

SEMESTER TRAINING REPORT

On

SOCIAL NETWORKING SITE

*Submitted in partial fulfillment of requirements
for the award of the degree*

Bachelor of Technology

In

Computer Science and Engineering

To

IKG Punjab Technical University, Jalandhar

SUBMITTED BY:

Name: Gaurav Sharma

Roll no: - 1902060

Semester: 8sem

Batch: 2019 - 2023

Under the guidance of

Mr. Rajeev Sharma

Assistant Professor



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Chandigarh Engineering College-CGC, Landran

Mohali, Punjab – 140307

CERTIFICATE

This is to certify that **Mr. Gaurav Sharma** has partially completed / completed / not completed the Semester Training during the period **January 2023 to June 2023** in our Organization / Industry as a Partial Fulfillment of Degree of Bachelor of Technology in Computer Science & Engineering.

(Signature of Project Supervisor)

Date: 31-05-2023



B-202, Adarsh Galaxy, Adarsh Vihar Complex. Off Marve Road. Malad (W). Mumbai - 400064

23-May-2023

To Whom It May Concern

This letter is to certify that **Gaurav Sharma** has successfully completed his internship program with us. His internship tenure was from **17th November 2022** to **17th May 2023**. He was working as a web developer and was actively & diligently involved in the projects and tasks assigned to him.

During the span, we found him to be a hardworking person. His learning powers are good and he picks up swiftly. His feedback and evaluation proved that he learned keenly. Moreover, his interpersonal and communication skills are good.

Sincerely,

A handwritten signature in blue ink, appearing to read "Dksh", with a horizontal line underneath.

Dhruvin Shah
CEO, Imagine Solutions

DECLARATION

I hereby declare that the Project Report entitled (**Social Networking Site**) is an authentic record of my own work as requirements of 8th sem academic during the period **2nd January 2023 to 30th June 2023** for the award of degree of B. Tech. (Computer Science & Engineering, Chandigarh Engineering College- CGC, Landan, Mohali under the guidance of (**Mr. Rajeev Sharma**).

Gaurav Sharma
1902060

Date: 31-05-2023

Certified that the above statement made by the student is correct to the best of our knowledge and belief.

Signatures

Examined by:

1.

2.

3.

4.

**Head of Department
(Signature and Seal)**

ACKNOWLEDGMENT

I take this opportunity to express my sincere gratitude to the Director- **Principal Dr. Rajdeep Singh** Chandigarh Engineering College, Landran for providing this opportunity to carry out the present work.

I am highly grateful to the **Dr. Sukh Preet Kaur HOD CSE**, Chandigarh Engineering College, Landran (Mohali). I would like to express my gratitude to other faculty members of Computer Science & Engineering department of CEC, Landran for providing academic inputs, guidance & Encouragement throughout the training period. The help rendered by **Mr. Rajeev Sharma**, Supervisor for Experimentation is greatly acknowledged. Finally, I express my indebtedness to all who have directly or indirectly contributed to the successful completion of my semester training

ABOUT COMPANY

As a final semester student pursuing a degree in Computer Science & Engineering, I had the opportunity to gain valuable industry experience through a Six-month Semester Training program with Imagine Solutions

During my training, I received a certification in web development, which provided me with a strong foundation in programming and software development. However, my major project was focused on the use of Social Networking Sites and their working and impact on the real world which required me to work independent of the Institute to meet our End-Semester Project requirements.

Imagine Solutions Pvt. Ltd. is an ISO 9001:2008 Certified Software/Electronics Systems Development and CAD/CAM consultancy company that offers a range of services in areas such as on creating plugins for WordPress and WooCommerce. The team has experience working around WooCommerce since its early days. Team also takes up custom development to improve your WooCommerce store by developing plugins as per your needs. Have a project idea? We are here to help you.

It is also certified by Ministry of Corporate Affairs. Imagine Solutions Technologies has a global client base, primarily from USA, Canada, Singapore, UK, Australia, New Zealand, and India. Through my association with Chandigarh Engineering College, and Imagine Solutions Pvt. Ltd., I was able to gain practical knowledge of the latest technologies and tools used in the industry. I was also able to enhance my understanding of software development, project management, and team collaboration. Overall, my experience with Imagine Solutions Pvt. Ltd. has been invaluable in shaping my skills and knowledge as a software developer, and I am grateful for the opportunity to have been a part of this dynamic organization.

ABSTRACT

The field of Web Development has seen tremendous growth in recent years, and this project aims to contribute to this field by creating an social networking site where users can connect with their friends share content and much more.

The rapid advancement of technology and the widespread adoption of social networking platforms have transformed the way individuals interact, communicate, and share information in the digital age. This abstract outlines a project that aims to delve into the multifaceted aspects of social networking and assess its impact on society.

The project focuses on several key objectives. Firstly, it seeks to analyze the evolution of social networking platforms, from their inception to their current state, by examining their underlying technologies, features, and functionalities. By understanding the historical development, the project aims to establish a comprehensive foundation for investigating the contemporary social networking landscape.

Secondly, the project aims to explore the social, psychological, and cultural implications of social networking. It aims to investigate how these platforms influence human behavior, interpersonal relationships, self-expression, and societal norms. By examining existing research studies, conducting surveys, and analyzing user-generated content, the project endeavors to shed light on both positive and negative consequences of social networking.

Thirdly, the project endeavors to address privacy and security concerns associated with social networking. It aims to examine the extent to which personal information is shared, collected, and utilized by social networking platforms and third-party entities. By evaluating privacy policies, data protection measures, and user perceptions, the project seeks to identify potential risks and propose recommendations for enhancing privacy and security practices.

Moreover, the project will assess the impact of social networking on various sectors such as business, education, politics, and activism. It aims to investigate how these platforms have influenced marketing strategies, educational practices, political campaigns, and social movements. By analyzing case studies, conducting interviews, and collecting relevant data, the project aims to provide insights into the transformative power of social networking in these domains.

Finally, the project aims to propose guidelines and best practices for responsible social networking usage. By synthesizing research findings, existing frameworks, and expert opinions, it seeks to provide individuals, organizations, and policymakers with actionable recommendations to navigate the social networking landscape in a more informed and ethical manner.

In conclusion, this project aims to offer a comprehensive exploration of social networking and its impact on society. By examining its historical development, social implications, privacy and security concerns, sectoral influences, and best practices, the project seeks to contribute to the broader understanding of social networking's role in shaping our digital lives.

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Chapter 1: Introduction

A social networking service (also social networking site or social media) is an online platform which people use to build social networks or social relationships with other people who share similar personal or career interests, activities, backgrounds or real-life connections. Social networking services vary in format and the number of features. They can incorporate a range of new information and communication tools, operating on desktops and on laptops, on mobile devices such as tablet computers and smartphones. They may feature digital photo/video/sharing and diary entries online (blogging). Online

community services are sometimes considered social-network services by developers and users, though in a broader sense, a social-network service usually provides a individual-centered service whereas online community services are group- centered. Defined as "websites that facilitate the building of a network of contacts in order to exchange various types of content online," social networking sites provide a space for interaction to continue beyond in person interactions. These computer mediated interactions link members of various networks and may help to both maintain and develop new social and professional relationships. Social networking sites allow users to share ideas, digital photos and videos, posts, and to inform others about online or real-world activities and events with people in their network. While in-person social

networking – such as gathering in a village market to talk about events – has existed since the earliest development of towns, the web enables people to connect with others who live in different locations, ranging from across a city to across the world. Depending on the social media platform, members may be able to contact any other member. In other

cases, members can contact anyone they have a connection to, and subsequently anyone that contact has a connection to, and so on.

The success of social networking services can be seen in their dominance in society today, with Facebook having a massive 2.13 billion active monthly users and an average of 1.4 billion daily active users in 2017. LinkedIn, a career-oriented social-networking service, generally requires that a member personally know another member in real life

before they contact them online. Some services require members to have a pre- existing connection to contact other members.

1.1 Feasibility Analysis

How to Build With PHP/Create Social Networking Website like Facebook, Twitter? Wanted to build your own Social Networking Website? And don't know where to start from? Don't worry, this project will show you step by step how to create your own.

Twitter Clone using PHP, MySQL, jQuery as you may already know Twitter is one of the most popular and best Social Networking. Website. So why not learn to make your own Twitter Social Networking website? It doesn't matter if you're a beginner or an experienced programmer, just you have to know the basics of PHP, MySQL, HTML, CSS and jQuery.

1.2 Project Overview

A social network is an online platform or service that enables individuals to connect, communicate, and interact with each other virtually. These platforms have become increasingly popular in recent years, allowing people to share information, interests, and activities with their friends, family, and even strangers. Here's an overview of social networks:

- **Profile Creation:** When joining a social network, users typically create a personal profile that includes basic information such as their name, profile picture, and additional details like location, education, and interests. This profile serves as their digital identity on the platform.
- **Connections and Friends:** Social networks allow users to connect and establish relationships with others, often referred to as "friends" or "followers." Users can send and accept friend requests, follow each other's activities, and build a network of connections.
- **News Feed:** The news feed is a central feature of most social networks. It displays a constantly updating stream of content from the user's connections, such as status updates, photos, videos, and links. The feed is personalized based on the user's preferences and activities, displaying the most relevant and recent posts.
- **Communication and Interaction:** Social networks provide various communication tools for users to interact with each other. These tools may include private messaging, public comments on posts, likes, shares, and reactions. Users can engage in discussions, express their opinions, and share content within the network.
- **Content Sharing:** One of the primary functions of social networks is content sharing. Users can upload and share photos, videos, articles, and other media with their connections. They can also curate and organize their content into albums, playlists, or collections for easy access.
- **Groups and Communities:** Many social networks offer the ability to create or join groups and communities based on shared interests, hobbies, or professional affiliations. These groups allow users to engage in discussions, share resources, and connect with like-minded individuals.
- **Privacy and Security:** Social networks have implemented privacy settings to control the visibility of users' profiles, posts, and personal information. Users can choose to share content publicly, with specific individuals, or keep it private. Network administrators also implement security measures to protect users' data from unauthorized access.
- **Business and Advertising:** Social networks have become essential platforms for businesses to reach and engage with their target audiences. Many networks offer

advertising options, allowing companies to promote their products or services to specific demographics or user interests.

- **Mobile Accessibility:** Most social networks have mobile applications that enable users to access and engage with the platform on their smartphones or tablets. Mobile apps offer a convenient and on-the-go experience, allowing users to stay connected wherever they are.
- **Data Analytics:** Social networks collect and analyze vast amounts of user data, including demographic information, interests, and online behavior. This data is used to personalize content, target advertisements, and provide insights for businesses and marketers.

It's important to note that while social networks offer opportunities for connection and communication, they also come with challenges such as privacy concerns, online harassment, and the spread of misinformation. Platforms continuously work on improving safety measures and implementing policies to address these issues.

1.3 Scope of Social Networking Site

The scope of social networking is vast and continuously evolving. Social networking refers to online platforms and applications that enable individuals and groups to connect, communicate, and share information with each other. While the concept of social networking has been around for several decades, it has significantly expanded with the advent of the internet and the proliferation of smartphones and other mobile devices.

1.3.1 Here are some key aspects of the scope of social networking:

1. **Personal connections:** Social networking platforms allow individuals to create profiles, connect with friends, family, colleagues, and acquaintances, and maintain personal relationships. People can share updates, photos, videos, and other content with their network of connections.
2. **Professional networking:** Many social networking platforms provide tools and features for professional networking. These platforms, such as LinkedIn, allow individuals to create professional profiles, connect with colleagues and industry professionals, join groups, and explore job opportunities.
3. **Content sharing and discovery:** Social networking platforms facilitate the sharing and discovery of various types of content, including articles, videos, photos, and music. Users can share their own content or find and engage with content shared by others. Platforms like YouTube, Instagram, and TikTok are particularly popular for content sharing and discovery.

- 4. Interest-based communities:** Social networking platforms often have communities or groups centered around specific interests, hobbies, or topics. These communities bring together like-minded individuals who can discuss, share, and collaborate on subjects they are passionate about. Examples include Reddit, Facebook Groups, and specialized forums.
- 5. Business and marketing opportunities:** Social networking platforms offer opportunities for businesses and marketers to reach and engage with their target audience. Companies can create brand profiles, run advertising campaigns, and interact with customers directly. Influencer marketing has also emerged as a significant aspect of social networking, with influencers leveraging their online presence to promote products and services.
- 6. Social activism and awareness:** Social networking has become a powerful tool for social activism, awareness campaigns, and mobilization. Platforms like Twitter and Facebook have played key roles in organizing movements, raising awareness about social issues, and facilitating discussions on important topics.
- 7. Privacy and security concerns:** As social networking continues to grow, so do concerns about privacy and security. The collection and use of personal data, cyberbullying, online scams, and misinformation are some of the challenges that social networking platforms and users face.

It's important to note that the scope of social networking is not limited to these aspects and can vary depending on the specific platform or application. Additionally, new technologies, trends, and user behaviours continue to shape and expand the scope of social networking.

Chapter 2: Software & Hardware Requirements

The Software Requirements Specification is produced at the culmination of the analysis task. The function and performance allocated to software as part of system engineering are refined by establishing a complete information description, a detailed functional and behavioural description, an indication of performance requirements and design constraints, appropriate validation criteria, and other data pertinent to requirements.

2.1 The proposed system has the following requirements:

Creating a social networking site involves several requirements to ensure its functionality, usability, and security. Here are some common requirements for a social networking site:

- **User Registration:** Allow users to create an account by providing basic information like name, email address, and password.
- **User Profile:** Each user should have a profile page to display their information, such as profile picture, bio, location, interests, and other customizable fields.
- **News Feed:** Display a personalized news feed that shows posts, updates, and activities from the user's connections or friends.
- **Friends/Connections:** Enable users to connect with other users by sending friend requests or following them, allowing for a mutual connection.
- **Privacy Settings:** Provide users with control over their privacy settings, allowing them to manage who can view their profile, posts, and personal information.
- **Messaging/Chat:** Include a messaging system or chat functionality to facilitate private communication between users.
- **Content Sharing:** Allow users to share various types of content, such as text posts, photos, videos, links, and documents, either publicly or with specific connections.
- **Like/Comment/Share:** Enable users to interact with posts by liking, commenting, and sharing them with their connections.
- **Notifications:** Send users notifications about friend requests, comments, likes, messages, or other relevant activities on the platform.
- **Search Functionality:** Provide a search feature to help users discover and connect with others based on criteria such as name, location, interests, or keywords.
- **Groups/Communities:** Allow users to create or join groups or communities based on shared interests, hobbies, or topics.

- **Event Management:** Offer features for users to create and manage events, invite others, and RSVP.
- **Security and Privacy:** Implement measures to protect user data, prevent unauthorized access, and ensure secure communication between users.
- **Reporting and Moderation:** Provide mechanisms for users to report inappropriate content or behaviour, and establish moderation processes to handle such reports effectively.
- **Integration with External Platforms:** Allow users to sign in or connect their social networking account with other platforms, such as email, other social media networks, or third-party apps.
- **Accessibility:** Ensure the site is designed and developed to comply with accessibility standards, making it usable for individuals with disabilities.

2.2 Following points should be well considered:

- Documents and reports that must be provided by the new system: there can also be few reports, which can help management in decision-making and cost controlling, but since these reports do not get required attention, such kind of reports and information were also identified and given required attention.
- Details of the information needed for each document and report.
- The required frequency and distribution for each document.
- Probable sources of information for each document and report.
- With the implementation of computerized system, the task of keeping records in an organized manner will be solved. The greatest of all is the retrieval of information, which will be at the click of the mouse. So, the proposed system helps in saving the time in different operations and making information flow easy giving valuable

2.3 Technical

1. Simplicity, flexibility, quality, and test coverage of source code, with CI integrated.
2. System Designed to enable fast experience with maximum latency of 280 ms, hence users get snappy experience.
3. Use php at backend with MySQL to power it, hence can be scaled without any lags.
4. Powerful serialization engine compatible with both ORM and non- ORM data sources.
6. Monolithic structured application.

7. Using HTML, CSS, JavaScript in the frontend for better user interface.
8. Re-usable APIs
9. The collective stack is known as lamp stack that is one of the grate combinations of tech.



Figure 2.1 (Operating System)



Figure 2.2 (LAMP Stack)



Figure 2.3 (XAMPP)



Figure 2.4 (VS CODE)

2.4 Non – Technical

- **Connecting and Building Relationships:** Social networking sites allow individuals to connect and stay in touch with friends, family members, and acquaintances regardless of geographical barriers. They provide a platform to build and maintain relationships by exchanging messages, comments, and engaging in conversations.
- **Sharing Information and Interests:** Users can share personal updates, thoughts, ideas, and opinions on social networking sites. They can also share articles, news, videos, and other types of content that they find interesting or relevant to their network.
- **Discovering and Engaging with Communities:** Social networking sites offer opportunities to discover communities, groups, or pages that align with users' interests, hobbies, or professional pursuits. Users can join or follow these communities to connect with like-minded individuals, discuss common interests, and participate in relevant discussions.
- **Professional Networking:** Many social networking sites cater specifically to professionals and provide a platform for networking, job searching, and career development. Users can showcase

their skills, experience, and qualifications, connect with potential employers or clients, and explore career opportunities.

- **Promoting Business and Brands:** Social networking sites offer businesses and brands a way to reach and engage with their target audience. Through social media marketing strategies, companies can promote their products, services, and brand messages, as well as interact with customers, receive feedback, and provide customer support.
- **Entertainment and Leisure:** Social networking sites also serve as sources of entertainment and leisure. Users can follow celebrities, influencers, or content creators, watch videos, explore memes, play games, and participate in challenges or trends.

Chapter 3: Introduction of detail of software used

Social networking sites have greatly enhanced our ability to communicate and stay connected with others. They provide a convenient and efficient means of sharing thoughts, ideas, and experiences with a vast network of friends, family, and acquaintances. These platforms enable individuals to maintain relationships over long distances, reconnect with old friends, and expand their social circles. The availability of instant messaging features and real-time updates allows for quick and seamless communication, breaking down barriers of time and space.

Social networking sites have also revolutionized collaboration and fostered the exchange of ideas. Online communities centered around specific interests or causes enable individuals to connect with like-minded people, share knowledge, and collaborate on projects. These platforms have democratized creativity, allowing individuals to showcase their artistic talents, writing skills, or entrepreneurial ventures. Through social networking sites, aspiring artists, writers, and entrepreneurs can gain exposure, receive feedback, and even find opportunities for collaboration or funding.

Social networking sites have emerged as important channels for accessing news and information. Rather than relying solely on traditional media outlets, individuals can now curate their own newsfeeds and follow topics or sources that interest them. This democratization of news allows for a broader range of perspectives and opinions, empowering individuals to stay informed about diverse issues. Social networking sites have also played a crucial role in disseminating vital information during emergencies or times of crisis, facilitating quick communication and mobilization of resources.

Social networking sites have become indispensable tools for professionals and businesses. Platforms like LinkedIn have transformed the way we connect and network in the professional sphere. These sites provide opportunities to showcase skills, experience, and achievements, attracting potential employers, clients, or collaborators. Companies can utilize social networking sites for marketing and brand promotion, reaching a wider audience with targeted advertisements. Additionally, social networking sites provide a platform for customer feedback, allowing businesses to improve their products and services based on real-time consumer insight.

3.1 System requirements

- Pc with 64-bit Operating system architecture.
- Internet connection enabled.
- Browser such as Chrome, Firefox.



Figure 3.1 (Laptop)



Figure 3.2 (Internet)



Figure 3.3 (Web Browser)

3.2 System requirements for Development

- VS Codes
- HTML
- CSS
- JavaScript
- php
- MySQL
- GIT
- XAMPP
- DFD (Data Flow Diagram)



Figure 3.4 (Vs Code)



Figure 3.5 (HTML, CSS, JAVASCRIPT)



Figure 3.6 (PHP and MySQL)



Figure 3.7 (Xampp)



Figure 3.8 (GIT)

3.3 System requirements detail explanation

Pc with 64-bit Operating system architecture

A PC with a 64-bit operating system architecture refers to a computer system that is capable of running a 64-bit version of an operating system. Here are a few key points about 64-bit architecture:

1. ****Definition**:** The term “64-bit” refers to the way a computer’s processor handles information. It indicates the size of the memory addresses that the processor can access. In a 64-bit system, the processor can handle data in larger chunks, leading to increased performance and the ability to address more memory.
2. ****Operating System Compatibility**:** To take full advantage of a 64-bit architecture, you need to install a 64-bit operating system. Examples of 64-bit operating systems include Microsoft Windows (e.g., Windows 10 64-bit), macOS (e.g., macOS Mojave or later), and various Linux distributions.

3. ****Benefits****: A 64-bit operating system offers several benefits over a 32-bit system. It allows for a larger addressable memory space, which is particularly useful when running memory-intensive applications or working with large datasets. Additionally, 64-bit systems can provide improved performance, better security features, and enhanced compatibility with modern software.
4. ****Software Compatibility****: While 64-bit operating systems can run both 32-bit and 64-bit software, 32-bit applications may not take full advantage of the system's capabilities. Most modern software is available in both 32-bit and 64-bit versions, but older or less commonly used software might only have 32-bit versions available.
5. ****Hardware Requirements****: To run a 64-bit operating system, you need a compatible processor that supports 64-bit instructions. Most modern processors, including those from Intel and AMD, are 64-bit capable. Additionally, you may need to ensure that your PC meets the minimum system requirements specified by the operating system vendor.

It's worth noting that a 64-bit operating system can also run on a PC with a 32-bit processor, but you won't be able to take full advantage of the benefits provided by 64-bit architecture in such cases.

Internet Connection Enabled:-

Introduction:

In today's digital age, an internet connection has become an essential part of our daily lives. It connects us to a vast network of information, services, and opportunities, revolutionizing the way we communicate, learn, work, and entertain ourselves. This article explores the significance of an internet connection, its impact on various aspects of our lives, and the possibilities it unlocks.

1. Communication and Connectivity:

An internet connection allows individuals to connect with people from around the world. With tools like email, instant messaging, and video calls, distance is no longer a barrier to effective communication. Whether it's staying in touch with friends and family, collaborating with colleagues remotely, or forging new connections, the internet enables seamless connectivity and bridges gaps between individuals and communities.

2. Access to Information:

The internet is a treasure trove of information. With a connection, one gains access to an unprecedented amount of knowledge on diverse subjects. Online search engines and educational platforms offer limitless learning opportunities, empowering individuals to acquire new skills, pursue higher education, and stay updated on the latest developments in various fields. An internet connection acts as a gateway to global information resources, fostering intellectual growth and empowerment.

3. Economic Opportunities:

The internet has opened up new avenues for economic growth and entrepreneurship. With an internet connection, individuals can start online businesses, reach a global customer base, and participate in the digital economy. E-commerce platforms, freelance marketplaces, and remote

work opportunities have transformed traditional job markets, enabling individuals to work from anywhere and monetize their skills. Internet connectivity has become a catalyst for economic development, particularly in developing regions.

4. Entertainment and Media:

Streaming services, online gaming platforms, and social media networks have revolutionized the entertainment industry. An internet connection enables users to enjoy on-demand access to movies, TV shows, music, and live events. Social media platforms allow people to share experiences, connect with like-minded individuals, and express themselves creatively. Internet connectivity has transformed the way we consume and interact with media, offering personalized experiences tailored to individual preferences.

5. Technological Advancements:

An internet connection plays a pivotal role in fostering technological advancements. It enables the Internet of Things (IoT) ecosystem, where everyday objects are connected and can communicate with each other. From smart homes and wearable devices to autonomous vehicles and industrial automation, an internet connection forms the foundation of a connected world, driving innovation and efficiency across various sectors.

Web Browser such as chrome, Firefox:-

A web browser is a software application that allows users to access and view websites on the internet. It provides an interface for users to enter website addresses (URLs) and interact with the content of web pages, including reading text, viewing images, watching videos, and filling out forms.

Web browsers use the Hypertext Transfer Protocol (HTTP) to request web pages from servers and display them to users. They also support other internet protocols like HTTPS (secure version of HTTP), FTP (File Transfer Protocol), and more.

Some popular web browsers include:

- 1. Google Chrome:** Developed by Google, Chrome is one of the most widely used web browsers. It is known for its speed, security, and extensive features.
- 2. Mozilla Firefox:** Firefox is an open-source web browser developed by the Mozilla Foundation. It focuses on privacy, security, and customization options.
- 3. Safari:** Safari is the default web browser for Apple devices (Mac, iPhone, iPad). It offers a fast and smooth browsing experience and is known for its integration with Apple's ecosystem.
- 4. Microsoft Edge:** Edge is a web browser developed by Microsoft and is the successor to Internet Explorer. It offers a clean interface, fast performance, and seamless integration with Windows 10.

5. **Opera:** Opera is a feature-rich web browser that offers a range of built-in tools like a free VPN, ad blocker, and customizable interface.

These are just a few examples, and there are many other web browsers available, each with its own set of features and user interface. Users can choose a browser based on their preferences, such as speed, security, privacy, compatibility, and additional features.

System requirements for Development:-

VS CODE

VS Code, short for Visual Studio Code, is a popular source code editor developed by Microsoft. It is lightweight, highly customizable, and has a wide range of features that make it a favourite among developers. Here are some key aspects of VS Code:

- **Cross-platform:** VS Code is available for Windows, macOS, and Linux, allowing developers to use it on their preferred operating system.
- **Extensibility:** One of the strengths of VS Code is its extensive ecosystem of extensions. You can customize and enhance the editor by installing various extensions for different programming languages, themes, and tools.
- **Integrated terminal:** VS Code provides an integrated terminal within the editor, which allows you to execute commands, run scripts, and interact with your project's environment without switching to a separate terminal window.
- **IntelliSense:** VS Code offers intelligent code completion and suggestions, also known as IntelliSense, which helps you write code faster and with fewer errors. It provides context-aware suggestions, function signatures, and documentation as you type.
- **Debugging:** VS Code has built-in support for debugging multiple programming languages. You can set breakpoints, step through code, inspect variables, and analyze the program's execution flow directly within the editor.
- **Version control integration:** VS Code has excellent integration with version control systems like Git. It provides a visual interface for common Git operations, such as committing changes, branching, merging, and resolving conflicts.
- **Task automation:** With the help of the integrated task runner, you can define and run tasks directly within VS Code. This feature is handy for automating repetitive tasks like building, testing, and deploying your code.

- **Live Share:** VS Code includes Live Share, a collaborative feature that allows you to share your development environment with others. You can collaborate in real-time, edit code together, and communicate through chat or audio.
- **Customization:** VS Code is highly customizable. You can personalize the editor's appearance, configure key bindings, install different themes, and adjust various settings to tailor it to your workflow and preferences.

Overall, VS Code provides a rich set of features, an active community, and extensive customization options, making it a versatile and powerful code editor for developers across different programming languages and platforms.

HTML

HTML (Hypertext Markup Language) is the backbone of the World Wide Web. It provides the structure and content for web pages, allowing them to be displayed in web browsers. Whether you're a beginner learning web development or an experienced coder, understanding HTML is essential. In this article, we will explore the basics of HTML and its key components.

****What is HTML?****

HTML is a markup language used to create the structure and format of web documents. It uses a series of elements and tags to define the various components of a web page, such as headings, paragraphs, links, images, and more. Web browsers interpret the HTML code and display the content accordingly.

****HTML Elements and Tags****

HTML is made up of elements, which are enclosed within opening and closing tags. The opening tag signifies the start of an element, while the closing tag indicates its end. Elements can be nested within each other, creating a hierarchical structure.

For example, here's a simple HTML document structure:

```

<<<html
<!DOCTYPE html>
<html>
<head>
  <title>My First Web Page</title>
</head>

```

```

<body>

  <h1>Welcome to My Website</h1>

  <p>This is a paragraph of text.</p>

  <a href="https://www.example.com">Click here</a> to visit a link.

</body>

</html>

...

```

In this example, we have several HTML elements:

- `<!DOCTYPE html>`: This declaration at the beginning of the document specifies the HTML version being used (HTML5 in this case).
- `<html>`: The root element that wraps the entire HTML document.
- `<head>`: The container for metadata and other information about the web page, such as the page title.
- `<title>`: Sets the title of the web page, which appears in the browser's title bar or tab.
- `<body>`: The main content area of the web page.
- `<h1>`: A heading element that represents the main heading of the page.
- `<p>`: A paragraph element that defines a block of text.
- `<a>`: An anchor element used to create links. The `href` attribute specifies the URL the link points to.

****Attributes and Values****

HTML elements can have attributes, which provide additional information about the element. Attributes are placed within the opening tag of an element and consist of a name and a value, separated by an equal sign.

For example, in the `<a>` element above, the `href` attribute specifies the URL the link points to. Attributes can also be used to define styles, assign IDs or classes for CSS styling, handle events, and more.

****Semantic HTML****

In addition to the basic structural elements, HTML offers a range of semantic elements that give meaning and context to the content. Semantic elements provide a more descriptive way to structure web documents, making them more accessible and search engine-friendly.

Some common semantic elements include:

- `<header>`: Represents the introductory content or a group of navigational links.

- `<nav>`: Defines a section of navigation links.
- `<main>`: Represents the main content area of the document.
- `<article>`: Defines a self-contained composition that can be independently distributed or reused.
- `<section>`: Represents a standalone section that groups related content.
- `<aside>`: Represents content that is tangentially related to the main content.
- `<footer>`: Defines the footer section of a document or a section.

Using semantic elements helps search engines understand the structure and context of your web page, leading to better indexing and improved accessibility.

CSS

Cascading Style Sheets (CSS) is a fundamental technology used in web development to control the presentation and layout of web pages. With CSS, developers can customize the appearance of HTML elements, create engaging designs, and improve the overall user experience. In this article, we will explore the key concepts, techniques, and best practices of CSS, empowering you to master the art of web styling.

1. Understanding CSS Basics

CSS Syntax: Get acquainted with the syntax and structure of CSS rules. Learn about selectors, properties, and values.

CSS Selectors: Explore the various selector types, including element, class, ID, attribute, pseudo-classes, and pseudo-elements. Understand how to target specific elements in your HTML markup.

CSS Box Model: Dive into the box model, which defines the layout and sizing of elements. Familiarize yourself with margin, border, padding, and content areas.

2. Working with CSS Properties

Text Formatting: Discover the properties used to style text, such as font-family, font-size, color, and text-decoration. Learn how to create headings, paragraphs, lists, and links that align with your design vision.

Layout and Positioning: Gain insights into the positioning properties, including display, float, position, and z-index. Understand how to create responsive layouts, position elements accurately, and control their stacking order.

Backgrounds and Borders: Explore techniques to apply background colors, images, gradients, and patterns. Learn how to customize borders and create eye-catching effects.

3. Advanced CSS Techniques

CSS Transitions and Animations: Delve into the world of animations and transitions using CSS. Discover how to create smooth and engaging visual effects without relying on external libraries.

Flexbox and Grid: Master modern layout techniques with Flexbox and Grid. Understand how to create responsive and flexible layouts that adapt to different screen sizes.

Media Queries: Learn how to use media queries to make your designs responsive and adaptable across various devices. Build layouts that dynamically adjust based on screen width, height, orientation, and resolution.

CSS Preprocessors: Explore popular CSS preprocessors such as Sass and Less. Understand their features, advantages, and how they can streamline your CSS development process.

4. Best Practices and Optimization

CSS Organization: Learn strategies to organize and structure your CSS codebase efficiently. Discover techniques like modular CSS, naming conventions, and code commenting for better collaboration and maintainability.

CSS Performance: Explore optimization techniques to improve the performance of your CSS stylesheets. Minification, reducing file size, and optimizing animations can greatly enhance the user experience.

Browser Compatibility: Understand cross-browser compatibility challenges and how to address them. Discover techniques for graceful degradation and progressive enhancement to ensure your designs work across different browsers.

JAVASCRIPT

JavaScript is a popular programming language used for web development. It is primarily used to create interactive elements and dynamic content on websites. Here are some key points about JavaScript:

1. ****Client-Side Scripting:**** JavaScript is mainly used as a client-side scripting language, meaning it runs on the user's web browser rather than the web server. It enables developers to create interactive features that respond to user actions, such as form validation, animations, and updating content without reloading the entire page.
2. ****Syntax:**** JavaScript syntax is derived from the C programming language, making it familiar to many programmers. It uses variables, loops, conditional statements, and functions to perform tasks.
3. ****DOM Manipulation:**** JavaScript can manipulate the Document Object Model (DOM), which represents the structure of an HTML document. It allows developers to modify elements, change styles, handle events, and dynamically update the content of a web page.

4. ****Frameworks and Libraries:**** JavaScript has a vast ecosystem of frameworks and libraries that simplify web development. Some popular frameworks include React, Angular, and Vue.js, which provide tools and components for building robust web applications.
5. ****Server-Side Development:**** While JavaScript is primarily known for client-side scripting, it can also be used on the server-side. Node.js is a runtime environment that allows JavaScript to be executed outside the browser, enabling developers to build server-side applications, APIs, and real-time applications.
6. ****Asynchronous Programming:**** JavaScript has built-in support for asynchronous programming using concepts such as callbacks, promises, and async/await. This allows developers to handle time-consuming operations, such as fetching data from a server or reading and writing to a database, without blocking the execution of other code.
7. ****Browser Compatibility:**** JavaScript is supported by all modern web browsers, including Chrome, Firefox, Safari, and Edge. However, there may be slight differences in implementation and compatibility across different browsers, so developers need to consider browser support when writing JavaScript code.
8. ****Security Considerations:**** Due to its execution on the client-side, JavaScript has some security considerations. Cross-Site Scripting (XSS) attacks can occur if user input is not properly validated and sanitized. Therefore, it is essential to follow security best practices and validate inputs before processing them.

JavaScript is a versatile language that can be used for a wide range of applications beyond web development, including mobile app development (using frameworks like React Native), desktop app development (using frameworks like Electron), and even IoT (Internet of Things) devices.

It's important to keep in mind that JavaScript evolves over time, and new features and improvements are regularly introduced. Staying up to date with the latest developments in the language and its associated frameworks is crucial for JavaScript developers.

PHP

PHP (Hypertext Preprocessor) is a popular scripting language primarily used for web development. It is widely used for creating dynamic web pages and web applications. Here are some key points about PHP:

1. **Purpose:** PHP is designed to generate dynamic web content, handle form data, interact with databases, and perform various server-side tasks.
2. **Syntax:** PHP code is embedded within HTML markup and is typically written between ``<?php` and `?>`` tags. It is a loosely typed language, which means you don't need to declare variable types explicitly.
3. **Web Development:** PHP is commonly used alongside HTML and CSS to create dynamic web pages. It can generate HTML dynamically based on user input or other factors.
4. **Database Interaction:** PHP has extensive support for interacting with databases, including MySQL, PostgreSQL, and others. It allows you to connect to a database, perform queries, retrieve data, and update records.
5. **Frameworks:** PHP has a variety of frameworks available that provide structured patterns and libraries to simplify web development. Some popular PHP frameworks include Laravel, Symfony, CodeIgniter, and Zend Framework.
6. **Server-Side Scripting:** PHP is primarily used as a server-side scripting language, meaning the PHP code is executed on the web server before the resulting HTML is sent to the client's web browser.
7. **Wide Adoption:** PHP has a large and active developer community, making it a widely used language for web development. Many popular websites, including Facebook, WordPress, and Wikipedia, rely on PHP.
8. **Compatibility:** PHP runs on various platforms such as Windows, macOS, Linux, and Unix. It is compatible with most web servers (e.g., Apache, Nginx) and can integrate with other technologies like JavaScript, XML, and JSON.
9. **Open Source:** PHP is an open-source language, which means it is free to use and modify. The PHP community actively contributes to its development, providing regular updates and bug fixes.
10. **Versatility:** While PHP is commonly used for web development, it can also be used for command-line scripting, creating desktop applications, and other general-purpose programming tasks.

PHP has evolved over the years, and newer versions have introduced features to enhance performance, security, and developer productivity. It is a powerful tool for building dynamic websites and web applications.

MYSQL

MySQL is an open-source relational database management system (RDBMS) that is widely used for managing and storing structured data. It is one of the most popular databases in the world and is known for its scalability, flexibility, and ease of use.

MySQL is commonly used in web applications to store and retrieve data. It supports a variety of programming languages, making it a versatile choice for developers. Some of its key features include:

1. **Relational Database:** MySQL follows the relational database model, allowing you to define relationships between different tables and query data using SQL (Structured Query Language).
2. **Scalability:** MySQL is designed to handle large volumes of data and can scale horizontally by distributing data across multiple servers.
3. **High Performance:** It is optimized for performance and can handle complex queries efficiently. MySQL uses various indexing techniques and query optimization algorithms to speed up data retrieval.
4. **Cross-Platform Compatibility:** MySQL runs on various operating systems, including Windows, macOS, Linux, and UNIX. This makes it accessible for developers working on different platforms.
5. **Security:** MySQL provides robust security features to protect data, including user authentication, data encryption, and access control mechanisms.
6. **Replication and High Availability:** MySQL supports replication, allowing you to create multiple copies of your database for backup and failover purposes. This ensures data availability and minimizes downtime.
7. **Community Support:** MySQL has a large and active community of users and developers who contribute to its development, provide support, and share resources and knowledge.

MySQL offers different editions, including the Community Edition (open-source) and commercial editions with additional features and support. It integrates well with popular web development stacks, such as LAMP (Linux, Apache, MySQL, PHP/Perl/Python), making it a popular choice for building dynamic web applications.

To work with MySQL, you typically interact with it using the MySQL Command-Line Client, or you can use graphical user interfaces (GUI) tools like phpMyAdmin or MySQL Workbench. Additionally, MySQL provides various connectors and APIs for different programming languages, enabling developers to connect and interact with the database in their preferred programming environment.

GIT

Git is a distributed version control system commonly used for tracking changes in source code during software development. It allows multiple developers to collaborate on a project by managing a repository that contains the project's files and their revision history.

Here are some key concepts and commands related to Git:

1. **Repository:** A repository, or repo, is a collection of files and directories that make up a project. It contains all the versions of the project's files and their history. There can be a local repository on your computer and a remote repository hosted on a server.
2. **Clone:** To create a local copy of a remote repository, you can use the ``git clone`` command. This command fetches the entire repository, including all its files and commit history, and sets up a local copy on your machine.
3. **Commit:** A commit represents a snapshot of the project at a specific point in time. It captures the changes made to the files since the last commit and includes a commit message explaining the changes. The ``git commit`` command is used to create a new commit.
4. **Branch:** A branch is an independent line of development within a repository. It allows you to work on new features or bug fixes without affecting the main project. The ``git branch`` command is used to manage branches, and ``git checkout`` is used to switch between branches.
5. **Merge:** Merging combines changes from one branch into another. When you want to incorporate changes made on a branch back into the main branch, you can use the ``git merge`` command.
6. **Pull:** The ``git pull`` command fetches changes from a remote repository and incorporates them into the current branch. It is a combination of the ``git fetch`` command (to retrieve changes) and the ``git merge`` command (to incorporate the changes).
7. **Push:** When you want to share your local commits with others or update a remote repository, you can use the ``git push`` command. It sends your local commits to the remote repository.

These are just a few basic concepts and commands in Git. Git offers many more features and functionalities, such as branching strategies, rebasing, cherry-picking, and more. It's a powerful tool for collaborative development and version control.

XAMPP

XAMPP is a free and open-source cross-platform web server solution that includes the Apache HTTP Server, MySQL database, PHP, and Perl. The name "XAMPP" is an acronym for the various components it bundles: X (cross-platform), Apache, MySQL, PHP, and Perl.

XAMPP is designed to provide a local web server environment that is easy to install and configure, making it suitable for developers and beginners who want to set up a web development environment on their local machines. It is available for Windows, macOS, and Linux operating systems.

By installing XAMPP, you can create a local server on your computer where you can develop and test websites or web applications before deploying them to a live server. It allows you to run PHP scripts, manage MySQL databases, and test your web projects without the need for a dedicated web hosting service.

The components included in XAMPP are:

1. **Apache HTTP Server:** A popular web server software that serves web pages over the HTTP protocol.
2. **MySQL:** A relational database management system that allows you to store and retrieve data for your web applications.
3. **PHP:** A server-side scripting language used for developing dynamic web pages.
4. **Perl:** A versatile programming language often used for web development, system administration, and network programming.

XAMPP also includes other useful tools and libraries like phpMyAdmin, FileZilla FTP server, OpenSSL, and more. These additional tools help in managing databases, transferring files, and enhancing the security of your web server.

Keep in mind that XAMPP is primarily designed for local development and testing purposes. It is not recommended for production environments or public-facing servers due to potential security risks. When you are ready to deploy your website or application to a live server, you should consider using a proper web hosting service.

Chapter 4: System Design

System design refers to the process of defining the architecture, components, modules, interfaces, and data for a system to meet specified requirements. It involves breaking down a complex system into smaller, manageable parts and establishing relationships between them to achieve the desired functionality.

Here are some key steps and considerations involved in system design:

- **Requirements gathering:** Understand the problem or user requirements that the system needs to address. This involves gathering information from stakeholders, users, and domain experts.
- **System architecture:** Define the high-level structure of the system, including its components, modules, and their interactions. This typically includes identifying the main functionalities, subsystems, and their relationships.
- **Data design:** Analyse the data requirements of the system and design the database schema or data model. Determine how data will be stored, organized, accessed, and manipulated within the system.
- **Component design:** Design individual components or modules that make up the system. Consider the functionalities, interfaces, and interactions of each component. Use appropriate design patterns and principles to ensure modularity, reusability, and maintainability.
- **Interface design:** Determine the interfaces between different system components or modules, as well as external systems or users. Specify the protocols, data formats, and communication mechanisms for smooth interaction.
- **System behaviour:** Define the expected behavior of the system under different scenarios or use cases. Consider error handling, exception handling, concurrency, security, and performance aspects.
- **Deployment architecture:** Plan the deployment strategy for the system, including hardware, software, and network infrastructure. Determine the scalability, reliability, and availability requirements and design the system accordingly.
- **Testing and validation:** Define a comprehensive testing strategy to ensure that the system meets the specified requirements. This includes unit testing, integration testing, system testing, and acceptance testing.
- **Performance optimization:** Identify potential bottlenecks and performance issues in the system design. Optimize algorithms, data structures, and system configurations to enhance system performance and efficiency.
- **Documentation:** Document the system design, including architecture diagrams, data models, component specifications, and user manuals. This helps in understanding and maintaining the system in the future.

It's important to note that system design is an iterative process, and it may involve multiple rounds of refinement and feedback from stakeholders. The goal is to create a well-structured, efficient, and scalable system that meets the desired requirements.

4.1 Primary Design Phase:

In this phase, the system is designed at block level. The blocks are created on the basis of analysis done in the problem identification phase. Different blocks are created for different functions emphasis is put on minimising the information flow between blocks. Thus, all activities which require more interaction are kept in one block.

4.2 Secondary Design Phase

In the secondary phase the detailed design of every block is performed.

The design process typically involves a series of steps and tasks aimed at creating and developing a product, system, or solution. While specific methodologies and approaches may vary, here are some general tasks commonly involved in the design process:

1. **Research and analysis:** This involves gathering information and conducting research to understand the problem, user needs, market trends, and existing solutions. It may include user interviews, surveys, market analysis, and competitor research.
2. **Requirements gathering:** Defining and documenting the project requirements based on the research findings. This helps establish the goals, constraints, and expectations for the design.
3. **Ideation and concept development:** Generating a wide range of ideas and exploring different concepts and approaches to solve the problem. This stage often involves brainstorming, sketching, and creating prototypes to visualize and test ideas.
4. **Design exploration:** Refining and developing the chosen concepts into more detailed designs. This may involve creating wireframes, mockups, or digital prototypes to showcase the functionality, layout, and user interface of the design.
5. **Iterative design and prototyping:** Creating iterative versions of the design and testing them with users or stakeholders to gather feedback and identify areas for improvement. This feedback is used to refine the design further.
6. **Collaboration and communication:** Throughout the process, designers collaborate with other team members, such as engineers, marketers, and project managers, to ensure that the design aligns with technical requirements, business goals, and project timelines. Effective communication and collaboration are crucial for successful design outcomes.
7. **Design implementation:** Once the design is finalized, designers work closely with developers, engineers, or manufacturers to implement the design and bring it to life. This involves providing detailed design specifications, addressing technical challenges, and overseeing the production process.

8. **Testing and evaluation:** Conducting usability tests and evaluations to assess how well the design meets user needs and solves the identified problem. This stage helps identify any remaining issues or areas for improvement.
9. **Refinement and iteration:** Using the feedback from testing and evaluation, designers refine and iterate on the design to address any identified problems, optimize performance, and enhance the user experience.
10. **Documentation and delivery:** Creating documentation and deliverables, such as design guidelines, style guides, or production-ready files, to ensure consistent implementation and maintain design integrity.

It's important to note that the design process is often iterative, meaning that designers revisit and revise previous stages as they gather new insights and feedback. The process may vary depending on the specific design field, context, and project requirements.

4.3 ER Diagram

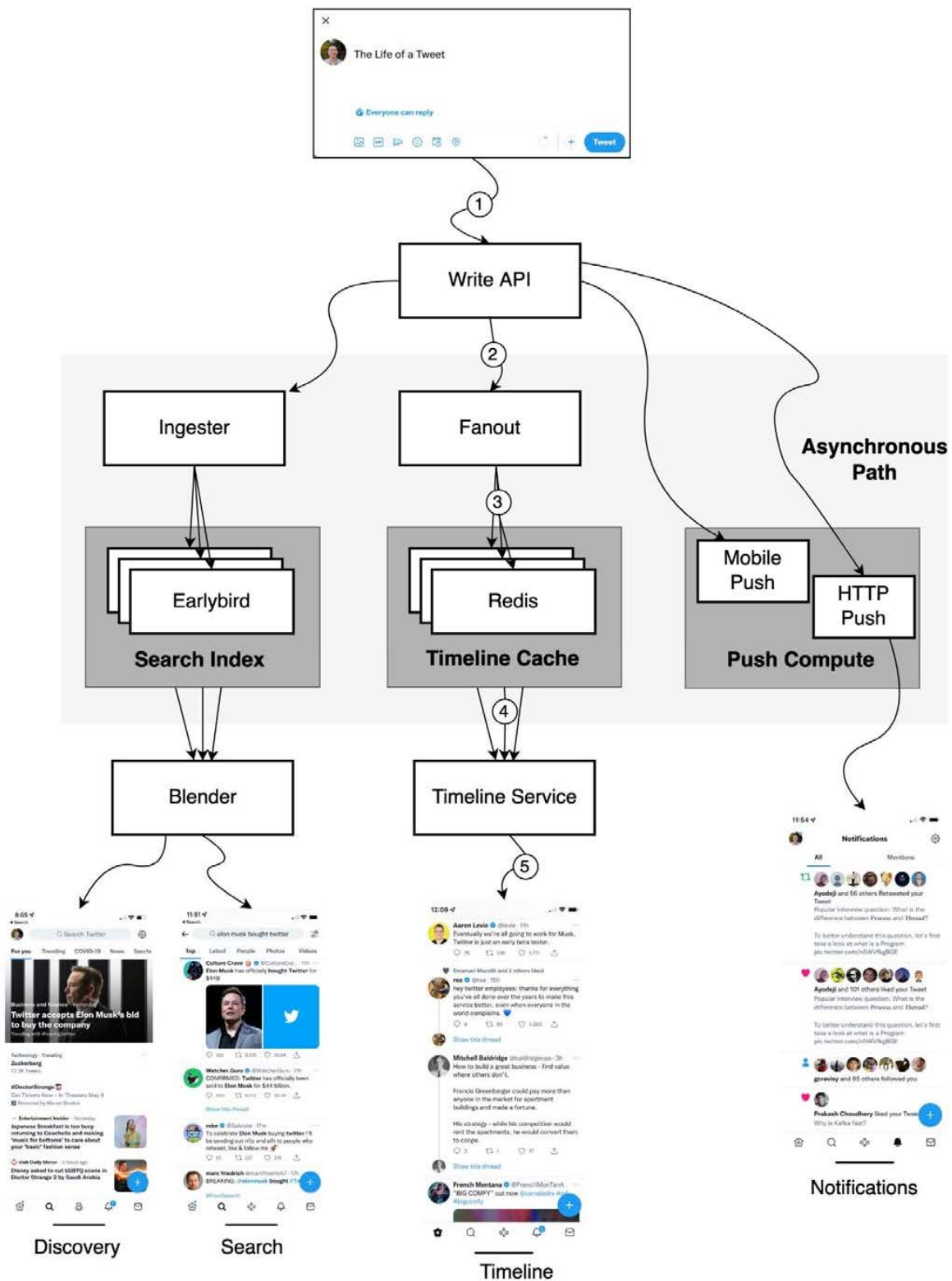


Figure 4.1 (ER Diagram)

4.4 Database Tables

The screenshot displays the phpMyAdmin web interface in a browser. The left sidebar shows a tree view of databases: 'information_schema', 'mysql', 'performance_schema', 'phpmyadmin', and 'test'. Under the 'twitter' database, several tables are listed: 'comments', 'follow', 'likes', 'messages', 'notification', 'trends', 'tweets', and 'users'. The main panel shows the 'Structure' tab for the 'twitter' database. It contains a table with 8 columns: Table, Action, Rows, Type, Collation, Size, and Overhead. The table lists 8 tables: comments, follow, likes, messages, notification, trends, tweets, and users. Below the table, there is a 'Create table' section with a 'Name' field and a 'Number of columns' field set to 4. A 'Go' button is present. The bottom of the interface shows a Windows taskbar with various application icons and a system clock indicating 11:24 on 01-06-2023.

Table	Action	Rows	Type	Collation	Size	Overhead
<input type="checkbox"/> comments		0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> follow		1	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> likes		1	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> messages		2	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> notification		2	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> trends		0	InnoDB	utf8mb4_general_ci	32.0 KiB	-
<input type="checkbox"/> tweets		1	InnoDB	utf8mb4_general_ci	32.0 KiB	-
<input type="checkbox"/> users		2	InnoDB	utf8mb4_general_ci	16.0 KiB	-
8 tables	Sum	9	InnoDB	utf8mb4_general_ci	160.0 KiB	0 B

Figure 4.2 (Database Tables)

4.5 Database ER Diagram

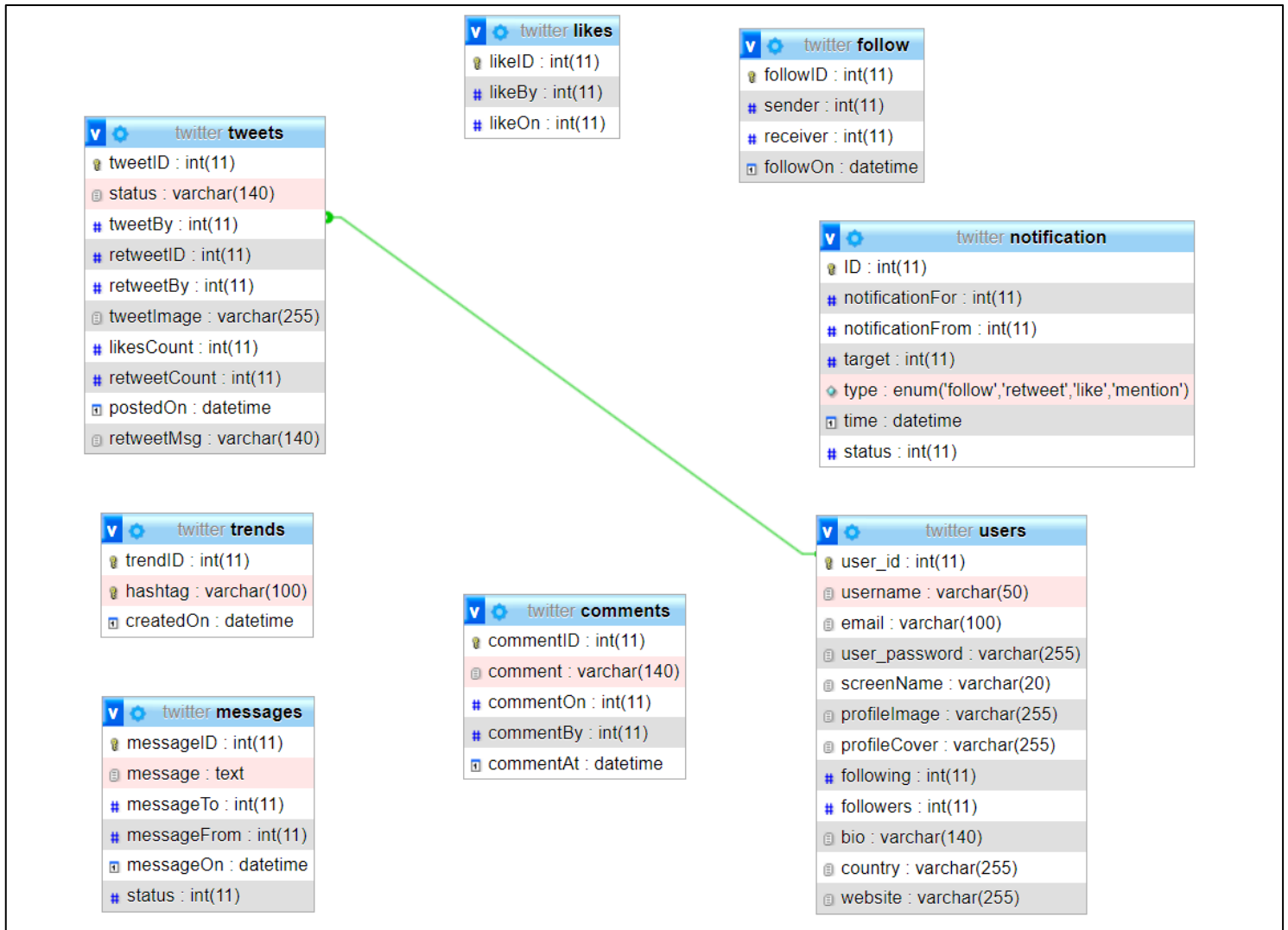


Figure 4.3 (Database ER Diagram)

Chapter 5: System Implementation & Installation

System implementation and installation refer to the process of deploying a software system or application into a production environment. It involves setting up the necessary infrastructure, configuring the system, and ensuring that it is ready for use by end-users. Here are the general steps involved in system implementation and installation:

1. **Planning:** Before starting the implementation, it is crucial to have a detailed plan outlining the goals, requirements, timeline, and resources needed for the installation. This includes determining the hardware and software infrastructure required for the system.
2. **Infrastructure Setup:** Prepare the necessary hardware and software infrastructure to support the system. This may involve procuring and configuring servers, networks, databases, and other components required for the system to operate effectively.
3. **Software Installation:** Install the software system on the designated servers or cloud platforms. This may involve running an installer or deploying the system from source code. Ensure that all the necessary dependencies and prerequisites are met.
4. **Configuration:** Configure the system according to the specific requirements of the organization or users. This includes setting up parameters, preferences, user roles, access controls, database connections, and any other customizable settings.
5. **Data Migration:** If the new system replaces an existing system, it may be necessary to migrate data from the old system to the new one. This involves exporting data from the old system, transforming and cleaning the data as needed, and importing it into the new system.
6. **Testing:** Conduct thorough testing of the system to ensure that it functions correctly and meets the defined requirements. This includes functional testing, performance testing, security testing, and user acceptance testing. Identify and resolve any issues or bugs that are discovered during testing.
7. **Training and Documentation:** Provide training to end-users and administrators on how to use and manage the new system. Create comprehensive documentation, including user manuals, system documentation, and troubleshooting guides, to assist users in using the system effectively.
8. **Deployment:** Once the system has been thoroughly tested and users are trained, it can be deployed to the production environment. This involves making the system accessible to end-users and ensuring its availability and reliability.
9. **Monitoring and Maintenance:** Establish mechanisms for monitoring the system's performance, security, and availability in the production environment. Regularly update and maintain the system to ensure its optimal operation. Address any issues or bugs that may arise and provide ongoing support to end-users.

It is important to note that the implementation and installation process may vary depending on the specific system, its complexity, and the organization's requirements. It is recommended to follow industry best practices and involve relevant stakeholders throughout the process to ensure successful implementation and installation of the system.

5.1 Vs Code Installation

To install Visual Studio Code (VSCode), you can follow these steps:

- Visit the official Visual Studio Code website at <https://code.visualstudio.com/>.
- On the website's homepage, you'll find a download button. Click on it to start the download.
- Depending on your operating system, you will be prompted to download the appropriate version of VSCode. Choose the version suitable for your system (Windows, macOS, or Linux).
- Once the download is complete, locate the installer file and run it.
- Follow the instructions provided by the installer. On most operating systems, the installation process is straightforward and involves accepting the license agreement, choosing the destination folder, and selecting any additional components you want to install (such as adding VSCode to the system PATH).
- After the installation is complete, you can launch Visual Studio Code by searching for it in your applications or using the desktop shortcut.
- Upon launching VSCode, you will see the welcome screen. You can customize your preferences, install extensions, or explore the features right away.

5.2 XAMPP Installation

To install XAMPP (cross-platform Apache, MySQL, PHP, and Perl), you can follow these steps:

- Visit the official XAMPP website at <https://www.apachefriends.org/index.html>
- On the XAMPP homepage, you'll find the available downloads. Choose the version that is compatible with your operating system (Windows, macOS, or Linux).
- Once you've selected your operating system, click on the download link to start downloading the XAMPP installer.
- After the download completes, locate the downloaded installer file and run it.
- Follow the on-screen instructions provided by the XAMPP installer. The installation process may vary slightly depending on your operating system.

- During the installation, you'll be prompted to select which components you want to install. Typically, you'll want to install Apache, MySQL, PHP, and phpMyAdmin. You can also select other components based on your requirements.
- Choose the installation directory for XAMPP. The default directory is usually fine, but you can choose a different location if desired.
- Complete the installation by following the remaining instructions. The installer will copy the necessary files and configure the components you selected.
- Once the installation is complete, you can launch XAMPP. On Windows, you can find the XAMPP Control Panel in the Start Menu or Desktop shortcut. On macOS, you can find it in the Applications folder.
- Start the Apache and MySQL services using the XAMPP Control Panel. You may need to run it as an administrator or provide your password, depending on your operating system.
- Once the services are running, open a web browser and navigate to <http://localhost/>. You should see the XAMPP dashboard, confirming that the installation was successful.
- You can now create your website or web application files and place them in the "htdocs" folder within the XAMPP installation directory. These files will be accessible through your browser at <http://localhost/filename>.

That's it! XAMPP is now installed on your system, and you can start developing and testing your web projects locally. Remember to stop the services when you're done working with XAMPP to free up system resources.

5.3 Git Installation

To install Git on your system, follow the steps below:

1. ****Windows****:

- Download the Git installer from the official website: <https://git-scm.com/download/win>.
- Run the downloaded installer and follow the installation wizard.
- Select the desired components and adjust the installation settings if needed. For most users, the default options should work fine.
- During the installation, you will have the option to choose the default editor, Git Bash usage, and other preferences.
- After completing the installation, you can open Git Bash, Git GUI, or use Git from the command prompt.

2. ****macOS****:

- Git can be installed on macOS using different methods, including Homebrew, Xcode Command Line Tools, and the official Git installer.
- Homebrew: If you have Homebrew package manager installed, open Terminal and run the following command: ``brew install git``. Homebrew will handle the installation process.
- Xcode Command Line Tools: Open Terminal and run the following command: ``xcode-select --install``. It will prompt you to install the necessary tools, including Git.
- Official Git installer: Download the installer for macOS from the official website: <https://git-scm.com/download/mac>. Run the installer and follow the instructions.

3. ****Linux****:

- Ubuntu/Debian: Open Terminal and run the following command: ``sudo apt-get install git``.
- Fedora: Open Terminal and run the following command: ``sudo dnf install git``.
- Other distributions: Check your distribution's package manager and install Git using the appropriate command.

After installing Git, you can verify the installation by opening a new Terminal/Command Prompt window and running the command ``git --version``. It should display the installed Git version if the installation was successful.

Remember to configure Git with your name and email address using the following commands (replace "Your Name" and "your.email@example.com" with your actual name and email address):

...

```
git config --global user.name "Your Name"
```

```
git config --global user.email "your.email@example.com"
```

...

Now you should be ready to use Git on your system.

Chapter 6: Detailed Design of Implementation

The Systems Development Life Cycle (SDLC) is a framework that outlines the various stages involved in the development, implementation, and maintenance of information systems. It provides a structured approach for organizations to follow when building and managing software applications or systems. The SDLC typically consists of the following phases:

- **Requirements Gathering:** In this initial phase, the project team interacts with stakeholders to gather and document their requirements and expectations for the system. This involves understanding the business needs, identifying system functionalities, and determining project scope.
- **System Analysis:** The system analysis phase involves a thorough analysis of the requirements gathered in the previous phase. The project team identifies any existing system limitations, potential improvements, and possible solutions. They create detailed specifications and define the system's architecture, data flow, and interfaces.
- **System Design:** In this phase, the technical specifications are transformed into a detailed design plan. The project team designs the system's components, database structure, user interfaces, algorithms, and other system elements. This stage may involve creating prototypes or mock-ups to validate the design.
- **Development:** The development phase involves translating the design specifications into actual system components. Programmers write code, develop databases, create user interfaces, and integrate various system elements. This phase focuses on coding, testing, and debugging to ensure that the system functions as intended.
- **Testing:** During the testing phase, the developed system is subjected to various tests to identify and fix any defects or issues. This includes unit testing, integration testing, system testing, and user acceptance testing. The goal is to ensure that the system meets the defined requirements and functions correctly.
- **Implementation:** In this phase, the system is deployed and made available to end-users. It involves activities such as data conversion, user training, installation of hardware and software, and system documentation. The implementation phase may also include a rollout plan to ensure a smooth transition from the old system to the new one.
- **Maintenance:** Once the system is implemented, it enters the maintenance phase. This involves ongoing support, monitoring, and regular updates to address issues, fix bugs, and introduce new features. Maintenance activities can include user support, system enhancements, performance optimization, and security updates.

It's important to note that the SDLC is not strictly linear, and iterations and feedback loops can occur between different phases. Additionally, different organizations and projects may adapt or modify the SDLC stages to suit their specific needs or methodologies, such as Agile or DevOps.

6.1 Project Planning:

Software project plan can be viewed as the following:

- 1) **Within the organization:** How the project is to be implemented? What are various constraints (time, cost, staff)? What is market strategy?
- 2) **With respect to the customer:** Weekly or timely meetings with the customer with presentation on status reports. Customers feedback is also taken and further modification and developments are done. Project milestones and deliverables are also presented to the customer.

Data Flow Diagram



Figure 6.1 (Data Flow Diagram)

6.2 Data Flow Diagram Explanation:

A data flow diagram (DFD) is a graphical representation of the flow of data within a system. In the context of a social network, a DFD can illustrate how data moves between different components or modules of the social network platform. Here is an example of a high-level data flow diagram for a social network:

6.2.1 Explanation of the components:

- **User Input:** This component represents the various ways users interact with the social network platform, such as posting updates, liking content, adding friends, etc.
- **User Profile:** This component manages user profiles, including personal information, settings, privacy controls, and preferences.
- **User Database:** This component stores user-related data, including profile information, authentication details, friend lists, and user activity logs.
- **Content Management:** This component handles the management of various types of content on the social network, including posts, images, videos, comments, etc.
- **Content Database:** This component stores the content uploaded by users, along with associated metadata like timestamps, likes, comments, and shares.
- **Analytics:** This component analyzes user behavior, engagement patterns, and content trends to provide insights for improving the user experience and making data-driven decisions.
- **Notification System:** This component handles the generation and delivery of notifications to users, such as new friend requests, message alerts, content recommendations, etc.

Please note that this is a simplified representation, and in a real social network, there would be many more components and data flows involved. The DFD can be further expanded to include additional modules, such as messaging systems, search functionality, advertising platforms, and more, depending on the specific features and requirements of the social network.

6.2.2 Steps for successful software projects:

For a successful software project, several steps can be followed. Here is a general framework that can help guide you through the software development process:

- **Requirement Gathering:** Clearly define and document the project requirements. This involves understanding the purpose of the software, identifying user needs, and determining the desired functionalities and features.
- **Planning:** Create a detailed project plan that includes timelines, milestones, and resource allocation. Define the scope of the project, set realistic goals, and identify potential risks and mitigation strategies.

- **Design:** Develop a high-level and low-level design for the software system. This involves creating architectural diagrams, database designs, and user interface mockups. Ensure that the design aligns with the project requirements.
- **Development:** Write the code for the software system based on the design specifications. Break down the development tasks into smaller units, and follow a structured development approach, such as agile or waterfall. Regularly test and review the code to ensure quality and adherence to coding standards.
- **Testing:** Perform comprehensive testing to identify and fix any defects or issues in the software. This includes unit testing, integration testing, system testing, and user acceptance testing. Use automated testing tools and techniques to streamline the testing process.
- **Deployment:** Prepare the software for deployment by packaging and configuring it for the target environment. Develop a deployment plan and ensure that the necessary infrastructure and resources are in place. Conduct thorough testing in the deployment environment before making it available to users.
- **Maintenance:** Once the software is deployed, monitor its performance, gather user feedback, and address any bugs or issues that arise. Provide regular updates and improvements to ensure the software remains functional, secure, and up to date.
- **Documentation:** Throughout the project, maintain clear and comprehensive documentation. This includes user manuals, technical specifications, design documents, and any other relevant information. Documentation helps with future maintenance, knowledge transfer, and understanding the software system.
- **Communication and Collaboration:** Foster effective communication and collaboration among team members, stakeholders, and users. Regularly communicate project progress, address concerns, and maintain an open line of communication to ensure everyone is aligned and engaged.
- **Project Management:** Employ effective project management techniques to monitor and control the project's progress. This includes tracking milestones, managing risk.

Chapter 7: Software Testing

Software testing is important for several reasons:

- 1. Identifying defects:** Testing helps in identifying defects or bugs in software. By systematically executing test cases, testers can uncover errors or discrepancies in the software's functionality, logic, or user interface. This allows developers to address these issues before the software is released to end-users, ensuring a higher level of quality and reliability.
- 2. Enhancing software quality:** Testing plays a crucial role in improving the quality of software. It helps in validating whether the software meets the specified requirements and performs as expected. By conducting different types of tests, such as functional testing, performance testing, security testing, and usability testing, organizations can ensure that the software functions correctly, performs optimally, and provides a satisfactory user experience.
- 3. Preventing future issues:** Effective testing can help prevent potential issues and vulnerabilities in the software. By identifying and resolving bugs early in the development process, testers can prevent these issues from escalating into larger problems that could impact the software's stability, security, or performance in the future. This proactive approach saves time, resources, and potential reputational damage.
- 4. Increasing customer satisfaction:** Testing helps in delivering a reliable and robust software product to end-users, which in turn enhances customer satisfaction. By ensuring that the software works as expected, performs well, and meets the users' needs, organizations can build trust and loyalty among their customers. Satisfied customers are more likely to continue using the software, recommend it to others, and contribute to the organization's success.
- 5. Cost-effectiveness:** While testing requires investment in terms of time, resources, and personnel, it can ultimately save costs in the long run. Detecting and fixing defects early in the software development lifecycle is generally less expensive than addressing them later or after the software has been deployed. Moreover, thorough testing reduces the risk of software failures, which can lead to expensive downtime, loss of productivity, or even legal issues.
- 6. Compliance and regulatory requirements:** Many industries have specific compliance and regulatory requirements that software must meet. Testing ensures that the software complies with these standards and regulations, such as data security and privacy regulations (e.g., GDPR), accessibility guidelines, or industry-specific standards. By adhering to these requirements, organizations can avoid penalties, legal consequences, and reputational damage.

In summary, software testing is important because it helps identify defects, enhance software quality, prevent future issues, increase customer satisfaction, provide cost-effectiveness, and ensure compliance with industry standards and regulations. It is an essential part of the software development process to deliver reliable, high-quality software to end-users.

7.1 In Social Networking Site we have try 2 types of testing technique:

- 1 White Box Testing.
- 2 Black Box Testing.

7.1.1 White Box Testing

White box testing is a software testing technique that focuses on examining the internal structure and implementation details of a software system. It is also known as clear box testing, transparent box testing, structural testing, or glass box testing. In white box testing, the tester has access to the internal workings of the software, including the source code, architecture, and design.

The main objective of white box testing is to ensure that the software functions correctly according to its design and specifications, as well as uncover any defects or errors in the code. It involves analyzing the internal code paths, data structures, and logic to create test cases that exercise different parts of the software.

Here are some key aspects of white box testing:

- 1. Coverage Criteria:** White box testing aims to achieve high coverage of the software code. This involves selecting specific test cases to exercise different code paths, branches, and conditions, such as statement coverage, branch coverage, and path coverage.
- 2. Code Inspection:** Testers review the source code and identify potential areas that require thorough testing. They analyze the code structure, variables, functions, and algorithms to understand how the software works.
- 3. Test Case Design:** Test cases are designed based on the internal structure of the software. This includes creating test inputs that target specific conditions, loops, and boundary values. Testers may use techniques like boundary value analysis, statement testing, and decision table testing to design effective test cases.
- 4. Test Execution:** Testers execute the test cases, observing the behavior of the software and comparing it to expected results. They can use specialized testing tools or frameworks to automate the execution of test cases and analyze the coverage achieved.
- 5. Code Modification:** During white box testing, defects or errors identified in the code may be fixed by the developers. Testers may also provide suggestions for code improvements to enhance the software's quality and performance.

White box testing is commonly performed by developers, quality assurance engineers, or independent testers who have access to the source code and are familiar with the software's internal structure. It complements other testing techniques like black box testing, which focuses on testing the software's functionality without knowledge of the internal implementation.

By conducting white box testing, organizations can uncover defects early in the software development lifecycle, improve code quality, and enhance the reliability and robustness of the software system.

Working process of white box testing:

1. **Input:** Requirements, Functional specifications, design documents, source code.
2. **Processing:** Performing risk analysis for guiding through the entire process.
3. **Proper test planning:** Designing test cases so as to cover entire code. Execute rinse-repeat until error-free software is reached. Also, the results are communicated.
4. **Output:** Preparing final report of the entire testing process.

7.1.2 Black Box Testing

Black box testing is a software testing technique that focuses on examining the functionality of a system without considering its internal structure or implementation details. In this approach, the tester treats the system as a "black box" and doesn't have access to the internal code, architecture, or design.

The main objective of black box testing is to verify whether the system behaves as expected from the end-user's perspective. Testers typically design test cases based on the system's specifications, requirements, or functional descriptions. The purpose is to assess the system's inputs and outputs, its response to different scenarios, and its compliance with the specified requirements.

During black box testing, the tester is not concerned with how the system achieves its functionality but focuses on validating the behavior and correctness of the system based on various inputs. This testing technique can be applied at different levels of software testing, such as unit testing, integration testing, system testing, and acceptance testing.

Advantages of black box testing include:

1. **Independence:** Testers don't require knowledge of the internal implementation, making it possible for independent testers to perform the testing.
2. **Simulates end-user perspective:** It evaluates the system from the user's point of view, ensuring that it meets user requirements and expectations.

3. Encourages thorough testing: By focusing on inputs, outputs, and functional specifications, it prompts testers to consider a wide range of scenarios and potential issues.

4. Early detection of issues: It can uncover defects and issues at an early stage of the software development life cycle.

However, black box testing has some limitations. It may not provide coverage for every possible scenario or uncover issues related to the internal implementation. To achieve comprehensive testing, a combination of black box testing with other techniques like white box testing (which considers internal structure) is often employed.

There are many types of Black Box Testing but the following are the prominent ones –

- **Functional testing** – This black box testing type is related to the functional requirements of a system; it is done by software testers.
- **Non-functional testing** – This type of black box testing is not related to testing of specific functionality, but non-functional requirements such as performance, scalability, usability.
- **Regression testing** – Regression Testing is done after code fixes, upgrades or any other system maintenance to check the new code has not affected the existing code.

7.2 GUI and Usability Test Scenarios

- All fields on the page (**For Example**, text box, radio options, drop-down lists) should be aligned properly.
- Numeric values should be justified correctly unless specified otherwise. Enough space should be provided between field labels, columns, rows, error messages, etc.
- The scrollbar should be enabled only when necessary. Font size, style, and colour for headline, description text, labels, infield data, and grid info should be standard as specified in SRS.
- The description text box should be multi-lined.
- Disabled fields should be greyed out and users should not be able to set focus on these Fields.
- Upon clicking on the input text field, the mouse arrow pointer should get changed to the cursor.
- The user should not be able to type in the drop-down select list.
- Information filled out by users should remain intact when there is an error message on the
- page submitted. The user should be able to submit the form again by correcting the errors.
- Check if proper field labels are being used in error messages.

- Drop-down field values should be displayed in defined sort order.
- Tab and Shift+Tab order should work properly.
- Default radio options should be pre-selected on the page load.
- Field-specific and page-level help messages should be available.
- Check if the correct fields are highlighted in case of errors. Check if the drop-down list options are readable and not truncated due to field size limits.
- All buttons on the page should be accessible with keyboard shortcuts and the user should be able to perform all operations using a keyboard.
- Check all pages for broken images.
- Check all pages for broken links.
- All pages should have a title.
- Confirmation messages should be displayed before performing any updates or deleting operations.
- Hourglass should be displayed when the application is busy.
- Page text should be left-justified.

The user should be able to select only one radio option and any combination for checkboxes.

7.3 Test Scenarios for Filter Criteria

- The user should be able to filter results using all parameters on the page.
- Refine search functionality should load the search page with all user-selected search parameters.
- When there are at least one filter criteria required to perform the search operation, then make sure that the proper error message is displayed when the user submits the page without selecting any filter criteria.
- When at least one filter criteria selection is not compulsory, the user should be able to submit the page and the default search criteria should be used to query results.
- Proper validation messages should be displayed for all invalid values for filter Crite

7.4 Back-End Testing

Sure, I can help you with testing in PHP. Testing is an essential part of software development to ensure that your code functions as expected and to catch any potential bugs or issues. In PHP, you can write unit tests to test individual components of your code, as well as integration tests to test the interaction between different components.

Here's a basic example of how you can write a unit test using the PHPUnit testing framework, which is widely used in PHP development:

1. Install PHPUnit:

PHPUnit is not included with PHP by default, so you'll need to install it. You can install it using Composer, the PHP dependency management tool. Run the following command in your project directory:

```
...  
  
composer require --dev phpunit/phpunit  
  
...
```

2. Create a test file:

Create a new file, let's say `MathTest.php`, and define a test class inside it. For example:

```
```php  
<?php

use PHPUnit\Framework\TestCase;

class MathTest extends TestCase
{
 public function testAddition()
 {
 $result = 2 + 2;
 $this->assertEquals(4, $result);
 }
}

...
```

### 3. Run the test:

Open your command line or terminal, navigate to your project directory, and run the following command:

```
...
```

```
vendor/bin/phpunit MathTest.php
```

```
...
```

This will execute the test and show the test results.

This is a basic example of a unit test that checks the addition of two numbers. PHPUnit provides many assertion methods like ``assertEquals()``, ``assertTrue()``, ``assertFalse()``, etc., which you can use to test different conditions.

You can also write integration tests that test the interaction between different components of your code or external dependencies. For integration testing, you might use frameworks like Laravel, Symfony, or Codeception, which provide additional features and utilities specifically for integration testing.

Remember, testing is a broad topic, and there are various testing techniques and approaches you can explore depending on your specific requirements. The example above demonstrates a simple unit test using PHPUnit, but there's a lot more you can do with testing in PHP.

## Chapter 8: Screenshots

### Index Page

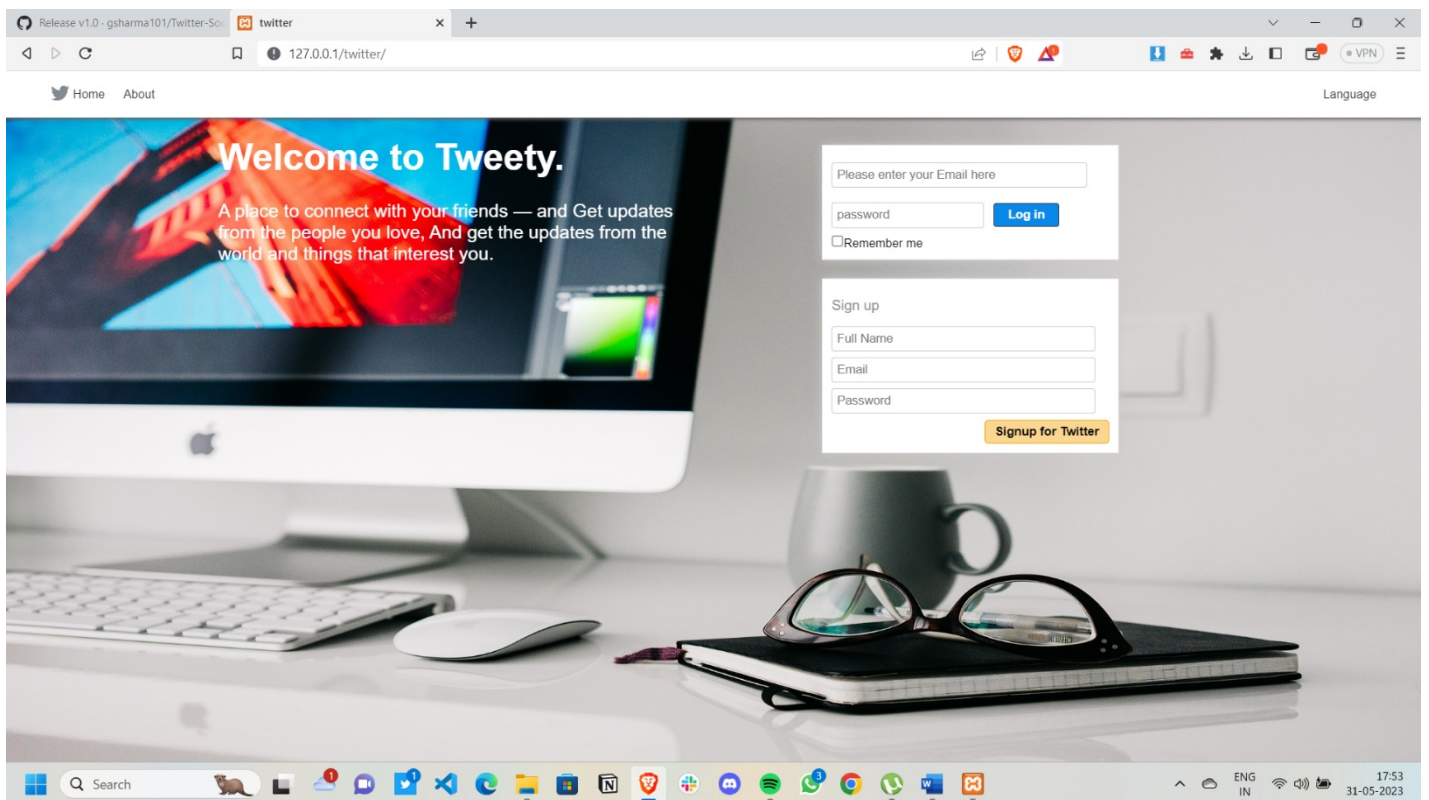


Figure 8.1 (Index Page)



## Setting up Username

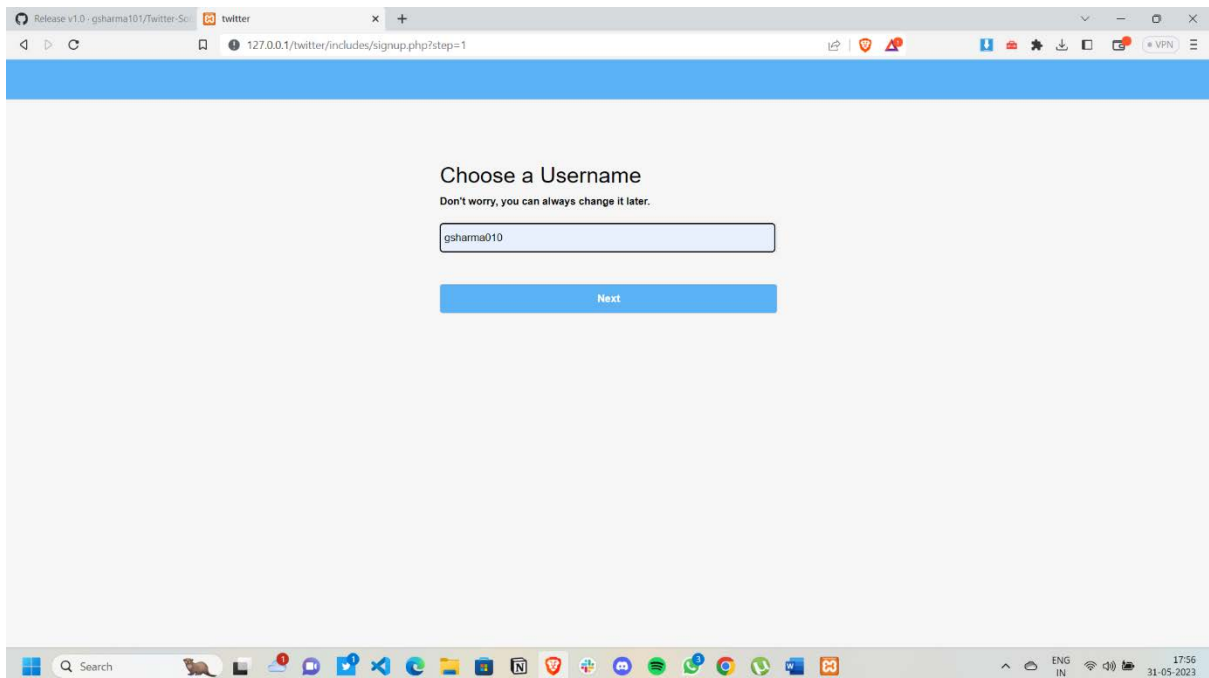


Figure 8.2 (Signup Username)

# Home Page

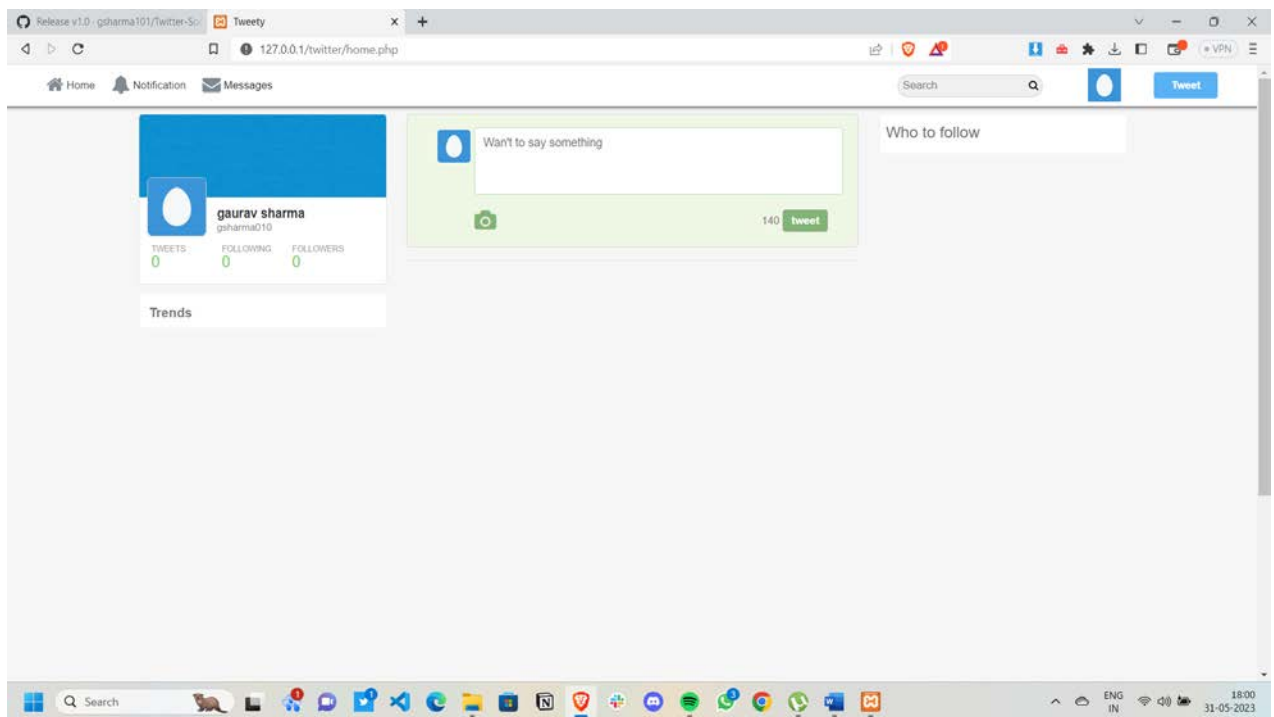


Figure 8.3 (Home Page)

## Profile Page

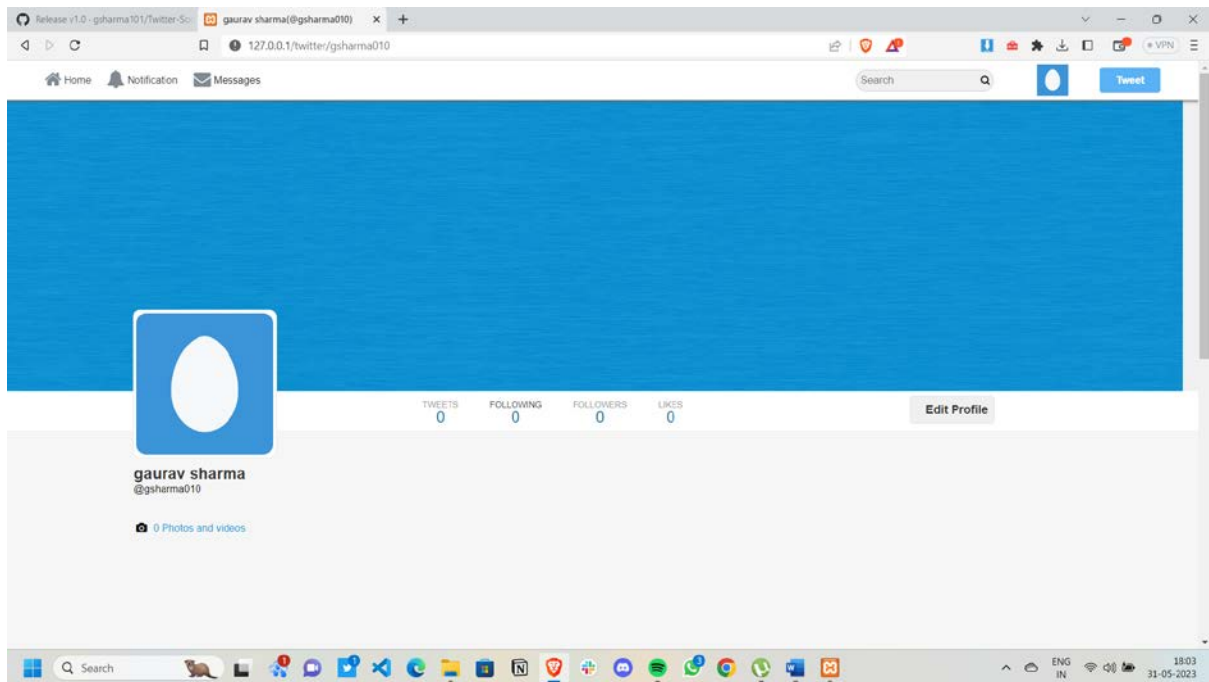


Figure 8.4 (Profile Page)

## Profile Edit Page

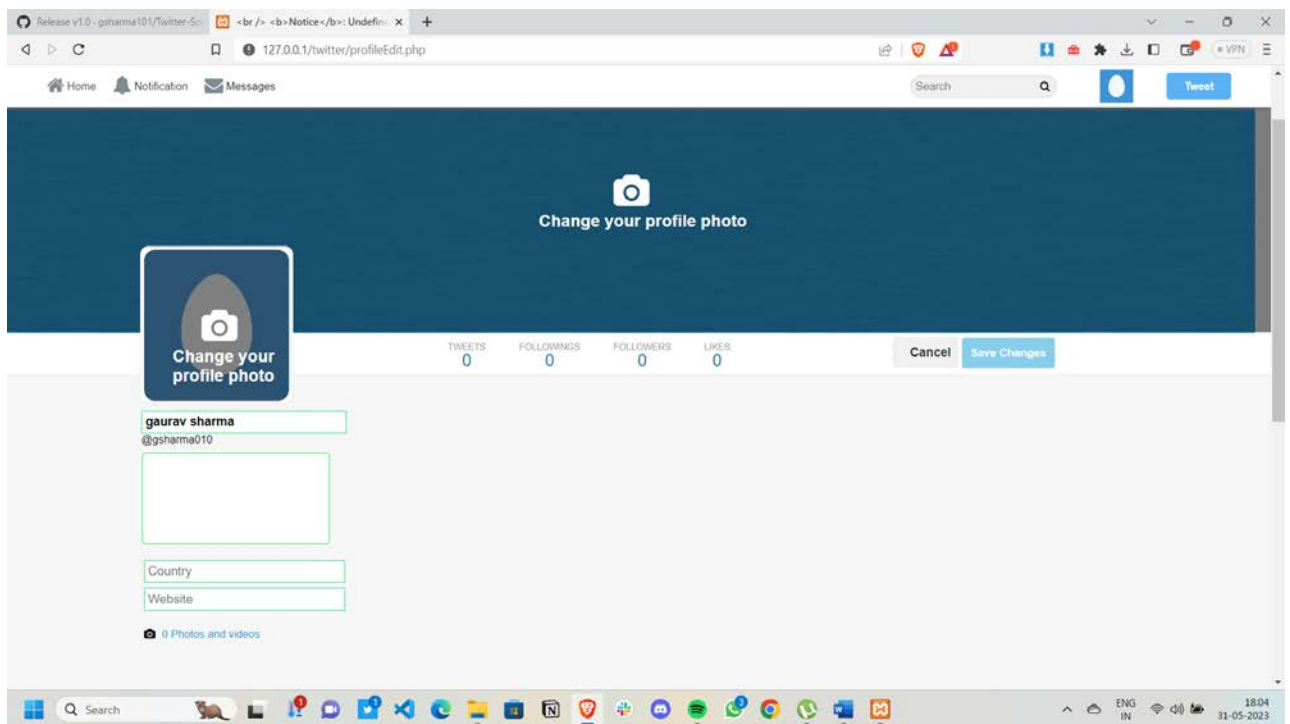


Figure 8.5 (Profile Edit)

## Post Preview

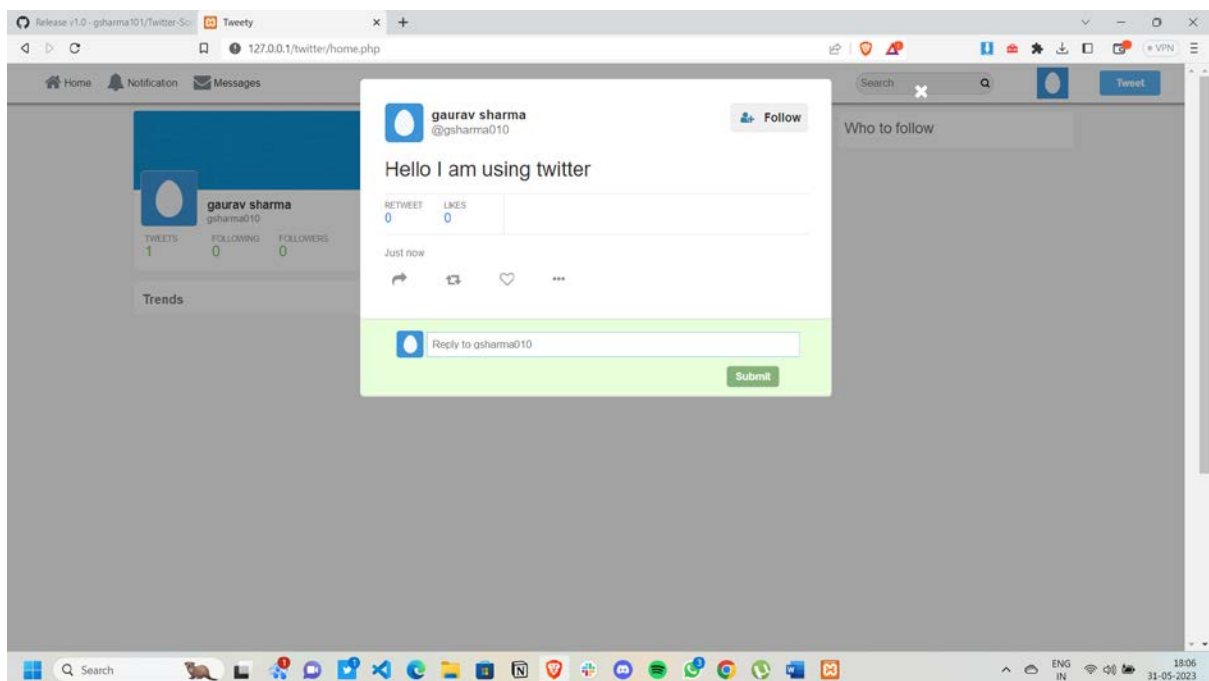


Figure 8.6 (Post Edit)

## Notification Page

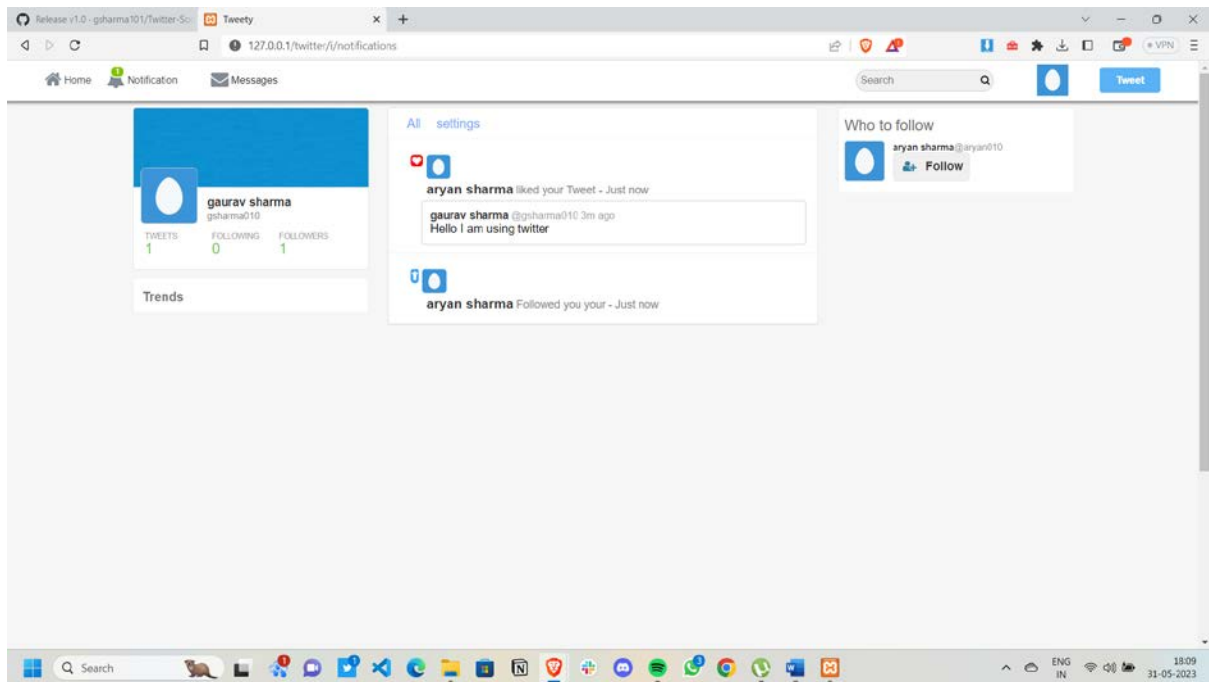


Figure 8.7 (Notification Page)

## Chat Page

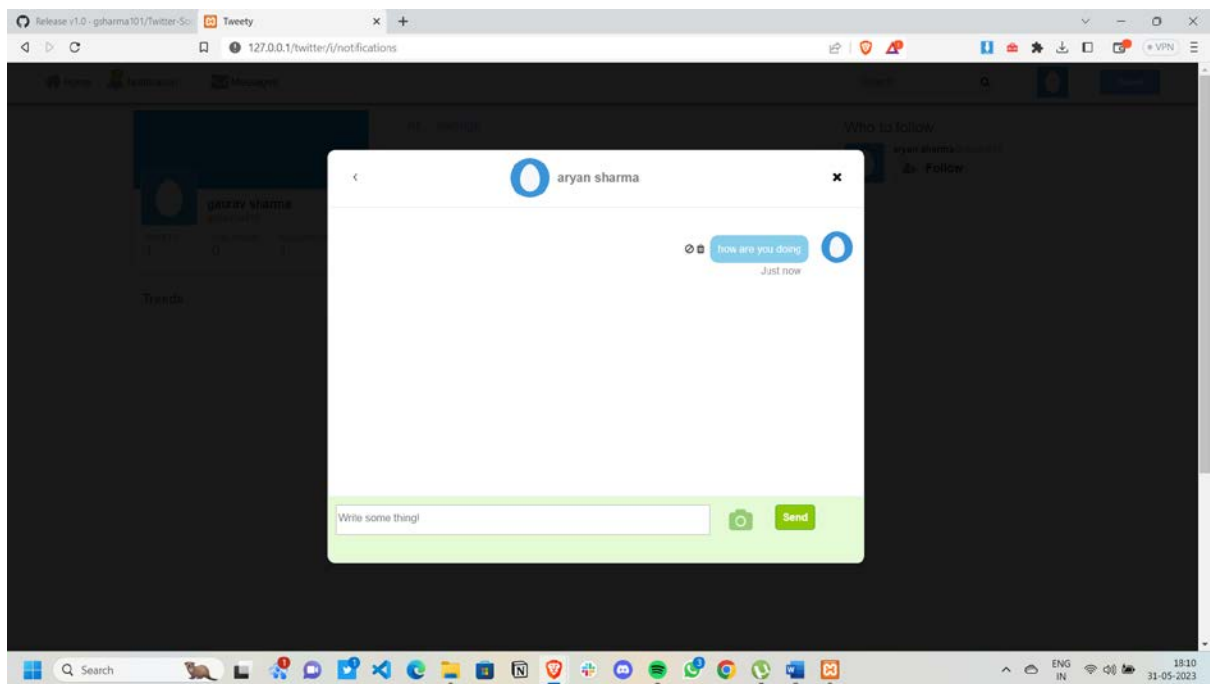


Figure 8.8 (Chat Page)

## Composing New Tweet

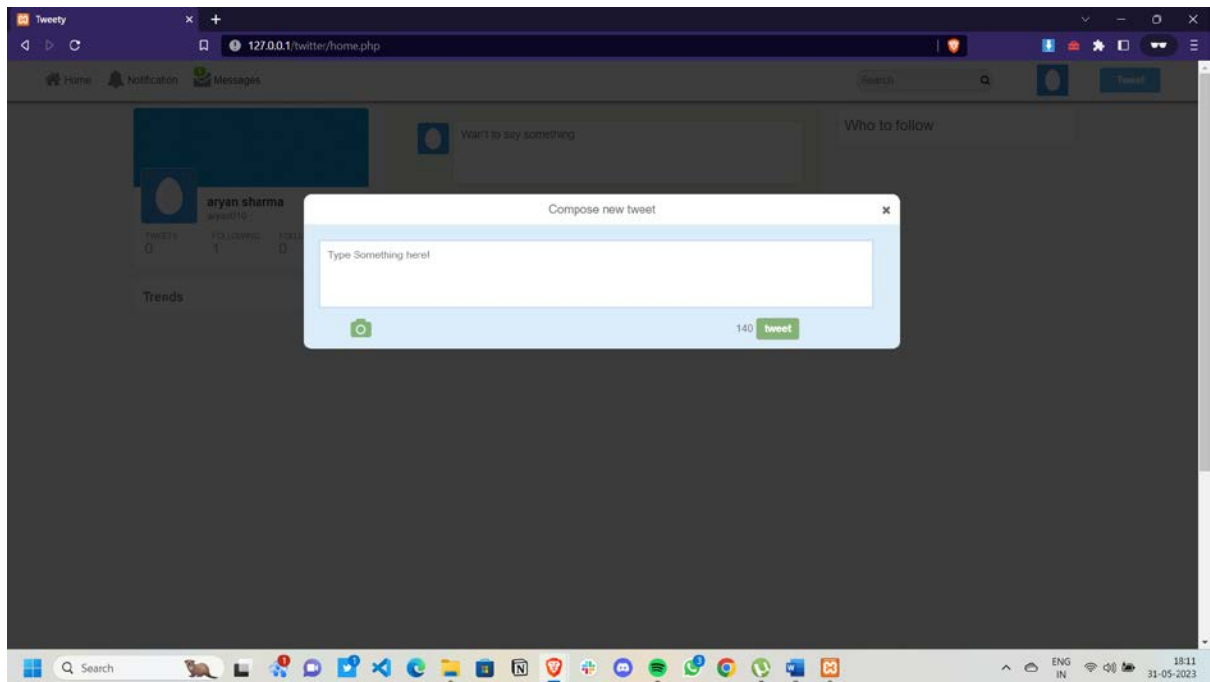


Figure 8.9 (Composing New Tweets)



## Ajax Chat

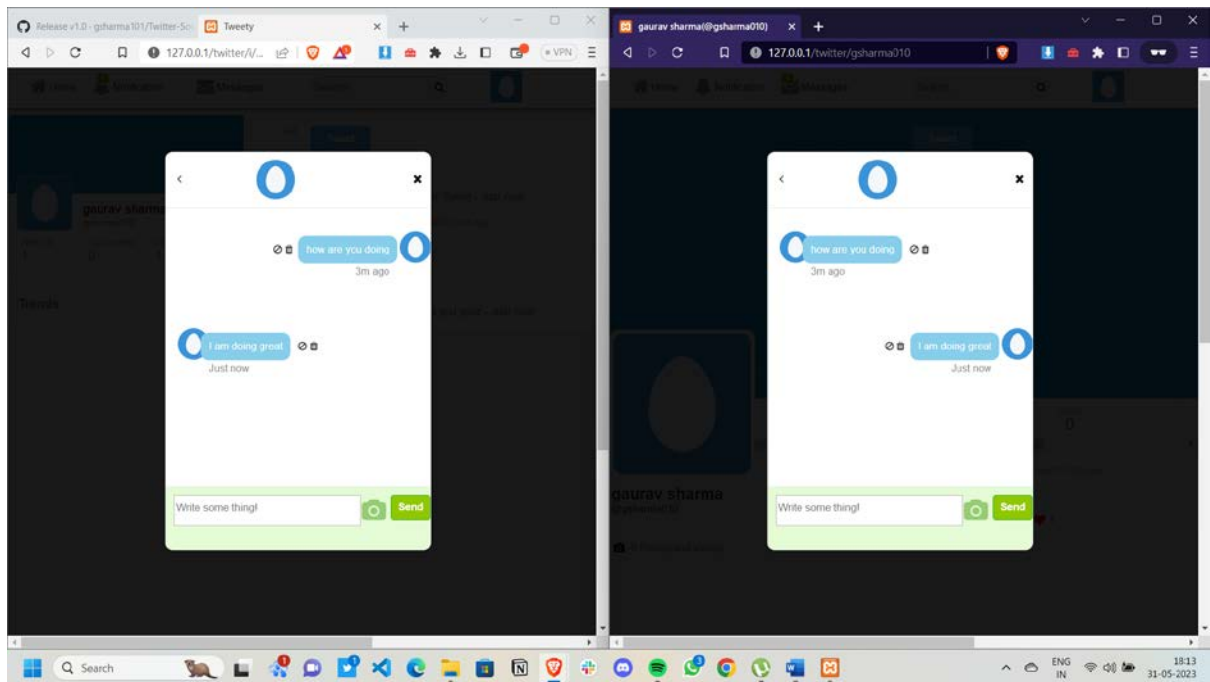


Figure 8.10 (Ajax Chat)

## **Chapter 9: Conclusion**

Social networking sites have become an integral part of our modern society, connecting people from all walks of life and revolutionizing the way we communicate and interact. As we conclude on social networking sites, it is important to acknowledge both their positive and negative aspects.

On the positive side, social networking sites have fostered global connectivity, breaking down geographical barriers and enabling people to stay in touch with friends, family, and acquaintances across the world. They have facilitated the sharing of ideas, information, and experiences on a massive scale, empowering individuals to express themselves and find communities that resonate with their interests and beliefs. Social networking sites have also played a significant role in promoting social movements and raising awareness about important issues, giving a voice to marginalized groups and facilitating collective action.

Furthermore, social networking sites have provided numerous opportunities for businesses, entrepreneurs, and content creators to reach and engage with their target audiences. They have become powerful marketing tools, allowing organizations to build brand awareness, conduct market research, and connect with potential customers. Additionally, these platforms have created new career paths and economic opportunities, especially in the fields of digital marketing, influencer marketing, and content creation.

However, it is crucial to address the potential negative implications of social networking sites as well. One major concern is the impact on mental health and well-being. The constant exposure to carefully curated online personas and the pressure to maintain an idealized image can contribute to feelings of inadequacy, comparison, and low self-esteem. Moreover, the addictive nature of social media can lead to excessive use, potentially resulting in reduced productivity, sleep disturbances, and a sense of social isolation.

Privacy and security concerns are also significant issues associated with social networking sites. Users' personal information can be vulnerable to data breaches, hacking attempts, and unauthorized access. Furthermore, the spread of misinformation, fake news, and online harassment has become a growing concern, requiring platforms to take measures to curb these harmful practices and protect users from abuse.

In conclusion, social networking sites have revolutionized the way we connect, communicate, and share information. They have brought numerous benefits, such as global connectivity, community building, and economic opportunities. However, it is essential to navigate these platforms mindfully, considering the potential impact on mental health, privacy, and security. Striking a balance between the benefits and drawbacks of social networking sites is key to harnessing their potential while minimizing the negative consequences.

## 9.1 Future Advancement

There are several potential advancements that can be added to social networking sites to enhance the user experience and improve functionality. Here are some examples:

- **Personalized Feeds:** Social networking sites can employ advanced algorithms and machine learning techniques to create personalized feeds for users based on their interests, browsing history, and social connections. This can help users discover more relevant content and reduce information overload.
- **Enhanced Privacy Controls:** Improved privacy settings and controls can give users more granular control over their data and who can access it. This can include options for selective sharing, temporary visibility of posts, and greater transparency regarding data collection and usage.
- **Real-Time Collaboration:** Incorporating real-time collaboration features can enable users to work together on documents, projects, or events within the social networking platform. This can enhance productivity and streamline communication for both personal and professional purposes.
- **Augmented Reality (AR) Integration:** AR technology can be integrated into social networking sites to provide users with interactive and immersive experiences. For example, users can overlay virtual objects, filters, or effects on their photos or videos, creating a more engaging and dynamic social media experience.
- **Voice and Video Integration:** Integrating voice and video communication capabilities directly within the platform can facilitate seamless interactions between users. This can include features like voice and video calls, live streaming, or video conferencing, allowing for more real-time and immersive conversations.
- **Community Moderation Tools:** To combat issues like harassment, hate speech, and misinformation, social networking sites can develop more robust community moderation tools. These tools can utilize AI-powered content analysis and reporting systems to identify and take appropriate actions against harmful or inappropriate content.
- **Virtual Reality (VR) Social Experiences:** Social networking sites can explore incorporating virtual reality to create immersive social experiences. Users can interact with each other in virtual environments, attend virtual events, or explore virtual worlds together, fostering deeper connections and a sense of presence.

- **Integration with Internet of Things (IoT):** Social networking sites can leverage the power of IoT devices to expand their functionalities. For instance, users can connect and share data from smart devices, such as fitness trackers or home automation systems, enabling more context-rich and personalized sharing.
- **Improved Content Discovery:** Advanced algorithms and recommendation systems can help users discover relevant content and connect with like-minded individuals more easily. This can involve suggesting relevant groups, events, or pages based on user preferences and past interactions.
- **Accessibility Features:** Social networking sites can prioritize accessibility by implementing features such as alt-text options for visually impaired users, closed captions for videos, and keyboard navigation for users with motor disabilities. This ensures a more inclusive experience for all users.

These advancements can enhance user engagement, personalization, and overall user satisfaction, making social networking sites more valuable and enjoyable platforms for connecting and sharing with others.

## 9.2 Future Scope of Social Networking Site:

The future scope of social networking sites is vast and continually evolving as technology advances and user needs change. Here are some potential areas of development and future opportunities for social networking sites:

1. **Augmented Reality (AR) and Virtual Reality (VR) Integration:** Social networking sites can incorporate AR and VR technologies to provide users with immersive and interactive social experiences. Users can connect with friends, attend virtual events, or explore virtual worlds together, blurring the line between the physical and digital realms.
2. **Artificial Intelligence (AI) and Machine Learning (ML) Advancements:** AI and ML can be leveraged to enhance various aspects of social networking sites, including content personalization, moderation, chatbots for customer support, and intelligent recommendation systems. These technologies can improve user experiences and streamline platform operations.
3. **Blockchain and Decentralization:** The integration of blockchain technology can provide increased security, privacy, and transparency in social networking platforms. It can empower users with more control over their data, facilitate secure peer-to-peer transactions, and combat issues like fake news and identity theft.
4. **Enhanced Privacy and Data Protection:** With growing concerns about data privacy, social networking sites can further strengthen their privacy features. This can include

end-to-end encryption, decentralized storage, and user-centric data ownership models, ensuring that users have control over their personal information.

5. **Niche and Specialized Communities:** Social networking sites can cater to specific interest groups and communities, allowing users to connect with like-minded individuals more easily. This can include platforms focused on hobbies, professions, activism, or specific demographics, fostering deeper connections and more meaningful interactions.
6. **Integration with Internet of Things (IoT):** Social networking sites can integrate with IoT devices, allowing users to share and interact with data generated by smart devices. This can lead to more context-rich sharing, personalized recommendations, and new avenues for social interactions based on shared IoT experiences.
7. **Cross-Platform Integration:** Social networking sites can integrate with other digital platforms, such as e-commerce, streaming services, or productivity tools, creating a seamless digital ecosystem. This integration can enhance user convenience and enable new ways of socializing, collaborating, and consuming content.
8. **Enhanced Content Creation and Sharing:** Social networking sites can develop innovative tools and features for content creation and sharing. This can include advanced photo and video editing capabilities, interactive storytelling formats, and new ways to express emotions and experiences beyond traditional text-based posts.
9. **Voice and Gesture-Based Interactions:** As voice recognition and gesture control technologies improve, social networking sites can incorporate these interfaces for more natural and intuitive interactions. Users can post, comment, and interact with content using voice commands or gestures, providing a hands-free and immersive experience.
10. **Social Impact and Activism:** Social networking sites can play a significant role in promoting social impact and activism. Platforms can provide tools for organizing campaigns, facilitating charitable donations, raising awareness about social issues, and connecting individuals passionate about making a positive difference.

These are just a few possibilities for the future scope of social networking sites. As technology continues to advance and user preferences evolve, social networking platforms will likely explore new avenues to enhance user experiences, foster connections, and adapt to the changing digital landscape.

## Chapter 10: Reference

### 10.1 Front-End Reference

- HTML - <https://www.w3schools.com/html/default.asp>
- CSS - <https://www.w3schools.com/css/default.asp>
- JAVASCRIPT - <https://www.w3schools.com/js/default.asp>



Figure 10.1 (HTML, CSS, JAVASCRIPT)

### 10.2 Back-End Reference

- PHP - <https://www.w3schools.com/php/default.asp>
- MYSQL - <https://www.mysql.com/>



Fig10.2 (PHP AND MYSQL)