Software Requirements Specification (SRS)
for
Social Networking (for campus)

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1. Introduction

1.1 Purpose

The primary objective of this document is to comprehensively outline the requirements for the development of a college-exclusive social networking website. This platform aims to provide an engaging, interactive, and purpose-driven environment for students to connect, share valuable information, and assist one another in navigating the challenges and opportunities of college life.

1.2 Product Scope

This college specific social networking website will offer user registration and profile customization, enabling students to connect with their peers through personalized profiles. Academic tools, such as study and resource sharing, and an integrated campus map and directory, will further enrich the user experience. The platform will be designed for mobile accessibility and integrated with college services, emphasizing privacy, and security. Additionally, user behavior and system performance will be analyzed through data tracking and analytics. Potential future expansions include job boards, alumni connections, and mentorship programs to evolve with the changing needs of the college community.

1.3 Definition, Acronyms, and Abbreviations

- SRS: Software Requirements Specification
- UI: User Interface
- API: Application Programming Interface
- E-R: Entity-Relationship
- Frontend: The user interface and user experience components of the software.
- Backend: The server-side components and data storage of the software.
- CSS: Cascading Style Sheets.
- OS: Operating System

1.4 Technologies to be used

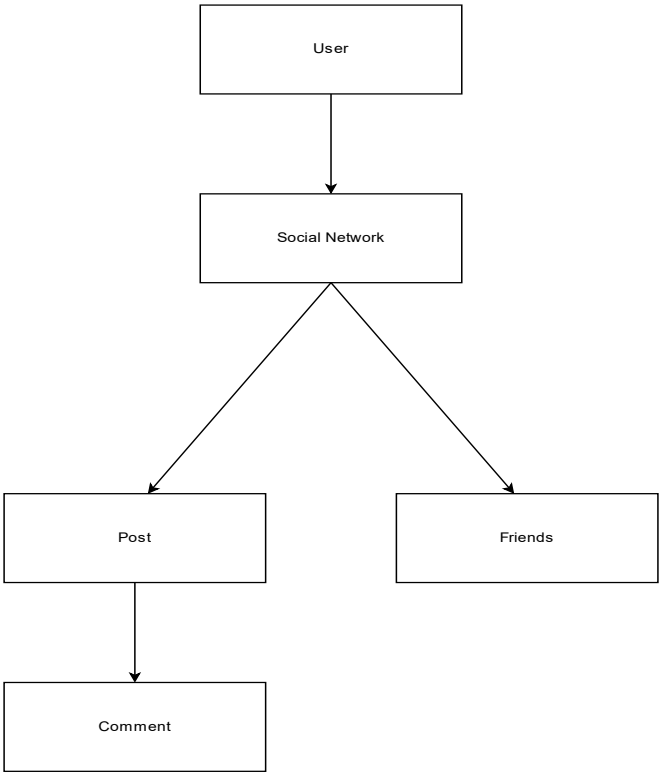
The website will be developed utilizing the following technologies:

- Front-end: HTML5, CSS, JavaScript
- Back-end: PHP, Node.js, or Python
- Database: MySQL or PostgreSQL
- Web Framework: React or Angular
- Hosting: AWS, Azure, or Google Cloud

2. Overall Description

2.1 Product Perspective

The social networking website is envisioned as an independent, self-contained system, offering a standalone platform for college students. It will feature an intuitive and user-friendly web interface that can be accessed through standard web browsers.



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2.2 User Classes and Characteristics

The primary user classes are as follows:

- Students: This encompasses registered college students from all years, representing a diverse and dynamic user base.
- Administrators: These are the individuals responsible for the administration and management of the platform.

2.3 Operating Environment

The system is designed to be accessible across a wide range of hardware platforms and operating systems via standard web browsers (such as firefox, brave, chrome, safari). A stable internet connection is required for access, while the application software components are going to be working together to provide a seamless and feature-rich user experience. Users should ensure their devices meet basic web browsing and connectivity requirements for optimal usage of the platform.

2.4 User Documentation

User documentation will be a pivotal component of the website, encompassing comprehensive guides on topics ranging from registration and profile setup to platform navigation and feature utilization. This documentation is intended to provide users with a seamless onboarding experience.

2.5 Software Interfaces

- Frontend: Next.js
- Backend: MongoDB for data storage
- Authentication: ClerkJS
- Deployment: Cloud Environment

2.6 Hardware Interfaces

As a web-based system, the social networking website does not necessitate any specific hardware interfaces, making it accessible to a broad spectrum of users with varying hardware configurations.

2.7 External Forces

2.7.1 Dependencies

To achieve the optimal performance of the platform the website will rely on the integration with the college's user authentication system to validate and grant access to students using their official college email addresses.

2.7.2 Constraints

The only major constraint known as of now is the necessity to adhere to the college's policies and regulations pertaining to data security and user privacy, ensuring the platform's compliance with the college's established standards.

3. System Features

3.1 Functional Requirements

3.1.1: User Registration and Authentication
Input: User details including:

- Name
- Mobile
- Email
- Address
- User_id

Output: Redirect to dashboard
Processing: New record is created in the database for new user and all these details are stored in it.

3.1.2: User Login
Input: User will enter the details
Output: If the details are correct then open another page else display "Invalid Details"
Processing: User details will be matched from the database and if the entered password and stored password are same open another page else display "Invalid Details".

3.1.3: Forgot Password
Input: User clicks on "Forgot Password" and enters their email address.
Output: User receives an email with a password changing link.
Processing: User mail is searched in the database if found , an mail will be sent to them for resetting their password.

3.1.4: Friend Requests and Connections
Input: User will be able to accept or reject friends.

Output: After accepting or rejecting a friend the count should be updated and displayed in the account.
Processing: After accepting or rejecting the friend request the list should be updated and displayed.

3.1.5: Post and comments
Input: User will enter the details
Output: If the details are correct then open another page else display "Invalid Details"
Processing: User details will be matched from the database and if the entered password and stored password are same open another page else display "Invalid Details".

3.1.6: Shares
Input: User will be able to share a post to his friends.
Output: After sharing the both the sender and receiver should be able to see the post
Processing: When a sender send a post the receiver will receive the post and he will be able to see the post and will be able to comment on that post.

3.2 Non-functional Requirements

- Safety requirements

- Security requirements

- Performance requirements

3.2.1 Performance Requirements

1. Response Time:
Assuming 1000-5000 active users at any given time, response time requirements may look like
this:

A. Standard Operations (e.g., project search and listing): Response times should typically be within 1-2 seconds for a smooth user experience.

B. Critical Operations (e.g., user authentication and messaging): Response times for critical functions should be under 1 second to ensure prompt user engagement and system reliability.

2. Scalability:

For a rapidly growing website:

A. User Scalability: The system should be designed to scale seamlessly to accommodate an increasing user base, with provisions to handle anticipated growth from 1000-5000 concurrent users to tens of thousands or more.

B. Data Scalability: Ensure the architecture can efficiently handle the expansion of user-generated data, posts, and comments, and be prepared to scale both vertically and horizontally with the growing demands. Utilize cloud resources and load balancing to adapt to varying workloads.

3. Database Performance:

Database performance requirements:

A. Query Responsiveness: Database queries for common operations like post retrieval and user profile lookup should return results within 100 milliseconds to maintain an efficient user experience.

B. Data Integrity and Consistency: Ensure that data consistency and integrity are maintained through efficient indexing and transaction handling to minimize the risk of data corruption or inaccuracies during rapid user interactions and updates.

3.2.2 Safety Requirements

1. **Data Security:** Ensure user data is encrypted and protected to prevent breaches and unauthorized access.

2. **Content Moderation:** Implement reporting and moderation to maintain a safe and respectful environment.

3.2.3 Security Requirements

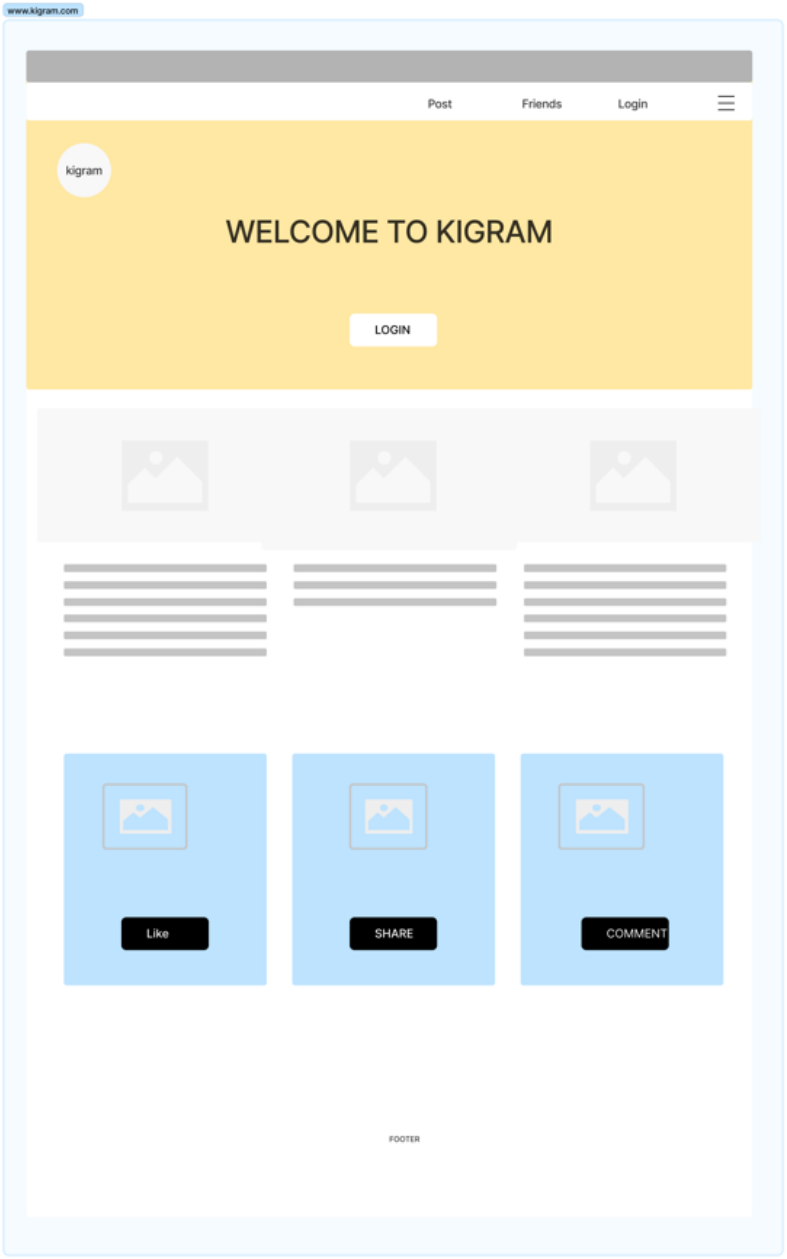
1. **User Authentication**: Enforce strong password policies and consider multi-factor authentication to protect user accounts

2. **Data Encryption**: Implement encryption for data at rest and in transit to safeguard use information.

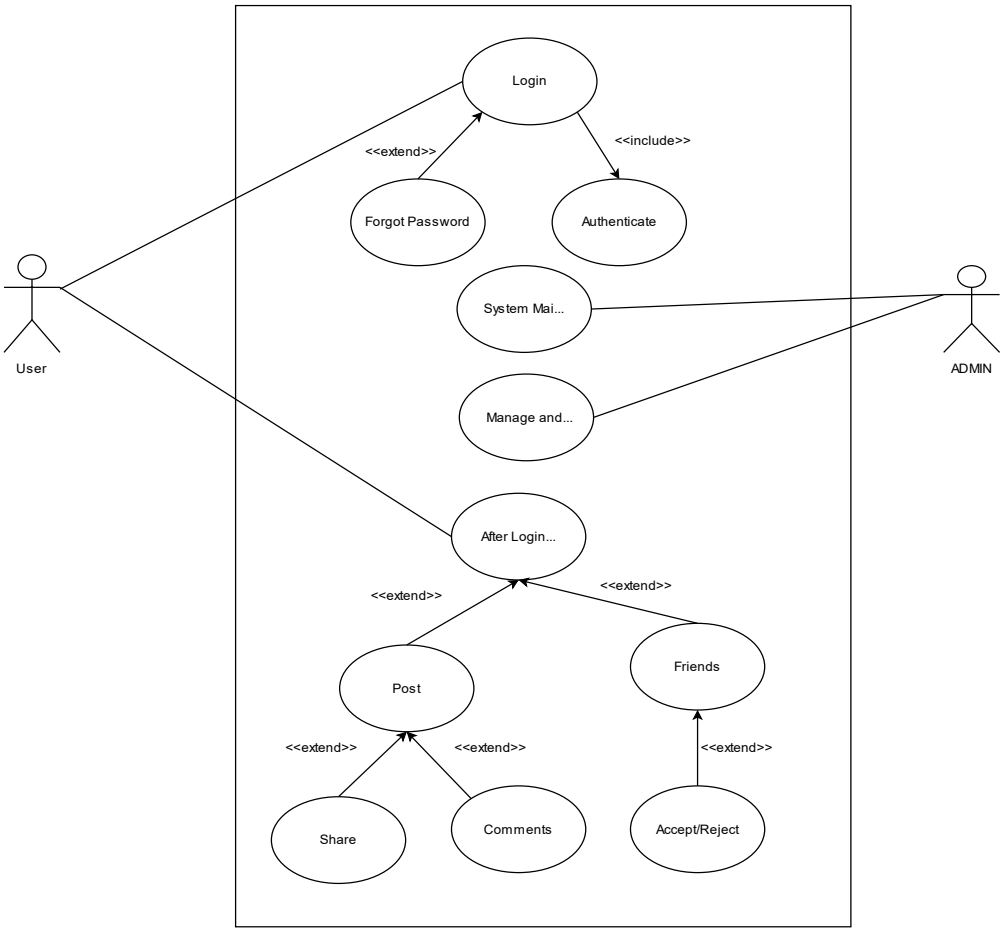
3.Regular Security Audits: Conduct periodic security assessments to identify and mitigate vulnerabilities.

4. Design

4.1 System Design (Front-end design)



4.1.1 Use Case Diagram



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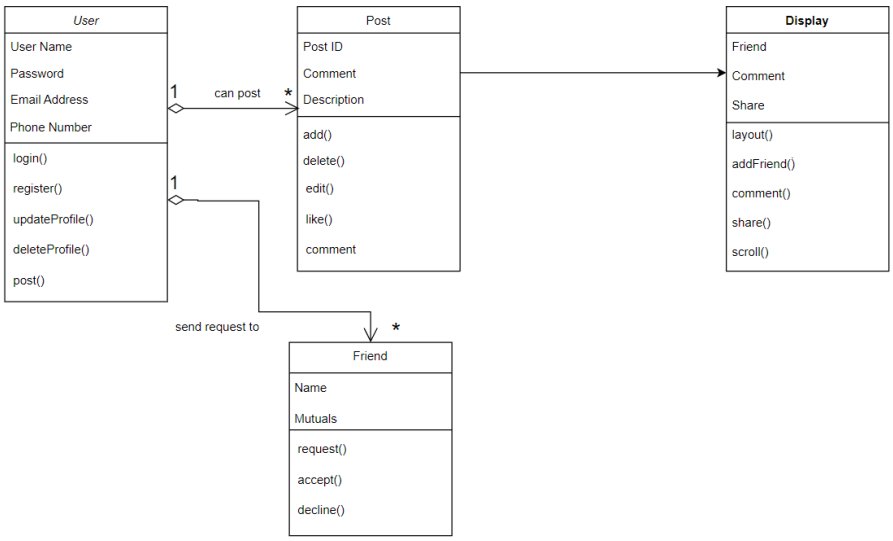
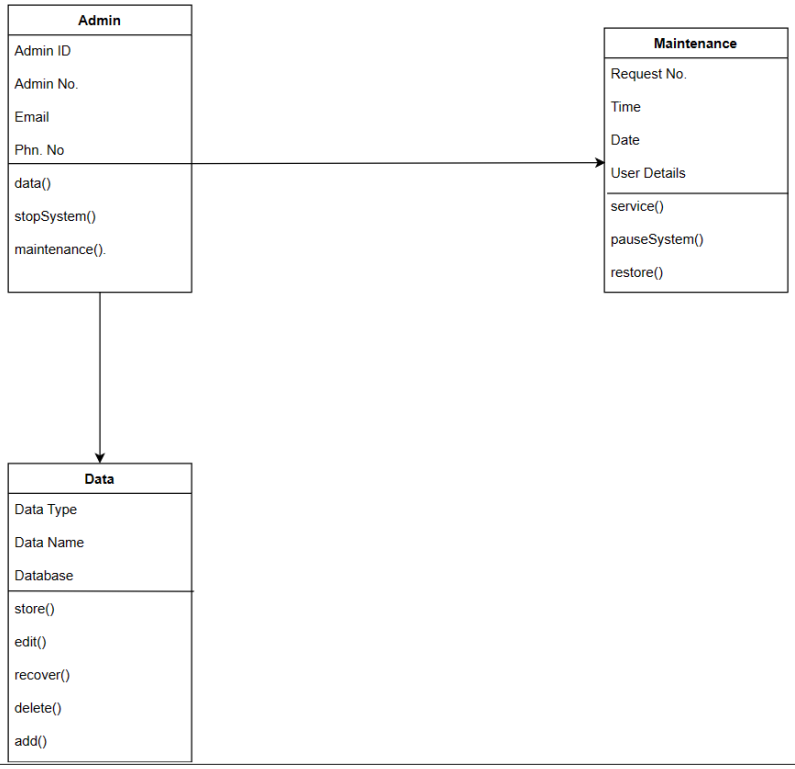
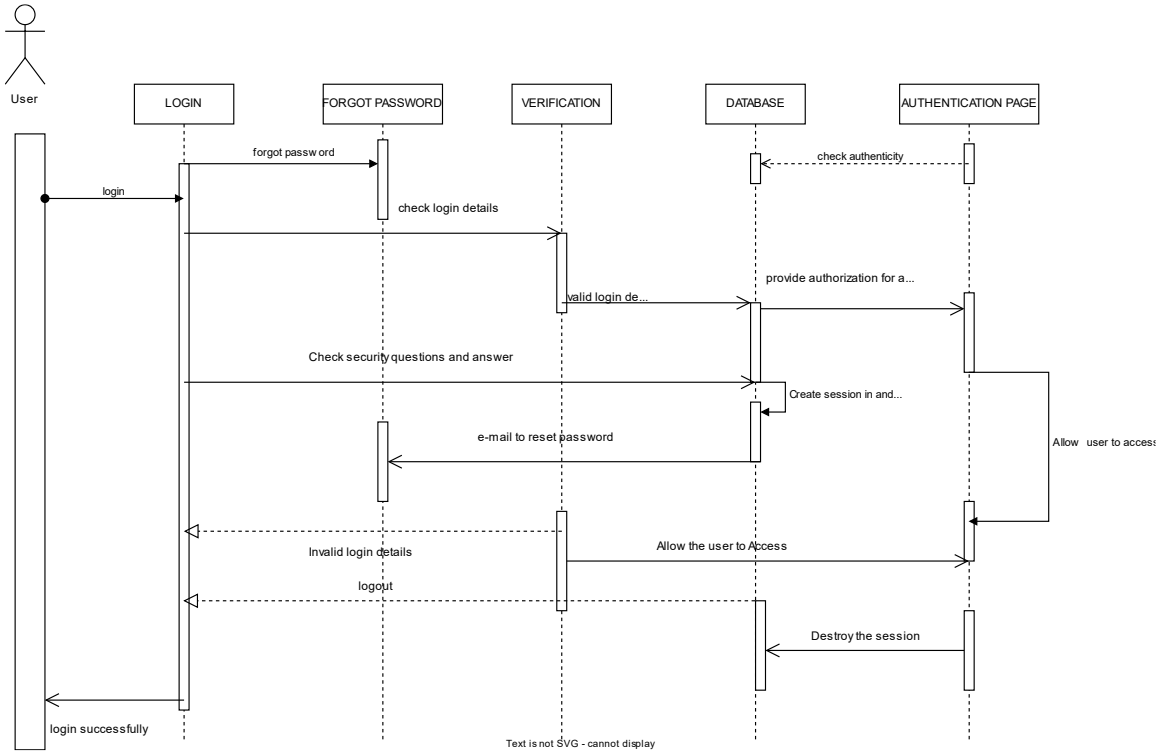
4.1.2 Class Diagram



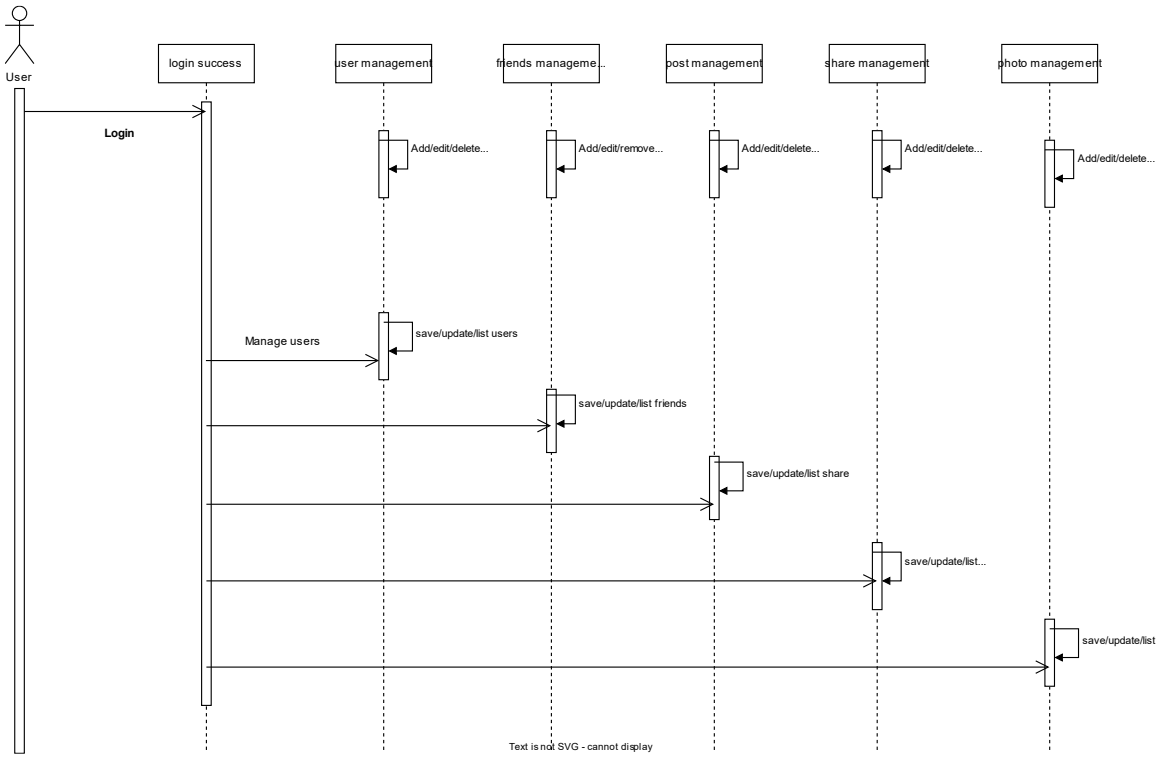


4.1.3 Sequence Diagram

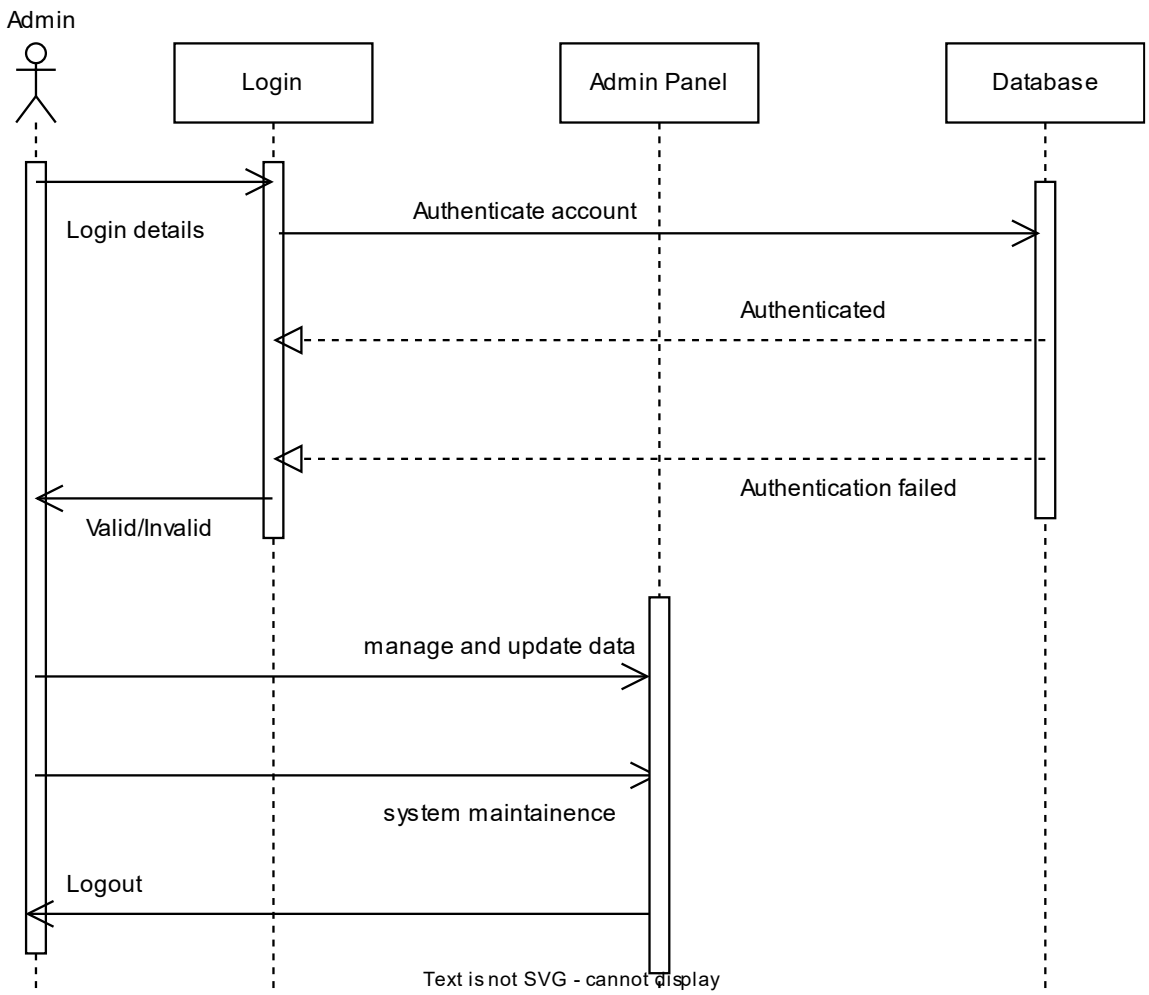
Sequence diagram for login



Sequence diagram for after login

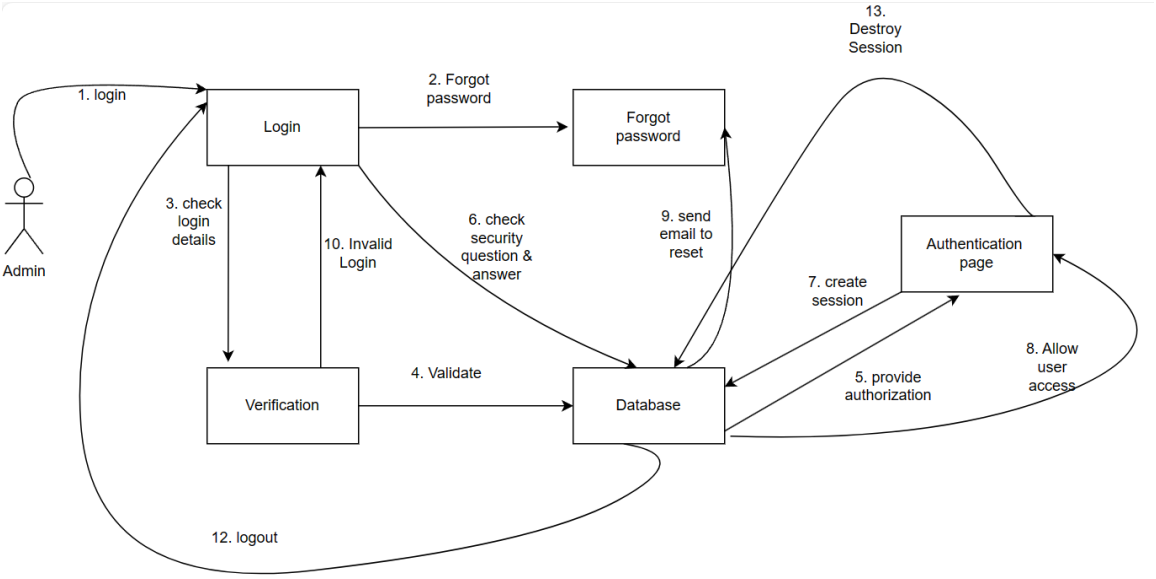


Sequence Diagram for admin

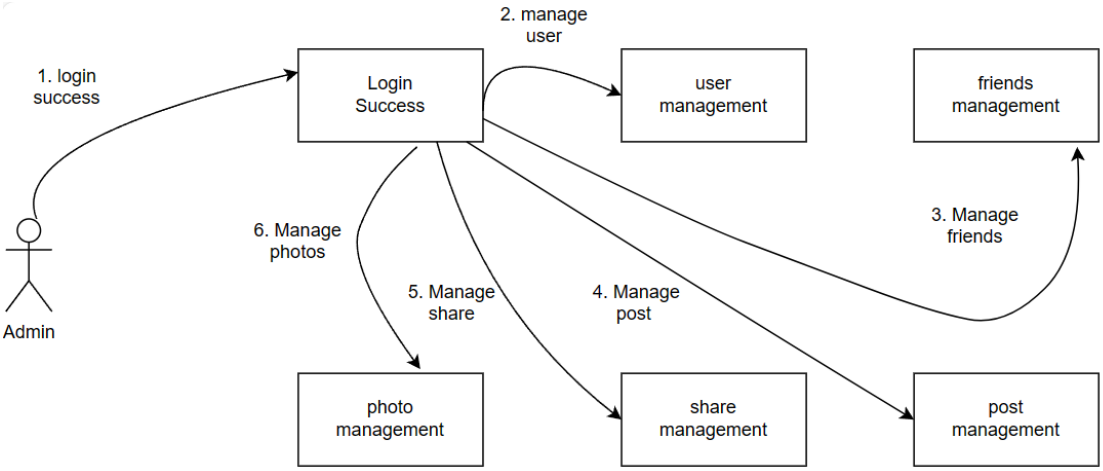


4.1.4 Collaboration Diagram

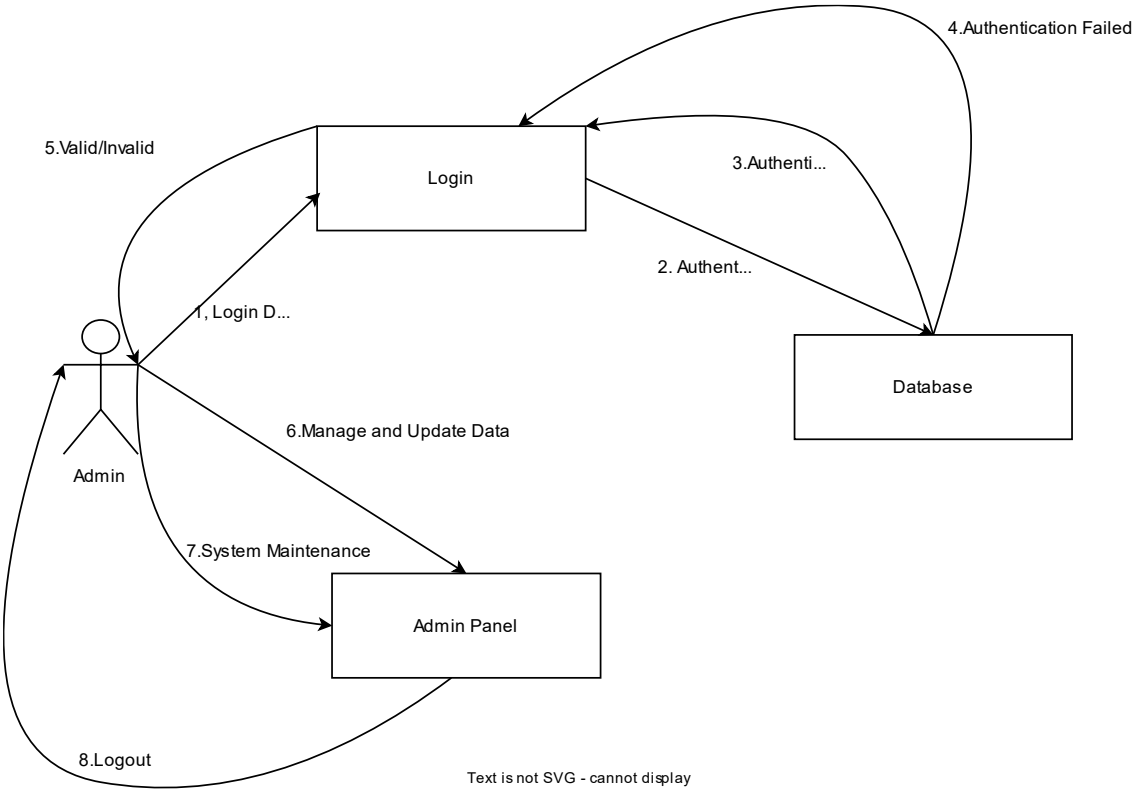
Collaboration diagram for login.



Collaboration diagram after login

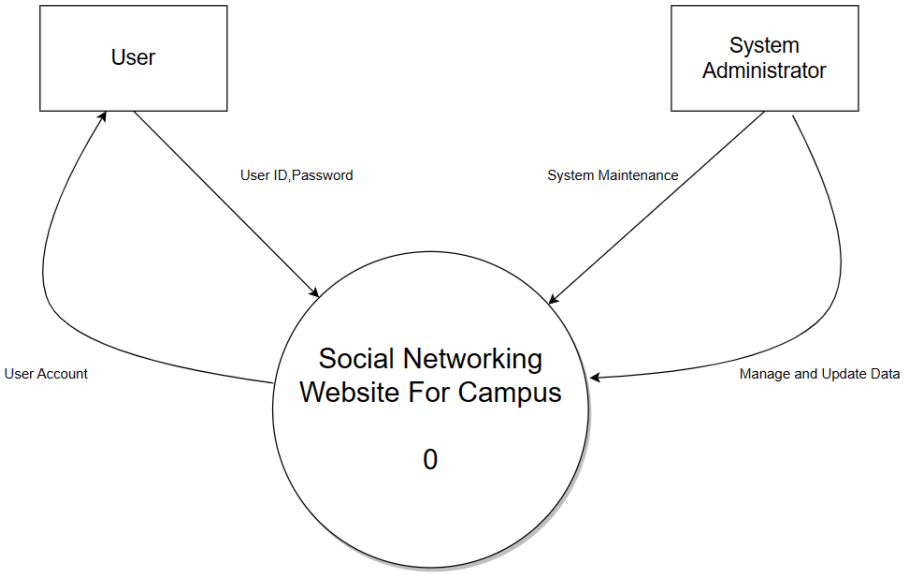


Collaboration diagram for Admin

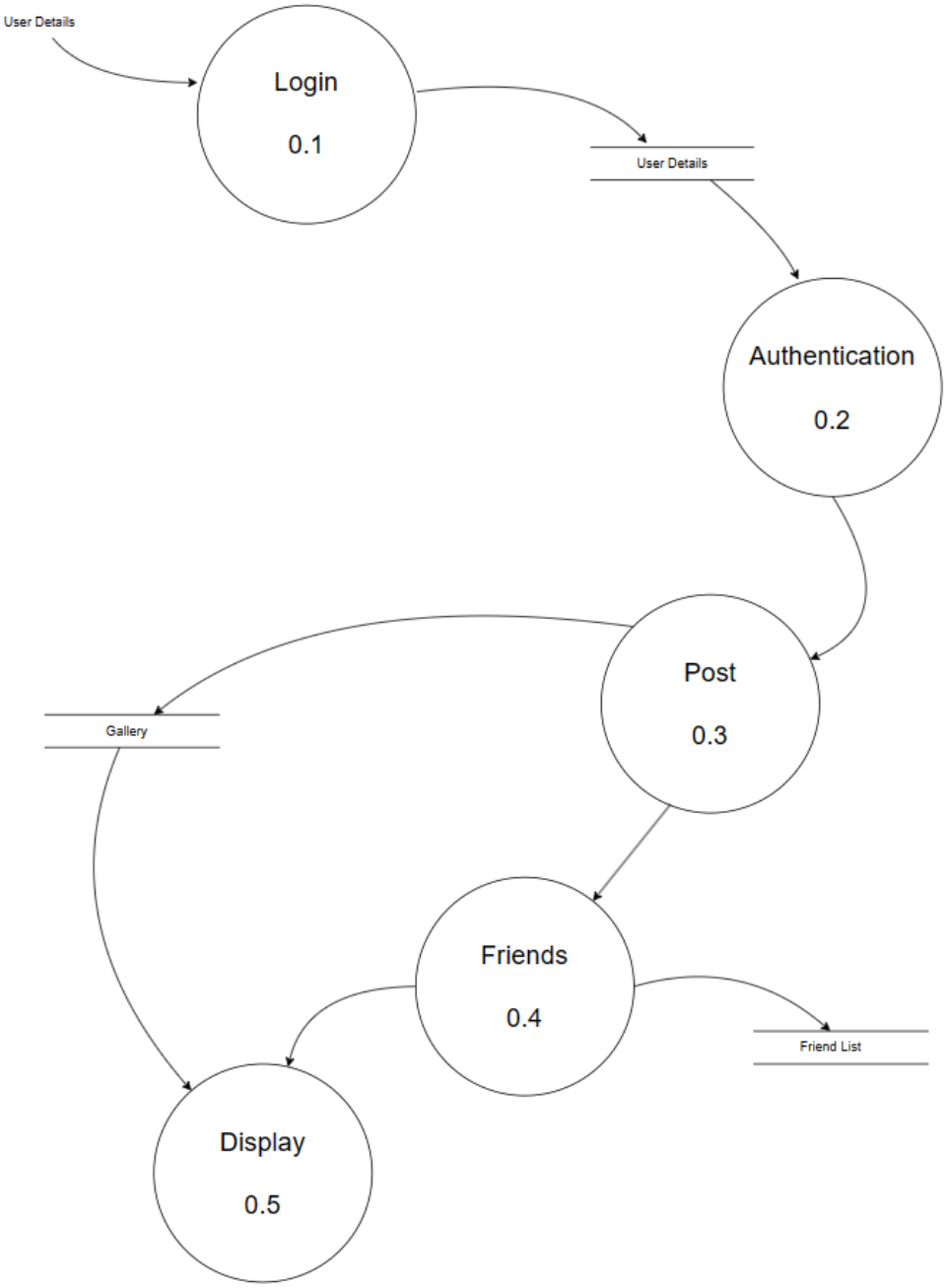


4.1.5 Data Flow Diagram

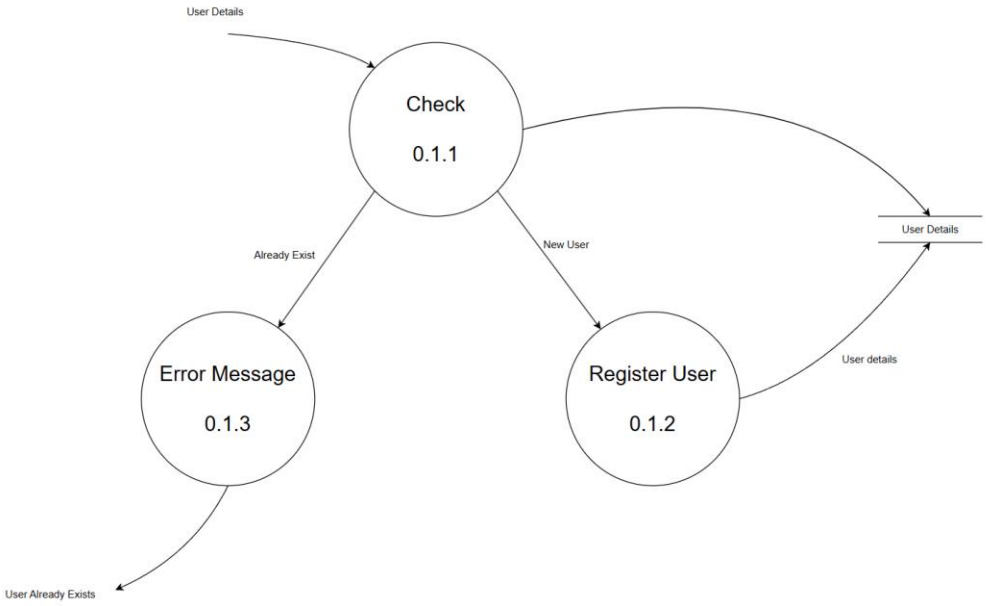
Level 0 (Context Diagram)

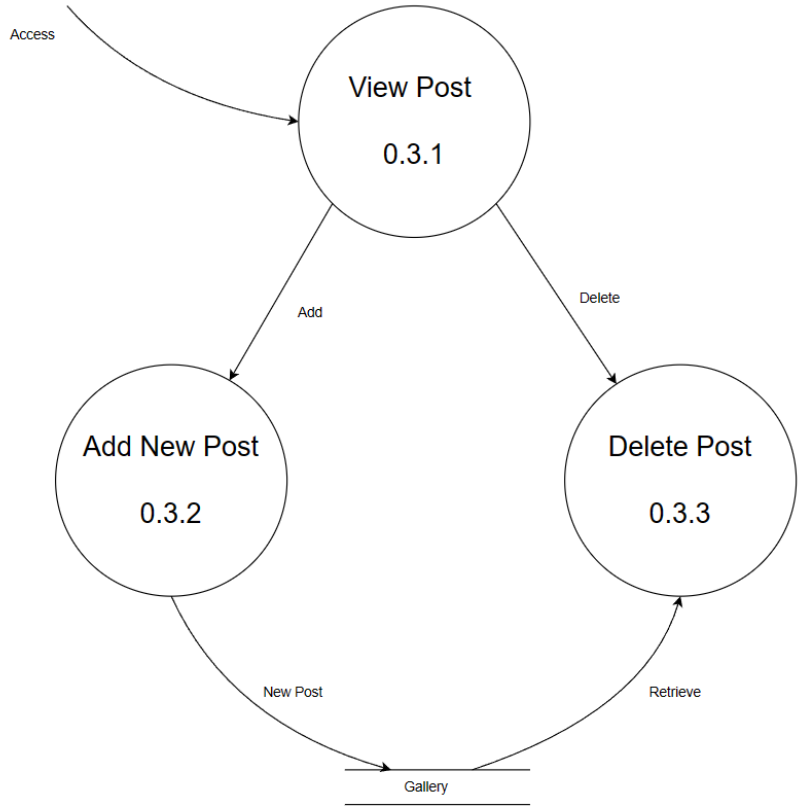


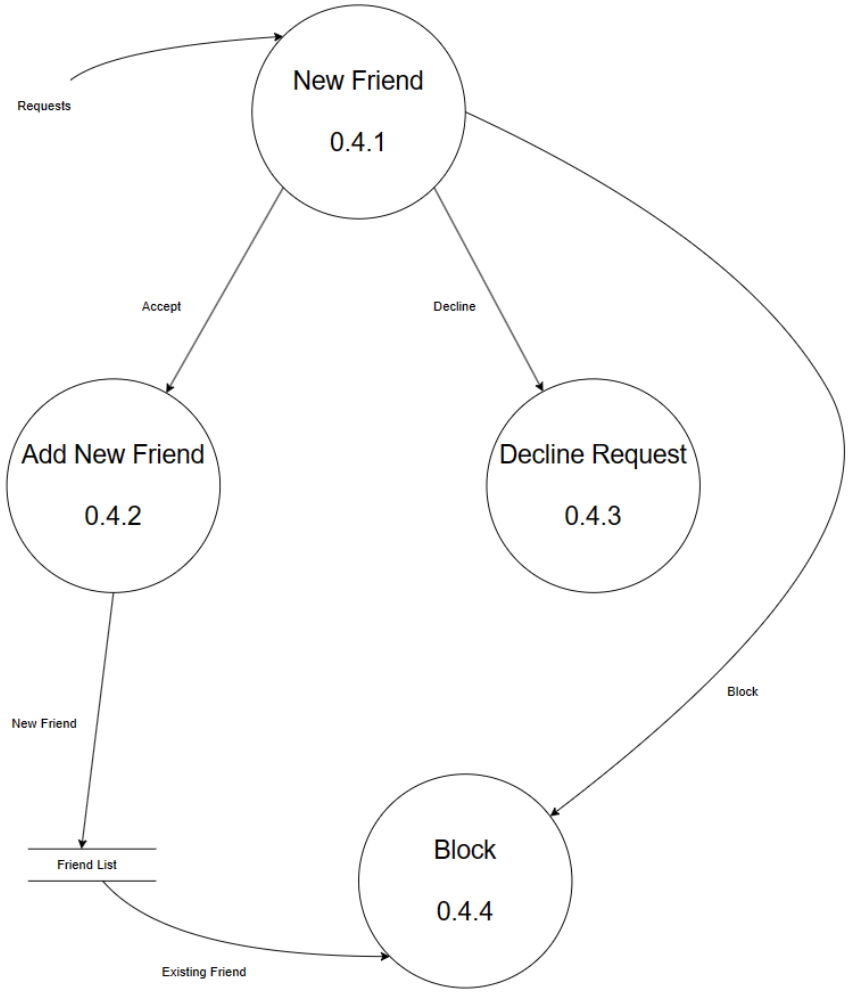
Level 1


User Details
Login
0.1
User Details
Authentication
0.2
Post
0.3
Gallery
Friends
0.4
Friend List
Display
0.5

Level 2

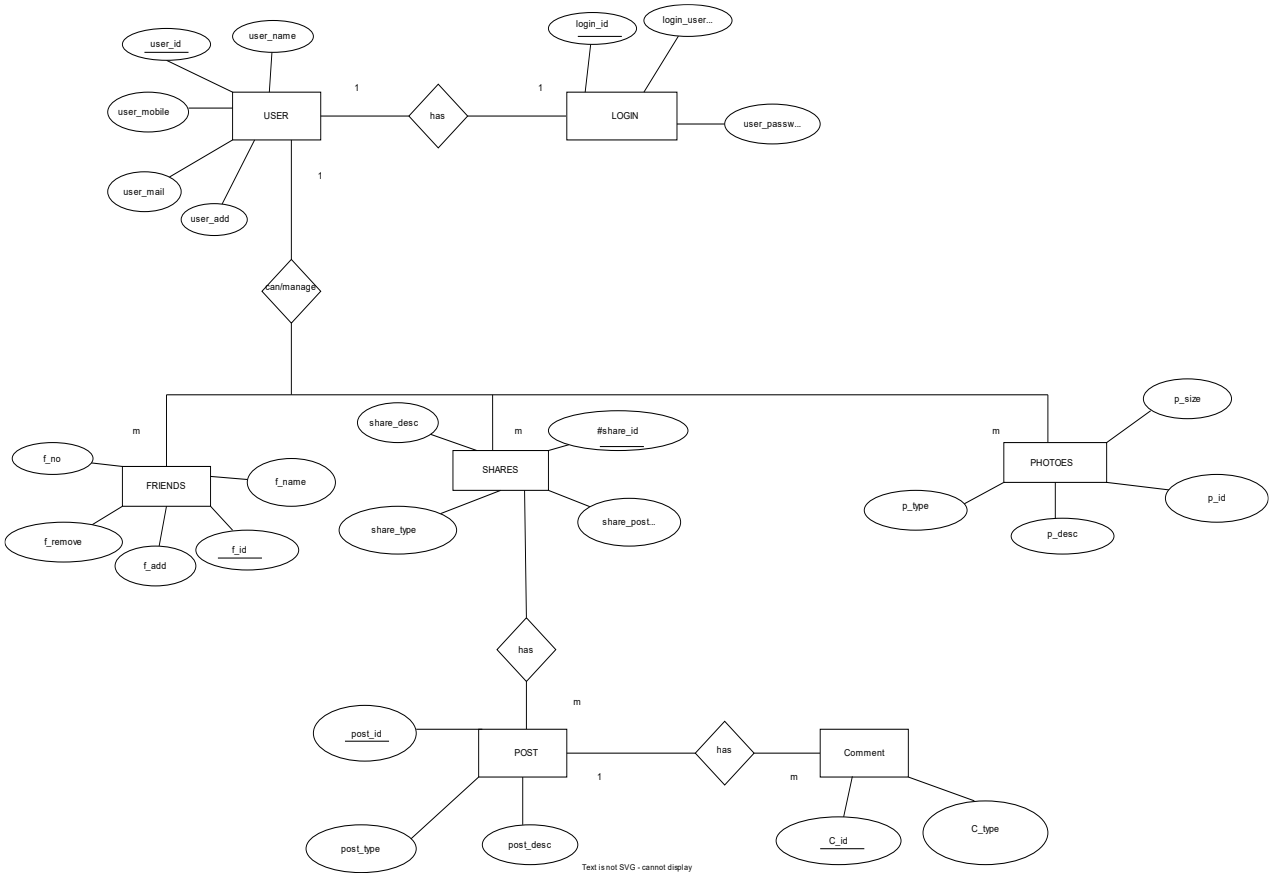

User Details
Check
0.1.1
User Details
Already Exist
New User
Error Message
0.1.3
Register User
0.1.2
User details
User Already Exists


Access
View Post
0.3.1
Add
Delete
Add New Post
0.3.2
Delete Post
0.3.3
New Post
Retrieve
Gallery


New Friend
0.4.1
Requests
Accept
Decline
Add New Friend
0.4.2
Decline Request
0.4.3
New Friend
Block
Friend List
Block
0.4.4
Existing Friend

4.2 Database Design

4.2.1. Entity Relationship (ER) Diagram



5.Future Scope

The future scope for the college-specific social networking website includes vast range of interesting and helpful enhancements. These include the creation of a dedicated alumni connection section, the integration of job boards and mentorship programs section, the implementation of event ticketing, video conferencing to support online learning. Additionally, intelligent recommendations powered by AI, internationalization for diverse user populations, enhanced accessibility features, and advanced data analytics tools will be integrated. A focus on strong security measures, integration with Learning Management Systems, blockchain for credential verification, and the introduction of AI-driven chatbots for user support will ensure the platform's continued growth, relevance, and adaptability to evolving trends and user needs in the college community.

6.Conclusion

In conclusion, this Software Requirements Specification (SRS) for the social networking website provides a comprehensive and detailed blueprint for the development of the platform. By defining the system's objectives, features, and technical requirements, this SRS serves as a crucial foundation for the successful design and implementation of the website. By the use of modern technologies, including Next.js, MongoDB, Mongoose, CSS, and Clerk.js, HTML this system is poised to offer a seamless and feature-rich user experience. It outlines the user needs, functionality, security measures, and scalability considerations essential for the project's success. The adherence to these specifications will result in a robust, user-friendly, and secure social networking website that is well-equipped to meet the dynamic and evolving needs of its users while providing a valuable online space for social interaction and community building.