e2-48f1-b1cc-a8...	2025-01-23 12:00:52.0033333	2025-01-23 12:00:52.0033333
3	Space - The Final Frontier	Imagine living on Mars! What's the first thing you'd...	NULL	2025-01-23 12:00:52.0033333	2025-01-23 12:00:52.0033333
4	The King's Fence Stare	Ever wonder how majestic a lion looks when he's...	https://cdn.leonardo.ai/users/a51ed79c-3aad-4787-8b9a...	2025-01-23 12:00:52.0033333	2025-01-23 12:00:52.0033333
5	The Walking Philosopher Bear	A bear walking in the wilderness, lost in deep thou...	https://cdn.leonardo.ai/users/9234765-cc4a-49f7-a439-e...	2025-01-23 12:00:52.0033333	2025-01-23 12:00:52.0033333
6	The Ominous Shadow	A dark figure with glowing red eyes lurking in the d...	https://cdn.leonardo.ai/users/a993852a-91a4-415e-b452-...	2025-01-23 12:00:52.0033333	2025-01-23 12:00:52.0033333
7	Chef Kitty in the Kitchen	Who needs a five-star chef when you've got this ad...	https://cdn.leonardo.ai/users/f621b041-3f7d-436d-978b-...	2025-01-23 12:00:52.0033333	2025-01-23 12:00:52.0033333
8	Graciful Anime Girl	She has those striking blue eyes that feel like they'r...	https://cdn.leonardo.ai/users/b3b446f-6383-43a6-ebc3-...	2025-01-23 12:00:52.0033333	2025-01-23 12:00:52.0033333
9	Purified Tabby in the Sunlight	This orange tabby is soaking up some golden rays...	https://cdn.leonardo.ai/users/b314db02-07b6-4270-bd78-...	2025-01-23 12:00:52.0033333	2025-01-23 12:00:52.0033333
10	The Funnest Dog Joke	Why did the dog sit in the shade? Because he didn...	NULL	2025-01-23 12:00:52.0033333	2025-01-23 12:00:52.0033333
11	The Secret to Happiness	It's not in the big things; it's in the little moments th...	NULL	2025-01-23 12:00:52.0033333	2025-01-23 06:30:33.1615831
12	Exploring the Future of Artificial Intelligence	In this post, we delve into the exciting advancements...	NULL	2025-01-23 14:17:20.3085292	2025-01-23 14:17:20.3085296
13	Why Does It Do This?	Anyone else feel like computers have a mind of thei...	uploads/51034424-c741-4869-9672-69131308807a_10...	2025-01-23 15:29:20.4867215	2025-01-23 15:48:51.6516983

Source Codes:

Views/Home/Index.cshtml

```
@{
    ViewData["Title"] = "Home Page";
}

<div class="hero-section">
    <div class="hero-background"></div>
    <div class="container">
        <div class="row align-items-center flex-column flex-lg-row">
            <div class="col-12 col-lg-6 hero-content text-center text-lg-start">
                <h1 class="display-4 fw-bold mb-4">Welcome to ConnectMe</h1>
                <p class="lead mb-5">
                    Connect with friends, share your moments, and explore a world of endless
possibilities.
                </p>
                <a href="/Posts" class="btn btn-explore btn-lg shadow-lg">
                    Explore Posts <i class="fas fa-arrow-right ms-2"></i>
                </a>
            </div>
            <div class="col-12 col-lg-6 text-center mockup-devices mt-5 mt-lg-0">
                <div class="device p-3 mb-4">
                    
                </div>
            </div>
        </div>
    </div>
</div>
```

</div>

</div>

</div>

<div class="features">

<div class="container">

<div class="row text-center g-4">

<div class="col-12 col-md-4 mb-4 mb-md-0">

<div class="feature-card">

<i class="fas fa-users feature-icon"></i>

<h3>Connect</h3>

<p>Build meaningful connections with people who share your interests.</p>

</div>

</div>

<div class="col-12 col-md-4 mb-4 mb-md-0">

<div class="feature-card">

<i class="fas fa-share-alt feature-icon"></i>

<h3>Share</h3>

<p>Express yourself freely through posts, photos, and stories.</p>

</div>

</div>

<div class="col-12 col-md-4">

<div class="feature-card">

<i class="fas fa-globe feature-icon"></i>

<h3>Explore</h3>

<p>Discover new perspectives and expand your digital horizons.</p>

</div>

</div>

</div>

</div>

</div>

Program.cs:

```
using backend.Context;
```

```
using Microsoft.EntityFrameworkCore;
```

```
namespace ConnectMe.MVC
```

```
{
```

```
    public class Program
```

```
    {
```

```
        public static void Main(string[] args)
```

```
        {
```

```
            var builder = WebApplication.CreateBuilder(args);
```

```
            // Add services to the container.
```

```
            builder.Services.AddControllersWithViews();
```

```
            // Configuring Entity Framework to use SQL Server
```

```
            builder.Services.AddDbContext<ApplicationDbContext>(  
                options =>
```

```
options.UseSqlServer(builder.Configuration.GetConnectionString("SQLAuthConnection"))
```

```
            );
```

```

var app = builder.Build();

// Configure the HTTP request pipeline.
if (!app.Environment.IsDevelopment())
{
    app.UseExceptionHandler("/Home/Error");

    // The default HSTS value is 30 days. You may want to change this for production
    scenarios, see https://aka.ms/aspnetcore-hsts.

    app.UseHsts();
}

app.UseHttpsRedirection();
app.UseRouting();

app.UseAuthorization();

app.MapStaticAssets();
app.MapControllerRoute(
    name: "default",
    pattern: "{controller=Home}/{action=Index}/{id?}")
    .WithStaticAssets();

app.Run();
}
}
}

```

References

1. *ASP.NET Core Documentation*, "ASP.NET Core," [Online]. Available: <https://docs.microsoft.com/en-us/aspnet/core/>.
2. *Bootstrap*, "Bootstrap," [Online]. Available: <https://getbootstrap.com/docs/5.0/getting-started/introduction/>
3. *W3Schools*, "W3Schools," [Online]. Available: <https://www.w3schools.com/js/default.asp>.
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