WEB-BASED ONLINE DISCUSSION FORUM APPLICATION

Major project report submitted
in partial fulfillment of the requirement for award of the degree of

Bachelor of Technology
in
Computer Science & Engineering

By

MANOJH KUMAR S	(19UECS0586)	**(12596)**
SHALINI E	(19UECS0901)	**(11514)**
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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
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VEL TECH RANGARAJAN DR. SAGUNTHALA R&D INSTITUTE OF SCIENCE & TECHNOLOGY

(Deemed to be University Estd u/s 3 of UGC Act, 1956)
Accredited by NAAC with A++ Grade
CHENNAI 600 062, TAMILNADU, INDIA

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CERTIFICATE

It is certified that the work contained in the project report titled ”WEB-BASED ONLINE DISCUSSION FORUM APPLICATION” by ”MANOJH KUMAR S (19UECS0586), SHALINI E (19UECS 0901), HARINI SENSAPRIYA M (19UECS0365)” has been carried out under my supervision and that this work has not been submitted elsewhere for a degree.

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DECLARATION

We declare that this written submission represents my ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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APPROVAL SHEET

This project report entitled (WEB-BASED ONLINE DISCUSSION FORUM APPLICATION) by (MANOJH KUMAR S (19UECS0586), (SHALINI E (19UECS0901), (HARINI NESAPRIYA M (19UECS0365) is approved for the degree of B.Tech in Computer Science & Engineering.

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ACKNOWLEDGEMENT

We express our deepest gratitude to our respected **Founder Chancellor and President Col. Prof. Dr. R. RANGARAJAN B.E. (EEE), B.E. (MECH), M.S (AUTO),D.Sc., Foundress President Dr. R. SAGUNTHALA RANGARAJAN M.B.B.S.** Chairperson Managing Trustee and Vice President.

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ABSTRACT

Online discussion forums have become an integral part of the digital landscape, providing a platform for users to engage in discussions, share ideas, and collaborate on various topics of interest. The proposed online discussion application aims to provide a user-friendly and interactive platform for users to participate in discussions and exchange information. The application will be developed using PHP as the back-end scripting language and MySQL as the database management system, hosted on a local server using XAMPP. The project will involve designing and implementing a database structure for users, forums, threads, and replies, as well as developing front-end interfaces using HTML, CSS, and JavaScript. Key features of the application will include user registration, forum creation, thread creation and replies, search and filtering, user profiles, moderation, and chat Box. The proposed system also includes an innovative integration of a chat application into the forum platform, providing users with real-time communication capabilities.

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Chapter 1

INTRODUCTION

1.1 Introduction

An online discussion forum is a virtual platform that allows users to engage in discussions on various topics, share their thoughts, ask questions, and exchange information. With the increasing popularity of the internet, online forums have become a popular means of communication and information sharing among communities with common interests. An online discussion forum application provides a structured platform for users to create forums, start threads, and participate in discussions on topics of their choice.

The goal of this project is to develop a web-based online discussion forum application using PHP as the primary programming language, along with other web technologies such as HTML, CSS, JavaScript, and MySQL for the database management system. The application aims to provide a user-friendly and interactive platform where registered users can create forums, start threads, and engage in discussions on various topics of their interest. The project will focus on implementing essential features such as user registration and authentication, forum creation, thread creation and replies, search and filtering, user profiles, moderation, notification system, and social interaction among users.

The online discussion forum application will provide a platform for users to exchange ideas, knowledge, and opinions, fostering a sense of community and promoting meaningful discussions. Users will be able to participate in discussions, connect with like-minded individuals, and learn from each other's perspectives.

1.2 Aim of the project

The aim of the project is to develop an online discussion forum application, which provides a user-friendly and interactive platform for registered users to engage in discussions, share knowledge, and exchange ideas on various topics of interest. The project will focus on implementing features such as user registration and authentica-

tion, forum creation, thread creation and replies, search and filtering, user profiles, moderation, notification system, and social interaction among users. The application will be designed to promote a safe and inclusive environment for users to express their thoughts and opinions, facilitate meaningful discussions, and foster a vibrant online community.

1.3 Project Domain

The project domain for an online forum discussion system using PHP involves the development of a web-based application that allows registered users to participate in discussions on various topics. Users can create and join forums, post threads, reply to threads, and engage in discussions with other users. The system will include features such as user registration, forum creation, thread creation and replies, search and filtering, user profiles and social interaction among users. The application will be developed using PHP as the primary programming language, along with other web technologies such as HTML, CSS, and JavaScript for the front-end, and MySQL for the database management system.

1.4 Scope of the Project

The scope of the project is to create an online forum web application where people can hold their conversations in the form of posted messages. They differ from chat rooms in that messages are often longer than one line of text, and are at least temporarily archived. Also, depending on the access level of a user, a posted message might need to be approved by a moderator before it becomes publicly visible.

Chapter 2

LITERATURE REVIEW

Southern New Hampshire University. (2017). Research guides: asynchronous discussion resource guide: providing feedback. Libguides.snhu.edu. Retrieved 10 October 2017, from http://libguides.snhu.edu/c.php?g=92441p=596049.

Bechmann, J., Weber, P. (2016). Cognitive presence in collaborative learning: Assessing and improving critical thinking in online discussion forums. Interactive Technology and Smart Education, 13(1), 52-70.

Research found that asynchronous online discussion forums are better to synchronous face-to-face discussions as they encourage critical thinking and knowledge co-construction because of the ability to react (Afy, 2015; Beckmann Weber, 2016; Klisc, 2015). Using Atlas.ti, a qualitative software for data organization, more than 200 discussion threads were analysed and concluded that ODF encouraged reection in problem-solving situations within a collaborative environment. She founds that the users were able to connect to real life problems and asks questions that were related to real life situations .

Xiaoling, L. (2018). The Effectiveness of Online Discussion Forums and Recommendations for Chinese Higher Education. A Project Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Education, Department of Curriculum and Instruction, University of Victoria.

Zuheir, K; Hamid, N; and Kyungbin, K. (2017). Types of Interaction in Online Discussion Forums: A Case Study. Journal of Educational Issues,3 (1): 155-159.

Online discussion forums play an important role in tertiary education and many researchers have studied the effectiveness of these forums. However, there are few studies explicitly concluding that online discussion forums are actually effective in promoting students' academic or non-academic learning. What exists in the literature are a series of claims about online learning, therefore, a critical examination of these claims of the effectiveness of online learning forums is necessary. Part of existing literature claims that students will gain knowledge when using online discussion forums. Evidence for this claim can be found through their relatively higher grades or students' self-evaluation after using online discussion forums. Some published literature claims that online discussion forum encourage the development of students' analytic thinking through students' high level of participation in these forums.

Chapter 3

PROJECT DESCRIPTION

3.1 Existing System

In general people share their ideas, queries and answers from their colleagues or friends through the intercom or direct manner. They need to spend time for their work.
Some of the drawbacks are:
1. Details are enquired through phone.
2. It consumes more time.
3. They don't get proper answers

3.2 Proposed System

It is difficult to note down all the problems manually.Instead it is decided todevelop an "ONLINE DISCUSS FORUM" to ease the operation.
A system is required which is being capable of elimination all the problems and become useful to users and thus the new system is derived. Here we get a different viewfrom different users.
Advantages:
1.Interaction will be easier.
2.Users articles can be viewed by others
3.Less time consuming.

3.3 Feasibility Study

Forum is an online discussion forum where youth or even the experienced professionals discuss their queries related to and get answers for their questions from other talented individuals. An online discussion can be started by asking questions, helping others with answers. The best part is that it is very simple and is free of cost.

3.3.1 Economic Feasibility

Web-based online discussion forum application is economically feasible because it offers cost-effective solutions.The existing method which makes the student to clear their doubts manually which takes more time sometimes it even cost money but using the online disscusion forum application the students can clear their doubts easily by posting queries in the application which makes the work easily and compared to the existing method it saves more time

3.3.2 Social Feasibility

Web-Based online discussion forum application using web development is has significant social feasibility.likely
1.User engagement: The forum should encourage active participation from users by providing valuable content, ease of use, and fostering a sense of community. Features such as gamification, rewards, and recognition can help boost user engagement.
2.Privacy and security: Users should be assured that their personal information and conversations are safe and secure on the forum. The application should incorporate features such as user data protection, secure login, and privacy settings.
3.Moderation and content quality: Moderation of the forum is essential to ensure that the content posted is relevant, accurate, and respectful. Users should have the ability to report and flag inappropriate content, and moderators should have the ability to remove such content.

3.4 System Specification

• Processor – Intel i5 7th Gen
• RAM - 8GB
• Hard Disk - 256GB

3.4.1 Software Specification

• Operating System - Windows, Linux, Mac.
• Language - HTML,CSS,PHP,JS,SQL.
• Browser - Brave, Chrome etc.

3.4.2 Standards and Policies

Visual Studio Code

Visual Studio code,also commonly referred to as VS Code,is a source-code editor made by Microsoft for Windows,Linux and macOS.Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring and embedded git. Users can change the theme,keyboard shortcuts,preferences and install extensions that add additional functionality.

Standard Used: ISO/IEC 6429

XAMPP

XAMPP is an open-source web server solution that provides an easy-to-use platform for developers to create and test web applications locally. XAMPP has its own set of standards and policies that ensure the security and stability of the platform. These policies include regular updates to keep the platform up-to-date with the latest security patches and software versions, a strict access control system to limit access to sensitive data and resources, and a comprehensive backup system to protect against data loss. Additionally, XAMPP has a strong commitment to user privacy and data protection, and provides detailed documentation and support to ensure that developers can use the platform safely and effectively.

Standard Used: ISO/IEC 12207

Chapter 4

METHODOLOGY

4.1 General Architecture

Description
A general architecture diagram for a forum application provides a high-level overview of the system's components and how they interact with each other. It typically includes the following components:
1.User Interface: This is the component that allows users to interact with the forum application, such as creating new posts, commenting on existing posts, or searching for specific topics.
2.Web Server: This component handles incoming requests from users and sends responses back to them. It may also handle authentication and authorization of users.
3.Database: This is where all the data for the forum application is stored, such as user account information, posts, comments, and settings.

4.2 Design Phase

4.2.1 Data Flow Diagram

Description
A Data Flow Diagram of the forum application provides a visual representation of the data flow within the system, allowing stakeholders to understand how data moves through the system and how it is processed. It can be used to identify potential issues or areas for improvement in the system's data processing and to communicate the system's design to stakeholders.

4.2.2 Use Case Diagram

Description
A use case diagram displayed in Fig 4.3f of the project online discussion forum

application is a visual representation of the system's functionality in terms of the interactions between users and administrators and the system. It shows how the user and admin interact with the system to achieve their goals or complete tasks.It explains the different use cases that are available to users and administrators, such as creating a new post, commenting on posts, searching for posts, managing user accounts, and managing content. It also shows the relationships between the actors and the use cases, as well as any dependencies or associations between the use cases.

4.2.3 Sequence Diagram

Description
The sequence diagram helps to visualize and understand the interactions between the different components of the forum application and the order in which events occur during specific scenarios. This can be useful for identifying potential issues or areas for improvement in the system's behavior.

4.2.4 Collaboration diagram

Description A collaboration diagram of online discussion forum application could depict a variety of scenarios, such as a user creating a new post, a moderator deleting a post, or an administrator modifying forum settings. The specific interactions between objects and actors would depend on the scenario being depicted.

4.3 Algorithm & Pseudo Code

4.3.1 Algorithm

Step 1:Authenticate the user by verifying their credentials (e.g. username and password).

Step 2:Display the list of forums available to the user.

Step 3:Allow the user to select a forum.

Step 4:Display the list of topics within the selected forum.

Step 5:Allow the user to select a topic.

Step 6:Display the posts within the selected topic.

Step 7:Allow the user to create a new post or reply to an existing post.

Step 8:Allow the user to edit or delete their own posts.

Step 9:Display the search results to the user to chat.

Step 10:Log the user out of the system when they are finished using it.

4.4 Module Description

4.4.1 Front-End

Module 1 for creating a web page using HTML and CSS involves designing and implementing the user interface for the web page. This module includes tasks such as designing the layout, creating wireframes, developing the user interface, and implementing the necessary functionality. The layout of the web page should be designed in a way that is user-friendly and easy to navigate, and wireframes should be created to provide a visual representation of the design. The user interface can then be developed using HTML, CSS, and JavaScript, and should be designed to be responsive and compatible with different devices and screen sizes. Once the user interface has been developed, the necessary functionality can be added to the web page. Overall, Module 1 is essential for creating a visually appealing and functional web page that meets the needs of its users.

4.4.2 Connecting to database

Module 2 for connecting a web page to a phpMyAdmin database involves establishing a connection between the web page and the database to enable data storage, retrieval, and manipulation. This module typically includes the following tasks:

Creating a database: The first step is to create a database in phpMyAdmin to store the data required by the web page. The database should be designed to meet the specific needs of the web page.

Establishing a connection: Once the database has been created, a connection must be established between the web page and the database. This involves configuring the database settings in the web page's code to enable communication between the two.

Retrieving and displaying data: Once the connection has been established, data can be retrieved from the database and displayed on the web page. This can include information such as user profiles, forum posts, or product listings.

Updating and manipulating data: In addition to retrieving data, the connection between the web page and database also allows for data manipulation. This can include updating user profiles, creating new forum posts, or deleting product listings.

Overall, Module 2 is essential for ensuring that the web page has the necessary functionality to interact with the database, allowing for effective data storage, retrieval, and manipulation.

4.5 Steps to execute/run/implement the project

4.5.1 Step1 - Install and Configure XAMPP:

• Download and install XAMPP, which is a popular web server software that includes Apache, MySQL, PHP, and PHPMyAdmin. Follow the installation instructions provided by the official XAMPP website. Configure Apache and MySQL to run on your local machine.

4.5.2 Step2 - Design and Create Database:

• Plan and design the database structure for your online discussion forum application using a tool such as PHPMyAdmin. Create the necessary tables for users, forums, threads, replies, and other relevant entities. Define the relationships between the tables, such as one-to-many or many-to-many relationships, and set up appropriate primary keys, foreign keys, and indexes

4.5.3 Step3 - Develop PHP Scripts:

• Create PHP scripts for the front-end and back-end functionalities of your online discussion forum application. This may include user registration and authentication, forum creation, thread creation and replies, search and filtering, user profiles, moderation, and notification system. Implement server-side validation and security measures to protect against SQL injection, cross-site scripting (XSS), and other security vulnerabilities.

4.5.4 Step4 - Build Front-end Interface:

• Develop the front-end interface for your online discussion forum application using HTML, CSS, and JavaScript. Design the user interface to be user-friendly, responsive, and visually appealing. Implement features such as forum listing, thread listing, thread creation and replies, user profiles, and notification display. Connect the front-end interface with the back-end PHP scripts using appropriate APIs and AJAX for seamless data communication.

4.5.5 Step5 - Test and Debug:

• Thoroughly test your online discussion forum application for functionality, usability, and security. Test different scenarios, such as user registration, thread creation, thread replies, search and filtering, and user profiles. Debug and fix any issues or bugs that arise during testing.

Chapter 5

IMPLEMENTATION AND TESTING

5.1 Testing

5.2 Types of Testing

5.2.1 Unit testing

Unit testing is a software development practice that involves examining the smallest testable units, called units, of an application independently to ensure that they are functioning correctly. This testing process is carried out by software developers and sometimes by QA staff during the development stage. The primary aim of unit testing is to separate the written code and check whether it works as intended. Unit testing is a crucial step in the development process as it can detect early flaws in code that may be challenging to detect in later testing stages if performed correctly. It is also an essential component of test-driven development (TDD), a practical methodology that emphasizes continual testing and revision to build a product thoroughly. Unit testing is the initial level of software testing, performed before other testing methods such as integration testing. Unit tests are typically conducted in isolation to ensure that a unit does not rely on any external code or functions. While manual testing can be performed, it is often automated.

5.2.2 Integration testing

Integration testing aims to test the connections between software components, interactions between different parts of a system, and interfaces between various systems. There are different levels of integration testing, including component integration testing and system integration testing, which occur after component testing and system testing, respectively. As the scope of integration increases, it becomes more challenging to pinpoint defects in specific components or systems, leading to higher risk and longer troubleshooting times. During each stage of integration testing, the fo-

cus is solely on the integration itself. For instance, if module A is being integrated with module B, testers are concerned with evaluating the communication between the modules rather than the functionality of each module, which is done during component testing.

5.2.3 System testing

The purpose of system testing is to evaluate the performance of an entire product or system. It's crucial that the test environment closely resembles the production environment to minimize the risk of environment-related failures going undetected during testing. Test cases are created from various high-level descriptions of the system behavior, such as requirements specifications, business processes, and use cases. The testing of functional requirements during system testing employs suitable specification-based (black-box) techniques depending on the system feature being evaluated. Additionally, structure-based techniques (white-box) can be employed to gauge the thoroughness of the testing concerning a particular structural element. This ensures that the testing is comprehensive and accurate.

Chapter 6

RESULTS AND DISCUSSIONS

6.1 Efficiency of the Proposed System

Online discussion forums can yield a variety of results, both positive and negative. On the positive side, forums can facilitate knowledge sharing, networking, and community building among users. They can also foster critical thinking and help users develop their communication and writing skills. Additionally, forums can serve as valuable sources of feedback and insights for businesses and organizations, allowing them to better understand their customers and improve their products or services. On the negative side, forums can also be breeding grounds for misinformation, harassment, and toxic behavior. Therefore, it is important for forum applications to implement effective moderation tools and policies to maintain a healthy and productive discussion environment.

6.2 Comparison of Existing and Proposed System

Existing system:
• The existing system of forum applications can vary depending on the specific software being used, but generally includes the following components:

• User registration and profile creation: Users must first register for the forum application and create a profile. This typically involves providing basic information such as a username, email address, and password.

• Forum organization: The forum is typically organized into categories or sections, each dedicated to a specific topic. Users can then create posts within these categories and browse posts by topic.

• Post creation and management: Users can create new posts within a category, which can include text, images, and links. Other users can then reply to these posts, creating a conversation thread.

Proposed system:

The proposed system aims to integrate a chat application into the online discussion forum, providing an additional means of communication and engagement among users. The chat application will allow users to have real-time conversations, exchange ideas, and collaborate on discussions within the forum. The chat application will be seamlessly integrated into the forum platform, providing a user-friendly and interactive interface for users to engage in chat discussions while browsing forum threads. This integration will enhance the user experience, promote more dynamic and engaging discussions, and foster a sense of community among forum users. The chat application will be implemented using appropriate technologies such as WebSocket, AJAX, and PHP, ensuring efficient and secure communication between users.

Chapter 7

CONCLUSION AND FUTURE ENHANCEMENTS

7.1 Conclusion

In conclusion, online discussion forums play an important role in fostering communication, knowledge sharing, and community building among users. They provide a platform for people to exchange ideas, collaborate on projects, and engage in meaningful discussions on a wide range of topics. However, to ensure a safe and productive environment, forum applications must implement effective moderation tools and policies that promote respectful behavior and discourage toxic behavior. Moreover, standards and policies are crucial for protecting user privacy, data, and intellectual property. By leveraging these tools and policies, forum applications can continue to evolve and adapt to the changing needs of their users, while maintaining a healthy and vibrant community of engaged users.

7.2 Future Enhancements

This project helps the user to gain the knowledge by clearing their doubts in forum application.In future same project can be extended to audio and video based discussion using the output of the current project.
There are several potential future enhancements that can be made in online discussion forum applications, such as:

AI-powered chatbots: AI and natural language processing technologies can be used to create more efficient and personalized discussions with the help of chatbots. They can assist users with their queries and provide relevant suggestions.

Improved moderation tools: More sophisticated moderation tools can be devel-

oped that can automatically detect and flag inappropriate content. This will ensure a safe and healthy discussion environment for all users.

Integration with other platforms: Online discussion forum applications can be integrated with other platforms such as social media, email, and messaging apps. This will help to expand the reach of the forum and enable users to engage in discussions across multiple channels.