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Subject	Distributed Computing
Experiment No.	1
Project title	Social Media System
Problem Statement	Develop a basic social media platform for college communities while exploring the concepts ofdistributed computation.
System Design:	

Scope:	1. **User Profiles**: Users can create profiles with essential information, such as their name, profile picture, and major. 2. **Posts and Updates:** Users can share text-based updates, images, and comments on posts. 3. **Event Management:** Users can create and manage events, including academic seminars, club meetings, and sports activities. 4. **Newsfeed:** A personalized newsfeed that displays relevant posts, events, and group updates. 5. **Messaging:** Basic messaging functionality for private communication between users.
Objectives:	1. To implement data partitioning techniques to distribute user data, posts, and other content across multiple servers, ensuring efficient data management. 2. To develop a load balancing strategy that evenly distributes incoming user requests and ensures that no single server becomes overwhelmed, using load balancing. 3. To implement data replication and failover mechanisms to maintain platform availability in the event of server failures. 4. To develop algorithms and protocols to maintain data consistency and resolve conflicts when multiple users access and modify the same data concurrently. 5. To optimize data retrieval by using caching mechanisms and efficient indexing to reduce latency when accessing distributed data. 6. To implement encryption, user authentication, and authorization controls to ensure the security and privacy of user data and communication.
Functional Requirements	1. **User Registration and Profiles:** Users should be able to register with their college email addresses or other appropriate credentials. Users should be able to create and update their profiles, including adding profile pictures and personal information. 2. **Authentication and Security:** Implement secure authentication mechanisms to protect user accounts. Ensure password hashing and salting for user account security. Secure sensitive user data and communications through encryption. 3. **News Feed and Posts:** Users should be able to create, edit, and delete posts. Posts should support text, images, videos, and links. Users should be able to like, comment on, and share posts. Implement a news feed algorithm to display posts to users. 4. **Friend/Follow System:** Users should be able to send and accept friend/follow requests. Implement privacy settings to control who can see their posts and profile.

	5. Messaging System: Users should be able to send private messages to their friends or followers.Messages should support text, images, and files. Implement real-time notifications for new messages. **6. Search and Discovery:** Implement a search feature to find users, posts, groups, and events. Suggest friends, groups, or events based on user interests and activities.
Non-Functional Requirements	1. **Throughput:** It should support a specific number of concurrent users and transactionsper second. 2. **Database Performance:** Ensure efficient databases (mainly 2) 3. **Availability:** The platform should be available for users. 4. **User Interface Design:** Create an intuitive and user-friendly interface that is easy tonavigate. 5. **Browser Compatibility:** Support a range of web browsers to maximize user reach.
Conclusion:	Hence by completing we came to about developing a basic social media system design while exploring functional and non-functional requirements through the concepts of distributed computation.