Uni Connect, Connecting Students

Srimantula Teja Sai*, Chavva Jithendranath, Guduri Abhinay, Penugurthi Nikhil Kumar

School of Computer Science and Engineering, Lovely Professional University, Phagwara, Punjab, India

ABSTRACT

Interactive Web 2.0 Internet-based Applications are known as social media. According to statistica, almost over 3.6 Billion people are active in Social media around the world. Social networking is a form of internet-based communication that allows users to send and receive content quickly. Nearly 51% of the youth over the world uses social media. One can take this fact to cover their precious time from entertaining them to educating them about the current affairs. Social media can also help university students wish to contact their alumni to grab an opportunity in their dream company. One can also use it to promote their skill set and make other recruiters have a spotlight for them.

Keywords : Social Networking Sites (SNS), Two Factor Authentication(2FA), university management, Socket IO and SQL

I. INTRODUCTION

The most remarkable cultural change since industrialization has been social networking. It attracted millions of users, created an infinite social web, and revolutionized the way we interact. While much has changed between the early days of social networking and what it has become today. Uni connect is a social networking platform for students to follow up with their seniors, teachers, and peers. A user can post his/her videos, photos, or blogs. It is an internet-based tool that facilitates communication, content exchange. With Uni Connect, students can have conversations, share information, and create content on a particular matter. Businesses and Companies are always looking for new ways to reach students, especially those about to enter the workforce. It is a way for people in the offline world to stay connected in the digital world regardless of the distance between the humans, the difference in time, or any specific barriers. Security, Credibility and Reputation, and Profiling are the three significant privacy risks. Although social media and privacy seem to have different objectives initially, we assume that most current SNS does not adhere to data minimization and data sovereignty principles, a design choice made by the SNS providers rather than a fundamental impossibility outcome. The most challenging part is implementing the privacy policy specified by the different characters on the SNS. It is indeed effortless for an individual to state a specific privacy policy, but nothing requires him to follow it once he can access the data. The Basic architecture of social media platforms is in fig (1).
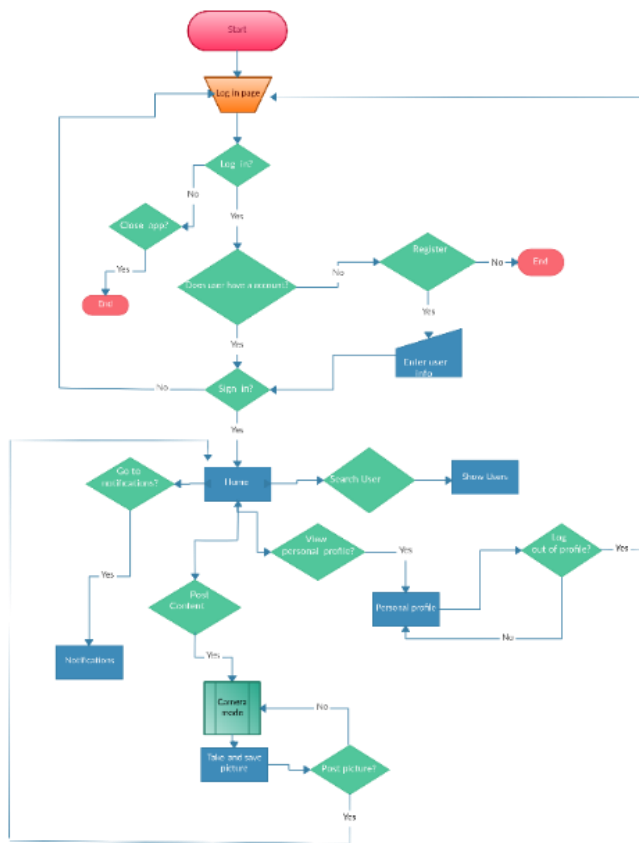
Figure 1. Architecture of SNS

II. APPLICATIONS

In today's culture, using social media has become prevalent. There are so many applications of social media, one of which is empowering people with diabetes. [1] A research paper by Pedro Gomez-Galvez, Cristina Suárez Mejías, and Luis Fernandez-Luque, depicts the social media's position in diabetes type 2 empowerment, i.e., educating the patient about his/her condition completely and about the disease. It provides necessary information for the patient to make their own decisions. Diabetic patients may use the Internet and social media to strengthen their personality and interact socially. Other patients with the same disease can help produce valuable information and inspire. Additionally, the expanded use of social media for diabetic patients opens a slew of possibilities for creating eHealth solutions to help diabetic patients. The incorporation of data from wearable as shown in fig (2) and other forms of

technology would support these solutions. Devices like smartwatches, devices that collect information about the body, can help the solution perform more effectively.

Figure 2. Screenshot of DiabetesDiary app in Plebbe app [1]

Another potential and most popular application of Social media will be for gaining knowledge. [2] Various possibilities for adding a new level to learning and information processes are available via social media. Students may connect with others who share their interests and arrange informal information exchanges for academic purposes. On social networking sites, communication about social problems coincides with information sharing relevant to studies. SNSs have profiles where users can present themselves to share information with other people. Personal information such as the user's name, sex, birthplace, community associations, preferences, profession, personal statements, favourite music, and novels is usually in profiles.

A public relations practitioner establishes a company's partnership and image. [3] These PR practitioners often use social media to develop public relations and create a portrayal for the company. More practitioners are striving towards these kinds of online communication tools. Practitioners have certainly embraced more traditional and institutional tools (e.g., email, Intranet), but they still seem to be at ease with forums and podcasts. The most widely

used techniques are those that practitioners believe are the most common. Tools like photo-sharing and text messaging are the most adopted by practitioners. As a result, platforms like social media and messaging services have the most vital links between use and potential acceptance.

Advertisements are one of the most common applications of Social Networking Sites. Advertising fuels sales, production, and employment opportunities which can, in turn, lead to a global economy. These Social Networking Sites provide a platform for advertising. The advertisements can be personalized or non-personalized.

III.LITERATURE REVIEW

[4] A research paper on Web Development by Debra Howcroft and John Carroll states that some methodologies have particular limits. There are some problems with the limits because of the uniqueness of the development of websites. So, to Rectify this problem, Debra Howcroft points that the methodology we produce must be broad and supple to count for the uniqueness and solitary in particular to the web applications. For that, particular counting measures are required for any methodology to be implemented in our web application. If any developer finds the limits of a methodology, the developer can take specific precautions to make the methodology more appropriate.

[5] According to the research paper on introduction to the potential of social networking sites in education by Griffith and Liyanage stated that SNS could be utilized as a boon and bane. In this paper, they compared two renowned apps FACEBOOK and MYSPACE. They reviewed these two apps in terms of trust and privacy issues of user's shared information. Trust and privacy play a crucial role in SNS. They also affirmed that through SNS, students

of one community could help each other and solve the problem among themselves. One can also use this SNS to promote students' various research work, where other students can benefit from gaining some knowledge. Advertisements can spoil the user learning experience if they are not related to the work they share. So, in our project, we implemented the post-filtering feature, which separates the educational posts from any other advertisements.

[6] A research paper on WebSocket frameworks by Jakob Hansson reveals a conflict between SockJS and Socket IO. One can use web Sockets in applications, but it is a protocol that has to be handled entirely by the developer. Still, in Socket io, built-in functions are available, which makes the job easier. Socket io is a framework that must be integrated with the application, and it uses web sockets unrevealed. He found out that Socket io integrated applications can be 1.7 times faster to receive a message than the application of Sock JS. Despite taking up larger storages when compared to Web sockets, Socket io has well-maintained scaling and can manage 1000s of concurrent connections at a time. At the same time, Sock JS struggles to cope with that level of concurrency as of Socket io. He disclosed that Web sockets have linear response time and memory usage on the server. In contrast, Socket io has an exponential increase in memory. The increase in clients and Sock JS has not managed to maintain more than 7,000 clients, and even while working with the maximum number of clients, the response time was even more than expected. So, we used Socket io in this project to get the best out of the application.

[7] A research paper on Video Conference by Hairudin Abdul Majid states that most web applications use a client and server architecture. Peer to Peer Connection is better than client-server architecture because it is more resistant and reliable

against the whole system. Also, there are more disadvantages regarding WebRTC. A browser cannot synchronize different video streams at a single time. We need a video conference server to sort out this issue using the audio and video mix-up to run a different streamlet at once. That is the main disadvantage. While comparing WebRTC, Socket IO is better used in Video Conference Server because it has so many advantages: authorize us to beam a message to all the bridged clients. And also, Socket.IO brace the technologies like proxy servers and load balancers make this as easy to accomplish in discrete Video Conference Server.

[8] A research paper on Privacy-Enhanced Social Networking sites by Sébastien Gambs exclaims that social networking sites have come far from just connecting with friends. As every boon has a bane, the user of the social networking sites also leaves trails of personal information online, which an attacker can use against them. Even SNS has some privacy-enhanced features like privacy settings and blocking users, but the features are not flexible enough to protect the user information circulating. Many attacks are happening on SNS, including identity theft. A privacy-enhanced social networking site is the one that has data minimization, privacy awareness, and customization, and data sovereignty.

[9] According to Lizun zhang, MySQL encryption functions are weak. The drawback lies in the two aspects: the primitive algorithm used in the MySQL encryption functions, and the other is implemented way. So, according to his suggestion, we have used an acknowledged encryption algorithm AES for encryption purposes and used hashing techniques for storing sensitive data like passwords in the database.

[10] According to an article of Developing a Chatbot for College Student Program advertisement written by Chun Ho Chan, Ho Lam Lee, Wing Kwan Lo, Andrew Kwok-Fai Lui, the chatbot was built by

build-and-test methodology with major components intent detection, Conversational design with routines, Dialogue design, Bootstrapping and sustaining student opinions. The chatbot algorithm is managed on the system server-side. The main advantage of this process is that automated conversations are generated based on student requirements. The chatbot was seen as a novelty after the t-test analysis was released.

[11] According to the article Xatkit: A Multimodal Low-Code Chatbot Development Framework, written by GWENDAL DANIEL, JORDI CABOT, (Member, IEEE), LAURENT DERUELLE, AND MUSTAPHA DERRAS, the supportive chatbot that is integrated into many applications are favourable to the customers and application users. This technology relies on parsing techniques, pattern matching strategies, and Natural Language Processing to represent the chatbot knowledge. Through this process, many difficult situations were faced by the developing team in their initial stages. Still, as soon as they introduced intent and extents packages to deal with the people's opinions, they started to gain good feedback.

[12] According to a research paper by ABDELOUAHID DERHAB, MOHAMED BELAOUED, MOHAMED GUERROUMI, AND FARRUKH ASLAM KHA, the mobile two-factor authentication applications that employ SMS-based authentication are some of the best features. 2FA makes the user account secured from attacks of hackers such as visual phishing. The security features offered by the Android OS are both a machine-based authentication scheme for both. The proposed two-factor system has been evaluated for efficiency, as well as for alternative attacks.

TABLE I

COMPARISION OF DIFFERENT SOCIAL MEDIA

Social Media	2-Factor Authenticat ion	Videoca lls	Universi ty oriented	Sock et io
Uniconn ect	✓	✓	✓	✓
Facebook	✓	✓	✗	✗
LinkedIn	✓	✗	✗	✗
Instagra m	✓	✓	✗	✗

(✓: Feature present, ✗: Feature do not exist)

[13] According to Li Quian, the SQL injection attacks are mainly caused due to lack of proper validations of forms and use of SQL parameters. So, according to his suggestion, we have used the PDO concept in PHP to prevent SQL injection attacks, and we validated every form and used parametrized objects everywhere.

[14] According to Ankit Srivastava, XSS is a significant threat to web applications that can harm the database. It is mainly used to perform session hijacking just by inserting a malicious code in the text fields. His suggestion to prevent this kind of attack is not to depend on a single technique but to use a different approach. So, we have used IP limitations to prevent session hijacking and rewrote the URLs using ht- access to prevent crawlers and XSS attacks and proper validation check before sending the data to a server to avoid the attacks.

IV.METHODOLOGIES

The Site has many ways or procedures, the base of the project is consumer-to-server client communication. All the communications to the server are done using POST and GET requests, as shown in fig (3). The consumer sends a message of invitation, and also, the server validates the requests with a group of logic and rules programmed and responds consequently to the user's request.
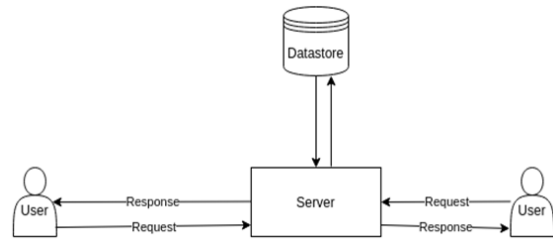

**Figure 3.** Response-request diagram

A. TWO-FACTOR AUTHENTICATION

By deploying secondary user credentials, two-factor authentication (2FA) systems aim to improve the security of login password-based authentication. The two-factor authentication helps to strengthen the application's security by checking the user's identity not just by traditional username and password method but also by any other means that help identify the user more precisely. The logic of 2FA includes validating the user first by formal user credentials by sending a POST request to the server and checking for a perfect match in the database. Once the credentials have been validated, an OTP will be sent to the user's email using SMTP(Simple Mail Transfer Protocol). If the OTP is successfully validated, we will create a session for the user. We will not redirect the user to the feed page unless the credentials and OTP are successfully validated. We will do all the validation checking at the server-side to ensure utmost safety for the application.

If the validations are done on the browser side, the application will most likely be vulnerable to hacking since the request will also contain the actual OTP, which we should validate. By simply intersecting the request, a hacker can easily access the OTP. A unique token will be generated as an OTP, which a random function in PHP will generate.

V. IMPLEMENTATION

VI. CONCLUSION
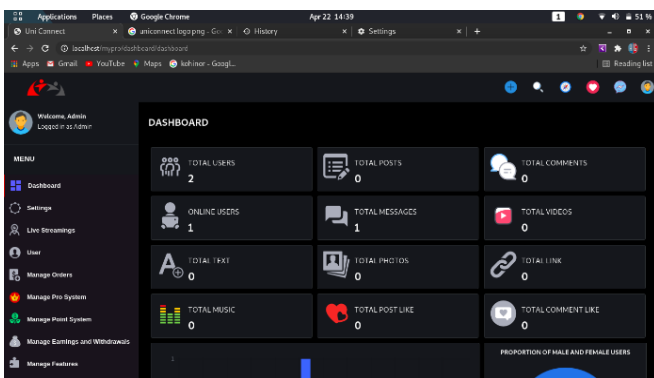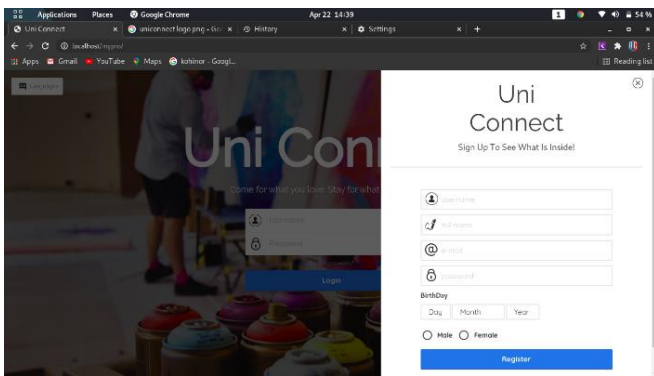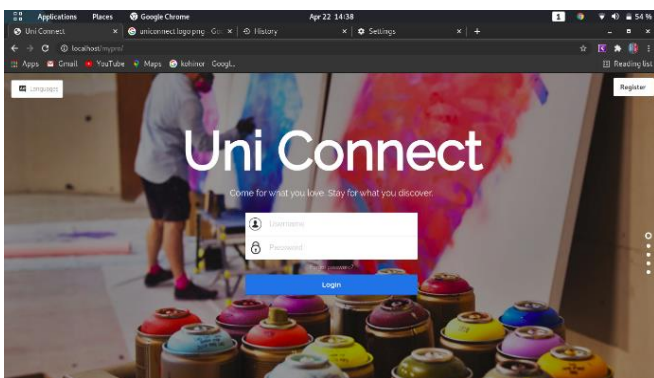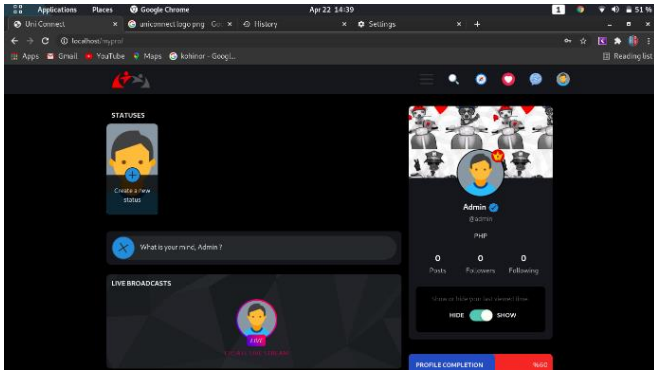
The favourable aspect of social media and its application is starting to begin. SNS is helping educational and existing institutions meet people who have common special interests. Students are now using social media to assist them in their academics, especially for community and teamwork. An SNS's numerous networks and social structure will promote additional contact between the instructor and the student. All the necessary modules that are crucial in creating an SNS are implemented on this website.

Additionally, more privacy side features have been provided to ensure maximum safety online. The Websites typically use Sock JS, which is a drawback. Sock JS cannot handle more requests concurrently. So, here the website is designed with Socket io, which is much faster than Sock JS. Despite taking up colossal memory, which is not an issue nowadays, and Socket io can also manage concurrent requests more effectively than Sock JS.

VII. REFERENCES

[1] Gomez-Galvez, P., Suarez Mejias, C., & Fernandez-Luque, L. (2015). Social media for empowering people with diabetes: Current status and future trends. 2015 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC). doi:10.1109/embc.2015.7318811.

[2] Wodzicki, K., Schwämmlein, E., & Moskaliuk, J. (2012). "Actually, I Wanted to Learn": Study-related knowledge exchange on social networking sites. The Internet and Higher Education, 15(1), 9–14. doi:10.1016/j.iheduc.2011.05.008.

[3] Eyrich, N., Padman, M. L., & Sweetser, K. D. (2008). PR practitioners' use of social media tools and communication technology. Public

Relations Review, 34(4), 412–414. doi:10.1016/j.pubrev.2008.09.010.

[4] "Howcroft, Debra and Carroll, John, "A Proposed Methodology for Web Development" (2000). ECIS 2000 Proceedings. 73.".

[5] "Griffith, S. and Liyanage, L., "An introduction to the potential of social networking sites in education" (2008). Emerging Technologies Conference 2008. 9.".

[6] "Jakob Hansson., "Performance study of JavaScript WebSocket frameworks"(2020). Linköping University | Department of Computer and Information Science Bachelor's thesis, 16 ECTS | Computer Engineering 2020.".

[7] "Hairudin Abdul Majid, Azurah Abu Samah, LizawatiMi Yusuf, DewiNasien and Tek Loon Cheah., "P2P audio and video calling application using WebRTC (2016)", ARPN Journal of Engineering and Applied Sciences".

[8] "Esma Aïmeur, Sébastien Gambs, Ai Ho., "Towards a Privacy-enhanced Social Networking Site"(2010). International Conference on Availability, Reliability and Security 2010. ".

[9] "Orville Sarker, Mehedi Hasan, N. M. Istiak Chowdhury, "A Secure Web Server for E-Banking", Computer and Information Technology (ICCIT) 2018 21st International Conference of, pp. 1-5, 2018.".

[10] "Chun Ho Chan, Ho Lam Lee, Wing Kwan Lo, Andrew Kwok-Fai Lui," Developing a Chatbot for College Student Programme advertisement". The Open University of Hong Kong".

[11] "Gwendal Daniel, Jordi Cabot, (Member, IEEE), Laurent Deruelle, and Mustapha Derras", "Xatkit: A Multimodal Low-Code Chatbot Development Framework, 1 IN3, UOC, 08060 Castelldefels, Spain".

[12] "Abdelouahid Derhab , Mohamed Belaoued , Mohamed Guerroumi and Farrukh Aslam Khan", "Two-Factor Mutual Authentication Offloading for Mobile Cloud Computing. 1Center of Excellence in Information Assurance (COEIA), King Saud University, Riyadh 11415, Saudi Arabia".

[13] "Li Qian, Zhenyuan Zhu, Lun Hu, Shuying Liu., "Research of SQL Injection Attack and Prevention Technology(2015), International Conference on Estimation, Detection and Information Fusion 2015 (ICEDIF 2015)".

[14] "Ankit Shrivastava, Santosh Choudhary, Ashish Kumar., "XSS Vulnerability Assessment and Prevention in Web Application(2016)", 2nd International Conference on Next Generation Computing Technologies (NGCT-2016) Dehradun, India 14-16 October 2016".

Cite this article as :