

Designing and Building a Safe Students-Centric Social Network

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Abstract— Social networking sites are online communities that allow people to create user profiles, express themselves, and interact with others who share similar interests. With the advancement of education through the internet and the increased use of these sites by students every day, there is a need for a medium that allows students to meet their peers, socialize, collaborate, consume, and share useful information safely and securely. While there are a lot of options for students to socialize online today, many of these platforms do not adequately address the safety and security of their users. This paper presents comprehensive research on software application projects through designing, implementing, and evaluating a safe social network platform for student engagement and academic collaboration. The application is intended to assist students in connecting and interacting with other students, collaborating with teachers and professors, working as a group, staying informed about events in their community, and sharing and consuming information safely and securely. The paper presents the design, implementation, and evaluation of this safe social network platform.

Keywords—students, social network, cyber safety, and security.

I. INTRODUCTION

The internet and social media have had a profound impact on the way we interact, communicate, and share information. These technologies have not only reshaped personal and professional communication, but they have also had a significant impact on education. Students in particular have embraced the convenience and connectivity offered by online platforms, using them not only for socializing but also as essential tools for learning and collaboration. Social networking has become an integral part of our lives, offering a virtual space for connectivity, collaboration, and sharing of information. Today people in the world use some form of social media platform, and it has truly changed the way we live and work. Younger generations are more actively using social networks than older people, and the average time spent on these platforms is up to 6 hours per day as claimed by Riehm et al (2019). Here are some of the most popular social networks and their applications:

- Facebook: A platform to connect with friends, family, and businesses. Users can post updates on their status, share pictures and videos, and join groups of interests.

- YouTube: A public video library with a wide variety of content, including educational videos, music videos, and

movies. Users can watch videos, comment on them, and create their own.

- LinkedIn: A professional networking site where users can connect with other professionals, find jobs, and post job openings.

- WhatsApp: A private messaging platform which allows users to photos, and videos in addition to text messages.

- Instagram: A photo-sharing mobile application that allows users to share photos with their followers.

Social networking sites are publicly available, but they often limit their services and charge money for complete use. For instance, LinkedIn restricts users from visiting and connecting with other users for a limited number of times per month. Today, more students are using multiple social media platforms as they are easily accessible through smartphones with affordable internet. However, these platforms often pose concerns related to cyberbullying, negative interactions, privacy, and an enormous amount of unwanted information. Alim (2016) claims in his article that cyberbullying is a serious problem dealt with internationally with the rapid adoption of technology among teenagers. Students are experiencing abuse, harassment, hurtful comments, and rumours while using popular networking platforms such as Twitter, Snapchat, Facebook, and Instagram. There are alternate socializing platforms for students available, but they are not completely perfect, or they charge a premium for their use. There are often concerns regarding the misuse of user data for monetary purposes, which affects privacy and creates insecurity for the users. There is still a void, and a need exists for a safe and inclusive social networking platform, exclusively for students.

These technologies act as a catalyst in rapidly shifting traditional learning methods to computer-based smart learning around the world. The primary objective of this research is to analyze, design, and develop a social networking website dedicated to students and to help them connect with their peers, share information, and explore their academic interests without any online intimidation. This application aims to empower students to share their ideas, collaborate on academic endeavours, and pursue their passions without the fear of judgment. By providing a safe environment, it aspires to instil confidence, creativity, and a sense of belonging among its users. The proposed objectives of this project are as follows:

- Let students find and connect with their peers without any hassle.
- Allow users to create, manage, and find out about the events running in their institutions.

- Help users create online groups to collaborate and share information with students, organizers, and teachers.
- Allow students to post, discuss, and learn about anything during their student journey.

This research paper aims to address these concerns by delving into the design and implementation of a students' social networking site that promotes academic collaboration, and safe and positive engagement among the users.

II. LITERATURE REVIEW

Social networking:

Technologies enable real-time social connections and interactions, facilitating interpersonal communication. Social networks are one such technology that helps people connect and share information for collaboration, communication, and social interaction. There have been several platforms such as Myspace, Facebook, Friendster, Twitter, and others since the first social networking website Six Degrees was introduced in the 1990s. While these platforms were targeted at a specific set of audiences and distinct in one way or another, they are defined by similar fundamental criteria:

1. Creating a profile within a system.
2. Listing other users who are potentially a connection.
3. Browsing and reacting to the content generated by other users.

According to a study by Atske (2022) at the Pew Research Centre, Facebook is the most popular social media platform, with over 1.65 billion active users monthly. These users collectively share an impressive volume of content, surpassing 30 billion pieces each month. This content spans a diverse range, including web links, news articles, blog entries, notes, and photo albums. Twitter, a platform encompassing both social networking and micro-blogging, adds to the digital landscape with a daily average of 500 million tweets, which accumulates to an annual total of around 200 billion tweets. The digital world is buzzing with activity as people constantly upload images, share videos, tell stories, and build relationships. According to data from Statista (2023), over two-thirds of the global online population actively engages with social networks and blogs. This trend underscores the essential role that social networks play in both personal and commercial online interactions. Engagement with social media platforms has a significant impact on the lives of users in a variety of areas, including culture, society, education, psychology, economics, and politics.

A significant number of social media users use these platforms to stay in touch with their friends or find new friends. Most of these users are active on multiple platforms, as each has its distinctive content to offer. This trend is only anticipated to continue further. It enables users to share useful resources and resonate with relatable content in the form of text, images, and videos. Berryman et al. (2017) state that social networks have an impact on the psychological health of people. It is believed that preserving social relationships helps in maintaining psychological well-being. People who undergo depressive symptoms tend to have fewer interpersonal communication and connections over a period. Social connections improve the psychological state of people, share

a sense of belonging to a community, create secure feelings and influence their lives. However, the impact of social networks on psychological health is a complex and evolving issue. There is evidence that social media can have both good and bad effects on mental well-being.

Social networking for students:

Students are the most active users of the internet, and their use of the internet has helped to expand online media. They find it challenging to meet people with similar interests and this virtual space offers people the chance to be a part of a community. The medium with which learning is delivered has been going through a fast-paced transformation with the advent of digital technologies. Urick (2016) in his article suggests that younger generations are proactive in technology adaptation and prefer online ways of learning. Students have been adapting to the enriched fast learning experience from traditional text-based learning. This has enabled the students to learn anywhere, anytime, at their convenience. SNSs encourage students' motivation, engagement, and interaction as they have become viable forms in addition to traditional learning management systems for personal and social learning. The use of social media in education is a growing trend, and it has the potential to improve student learning and engagement.

Social networking platforms for students have been designed with specific features and limitations. These platforms have been studied by researchers, who have found that they have both benefits and drawbacks. Some popular platforms for students are Edmodo, PowerSchool, Twiducate, TweenTribune, and Blackboard. Brainly is another popular platform that provides a peer-to-peer learning environment for students, parents, and educators. Choi et al. (2020) found that Brainly has a user-friendly interface and is helpful for students seeking answers and textbook solutions. However, it lacks a comprehensive user profile page and does not promote the transition of online connections to offline friendships. Twiducate and TweenTribune are private social media platforms designed for elementary and secondary school students and children aged 8-15, respectively. These platforms focus on learning activities rather than fostering meaningful student connections. Blackboard is a web-based virtual learning and learning management system that is also used by students. Gumasing et al. (2015) found that Blackboard is not as effective as other platforms for facilitating student connections. There has been some research in this area of social media catering specifically to the student group.

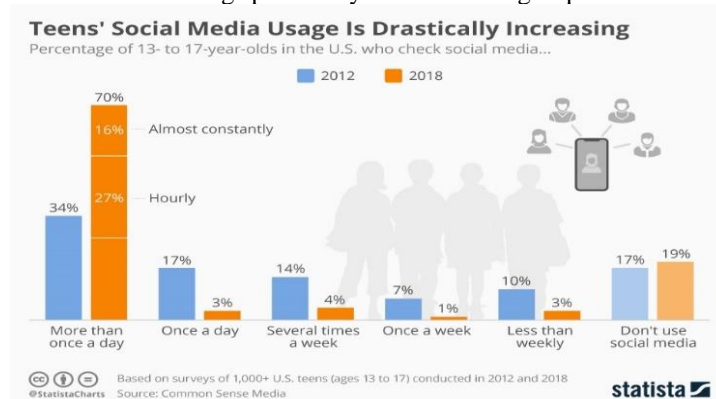


Figure 1. Image Credit: Richter, F. (2018)

Edmodo is a popular social networking platform for students and teachers. It has over 100 million registered users and a wide range of features (Nami 2020). Edmodo offered a communal environment that improved students' emotional connection to learning creating better communication between students and teachers. To overcome these emotional barriers, it created active learning environments for students who could get support and encouragement from one another enabling group collaboration. However, it has its drawbacks including being slow or unresponsive, being criticized for its security, and privacy practices, and there have been some reports of data breaches. However, Edmodo was a popular platform effective for collaborative information sharing between students and teachers, but it had some drawbacks such as premium subscriptions that led to its shutdown in 2022 leaving this gap unfulfilled. This study investigated how online participants of this group use SNSs, the effects of SNS usage on students' activeness during online learning, and how students feel about using social media sites for educational learning. The platforms should be based on the sociocultural theory of learning, which emphasizes the importance of social interaction and culture in the learning process. Therefore, it needs to be created with the understanding that students need personalized, structured, and game-like learning experiences that also allow them to connect with other learners.

Privacy, Security and Cyberbullying in Social Networks:

Social media platforms offer unprecedented connectivity and engagement, but they also pose significant privacy and security risks, such as cyberbullying, harassment, and hate speech. Having said that it has also become a place for harmful behavior like cyberbullying, harassment, and hate speech and poses significant privacy and security risks. Identifying abusive content can be difficult and time-consuming, and many social media platforms are still looking for ways to streamline their moderation processes. A study by Anderson (2022) at the Pew Research Centre found that about 60% of U.S. teens reported experiencing cyberbullying on social media and they've experienced at least one form of online harassment. Another survey by the UK Safer Internet Centre (2021) showed that Instagram was identified as the platform where young people who are students were most likely to experience cyberbullying. The study by Waleed Mugahed et al. (2019) found that cyberstalking and cyberbullying can have a significant impact on students' open learning, including Reduced academic performance, Increased absenteeism, Withdrawal from courses and mental health problems such as anxiety and depression. Students hurt their self-esteem and there is a strong concern for safety in online media.

The primary goal of this study is to develop a system for identifying and filtering cyber-aggressive comments on social media networks. According to the National Bullying Prevention Centre (2018), the internet provides an unfair advantage to perpetrators because it allows them to be anonymous, which can make them lose self-control and be aggressive in their expressions. Although the severity of abusive comments on social media is well-known, there have been few attempts to reduce the incidence of online social media abuse. However, there is an urgent need for a better system to effectively identify and restrict such content.

Automating this process could help to identify and remove abusive content more quickly, making social media a safer and more welcoming place for everyone.

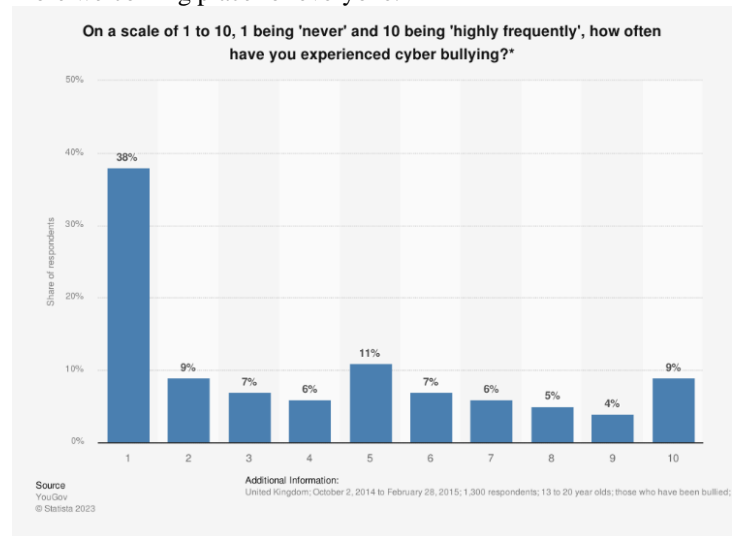


Figure 2. Image Credit: Statista Research Department. (2015).

Privacy and security are closely interconnected on social media. User data is at risk of being exposed, exploited, and misused. As social networks continue to develop, it is essential to create effective privacy controls, robust security measures, and user education programs to address these challenges and create a safer online environment. Data leakage and sharing on social media: A study by Bazarova (2014) found that users often share personal information with unintended audiences on social networks without realizing it. This is due to the default settings of social media platforms, which are often set to share more information than users intend. Additionally, the complex privacy configurations of social media platforms can make it difficult for users to understand who they are sharing their information with.

Some of the most common security problems on social media include unauthorized access to accounts, phishing attacks, and fake profiles. Tellini et al. (2017) found that weak passwords and inadequate authentication methods are two factors that contribute to account hijacking. Social networks are also a common target for phishing attacks and scams. Researchers have found that users are often lured into sharing sensitive information or clicking on malicious links through fake profiles, messages, and posts. Fake profiles are a major security risk on social media. They can be used to spread misinformation, cyberbullying, identity theft and have shown that it is difficult to detect and mitigate the issue of fake profiles.

III. METHODOLOGY

Requirements analysis:

The requirements analysis process is the first step in the software engineering project. It involves defining the functionalities and features of the system by gathering, analyzing, prioritizing, documenting, and validating the requirements by ensuring the project timeline and scope. The functional requirements define the features and behaviours of the system.

The following are the functional requirements of this students-centric social networking application:

1. The system should allow users to register and sign up for the application.
2. The system should create admin profiles with a higher level of role and access privileges than users to manage the institution, staff, and students.
3. The system should create a signed token for the logged-in users, validate it regularly, and allow browser client-server interactions using this token. The token should be cleared when the users log out.
4. The system should allow students to find other fellow students, staff, and visit their profiles.
5. The system should allow users to create text/image content and publish it on the app for other users to see it.
6. The system should allow users to react to create posts with likes and comments.
7. The system should allow like-minded users to form a group, create posts and discuss their interests.
8. The system should allow users to see events taking place at their campus.
9. The system should restrict users from creating any inappropriate text content on the platform.

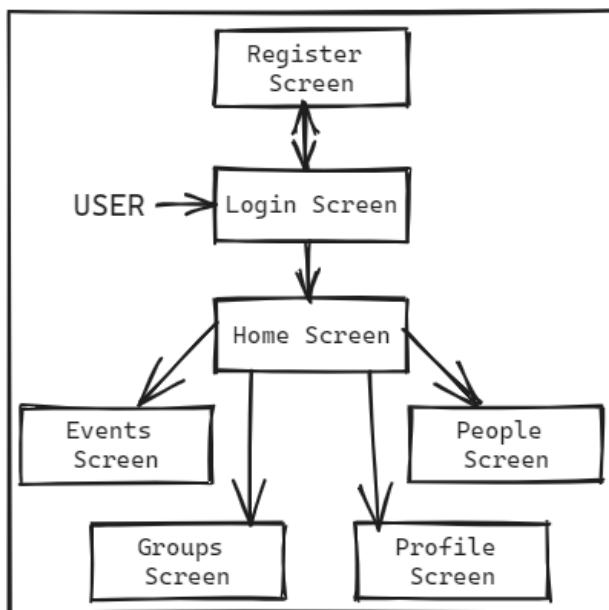


Figure 3. User navigation flow diagram of the application

The non-functional requirements of the system, such as performance, efficiency, security, availability, scalability, and interoperability, are considered before application development. The software system should be able to scale up or down based on demand without any infrastructure restrictions. It should restrict any direct or indirect unauthorized access to the backend systems and database. The system should ensure to protection of personal user data against threats from humans and bots. The application should be usable across Android/iOS mobile, desktop computers, be interactive, and perform actions without any need for complex

understanding. These factors increase the system's reliability and make it desirable for the users.

Software Design:

The system design involves the process of stating architecture, data model and UI design for the social networking application. Once the requirements were thoroughly understood, all insights were used to develop desired functionalities by keeping the constraints in mind. An iterative design approach is followed, where the complex design requirements are broken down into manageable components and a high-level design architecture is developed for the user interface, backend architecture, and data model. The architectural patterns such as Monolithic and Microservices are considered through evaluation by Blinowski et al (2022), and characteristics of a microservice pattern are chosen for this project. It is planned to use a partly agile methodology during the design phase, which includes planning, review, retrospection, and the use of a backlog to ensure the steady progress of the project.

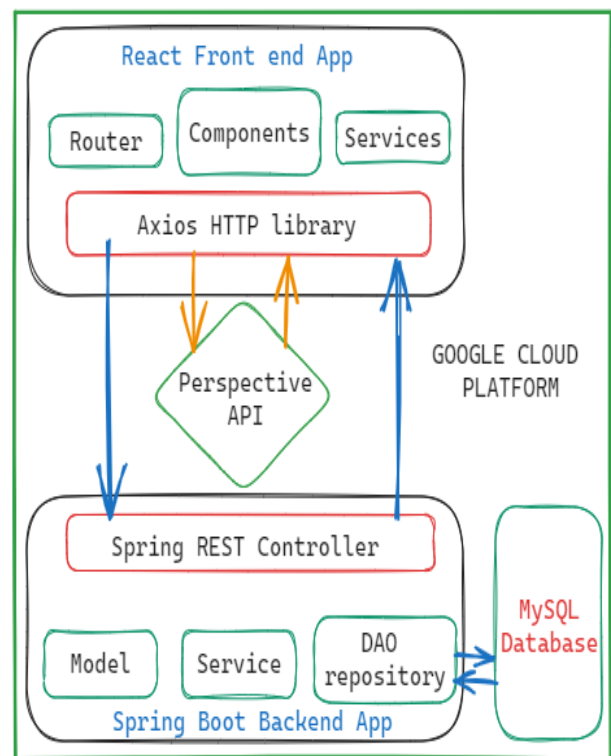


Figure 4. The three-tier architecture of the application.

A few factors such as reusability and modularity are considered in deciding the approach for the frontend, backend, and infrastructure during the project development. Java programming language is chosen for backend development using Spring framework, as it inherently supports these factors. Gajewski et al (2019) claimed that Spring is a lightweight framework for building secure web applications that can be easily integrated with a database. Although NoSQL databases allow quick data retrieval and can be easily scaled, the nature of this application will cause data duplication issues as discussed by Sahatqija (2018). These duplications will lead to database inconsistency and make the application less reliable over a period. Therefore, a relational DB was chosen as the primary database since our application has user interactions with other profiles and groups, where

they can create posts, events, and add comments and likes to these contents. Sequence and entity relationship diagrams were developed to outline the interactions between system and data entities.

Wireframes are created to visualize the user experience while designing the user interfaces. React is a widely used JavaScript library that is chosen for user interface development as it offers Reusable Components. React JS is optimal for building both dynamic websites and mobile apps, as it requires the same set of skills for these cross-platform applications.

In terms of infrastructure, the software development could be performed on a local computer server initially. However, cloud platforms can help with the computation to scale, secure and manage end-to-end infrastructure to publish the application on the internet. The content of the social networking platform is moderated by integrating a machine learning perspective API provided by Google. Xenos et al (2021) claimed this API can be used to accurately detect text and identify it as acceptable or inappropriate content. It requires authentication on a gateway provided by Google Cloud Platform, hence a decision to use GCP for the entire infrastructure has been taken for deploying and hosting the containers as a serverless application.

Software Implementation:

The application is built using the Model-View-Controller (MVC) framework design pattern. This pattern reduces complexity and allows related functionalities to be grouped with loose coupling. ReactJS libraries, Spring Framework, and MySQL were chosen because they are open-source and free to use. This saves on development costs and time. Material UI and Bootstrap collections from React were used to render responsive user interfaces in the View component of the MVC. ReactJS applications have a unidirectional data flow, which allows them to handle multiple users and serve parallel HTTP requests using APIs with fast response times. These HTTP requests, which involve retrieve, create, update, and delete operations, are sent to the Controller component in the Spring Framework. The Model component acts as an application data container that stores a collection of objects between the front end and the back end.

User Interface design:

The platform's UI design is customized to facilitate seamless interaction per students' requirements, preferences, and behaviours. The design is clean, simple, and intuitive, with UI elements placed in a way that allows users to navigate the platform effortlessly across mobile and computer devices. The colour scheme is carefully chosen, with dark colours used in the background and light colours used in the foreground to highlight the content. The fonts are clear and easy to read. Icons are used to represent different features of the application, such as the ability to share images, like, comment, and personalize profiles with profile pictures and interests. The platform also integrates safety features by scanning typed content for every few keystrokes to analyze, detect inappropriate text, and promptly restrict it with an alert message. These features are essential for making the platform visually appealing, and engaging, and creating a positive environment for users. The design for the post image content

on the home screen can be seen in Figure 5, and more screenshots of the application are added in the Appendices.

Authentication, Authorization, Security and Safety:

Social networking apps are often concerned with the protection of personal data. To ensure that user information is safe, passwords are hashed using a strong hash function, BCryptPasswordEncoder, during user registration. This makes the password irreversible and prevents it from being compromised in the event of a data breach. JSON Web Token (JWT) is used to authenticate and authorize users in the application. Patel et al (2022) stated that when a user logs in, their credentials are validated in the backend and a digitally signed secret key is generated as a token for that user. This token is stored in the browser's local storage and sent to the server in all subsequent requests from the client. The token's integrity and expiry are validated, and the client is granted access to server resources through a stateless protocol. Additionally, a unique code is shared with students of institutions so that only authorized users can register with the platform.

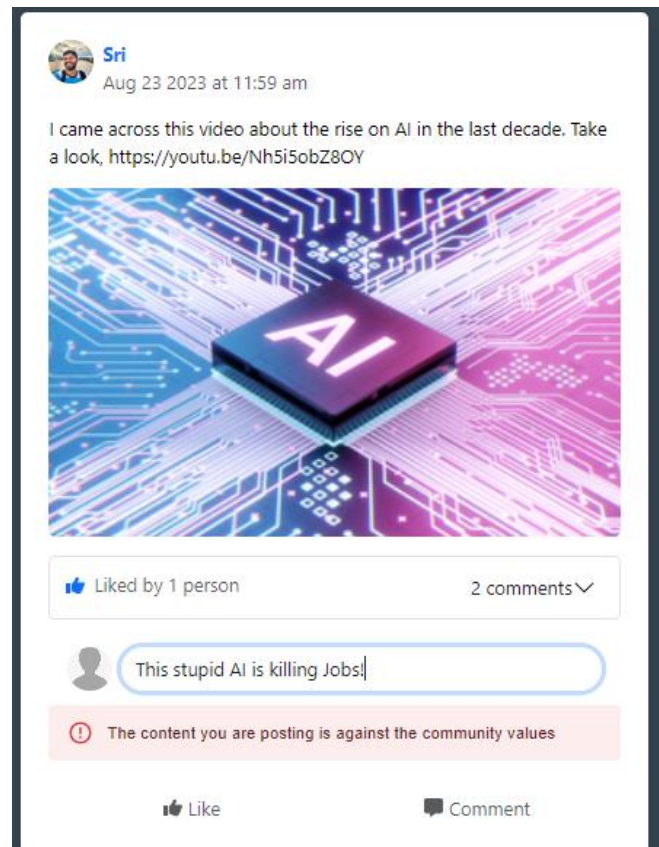


Figure 5. A snippet describing the inappropriate automatic text detection of content posted in the application.

The app is designed to prevent the posting of inappropriate, offensive, or harmful content. It is not feasible to manually detect, identify, and remove such content in a public platform, especially in a world full of online bots. Therefore, there is a need for intelligent software to automate this process. However, it takes time to develop and train an in-house intelligent software to flag this content. Hence, a well-trained machine learning Perspective analyzer API from Google is integrated into the app to accurately detect posted content, filter it, and score its probability of belonging to four categories: toxicity, insult, flirtation, and threat. (Xenos et al

2021). Probability thresholds are set for each category and business logic is implemented so that the app blocks users from posting content that exceeds these thresholds. An alert message is also displayed to the user.

Database Model:

MySQL database is defined with structured relationships between entities using predefined schemas to make the database highly reliable, scalable, and consistent in its performance. The social media application requires support to handle large data involving complex database transactions with multithreading. To achieve this, the connections between users are created using one-to-one, one-to-many, and many-to-many relationships among entities such as user groups, profiles, posts, institutions, and other tables. These relationships use IDs to store posts, comments, events, and so on with posted date/time. The data is then retrieved for users based on these IDs to render it. Another challenge was to identify how to store each form of data in the database. For instance, considering the resources and cost, the image content is compressed and stored as a binary large object (BLOB) in the database considering the limited number of users during the development stages. However, the size of this database will increase when more users get active on the platform, and then dedicated storage for image content must be provisioned. Some considerations such as input validation and sanitation of data were also considered before inserting data into the database. This ensured that all the create, delete, update, and retrieve operations were executed smoothly without any errors.

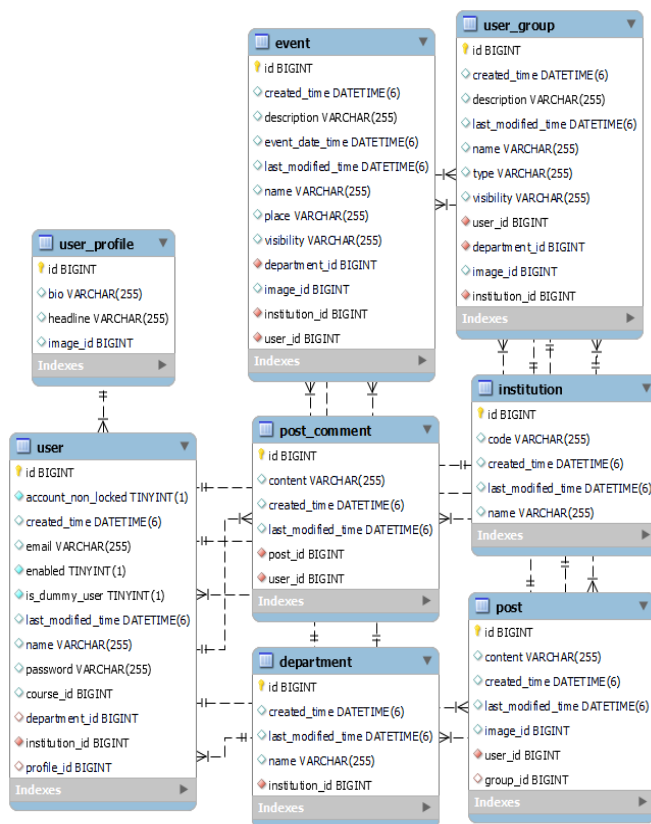


Figure 6. Simplified Entity Relationship Diagram of a section of MySQL Database.

Deployment:

The social networking app was initially developed and tested in an on-premises local server environment. However, it was eventually migrated, deployed in the cloud environment, and published on the internet. In the journal, Bhardwaj et al (2021) assure that cloud containers like Google Cloud Platform (GCP) provide reliable servers, storage, databases, and networking services through the Internet. Developing, maintaining, delivering, and staying ahead of the ever-changing user demands of a social media app is a challenging task. However, GCP has evolved over the years to protect and handle any type of data breach attempt with its intelligent infrastructure services. YouTube, the largest video streaming platform, has been successfully utilizing GCP to deliver its content and services to the world.

Containerizing the software using images and deploying it on cloud platforms makes it run on any operating system and be compatible. The Google Cloud Software Development Kit (SDK) console is used to command instructions for building the container image using the internal build scripts and deploying it as a serverless application. Since the app uses the Hibernate framework, the SQL database server must be up and running for the Spring application to initialize and create all the configured tables. The Data Definition Language (DDL) scripts are executed to insert prerequisite data such as user roles into the application. Additionally, the front-end application is containerized as an image and deployed as an independent app to ensure that the entire application is loosely coupled. All these independent resources are linked within the cloud network for the seamless working of the social networking app.

The GCP dashboard overview provides application insights on the user traffic into the application, monitors API performance with HTTP status codes, shares information on errors, and keeps track of read/write operations into the database, throughput, and latency. These data metrics will help in analyzing the usage patterns and improve the performance of the application.

Testing and Evaluation:

Real-world scenarios are simulated to perform these tests and identify and address issues. The application has been put through multiple phases of testing throughout the SDLC using a combination of testing techniques. A testing plan with clear goals and objectives has been defined for each of these phases, and the quality of the software has been validated.

Unit testing was performed to validate the functionality of the software during development. UI/UX was not included in this phase of testing. This included testing the APIs that were developed to post, retrieve, update, and delete content in the application. Integration testing was performed between the UI, application server, and database of the application. When the app was run on the public cloud domain, a problem occurred with the integration of the front-end app with the back-end due to Cross-Origin Resource Sharing (CORS). The CORS mechanism in the browser blocked the requests because the social network domain was not recognized by the system. However, the issue was resolved when the domain was added to the back-end configuration to allow these requests.

Security testing is performed to identify vulnerabilities in the application concerning user data. The SQL database in the Google Cloud Platform (GCP) is hosted with a private IP address to prevent unauthorized access. This means that the database can only be accessed by authorized users within the GCP network. This helps to protect the database from unauthorized access and malicious attacks. Additionally, an HTTP 403 Forbidden error is returned for any requests that attempt to access the APIs without JWT token validation. The data flow from the user interface to the database is tested in different scenarios across devices. All testing is recorded and documented as part of the process. The application is verified by validating both expected and unexpected scenarios, and ensuring that most error-handling cases are handled.

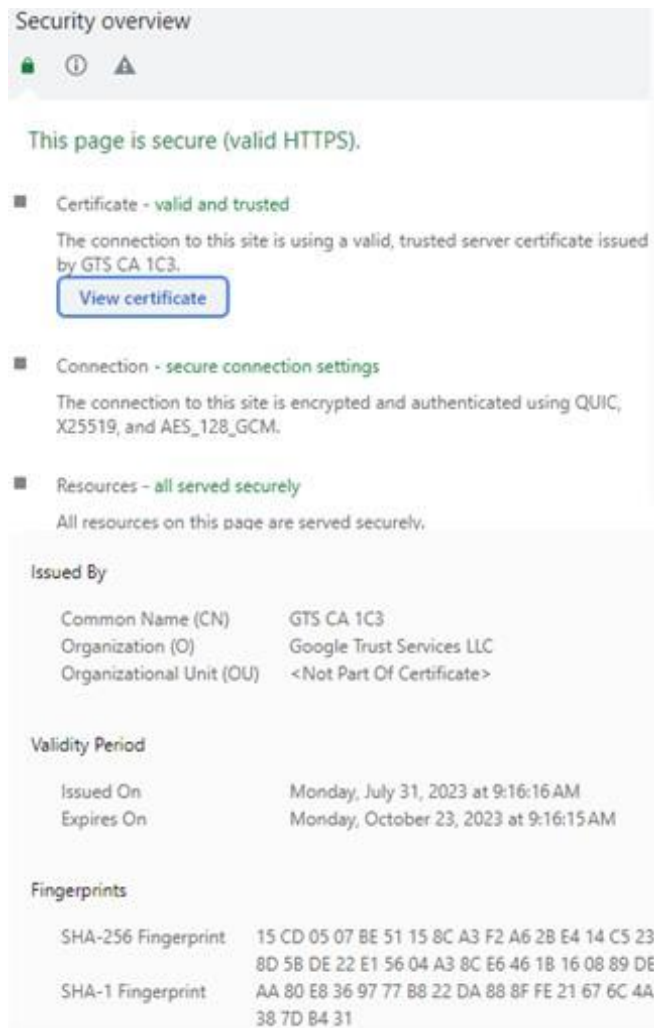


Figure 7. All communication channels between the frontend, backend and the database are encrypted and private.

IV. RESULTS

To evaluate and validate the software application, 15 student participants were given website information and default credentials in an anonymous survey form to try the application without taking any personal details. The form included questions about the usability of the overall software, preferences about the features, privacy, safety, and security while using the application. The survey revealed that most

people were open to using a social networking platform exclusively for student academic collaborations. They were concerned about the privacy and security of popular platforms, and a higher number of participants responded that the application felt safe with its automatic text detection capabilities.

Usability testing: What do you feel about using students social network app

15 responses

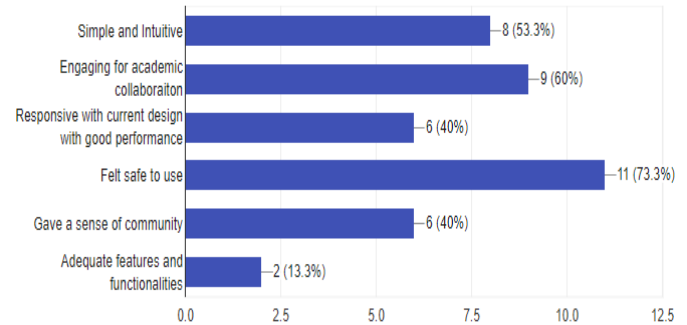


Figure 8. Usability Review of the application.

Some feedback was about limited features in the current version of the application, such as the lack of video content. A few expressed concerns about the initial loading time of the website, which is due to the cold start of Google Cloud containers. This is because the application is currently running on a pay-per-request model. The performance concerns were noted by continuously monitoring parameters such as container CPU, memory utilization, request latencies, and throughput. These parameters will be used to improve the performance of the application in future versions.

Container memory utilisation

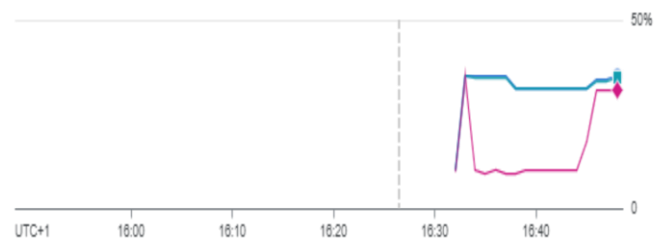


Figure 9. Monitoring memory utilization results in GCP container.

Request latencies



Figure 10. Performance latency results of the request in the container.

V. CONCLUSION

The application has successfully achieved its primary objectives, facilitating hassle-free user registration, connection with fellow students, collaboration through groups, event management, and content sharing. It helps students to identify and network with their peers, stay informed about events, and share information for collaboration. The platform has been able to withstand substantial user engagement, with positive feedback on its user-friendly interface and features. It offers an engaging and intuitive interface, which is essential for user retention and activity. However, there are some shortcomings. Once the project attracts many users, it will need a monetization strategy to generate a viable revenue stream to keep the platform running without compromising the user experience.

Users have also expressed feedback on the absence of video content engagement and personalized content recommendations. These features could be implemented by enhancing the algorithms to serve individual preferences. Some users have also raised concerns about the adequacy of privacy controls. They have called for more granular options to manage their data and interactions. The application could also be more inclusive by supporting multilingual content and catering to specific features for users with disabilities. Additionally, mechanisms could be incorporated to verify content and check facts, to restrict the spread of fake news and misinformation.

VI. FUTURE WORK

The content moderation technique used in this project was able to detect and restrict only text-based content. However, most content is now in visual form. Therefore, indigenous algorithms in artificial intelligence (AI) and machine learning (ML) could be developed to detect problems in all forms of content, such as images, videos, and audio. This would eliminate the need to integrate with the API provider Google. Similar ML research could be conducted to verify and fact-check content on the platform, to restrict the spread of misinformation and fake news.

Adding a chat function would be beneficial for users to communicate directly through personal messages with others in the application. A cache management system and load balancer can be used to improve the performance of the system by storing frequently accessed data in memory and distributing traffic across multiple servers. The application could also be seamlessly integrated with other learning management systems (LMS) to be used in educational institutions. This would streamline academic activities and resource sharing. Virtual reality (VR) and augmented reality (AR) technologies could be integrated to explore in creating innovative and interactive learning experiences within the application. Longitudinal studies could be conducted to assess the impact of app usage on students' well-being, mental health, academic performance, and social connections. Additionally, research could be conducted to make the app more accessible with multilingual content and inclusive for students with disabilities. This could be done by incorporating features such as voice commands and screen readers.

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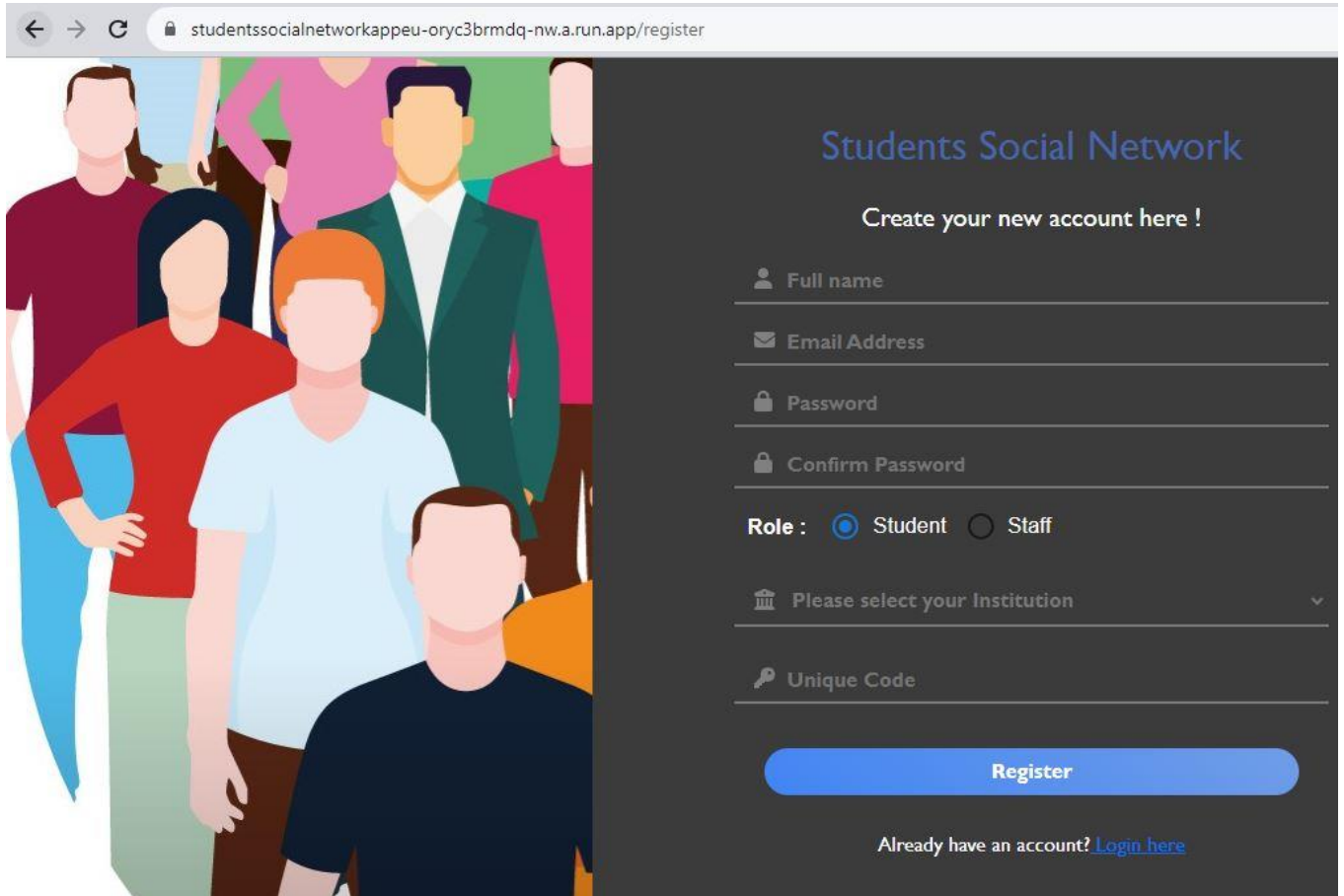
Appendices

- A. A business logic is programmed, and a probability threshold of 0.65 is set to identify the acceptability of the text content posted on the platform. Based on the response from Perspective API by Google, content scores are assigned to four categories Toxicity, Insult, Flirtation, and Threat.

```
JS ToxicityCheckjs X
src > utils > JS ToxicityCheckjs > CheckToxicity > payload > comment
1 import Axios from 'axios';
2 import Constant from '../constants/Constant';
3
4 const TOXICITY_LEVEL = 0.65
5
6 // This function return true if the given value is considered toxic with passing percentage as 65%
7 export async function CheckToxicity(value) {
8   if (value) {
9     let payload = {
10       comment: {
11         text: value
12       },
13       languages: ["en"],
14       requestedAttributes: {
15         FLIRTATION: {},
16         INSULT: {},
17         THREAT: {},
18         TOXICITY: {}
19       }
20     }
21   }
22 }
23
24 JS ToxicityCheckjs
src > utils > JS ToxicityCheckjs > CheckToxicity > response
21 // Referencing the API use from https://developers.perspectiveapi.com/s/
22 //Calls the perspective API and computes a score as part of business logic based on the response returned from the
23 // https://commentanalyzer.googleapis.com/v1alpha1/comments:analyze?key=AIzaSyAmVruSbhjMhKApX4d83cq0oFmDhYh1AmY
24 const response = await fetch(Constant.toxicity_check_url,
25   {
26     method: "POST",
27     body: JSON.stringify(payload)
28   })
29 if (!response.ok) {
30   throw new Error('Data could not be fetched!')
31 } else {
32   const responseJson = await response.json()
33   let result = {}
34   let attributeScores = responseJson.attributeScores
35
36   Object.keys(attributeScores).map((item) => {
37     result[item] = {}
38     result[item][Constant.score] = attributeScores[item].summaryScore.value
39     if (result[item][Constant.score] < TOXICITY_LEVEL) {
40       result[item][Constant.status] = Constant.pass
41     }
42     else {
43       result[item][Constant.status] = Constant.fail
44     }
45   })
46   let levelCheck = Object.keys(result).filter(item => result[item][Constant.status] === Constant.fail)
47   console.log("Final Verdict => ", levelCheck.length > 0)
48   return levelCheck.length > 0
49 }
50 } else {
51   return false
52 }
```

Screen 1. Code Snippet


B. Some Screenshots from the application running in the Google Cloud.





← → ↻ 🔒 studentsocialnetworkappeu-oryc3brmdq-nw.a.run.app/register


Students Social Network

Create your new account here !


 Full name


 Email Address

 Password

 Confirm Password

Role : ☒ Student ☐ Staff

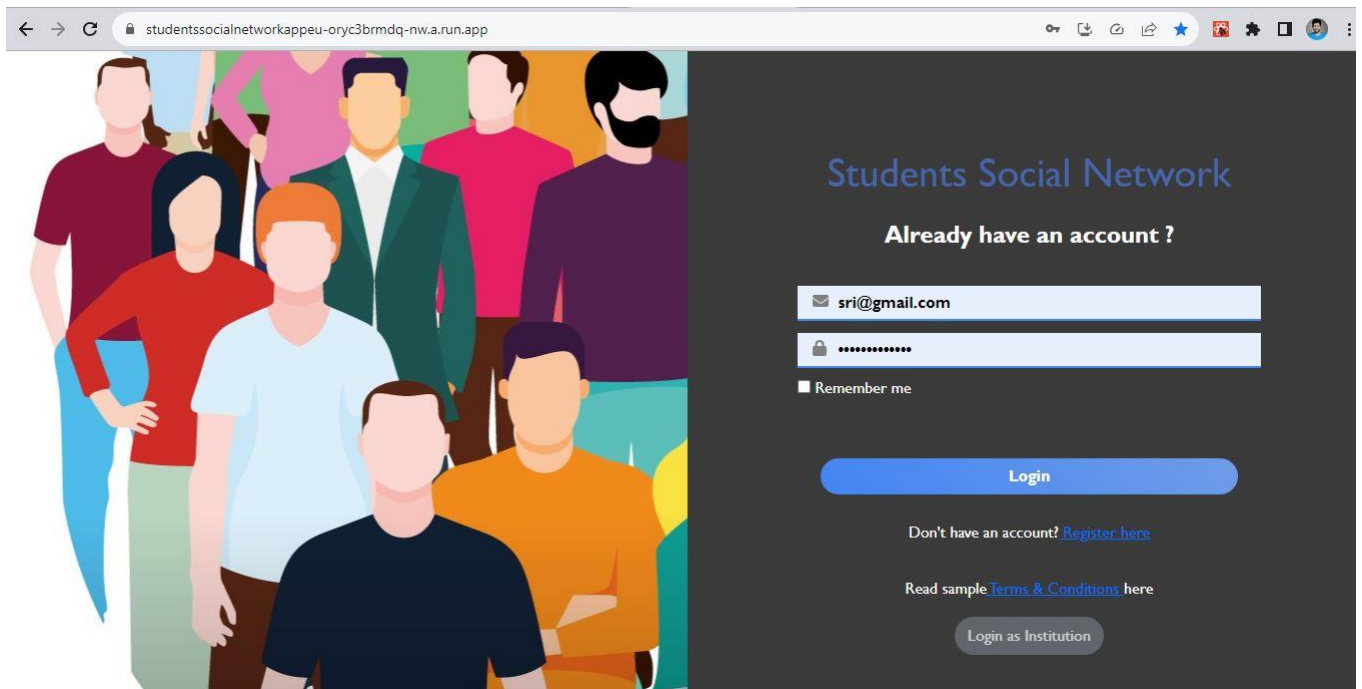
 Please select your Institution ▼

 Unique Code

[Register](#)

Already have an account? [Login here](#)


Screen 2. Application registration screen




← → ↻ 🔒 studentsocialnetworkappeu-oryc3brmdq-nw.a.run.app

Students Social Network

Already have an account ?

 sri@gmail.com



☐ Remember me

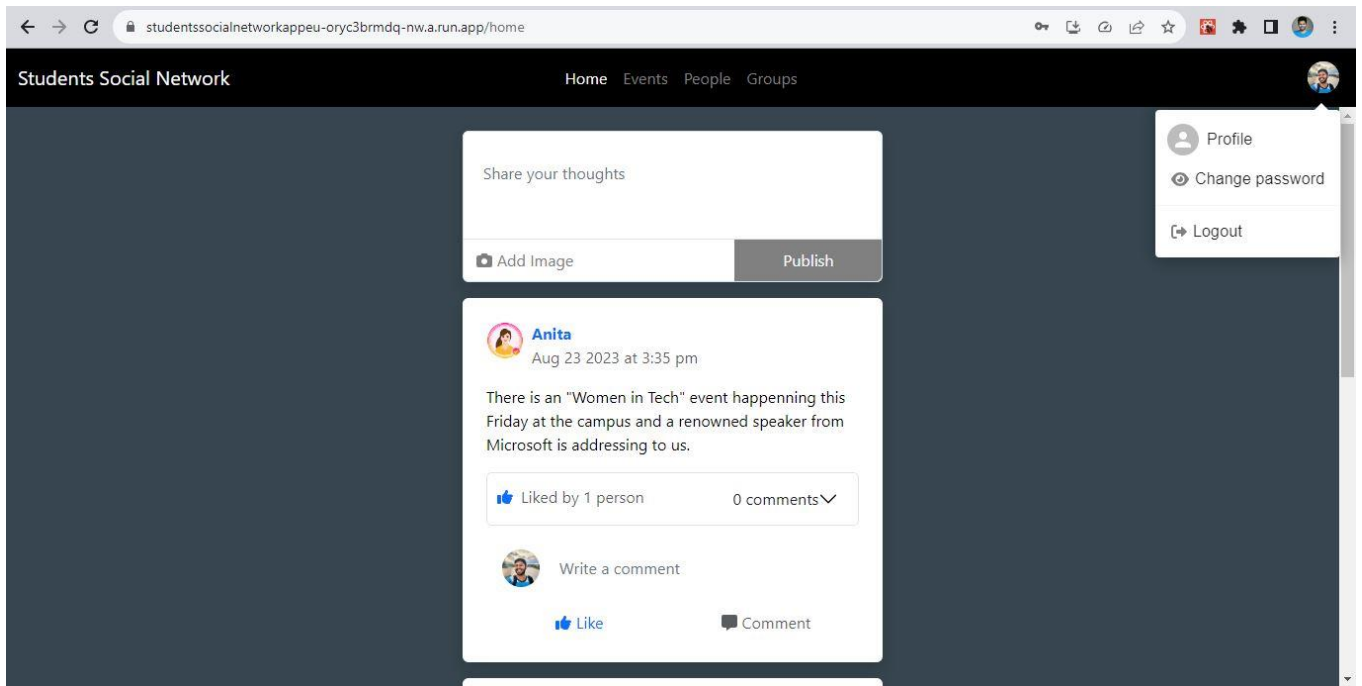
[Login](#)

Don't have an account? [Register here](#)

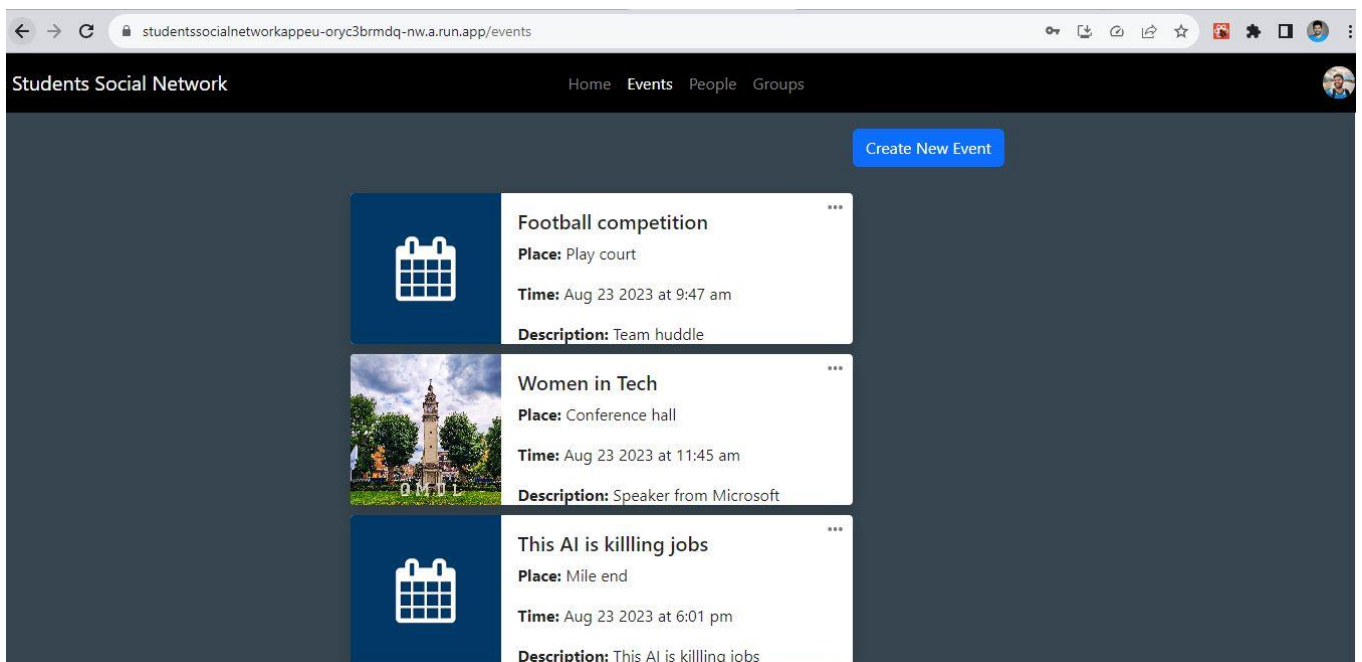
Read sample [Terms & Conditions](#) here

[Login as Institution](#)

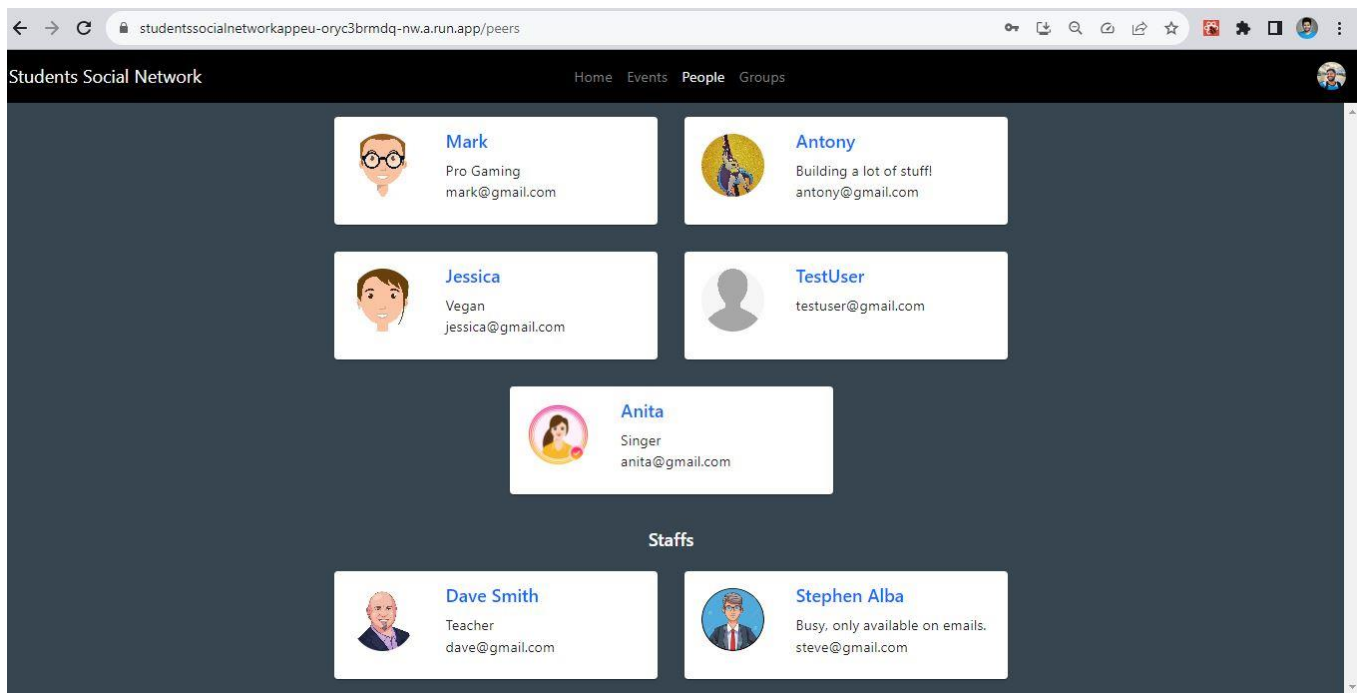
Screen 3. Application login screen



Screen 4. Landing Home page screen



Screen 5. Events Tab



Screen 6. People Tab