A SOCIAL MEDIA WEB APPLICATION

PROJECT REVIEW

MENTOR

DR. K. S. GAYATHRI

TEAM MEMBERS

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PROBLEM DESCRIPTION

The task is to develop a social media application that allows users to create and customize their own social media accounts. The application should have the following features:

1. **User accounts:** Users should be able to create their own accounts with customizable profile pages.
2. **Friend requests:** Users should be able to send and receive friend requests.
3. **News feed:** The application should display a news feed of posts from friends and from pages that the user follows.
4. **Ads:** The application should display ads to users based on their interests and browsing history.
5. **Top feeds:** The application should be able to sort the news feed based on relevance to the user.
6. **Mutual friends:** The application should suggest mutual friends to users based on their friend lists.

CLIENT DETAILS

NAME: DR. K.S. GAYATHRI

DESIGNATION:
ASSISTANT PROFESSOR
DEPARTMENT OF INFORMATION TECHNOLOGY

•**Dr. K. S Gayathri** has teaching experience of 20 years. She received her Bachelor's in Computer Science and Engineering from Madras University in 2001 and Master's in Computer Science and Engineering from Anna University in 2009. She earned her PhD degree from Anna University in 2018, thesis titled is 'Activity Recognition in Smart Home'.

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REQUIREMENT SPECIFICATION

1. **USER ACCOUNTS :**
- Users can create their own accounts and customize their profile pages.
- User account information should include username, password, profile picture, and personal details such as name, email, and location.

2. **FRIEND REQUESTS :**
- Users can send and receive friend requests.
- Friend requests should be managed and sorted based on the time criteria.
- Users should be able to see the status of their friend requests (e.g. pending, accepted, declined).

3. **NEWS FEED :**
- The application should display a news feed of posts from friends and pages that the user follows.
- Users should be able to like and comment on posts that appear on the feed.

4. **ADVERTISEMENTS**
- The application should display ads to users based on their interests and browsing history.

RISK MANAGEMENT

Risk management during the iteration phase of software development involves identifying and mitigating potential risks that may arise during the development process. Here are some steps that can be taken to manage risks during the iteration phase of the social media application development:

1. **Conduct regular risk assessments:**
- Identify potential risks that may arise during the iteration phase, such as technical challenges or delays in delivery.
- Prioritize risks based on their likelihood and impact on the project.
- Develop risk mitigation plans and monitor their implementation.

2. **Implement Quality Assurance (QA) processes:**
- Incorporate QA processes into the development cycle to identify and address issues early in the process.
- Use automated testing tools to detect errors and ensure code quality.
- Conduct regular code reviews to identify potential issues and improve code quality.

RISK MANAGEMENT

3. **Follow Agile development principles:**
   - Implement Agile development principles such as iterative development and continuous delivery to ensure regular feedback and adaptability to changing requirements.
   - Use Agile management tools such as Jira to track progress and identify potential issues.
4. **Communicate regularly with stakeholders:**
   - Regularly communicate with stakeholders to provide updates on project progress and identify potential issues.
   - Address stakeholder concerns and incorporate feedback into the development process.
5. **Continuously monitor and evaluate risks:**
   - Regularly monitor and evaluate risks throughout the iteration phase.
   - Adjust risk mitigation plans as needed based on changing circumstances or emerging risks.

By implementing these risk management strategies during the iteration phase, the development team can ensure that potential risks are identified and addressed in a timely and effective manner, reducing the likelihood of project delays or failures.

DATA REQUIREMENTS

Our Stakeholders: College Students

1. **User accounts:** Data such as username, email address, password (encrypted), profile information (e.g., name, bio, profile picture), and preferences/settings.
2. **Friend requests:** Data related to friend requests, including sender and recipient user IDs, timestamps, and status (pending, accepted, declined).
3. **News feed:** Data containing posts from friends including post content, user/page ID, timestamps, likes/comments, and associated media (e.g., photos, videos).
4. **Ads:** Data related to ads, including user interests and ad preferences
5. **Mutual friends:** Data to suggest mutual friends, involving user friend lists, connections, and algorithms to find common connections.

PROBLEM SOLVING STRATEGY

1. We planned to create a **graph data structure**, where each node represents a user, and an edge between two nodes represents a friend request sent from one user to another.
2. To sort friend requests, you can traverse the graph and find all nodes that have incoming edges, which represent friend requests that have been sent to them. You can then sort these nodes based on some criteria by using **Divide and Conquer Algorithm which takes O(nlogn) time**, and suggest them to the user.
3. To suggest mutual friends, you can traverse the graph and find all nodes that have outgoing edges, which represent friend requests that have been sent by the user. For each of these nodes, you can find all their neighbors, which represent their friends. You can then traverse the neighbors' neighbors and find common nodes that are not already friends with the user, which represent potential mutual friends. You can then suggest these potential mutual friends to the user.
4. As new friend requests are sent and accepted or declined, you will need to update the graph accordingly. You can remove edges for declined friend requests and add edges for accepted friend requests.
5. And to display ads to the users, **randomized algorithm** has been used to generate random ads to the user.

REQUIREMENTS

Sprint #	Epic	User Story #	Requirement	Remarks on Implementation
1	SM-1	2 Design of suitable Data Structure	Design a suitable Data Structure to sort friend requests.	Implement the Data Structure to sort Friend requests.
1	SM-1	6 Design of suitable Data Structure	Design a suitable Data Structure to suggest Mutual Friends.	Data structure implemented to suggest Mutual Friends.
1	SM-1	4 Design of suitable Data Structure	Give suitable Data inputs.	Inputs given for the Two Implemented Data Structure and tested for errors and bugs.
1	SM-1	3 Design of suitable Data Structure	Integrate code with other basic functions.	Other functions (sign-up,log-in) integrated with the implemented Solution.

1	SM-1	9 Design of suitable Data Structure	Give suitable Data inputs after integrate the other functions	Inputs including Log-in credentials given and tested for bugs and errors.
2	SM-10	7 Design of suitable Data Structure	Integrate the complete implementation of Data Structure with all other functions	Above implemented solution integrated with follow/unfollow,view posts,generate Ads,view profile
2	SM-10	11 Implementation of Login page	Username should be validated (Register page)	Checked the given Username satisfies the constraints for username for new user.
2	SM-10	12 Implementation of Login page	Password should be validated (Register Page)	Checked the given Password satisfies the constraints for password for new user.
2	SM-10	13 Implementation of Login page	Username should be checked (Log-in page)	Checked the username given by the user is valid.

2	SM-10	14 Implementation of Login page	Password should be checked (Log-in page)	Check the Password given by existing User is valid for given username
2	SM-10	Implementation of Login page	Integrate frontend and backend.	The developed Back-end to be integrated with the Front-end
3	SM-15	17 Designing of UI	View recent posts.	Logged in user can view the recents posts of other users.
3	SM-15	18 Designing of UI	Separate buttons for the functions implemented in Back-end.	The user have buttons for different features of the application-like posts,follow/unfollow, View mutual friends.
3	SM-15	19 Designing of UI	Button to view user profile	Registered users can view their file and make edits to them.

3	SM-15	20 Designing of UI	Button to perform Logout function.	The user is provided with the Logout option to log-out his account.
3	SM-15	21 Designing of UI	View other user profiles.	The user is able to view the profile of their friends(a registered user).

AGILE METHODOLOGY

- The Agile methodology was chosen as the development approach for ‘SociallyConnected’ due to its emphasis on collaboration, adaptability, and incremental progress.
- Agile methodologies promote close collaboration between team members, stakeholders, and end-users throughout the development process.
- This collaborative approach fosters effective communication, shared understanding, and a strong sense of ownership among team members.

METHODS ADOPTED

1. **Jira as a Project Management Tool :**

- Jira was utilized as the primary project management tool to plan, track, and manage the development process.
- It facilitated efficient task management, backlog prioritization, sprint planning, and progress tracking.

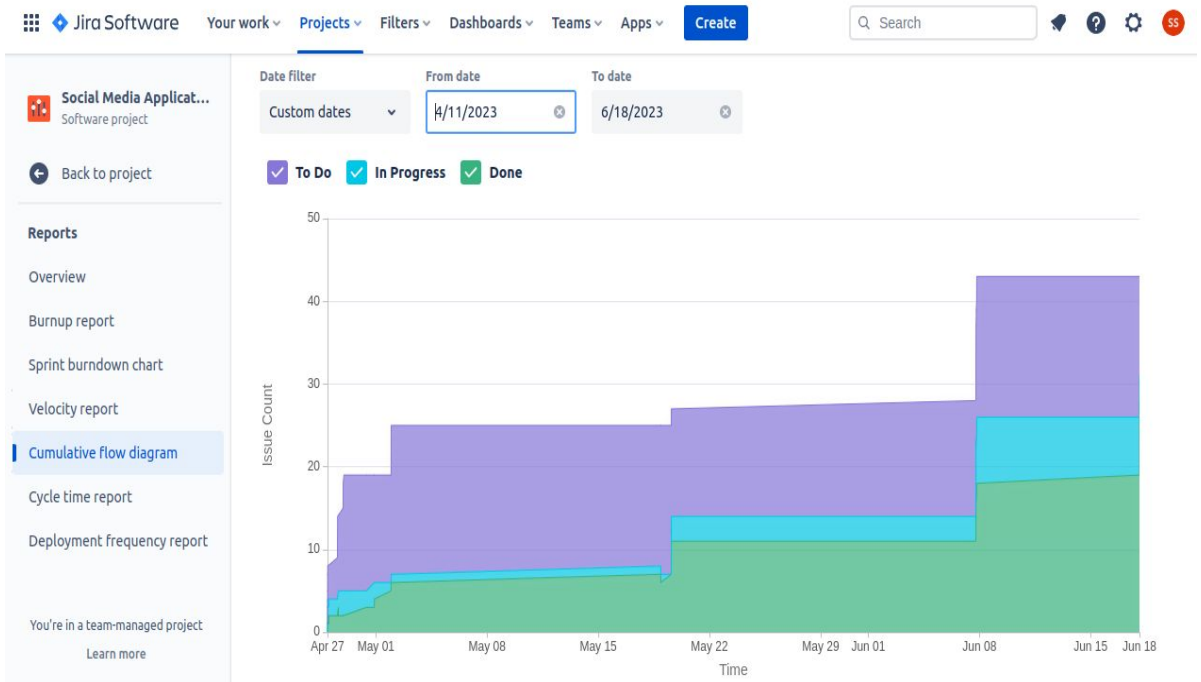


Fig. 2.1 Cumulative Flow Diagram

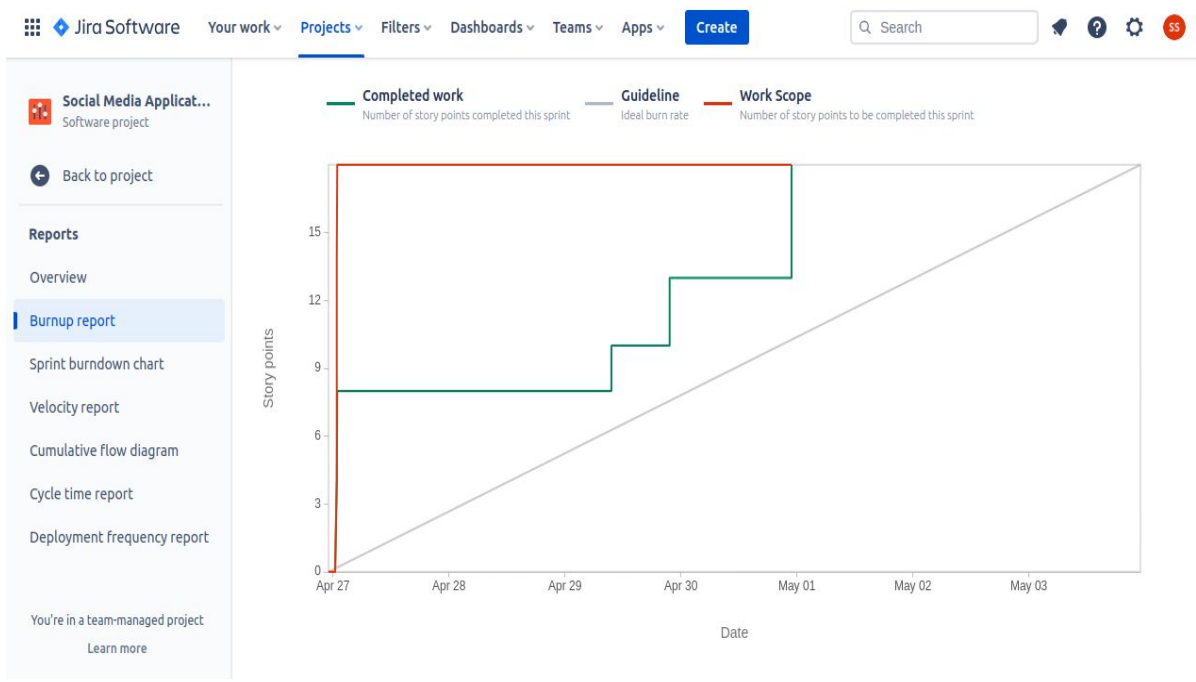


Fig. 2.2 Burn up chart

2. Product Owner and Scrum Master :

- The Product Owner was responsible for defining and prioritizing the product backlog, representing the interests of the stakeholders, and ensuring that the development aligned with the vision and requirements of ‘SociallyConnected’.
- The Scrum Master, on the other hand, acted as a facilitator, facilitating effective communication within the team, and removing any obstacles that hindered progress.

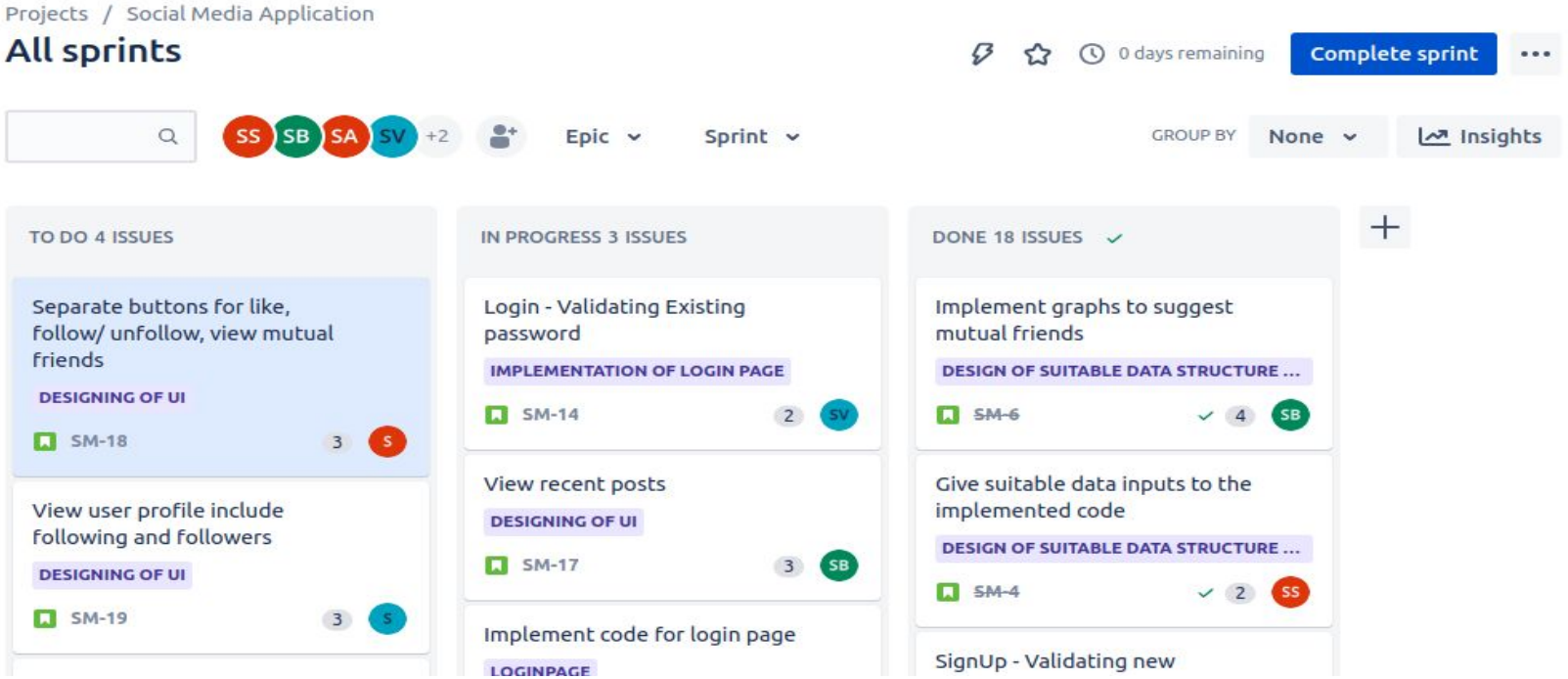


Fig. 2.3 Work status tracking in Jira

3.Sprint Structure :

- The development process was divided into sprints, with each sprint having a duration of one week.
- Sprints are time-boxed iterations that allow the team to focus on delivering a set of features or functionalities within a defined timeframe.
- The short duration of one week sprints allowed for quicker feedback, frequent retrospectives, and the ability to adapt and respond to changing requirements.

4. Version Control and Code Repository :

- GitHub and Bitbucket were utilized as version control and code repository management tools.
- These tools enabled collaborative development, version tracking, and seamless integration with other development tools.

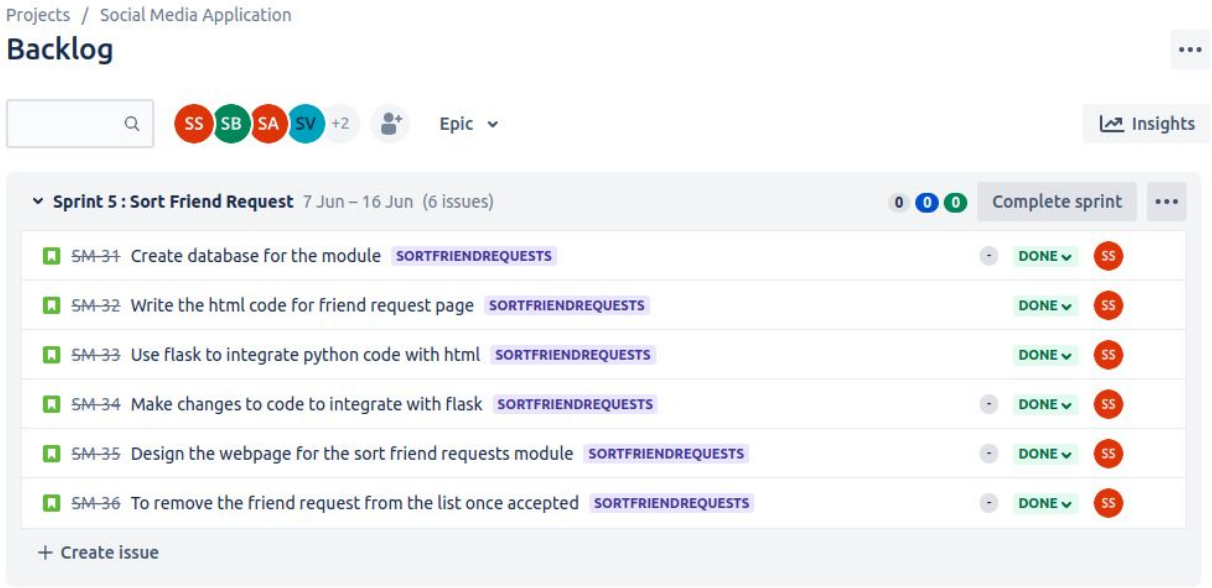


Fig. 2.4 Sprint Structure - Sorting Friend Requests Module

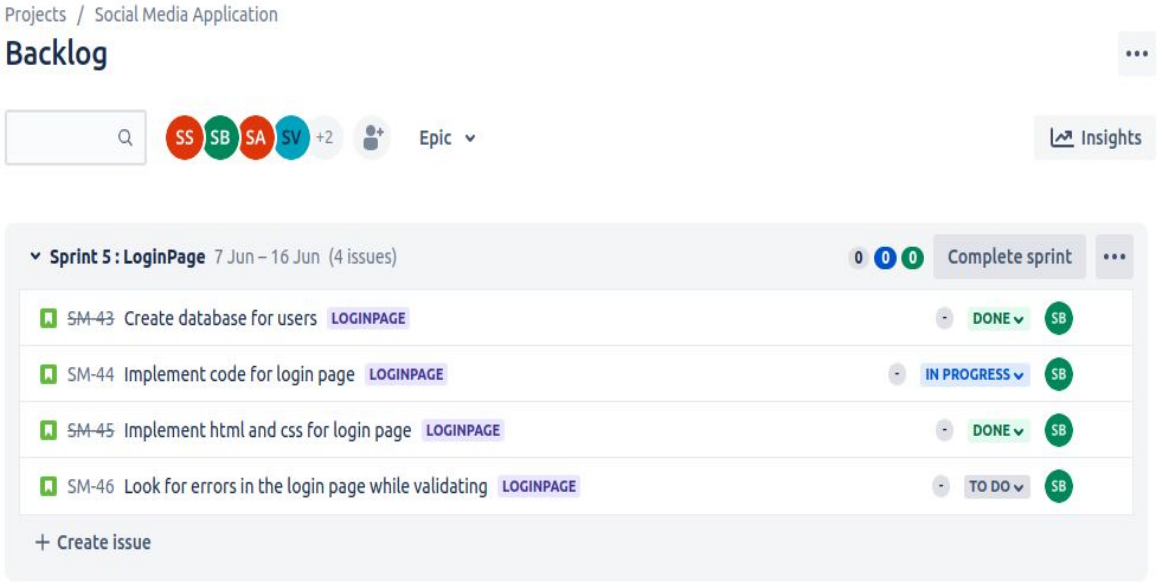


Fig. 2.5 Sprint Structure - Login Page Module

5. Continuous Integration and Deployment :

- The Agile methodology supported continuous integration and deployment practices.
- By integrating code changes frequently and automating the build and testing processes, the development team ensured a reliable and stable product, facilitating early bug detection and faster resolution, leading to a more robust and high-quality end product.

6. Iterative Maintenance and Enhancements :

- After each sprint, the team conducted meetings to reflect on the progress, identify areas for improvement, and plan for the next sprint.
- This iterative approach allowed the team to incorporate user feedback, make necessary adjustments, and continuously enhance the platform's functionality, usability, and performance.

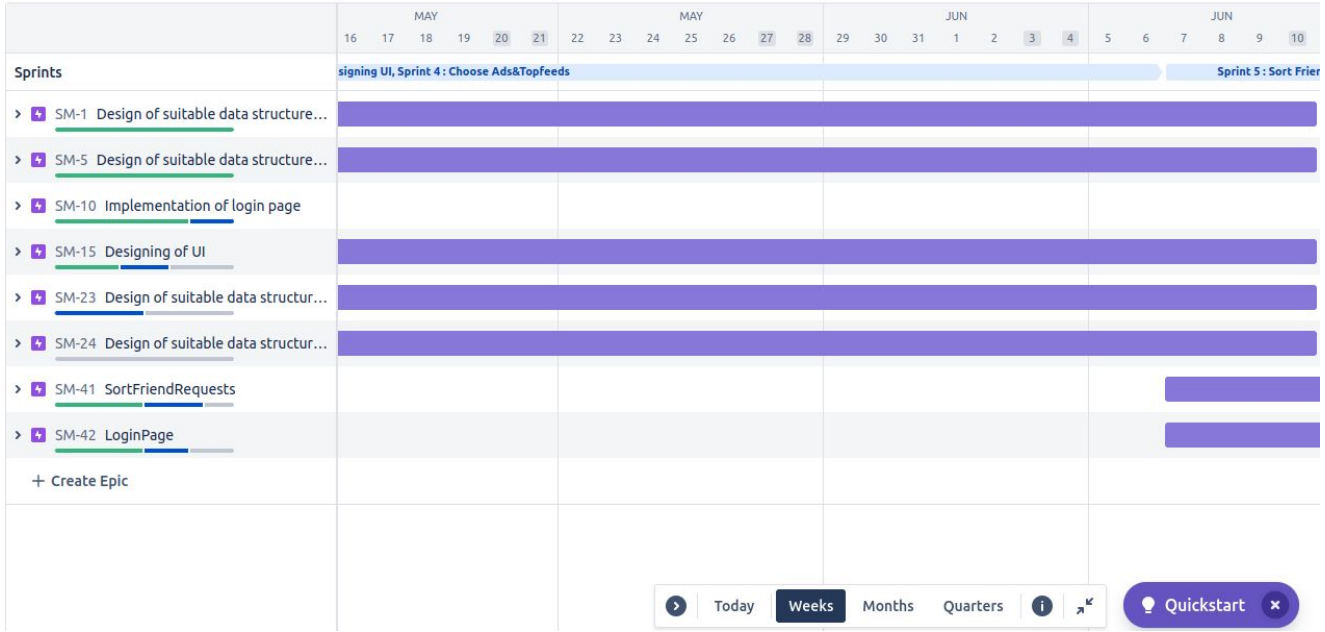


Fig. 2.6 Roadmap of the project

JIRA ROLES AND RESPONSIBILITIES

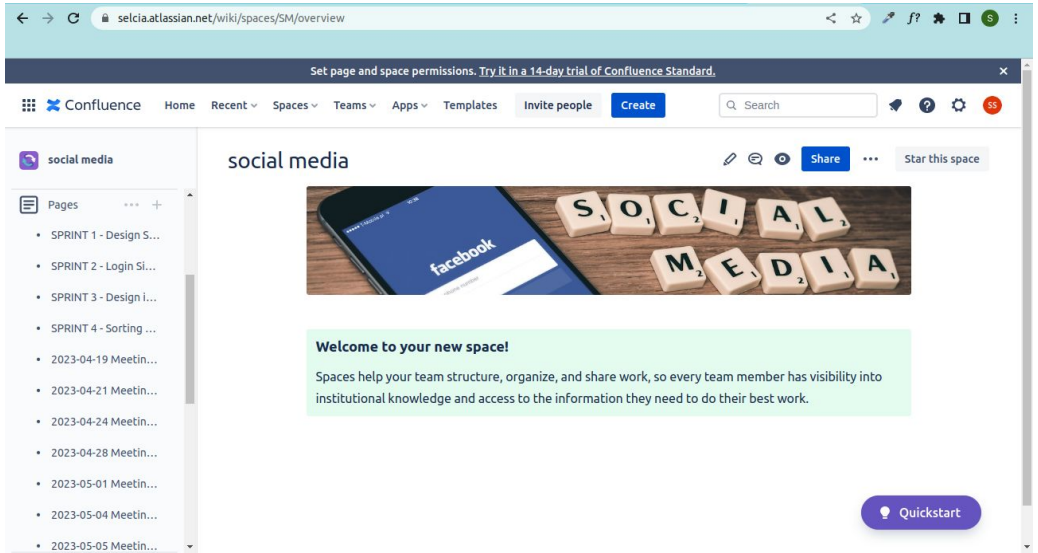
NAME	ROLE
Sasmitha	Developer
Selcia	Developer
Shashwat Shivam	Developer
Shasvat Vijay	Product Owner
Sherwin Satya	Developer
Shrikar	Scrum Master

JIRA CONFLUENCE

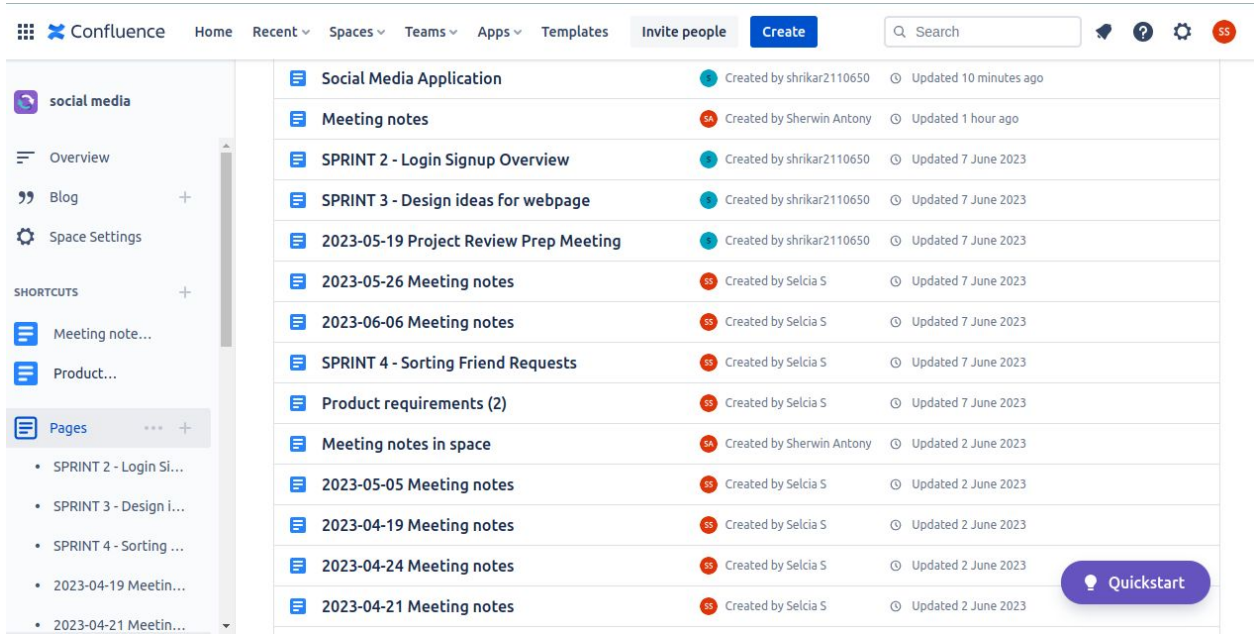
Jira and Confluence are two powerful tools that played a significant role in our social media application project. Jira is an issue tracking and project management tool, while Confluence is a collaborative documentation platform. These tools extended beyond the scope of our syllabus, providing essential functionalities and features that greatly contributed to the success of our project.

Confluence:

Confluence played a crucial role in our project's documentation and knowledge sharing efforts. It provided a collaborative platform where team members could create, edit, and share project-related documents, meeting notes, requirements, and design specifications. Confluence's intuitive editor allowed us to structure and organize our documentation effectively.

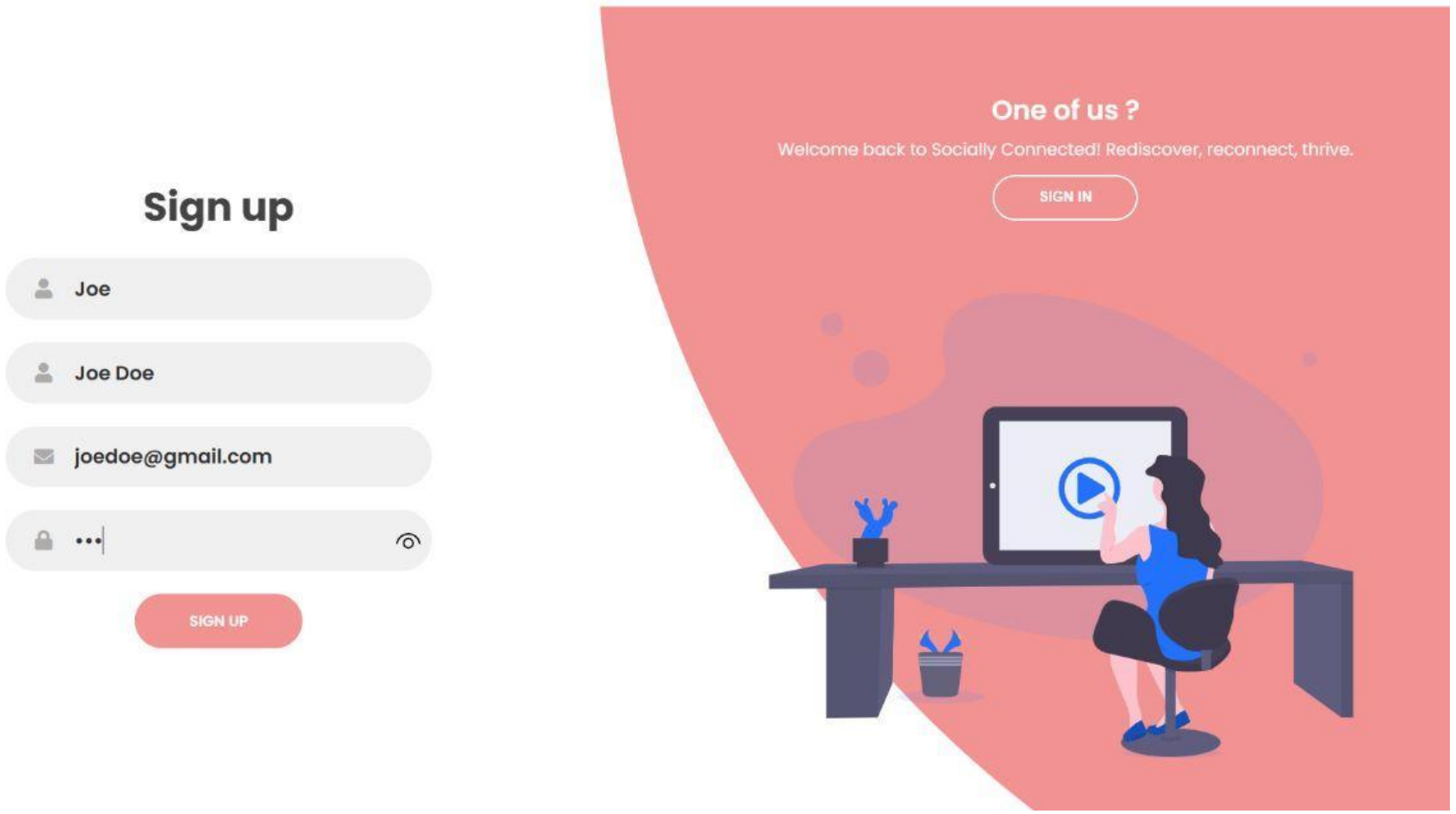


One of the key advantages of Confluence was its ability to foster collaboration and knowledge sharing within the team. We could create dedicated spaces for different project areas, allowing team members to contribute, edit, and provide feedback on documents in real time. Confluence's version control feature ensured that everyone had access to the latest version of documents, mitigating versioning conflicts and ensuring consistency.

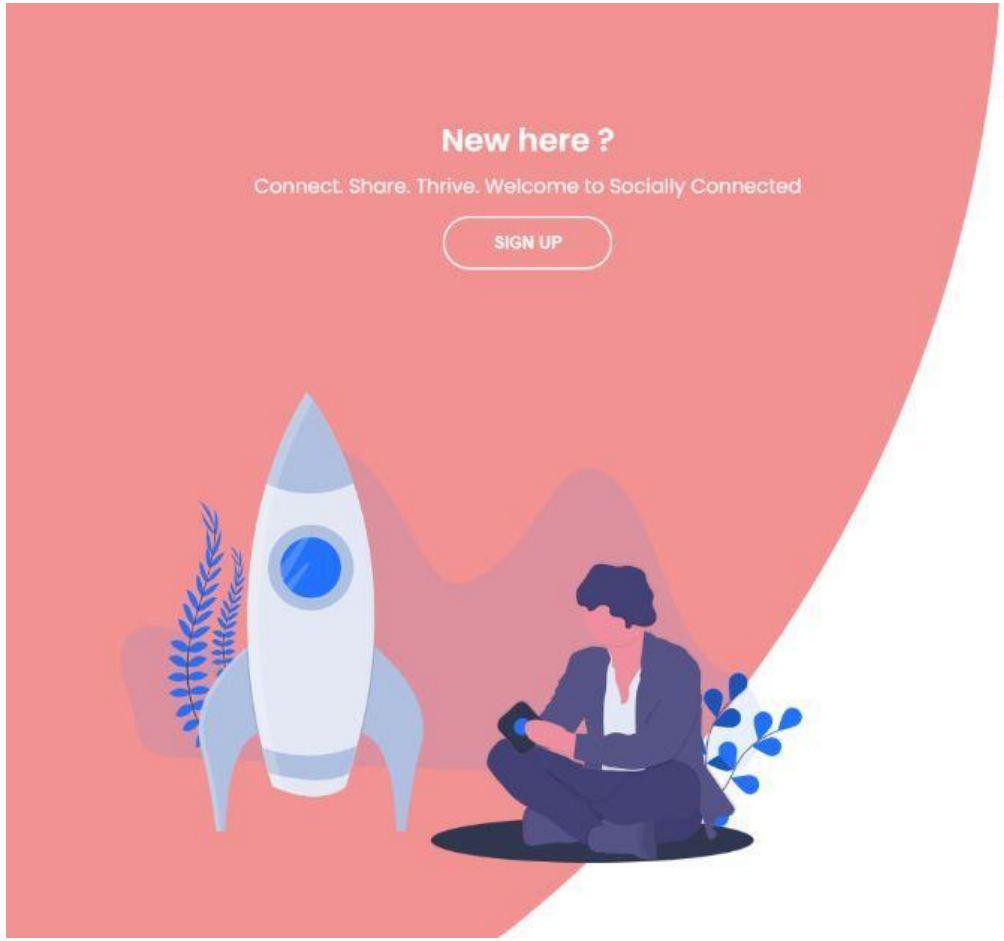


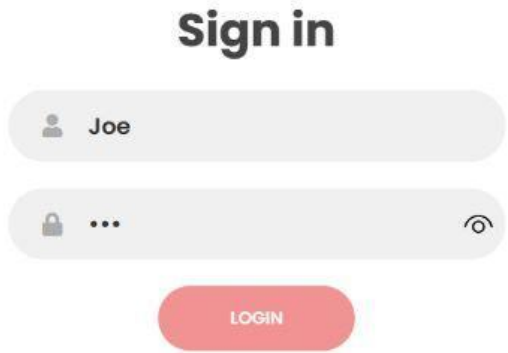
Confluence's commenting and feedback capabilities facilitated ongoing discussions and provided a platform for brainstorming ideas and resolving issues collaboratively. We could highlight specific sections of a document, leave comments, and engage in discussions, ensuring that decisions and changes were captured and documented effectively.

SIGN UP PAGE

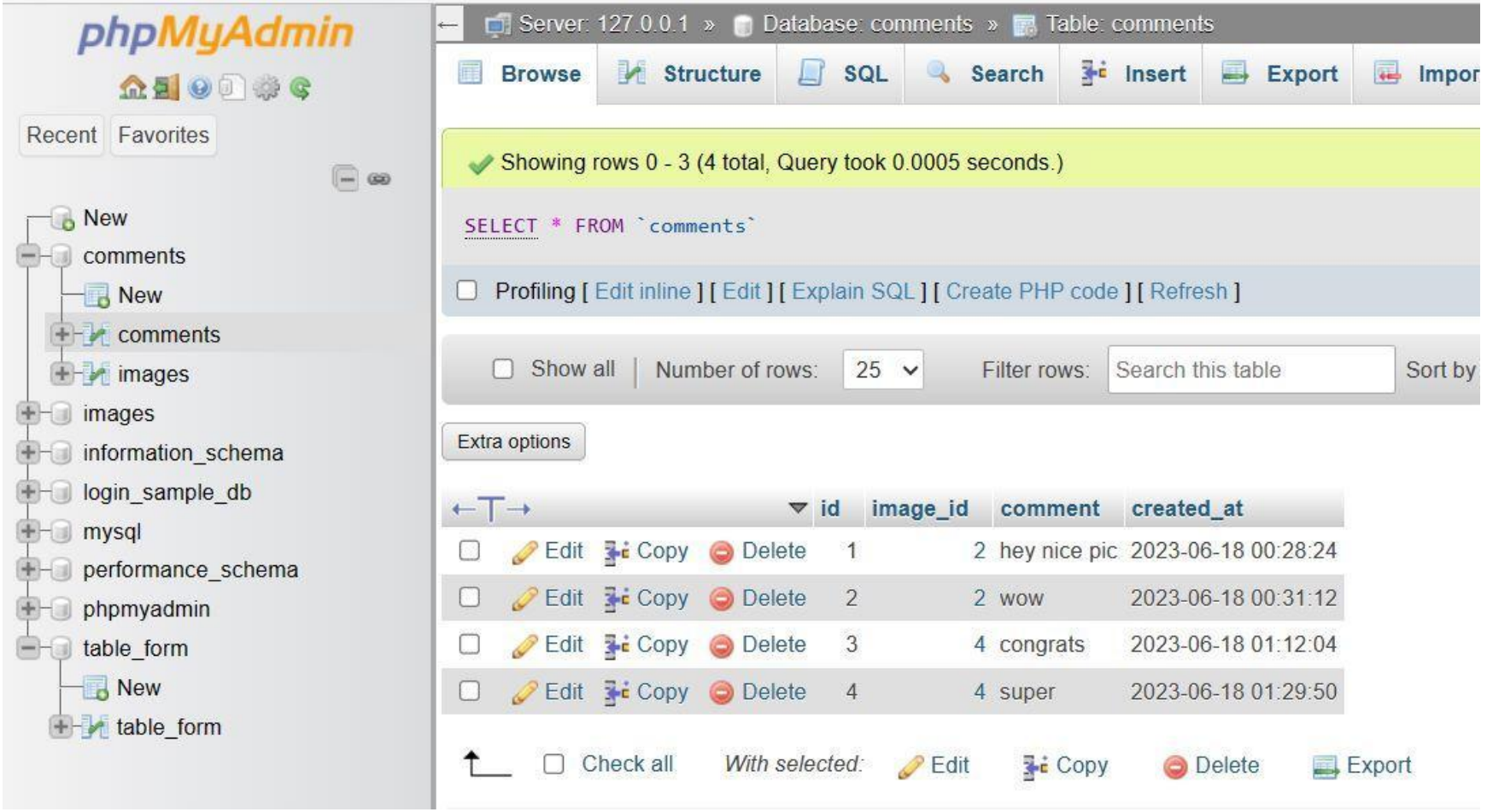

Sign up
Joe
Joe Doe
joedoe@gmail.com
SIGN UP
One of us ?
Welcome back to Socially Connected! Rediscover, reconnect, thrive.
SIGN IN

SIGN IN PAGE

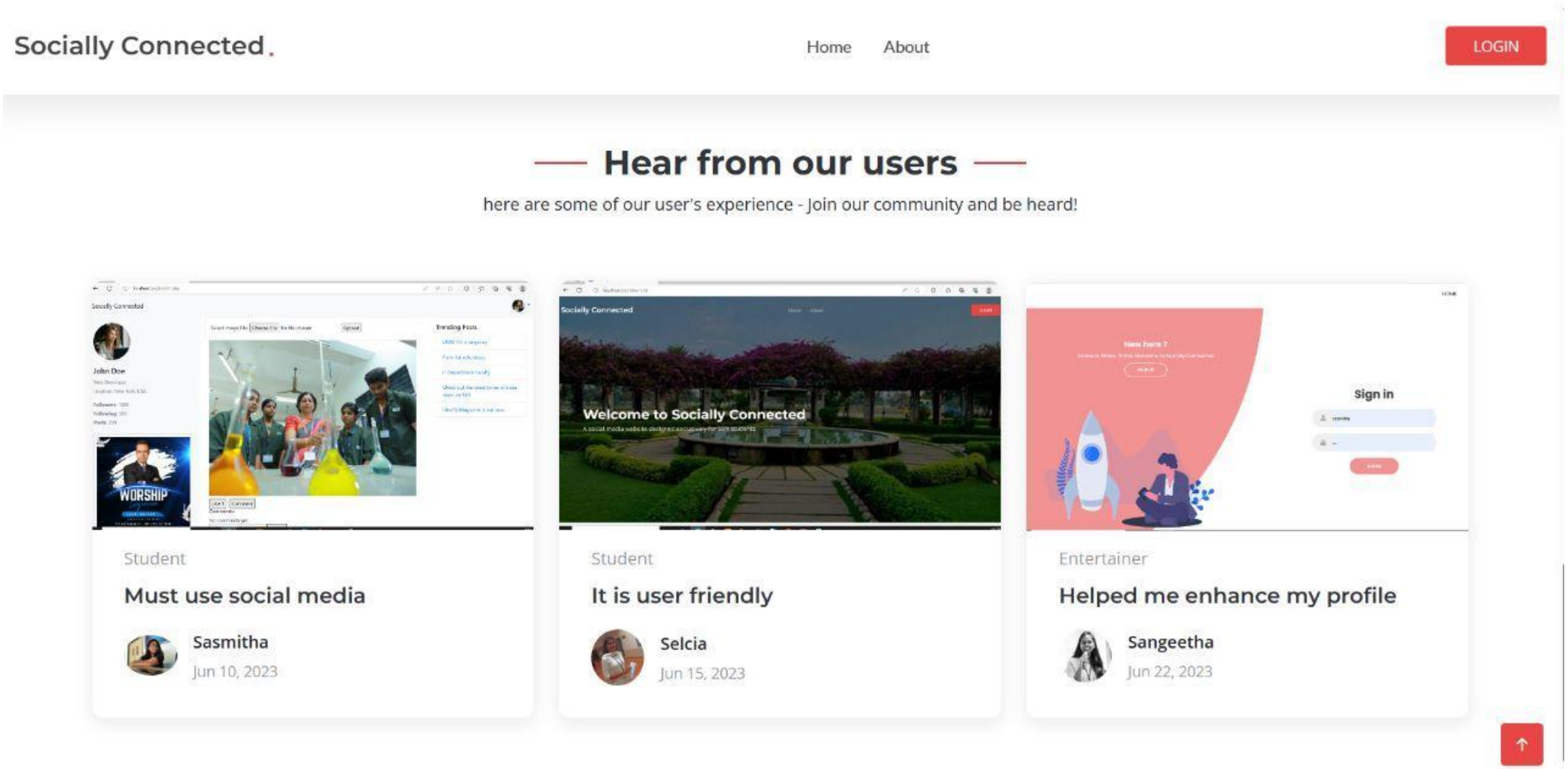

New here ?
Connect. Share. Thrive. Welcome to Socially Connected
SIGN UP


Sign in
Joe
LOGIN

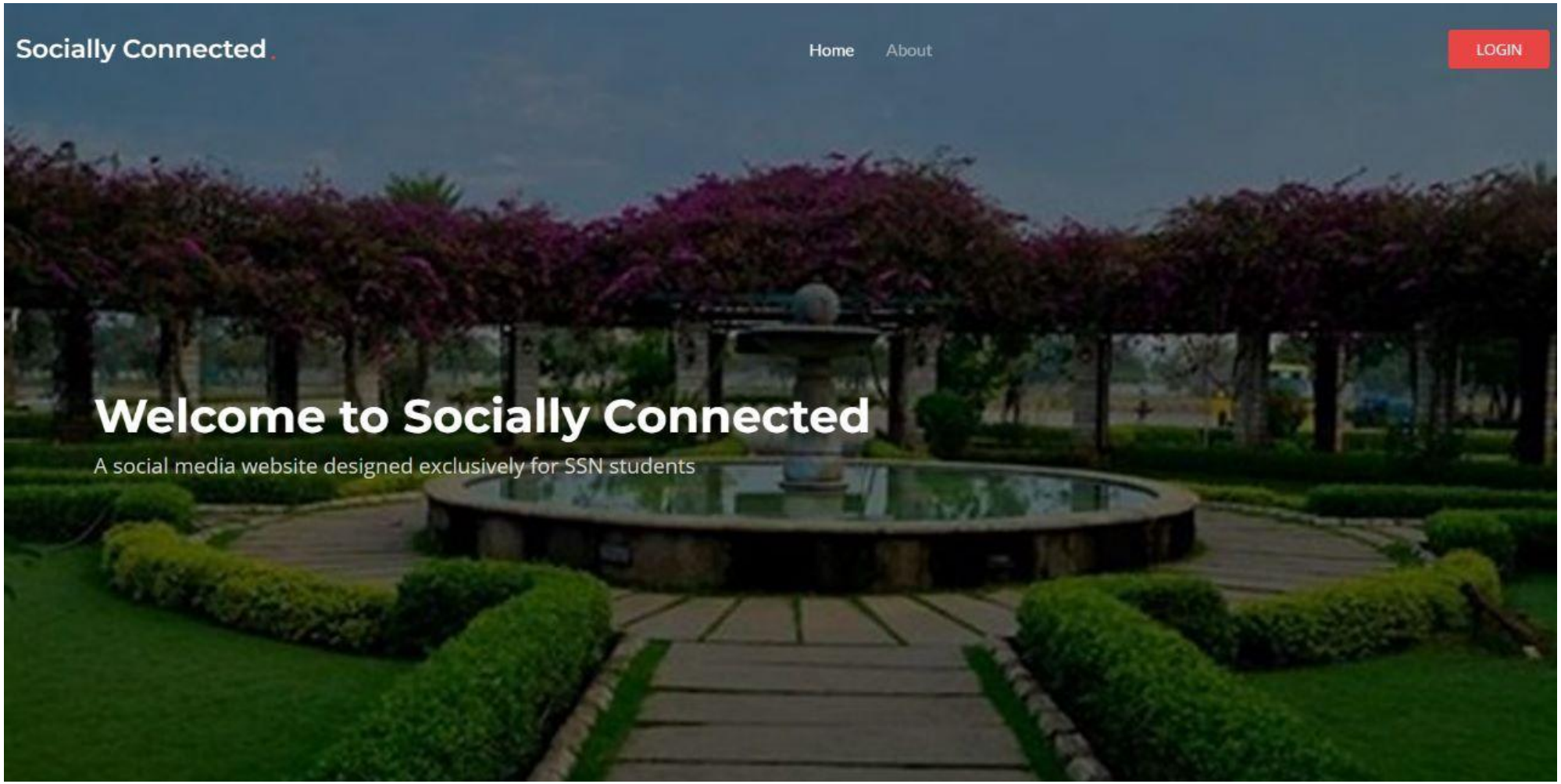
phpMyAdmin


phpMyAdmin
Recent
Favorites
New
comments
New
comments
images
images
information_schema
login_sample_db
mysql
performance_schema
phpmyadmin
table_form
New
table_form
Server: 127.0.0.1 » Database: comments » Table: comments
Browse
Structure
SQL
Search
Insert
Export
Impor
Showing rows 0 - 3 (4 total, Query took 0.0005 seconds.)
SELECT * FROM `comments`
Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]
Show all
Number of rows: 25
Filter rows: Search this table
Sort by
Extra options
id
image_id
comment
created_at
Edit Copy Delete 1 2 hey nice pic 2023-06-18 00:28:24
Edit Copy Delete 2 2 wow 2023-06-18 00:31:12
Edit Copy Delete 3 4 congrats 2023-06-18 01:12:04
Edit Copy Delete 4 4 super 2023-06-18 01:29:50
Check all
With selected:
Edit
Copy
Delete
Export

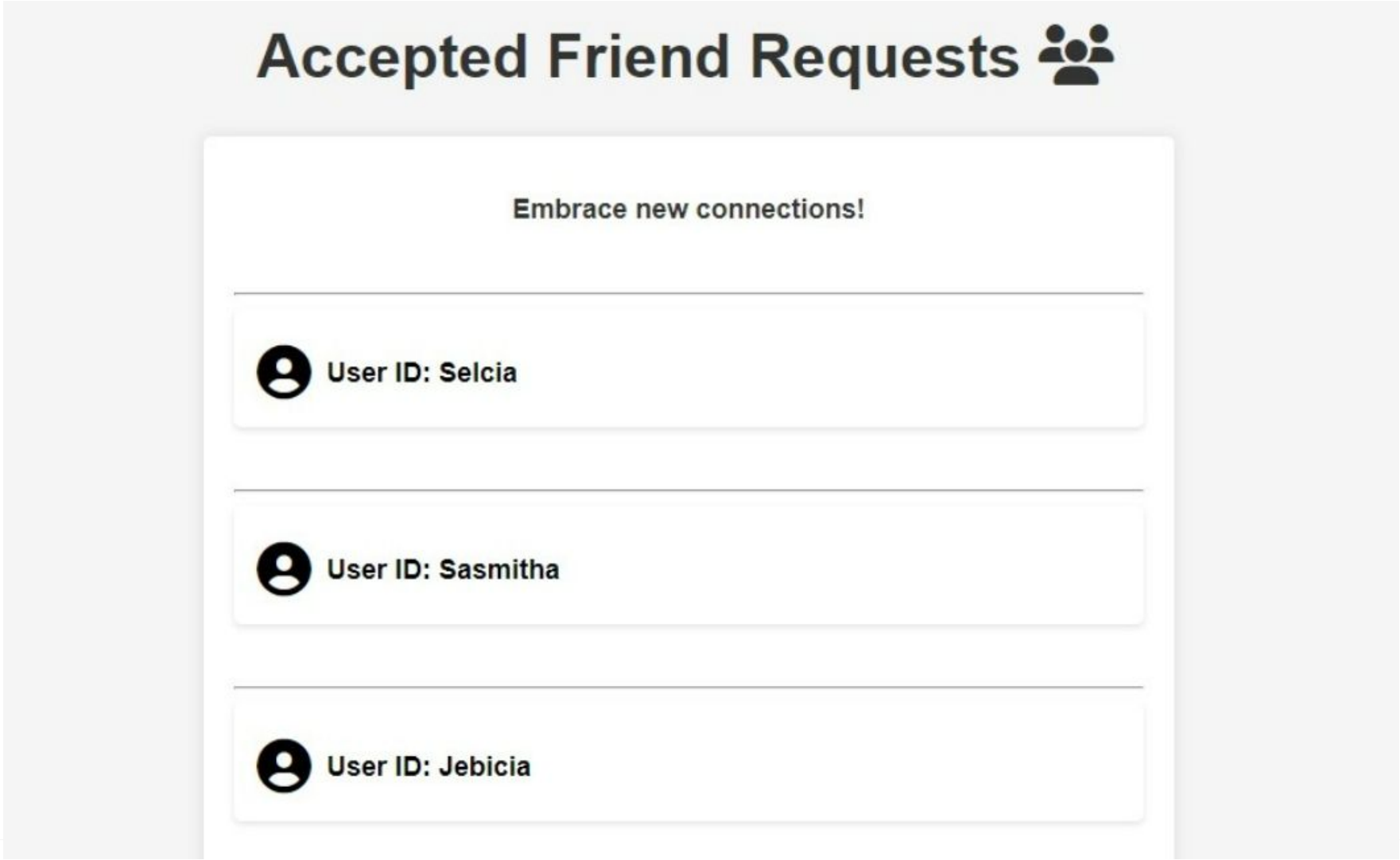
HOME PAGE


Socially Connected.
Home
About
LOGIN
Hear from our users
here are some of our user's experience - Join our community and be heard!
Student
Must use social media
Sasmitha
Jun 10, 2023
Student
It is user friendly
Selcia
Jun 15, 2023
Welcome to Socially Connected
Entertainer
Helped me enhance my profile
Sangeetha
Jun 22, 2023
Sign in

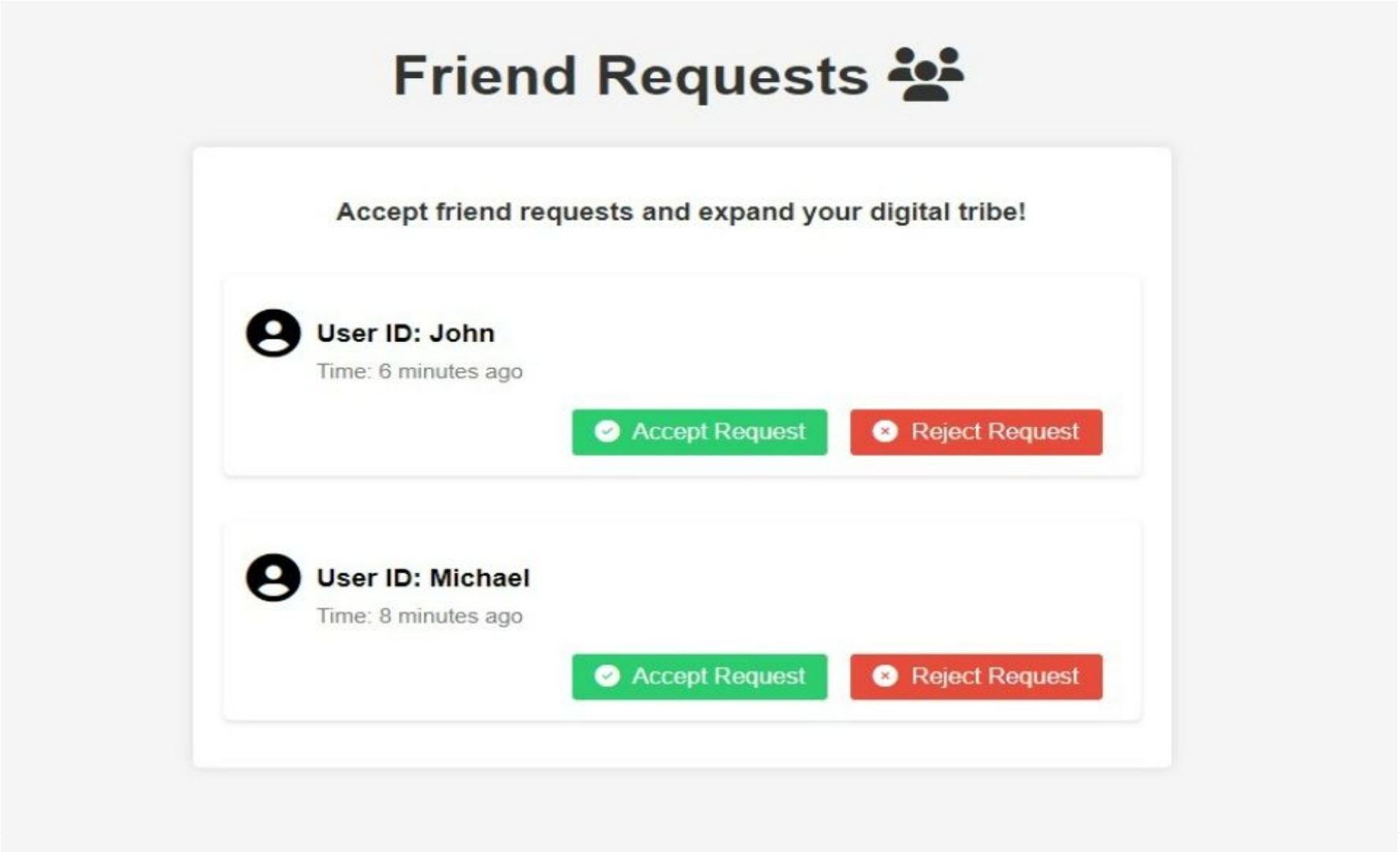
LANDING PAGE



ACCEPTED FRIEND REQUEST PAGE



FRIEND REQUEST PAGE



GENERATED ADS

Master Any Skill, Anytime, Anywhere: Introducing Our Revolutionary Learning App!

Are you ready to embark on a journey of knowledge and self-improvement? With our cutting-edge learning app, the power to learn is now at your fingertips.

Work-Life Balance is Within Reach: Register Today for the Business Conference 2023!

Are you tired of the constant struggle to find harmony between your work and personal life? It's time to discover the key to achieving true work-life balance.

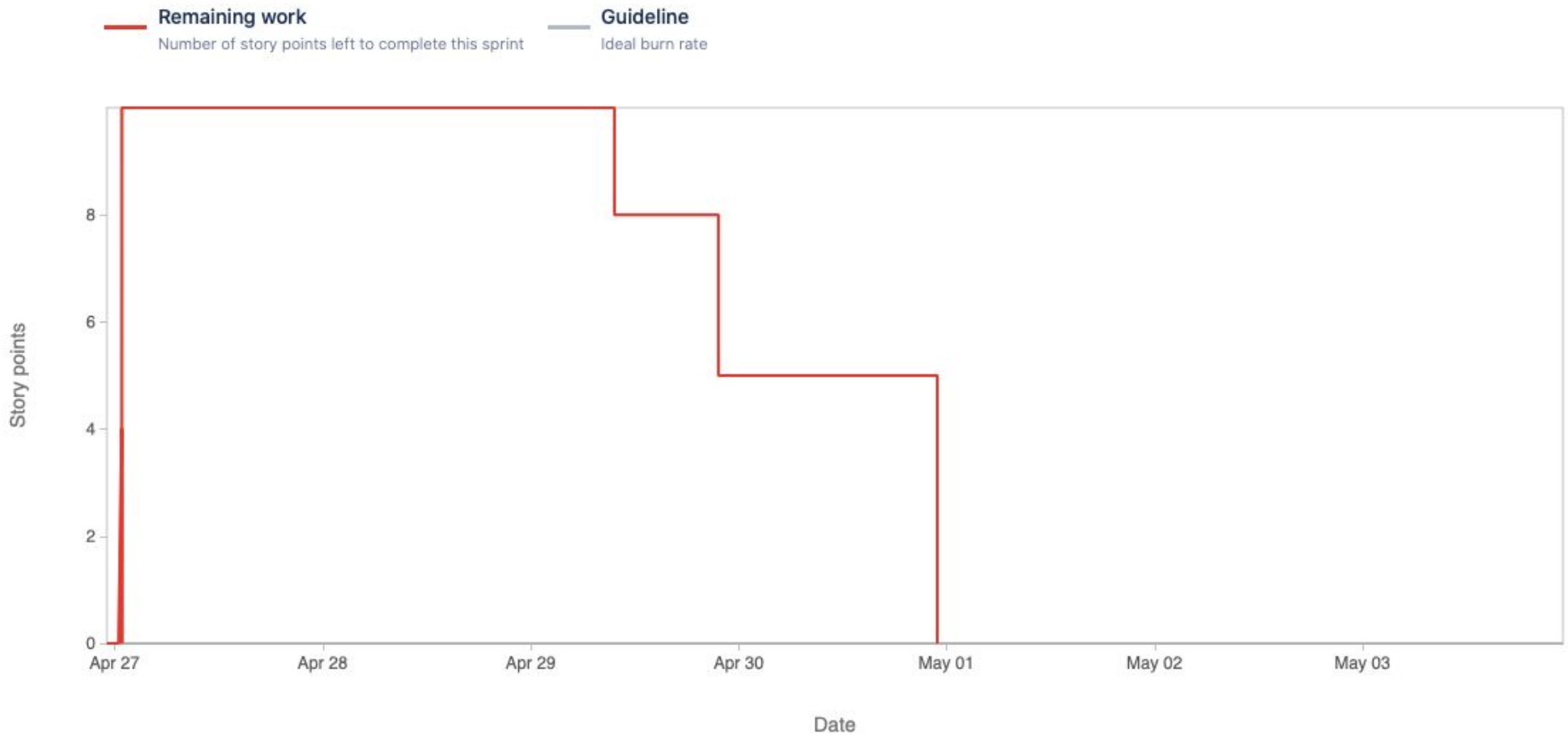
Experience Divine Connection: Join Us at the Worship Conference 2023!

Calling all worshippers! It's time to gather together and elevate our spirits in the presence of the divine.

BURN DOWN CHART

Date - April 27th, 2023 - May 4th, 2023

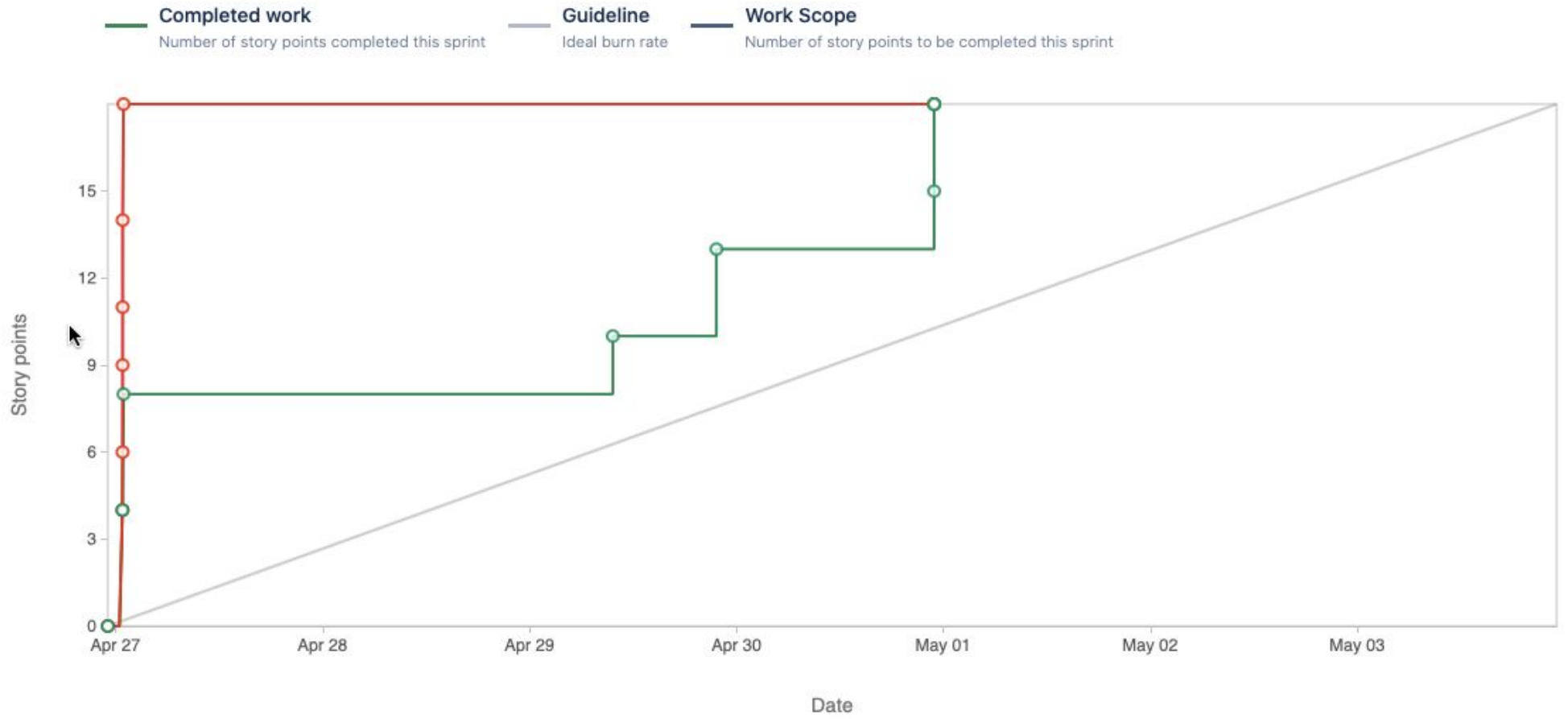
Sprint goal - To complete the code for both sorting friend requests and suggesting mutual friends



BURNUP CHART

Date - April 27th, 2023 - May 4th, 2023

Sprint goal - To complete the code for both sorting friend requests and suggesting mutual friends



TECHNOLOGY ASSESSMENT

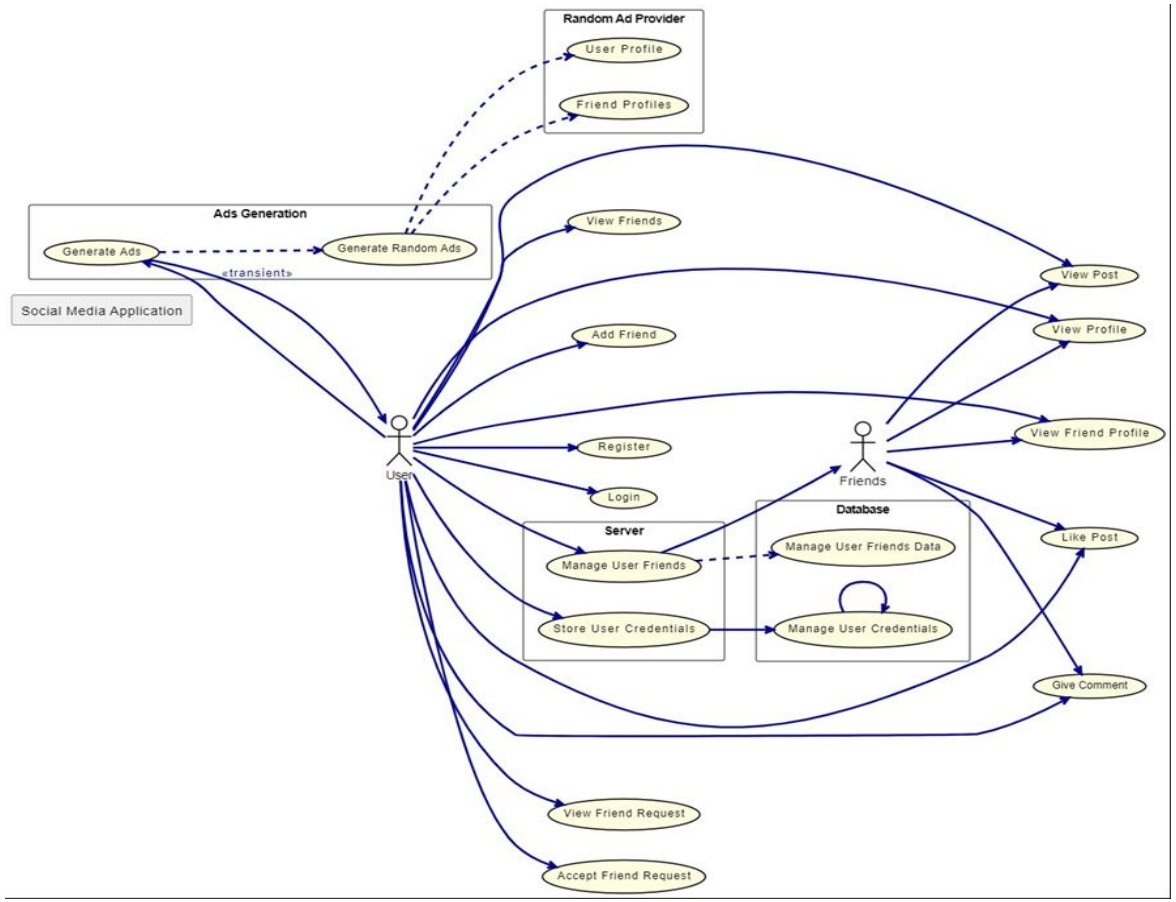
In this chapter, we delve into the rationale behind the selection of languages, tools, and algorithms employed to address the problem at hand. As elucidated in preceding chapters, the solution relies on HTML, CSS, JavaScript, and PHP for the front end. SQL is utilized for the backend, with phpMyAdmin serving as the server and XAMPP tool employed for connecting to the local host.

TOOLS AND ALGORITHMS USED

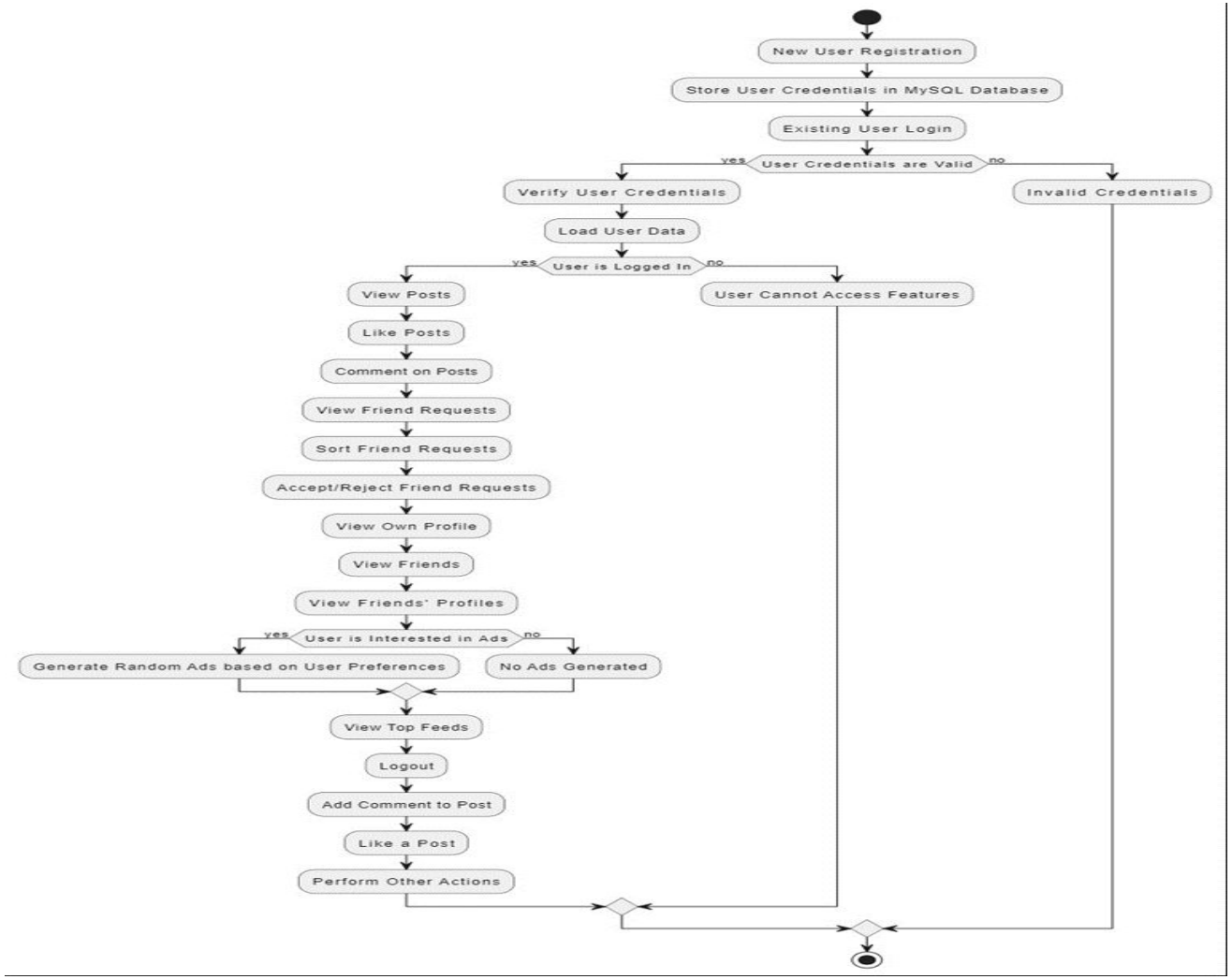
1. **HTML, CSS, and JavaScript:**
2. **PHP**
3. **XAMPP**
4. **SQL Database Management System**
5. **Graph-Based Friend Sorting Algorithms**
6. **Randomized Algorithm for Ad generation**
7. **PhpMyAdmin**
8. **Flask Framework**

Overall, the technologies, algorithms, and languages used in SociallyConnected are carefully chosen to address specific requirements and challenges. They enable the creation of a dynamic and visually appealing user interface, ensure efficient data management and processing, provide powerful backend support, and enhance the social and advertising experiences of users. The selection of these technologies and algorithms is driven by their proven effectiveness, wide industry adoption, and their ability to meet the unique needs of SociallyConnected as a cutting-edge social media platform for college students.

USE CASE DIAGRAM



WORKFLOW


New User Registration
Store User Credentials in MySQL Database
Existing User Login
yes
User Credentials are Valid
no
Verify User Credentials
Invalid Credentials
Load User Data
yes
User is Logged In
no
View Posts
User Cannot Access Features
Like Posts
Comment on Posts
View Friend Requests
Sort Friend Requests
Accept/Reject Friend Requests
View Own Profile
View Friends
View Friends' Profiles
yes
User is Interested in Ads
no
Generate Random Ads based on User Preferences
No Ads Generated
View Top Feeds
Logout
Add Comment to Post
Like a Post
Perform Other Actions

RISK MANAGEMENT

Risk #	Risk Description	Probability	Impact	Mitigation Plan
1	Technical Risks	High	Critical	Conduct regular security audits and penetration testing to identify and address vulnerabilities.
2	User-related Risks	High	Moderate	Implement content moderation mechanisms, including automated filters and user reporting systems.
3	Legal and Compliance Risks	Medium	Low	Establish clear guidelines for user-generated content and intellectual property rights.

4	Data breaches	High	High	Implement robust encryption protocols and secure data storage practices.
5	Legal violations	High	Moderate	Implement data protection measures in line with relevant regulations.
6	Implement data protection measures in line with relevant regulations.	High	High	Provide privacy settings and options for users to control their personal information.
7	Compatibility issues	Medium	Moderate	Conduct thorough compatibility testing across different devices, operating systems, and browsers to identify any compatibility issues.
8	Scalability challenges	Medium	Moderate	Perform load testing and scalability assessments during development to ensure adequate performance.

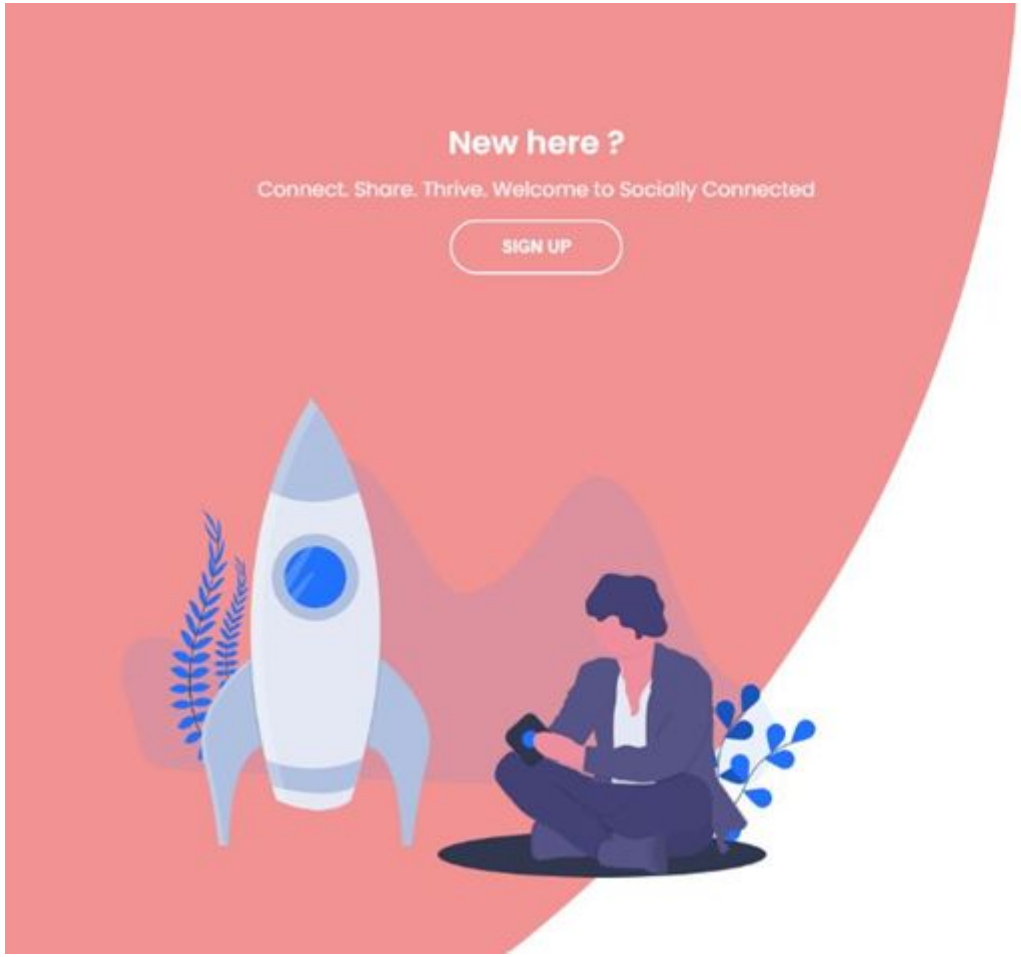
9	System Downtime	Low	High	Regular Maintenance and Updates.
10	Lack of User Adoption	Low	High	Use the insights gained from user research to inform the design process and create an intuitive, user-friendly interface.
11	Dependence on Third-Party Services	Low	Less	Identify critical third-party services and establish redundancy plans by integrating alternative providers or backup systems.
12	Age Verification and Child Safety	Medium	High	Utilize AI-based technologies, keyword filtering, and image recognition algorithms to proactively detect and filter out potentially harmful or age-inappropriate content

DEPLOYMENT

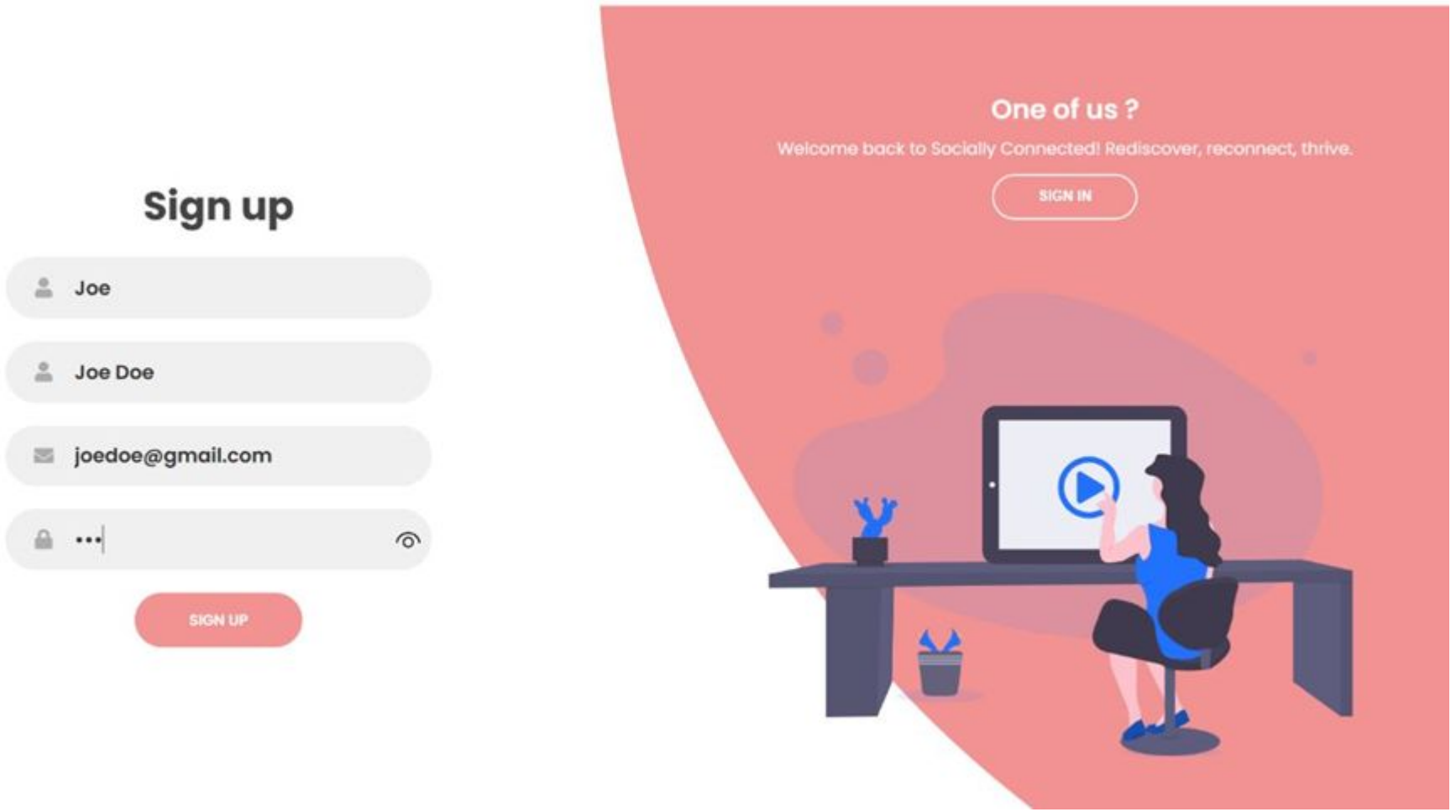
AIM AND OBJECTIVES

The aim of this chapter is to provide an overview of the project and outline its objectives. This chapter sets the context for the project report and establishes the goals that the project aims to achieve. It introduces the social media application developed by our team and presents the specific objectives that guided the project's development and deployment process.

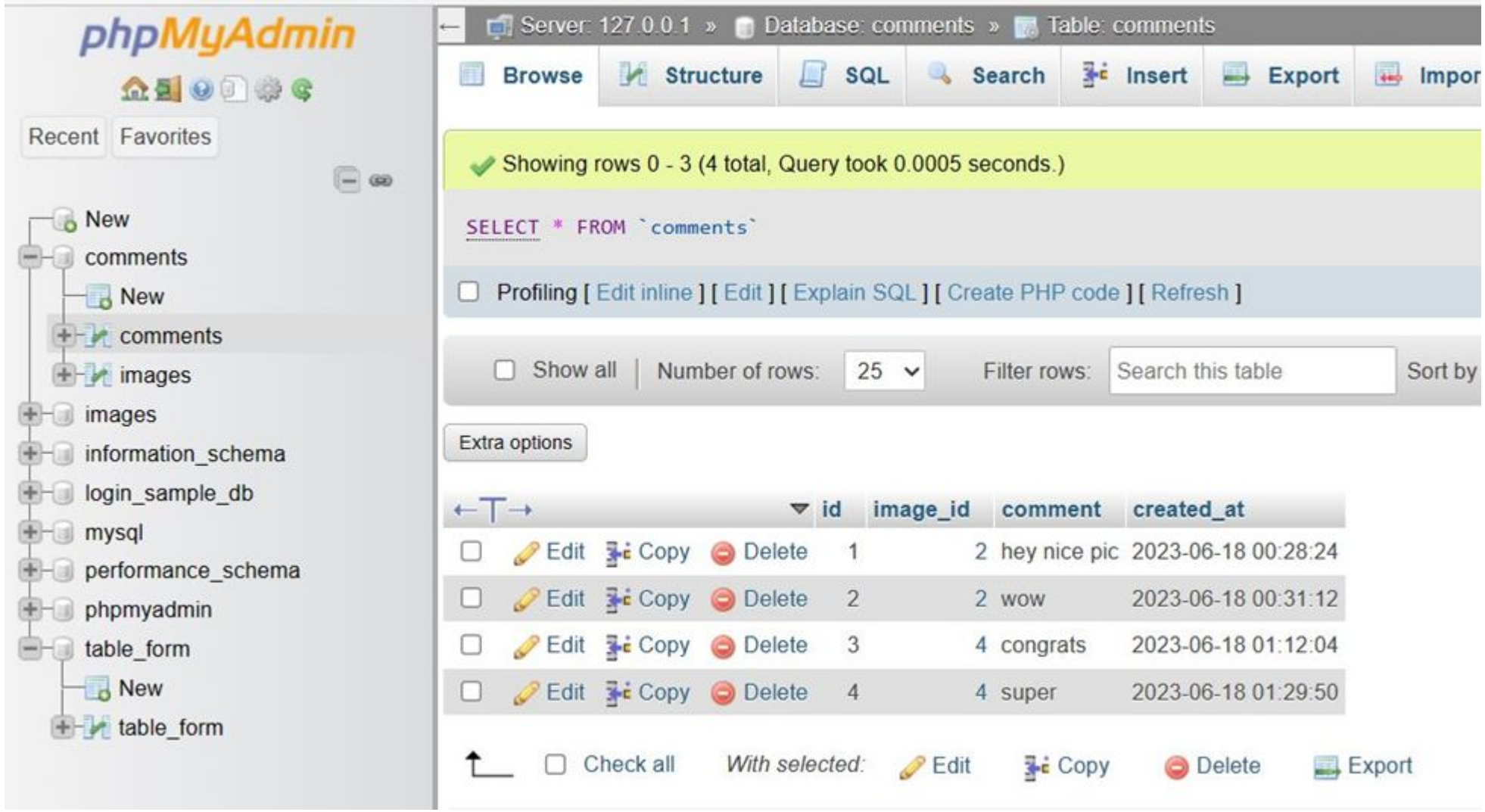
This page lets the user sign-in to the social media application



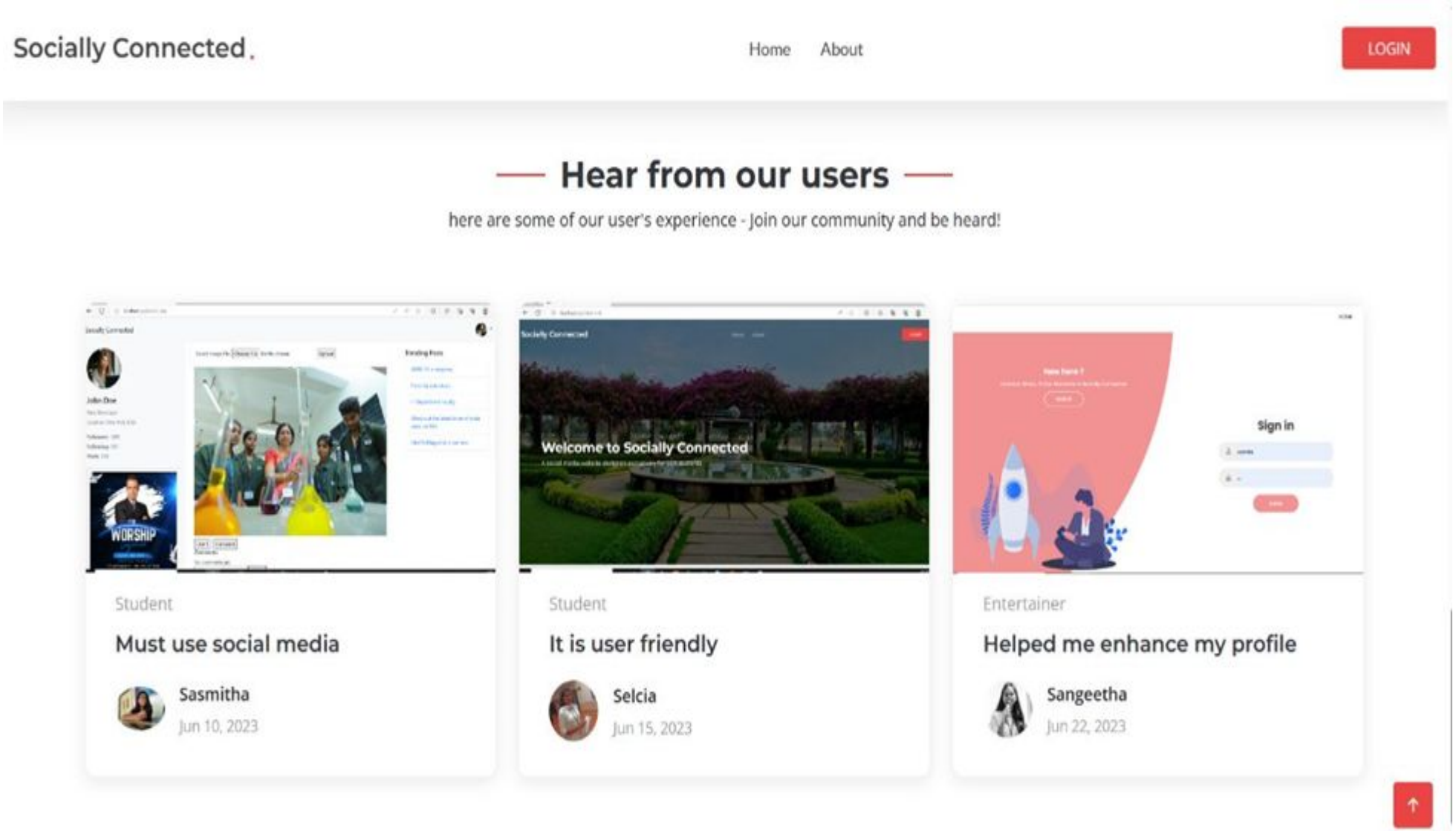
This page allows a new user to create a new account by signing up



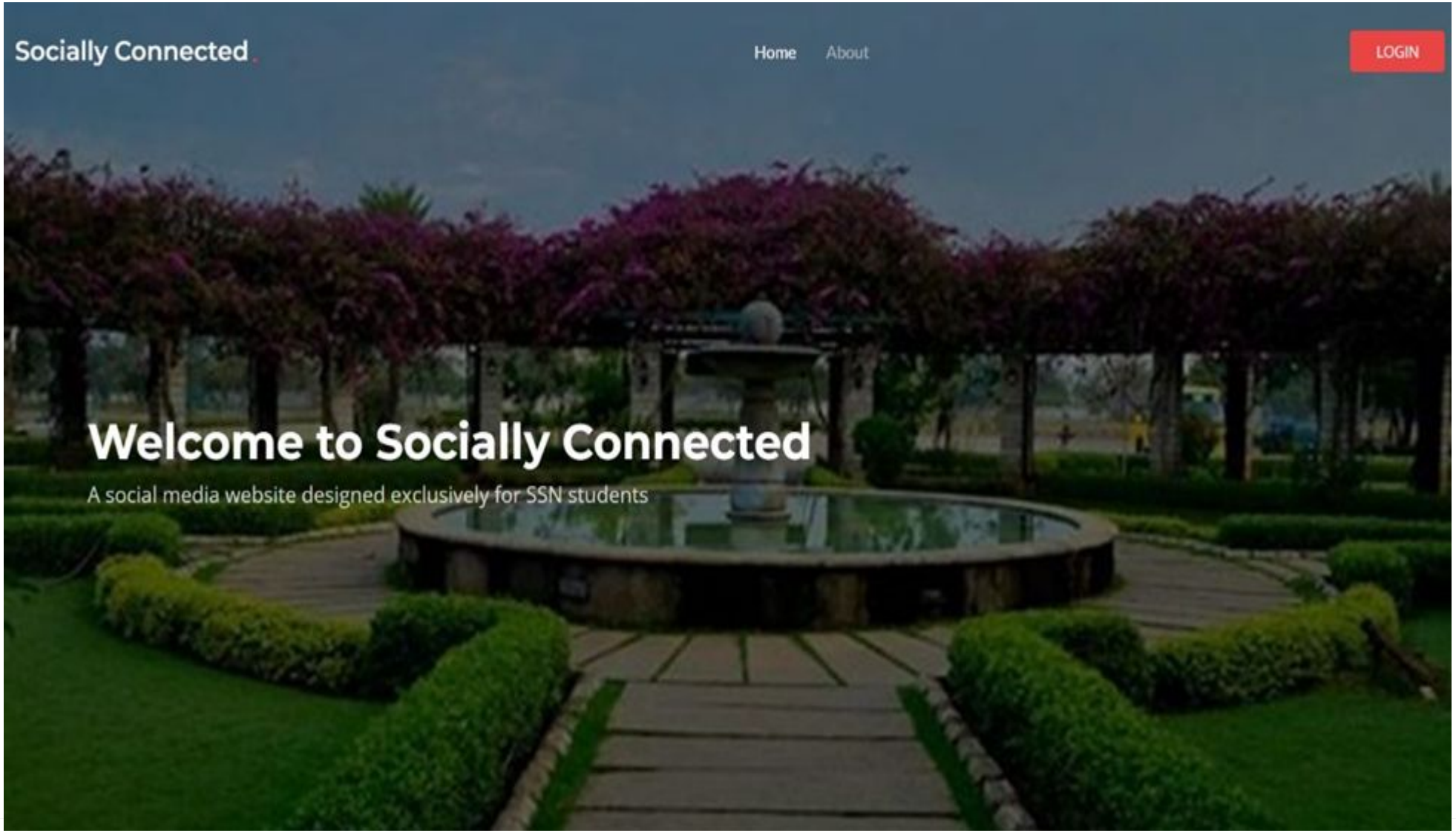
phpMyAdmin server stores the details of the users using XAMPP



This is the landing page for our social media application where users can share their feedback



This is the landing page of our social media application



This is to post a picture or a video online

Socially Connected

Search for a user

John Doe

Web Developer

Location: Chennai, India

Friend Requests

New Connections

What's on your mind?

Write something...

Upload an image (optional)

Choose file Browse

POST

Trending Posts

- VIVID 7.0 is ongoing
- Form for volunteers
- IT Department Faculty
- Check out the latest Times of India news about SSN
- IdenITy Magazine is out now!

Mutual Friends

- **Sherwin** (Friend of Selcia)
- **Jebi** (Friend of Selcia)
- **Emma** (Friend of Sasmitha)
- **Michael** (Friend of Shashwat)

The user can type a caption and preview the image before posting

John Doe

Web Developer

Location: Chennai, India

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Rainbow is beautiful

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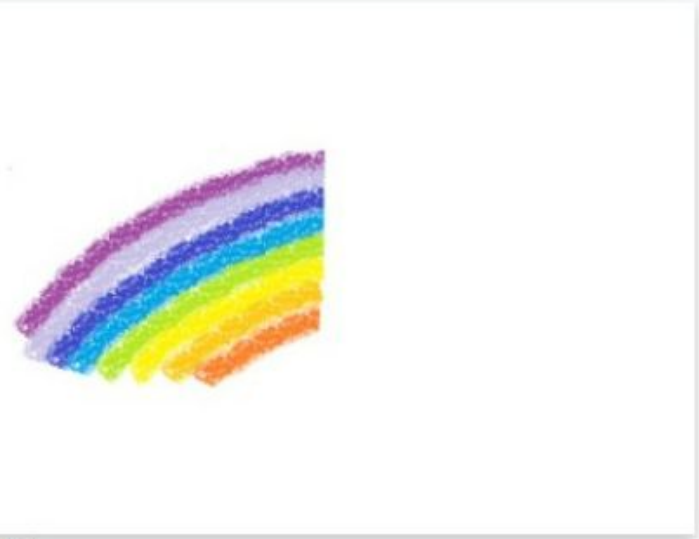
After posting, the user can add comments and like the post

Work-Life Balance is Within Reach: Register Today for the Business Conference 2023!

Are you tired of the constant struggle to find harmony between your work and personal life? It's time to discover the key to achieving true work-life balance.

John Doe



Rainbow is beautiful

Posted at 5:10 AM

2 Comments ❤ Comment

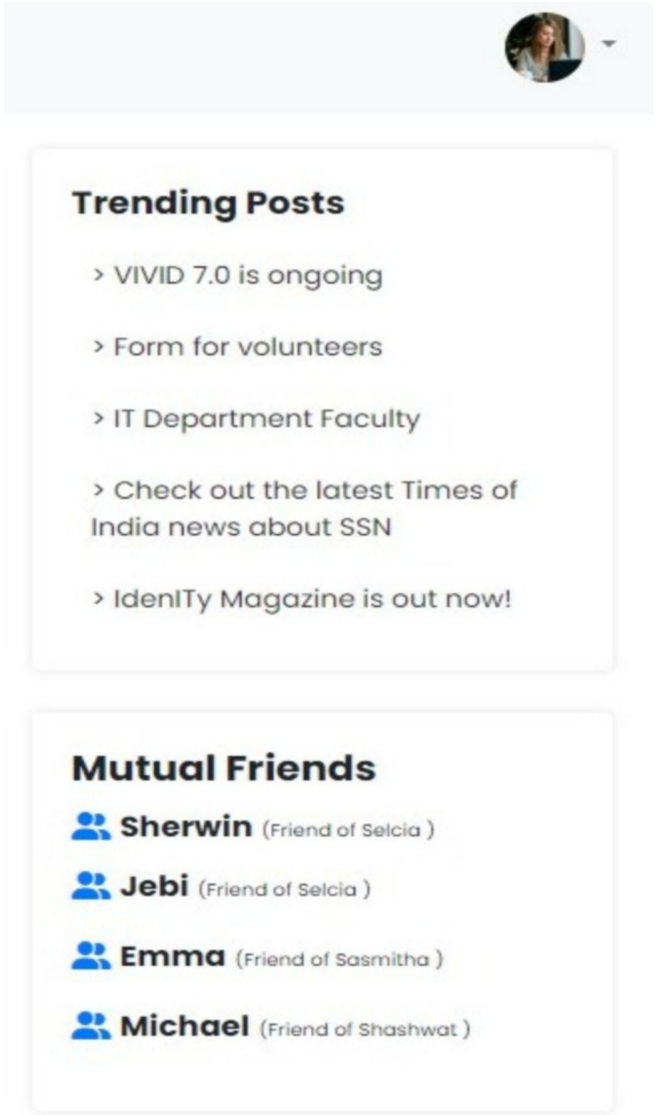
Write a comment...

Post

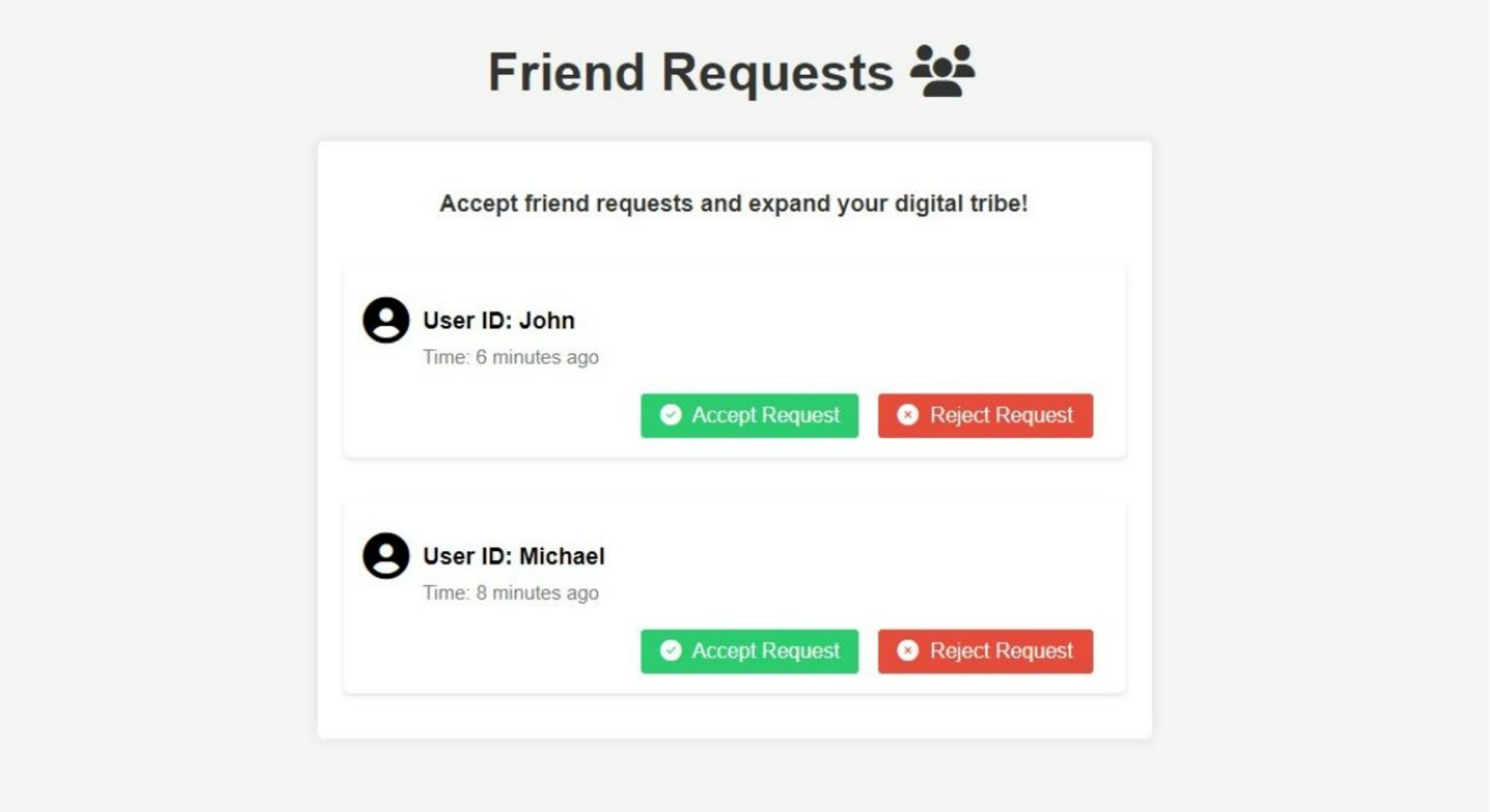
Wow beautiful!

Awesome

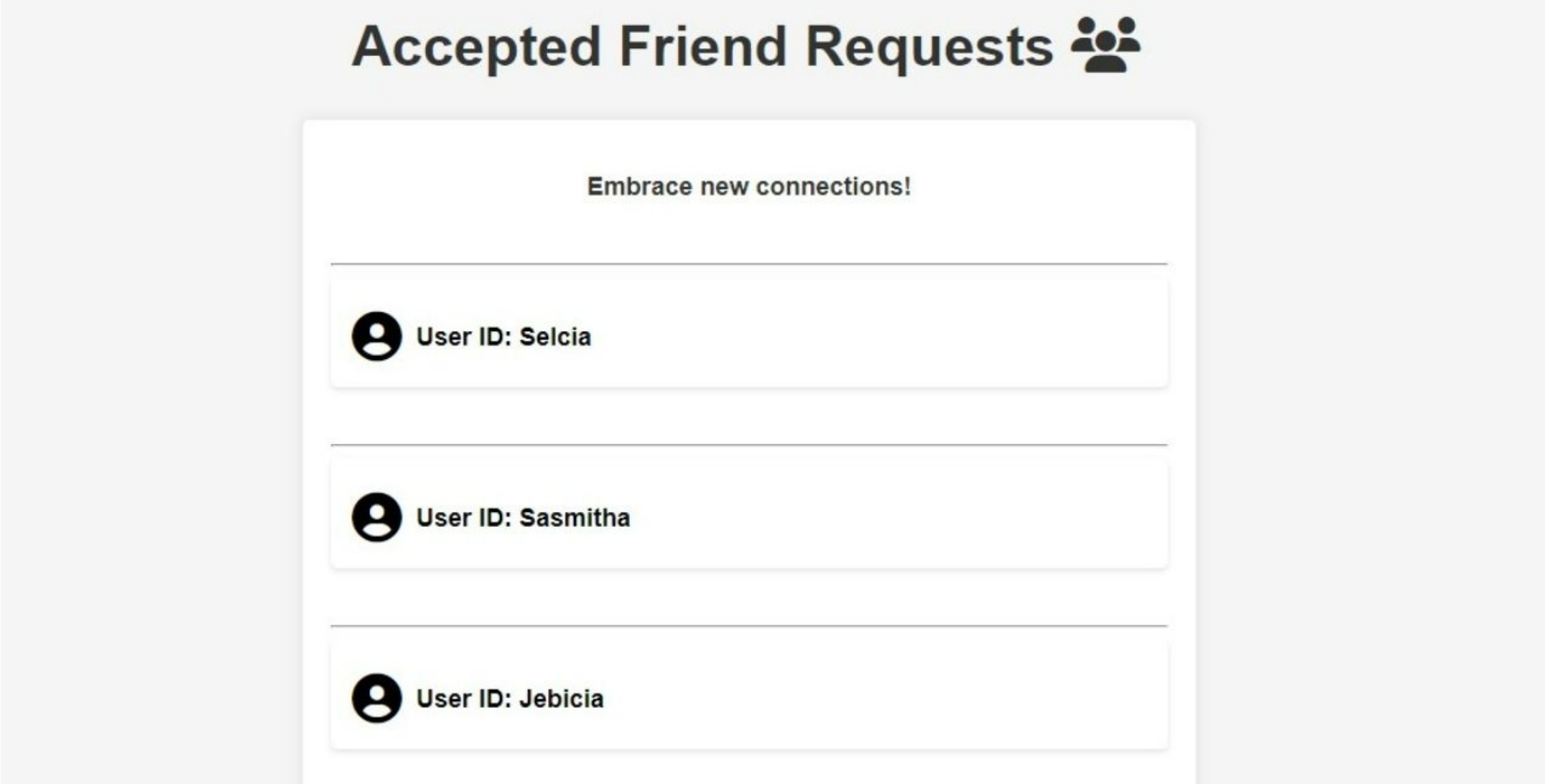
This image shows the trending posts and the user's mutual friends



An image that shows the friend requests from multiple users sorted by time



This page displays the friend requests accept by the user.



Ads that were generated

Master Any Skill, Anytime, Anywhere: Introducing Our Revolutionary Learning App!

Are you ready to embark on a journey of knowledge and self-improvement? With our cutting-edge learning app, the power to learn is now at your fingertips.

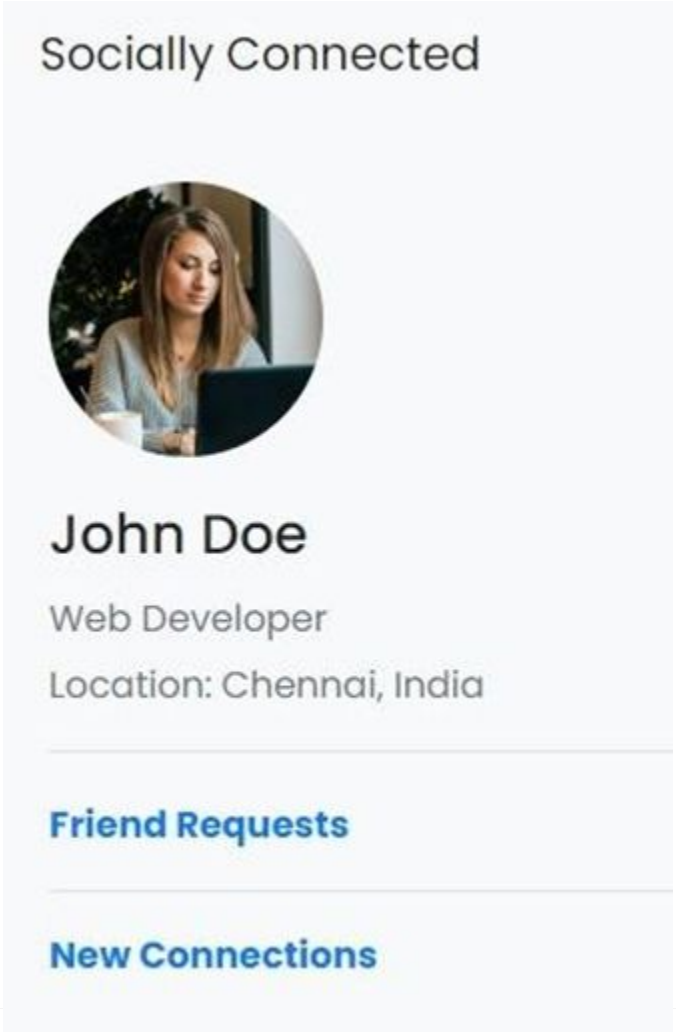
Work-Life Balance is Within Reach: Register Today for the Business Conference 2023!

Are you tired of the constant struggle to find harmony between your work and personal life? It's time to discover the key to achieving true work-life balance.

Experience Divine Connection: Join Us at the Worship Conference 2023!

Calling all worshippers! It's time to gather together and elevate our spirits in the presence of the divine.

Profile of the user that shows the name, designation and where they're based from.



GAP ANALYSIS

Project Management - Jira
Database Management - XAMPP, PHP and MySQL
Database Administration - phpMyAdmin
Frontend Integration - Flask
Frontend Design Tools : Bootstrap vs Figma
Graph Databases
Use Case Diagram Creation -PlantUML

CONCLUSION

CHALLENGES FACED:

Privacy and Data Security
Content Moderation
Technological Integration
Competition and Market Differentiation
User Experience and Interface Design

FUTURE SCOPE:

- Chat Functionality
- Personalized Recommendations
- Enhanced Privacy and Security
- Integration with LMS
- Gamification and Rewards
- Mobile Application

These future scope areas provide exciting possibilities for the growth and evolution of SociallyConnected. By continuously adapting to the changing needs and aspirations of college students, SociallyConnected can solidify its position as a leading social media platform tailored for academic and career growth, providing a comprehensive and holistic experience for its users.