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Design and Implementation of Campus Connection

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ABSTRACT: The current way of teaching and learning process involves asking queries and solving those doubts inside the four walls of the classroom. The students who have any questions at that moment can ask the teachers. Other students and the teacher answer them. But there might come a situation when the student has some sort of query or doubt outside the classroom like at home while revising or studying. Few students might even be shy to ask any doubts in the class. Thus, their doubts might remain unsolved. In this project, we are developing a website for the students and teachers, where any student can ask any sort of doubt, question or query. Those questions can be answered by the other students as well as the teachers. Thus, our website would serve as a platform for quality education by providing an interactive Interface for doubt-solving and gaining abundant knowledge. This paper discusses the analysis of student and teacher interaction in an online asynchronous discussion forum.

KEYWORDS: campus connection, online asynchronous discussion

I. INTRODUCTION

Online discussion, as a component of e-learning, has become a common activity in post-secondary education. It can facilitate collaborative learning. When students are actively engaged in sharing information and their perspectives through interaction with other students, mutual development and analytical growth are guaranteed. Additionally, online discussion has the potential to expose students to a broader range of views than face-to-face conversation and hence enable them to develop more complex perspectives on any given topic.

Query solving is one of the most integral parts of the learning process yet very time-consuming. The teaching and learning process is never completed if any of the student's doubts remain unsolved. There might be countable/uncountable reasons for such unsolved doubts like time restriction, the faculty is not present, stage fear, etc. Many of these reasons could be handled if there was a website that would act as a platform where students can ask questions/doubts which other students and faculty members could provide answers to. In today's world, the internet is being widely used for educational purposes and Android phones cover the highest share in the smartphone market. Along with a general questions-answers forum, features like upvoting/downvoting, and deleting inappropriate questions or answers, edit answers could be provided. This feature could be beneficial for the students to obtain the most appropriate answer among all sets of answers provided. The answer with the most upvoter or the answer written by a faculty can be safely declared as the most appropriate response for the question.

Students can register on this website by providing basic personal info. like name roll no email ID etc. The app would also provide authentication for the students. Faculty accounts have administrative rights and can verify a user account after verifying his authenticity. The user account is not activated and the question-answer database is inaccessible to the user until his account has been verified by the faculty.

A website is a collection of web pages and related content that is identified by a common domain name and published on at least one web server. Websites can contain various types of content, such as text, images, videos, and interactive elements. They are typically accessed using a web browser and can serve a wide range of purposes, including providing information, facilitating communication, conducting business transactions, and offering entertainment. Websites are an integral part of the internet and are used by individuals, organizations, and businesses worldwide to share information and connect with others online.

Web Developers specialize in writing code and building the technical structure of a website. They may work with programming languages such as HTML, CSS, JavaScript, and others to create the functionality and design of the site. Web Designers focus on the visual aspects of a website, including layout, typography, color schemes, and graphics. They work closely with developers to create an attractive and user-friendly interface.

The Vanilla HTML, CSS, and JavaScript are used for (frontend) & Node.js, and Express.js is used for (backend) to run our project successfully.

We are developing a website named 'Campus Connect' that would serve as a platform to solve student's queries. The main objective of 'Campus Connect' is to provide quality information about events & extracurricular activities. A centralized database of the website would be hosted on the World Wide Web specifically on socket.io Any student/staff willing to use this website would require a PC, and laptops with working internet. This website would connect the whole institute by inter-departmental interaction.

Asynchronous discussion presents several advantages as compared to synchronous discussion: students get more opportunities to interact with each other and students have time to reflect, think, and search for extra information before contributing to the discussion.

II. REQUIREMENT ANALYSIS

The existing system requires physical interaction between student and student or student and teacher. This process is very time-consuming and stressful if a particular doubt is asked by multiple students at different instances of time. In today's educational scenario, there is no online tool for solving doubts, having discussions, or student interaction. The flow of information carried out in this system is purely dependent on the availability of the faculty and students. In the existing system, problems or doubts are solved during college hours only. Besides, rumors and false information once circulated verbally by students are difficult to curb. Also, it is very difficult to notify the whole class or college about something as many students may not be present in the classroom. All the messages passed by faculty in the form of oral communication could be easily forgotten by students as well as not every answer is genuine until it's confirmed by faculty.

The proposed system's objective is to develop a website that serves as a platform for students to solve their doubts. There is no restriction on who will provide answers to any questions as long as they are relevant to the question asked. The upvote/downvote feature helps the student to decide or get confirmation about events or the staff. Any inappropriate answers, as well as the question, could be discarded by the staff with administrative privileges.

Our website provides the following Advantages:-

It provides collaboration among students, faculty, staff, and external partners by providing platforms and spaces for interdisciplinary interactions.

This enhances transparency, efficiency, and coordination across departments, programs, and administrative units.

Campus connection initiatives offer opportunities for students to engage actively in academic, social, and extracurricular activities This can lead to higher retention rates, greater student satisfaction, and a more vibrant campus culture.

Campus connection projects provide students with networking opportunities and access to mentors, alumni, and industry professionals. This facilitates career exploration, internship placements, and professional development, enhancing students' employability and prospects.

III. METHODOLOGY / APPROACH

The main components of this system are logging in as a student or staff, verifying your account through your provided email ID, and joining our college community to contribute, learn, and provide solutions to the problems.

The proposed system provides a website that will provide the user with an exhaustive database of questions and answers related to them. Students could be able to read previous events & extracurricular activities as well as give new events & activities. If a student is satisfied with an answer, he/she can upvote it. Apart from academic topics, the proposed system also allows students to have healthy discussions ranging from sports, and cultural events to the latest developments happening in the technical and scientific fields leading to an overall personality development of students. To use this website and its features, the students and the staff have to register themselves providing valid personal information. The app won't allow access unless and until the registered email address has been verified. The administrator should be able to filter out only college student's requests thereby keeping a check on fake accounts. It is quite similar to administrator privileges on social media like Facebook.

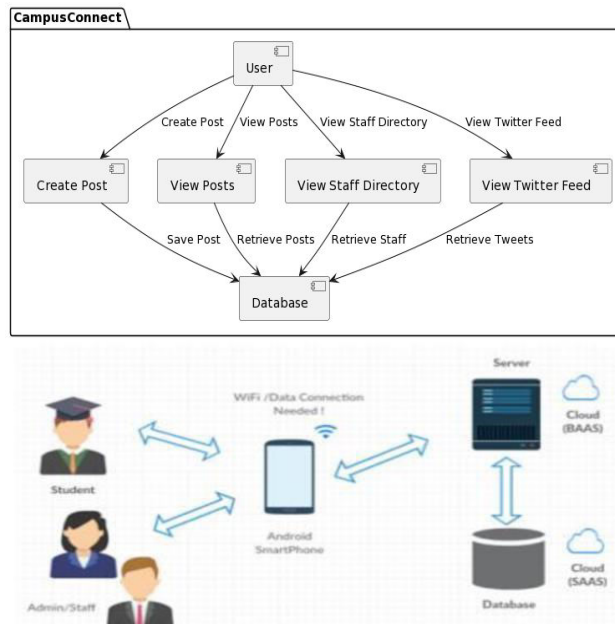
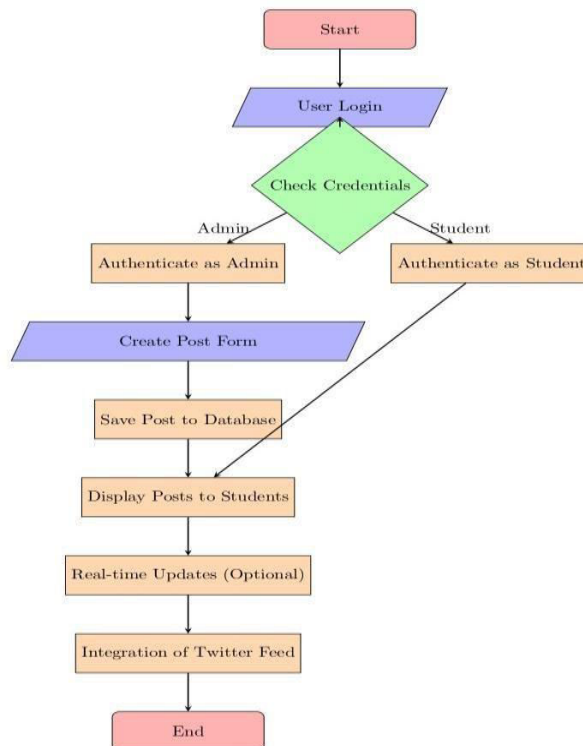
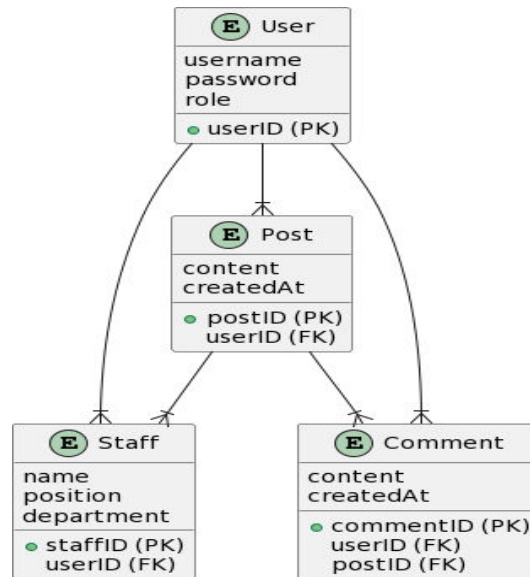


Fig. 4.1: System Design

Flow Chart



Database Schema



The technologies used in the development of this project are Vanilla HTML, CSS, JS (frontend) Node.js, and Express.js (backend). JavaScript is a versatile programming language primarily used for adding interactivity to websites. Originally developed by Netscape as a client-side scripting language for web browsers, JavaScript has evolved into a powerful tool for creating dynamic and interactive web content.

"Vanilla HTML" refers to the use of plain, standard HTML (HyperText Markup Language) without the addition of any frameworks, libraries, or external dependencies. It involves writing HTML code directly to create the structure and content of a webpage, without relying on tools like CSS.

CSS, or Cascading Style Sheets, is a style sheet language used to describe the presentation of a document written in HTML (Hypertext Mark-up Language). It defines how HTML elements should be displayed on a web page, including aspects such as layout, colors, fonts, and spacing. CSS allows web developers to separate the structure of a webpage (defined by HTML) from its visual design, making it easier to maintain and update websites.

Express.js, commonly referred to as Express, is a minimalist web application framework for Node.js. It provides a simple and flexible way to build web applications and APIs (Application Programming Interfaces). Express.js simplifies the process of handling HTTP requests and responses, routing, middleware integration, and more, allowing developers to focus on building the core functionality of their applications.

Node.js is a runtime environment that allows developers to run JavaScript code on the server side, rather than just in web browsers. It is built on the V8 JavaScript engine, which is the same engine that powers Google Chrome. Node.js enables developers to build scalable and high-performance web applications by leveraging asynchronous, event-driven programming. It is commonly used for building server-side applications, APIs (Application Programming Interfaces), and real-time web applications. Node.js has a rich ecosystem of modules and packages available through npm (Node Package Manager), making it a popular choice for web development.

IV. LITERATURE SURVEY

1. **Campus Engagement and Communication*:** Explore existing literature on how universities or colleges engage with their students, faculty, and staff through web applications or other digital platforms. Look for studies on the effectiveness of these platforms in fostering communication and community engagement.
2. **Event Management Systems*:** Investigate literature related to event management systems used in educational institutions. This could include research on the features, benefits, and challenges of such systems, as well as case studies of successful implementations.
3. **User Experience Design*:** Review research on user experience (UX) design principles and best practices for web applications, particularly those tailored to educational settings. Consider how usability, accessibility, and user interface design impact the effectiveness of campus communication tools.
4. **Technological Trends*:** Look into recent advancements and trends in web development technologies, particularly

those relevant to building campus communication and event management platforms. This could include topics such as web frameworks, database management systems, and cloud computing.

5. Case Studies and Best Practices*: Examine case studies or reports from other institutions that have implemented similar campus communication tools. Identify common challenges, success factors, and lessons learned from these implementations.

V.ALGORITHM

Algorithm for CampusConnect:

1.Initialize the application:

- Set up the server using Node.js and Express.js.
- Configure routes for handling different API endpoints.
- Connect to a database (e.g., MongoDB) for data storage.

2.Implement User Authentication:

- Create a secure authentication mechanism (e.g., JWT).
- Distinguish between authorized authorities and students.

3.Post Creation by Authorities:

- Authorities log in to the platform.
- Access a user-friendly interface to create a post.
- Specify post details, such as content, event information, or staff updates.
- Save the post to the database.

4.Post Retrieval for Students:

- Students log in with view-only access.
- Retrieve and display posts from the database.
- Include features for liking, commenting, and sharing.

5.Real-time Updates (Optional):

- Implement real-time updates using Socket.io.
- Notify students of new posts and interactions.

6.Integration of Twitter Feed:

- Fetch and display the college's Twitter feed within the platform.

7.Staff Directory:

- Implement a searchable staff directory.
- Provide students with details about college staff.

8.Deployment:

- Host the application on a cloud platform
- Ensure secure deployment using HTTPS.

9.Testing and Debugging:

- Conduct thorough testing to identify and fix bugs.
- Address any issues related to user experience and functionality.

10.Documentation:

- Create comprehensive documentation for code, APIs, and deployment.
- Include user manuals for authorities and students.

11.Iterative Development:

- Gather feedback from users and stakeholders.
- Iterate on the application based on feedback and additional requirements.

11.Security Measures:

- Regularly update dependencies and address potential security vulnerabilities.

12.Monetization (Optional):

- Implement monetization features if desired (e.g., ads, premium accounts).

13.Continuous Improvement:

- Stay updated with technology trends.
- Continue improving the application based on user needs and industry standards.

14.Compliance and Legal:

- Ensure compliance with data protection laws and regulations.
- Address any legal considerations, including terms of service and privacy policy.



VI. PROBLEM STATEMENT

The lack of a centralized communication platform at AISSMS POLYTECHNIC leads to fragmented information. Students struggle to stay informed, while authorities face challenges in disseminating content and gauging engagement. "CampusConnect" aims to address this by offering a unified system for streamlined information flow, enhancing communication and engagement within the college community.

VII. RESULTS & DISCUSSION

1. Wrong information will be easily identified and even can be discarded by administrators i.e. Staff Members.
2. Students can have direct answers if the query has already been asked earlier by another student.
3. Information is in a visual format. Hence, it can be saved or even printed.
4. The correct answer can be upvoted by the teachers and students. The inappropriate answers can be downvoted by students and can even be discarded by the staff.
5. Students can give a reply to any query provided that is related to that query.
6. Any student of any department can post the event poster or different ideas related to college.
7. Different sections will be provided for simplification between the different types of posts e.g. programming, sports, events, etc.

VIII. CONCLUSION

Thus, the proposed system 'Campus Connect', provides a platform for sharing knowledge and for solving student's problems. It allows information flow by connecting students and staff members. It supports inter-departmental communication. The system incorporates several techniques to further increase the process of sharing knowledge. By automating the query searching process with the help of the search option a lot of precious time could be saved. Using the application, students can ask questions in various categories. Other students and staff can provide answers to them. Also, features like up-vote and down-vote would encourage students to post the best possible answers. The ultimate goal of our project is to provide quality education. The proposed system will thus be much more efficient than the current process and will be of huge help to all students.



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