

Project Name: Social Media Project Feature List

Duration: 6-weeks

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Develop a social networking web application that helps users and members to build social relationships, with people who share similar professional or personal interests.

Technology Stack:

- a. Java
- b. Sprint Boot
- c. MySQL
- d. NodeJS
- e. MongoDB
- f. AngularJS
- g. HTML 5/CSS 3
- h. Junit/TestNG
- i. Selenium/WebDriver
- j. Postman/SOAPUI
- k. Docker
- l. Jenkins
- m. AWS
- n. Figma/Canva for design

Scope of work:

- a. Participants would work on design thinking approach
- b. Participants would work towards understanding and writing new user stories
- c. Participants would take part in Daily Stand-up Meetings and would be part of Scrum implementation
- d. Solution Architecture: Microservices Architecture
- e. Front-end engineers would create UI workflow samples using Figma/Canva, convert the same to UI/UX layer
- f. Participants would do peer reviews and also have the team lead reviews

- g. Participants would design high level architecture and translate the same to low level design
- h. Participants would be responsible for DB Design and DB Model, along with working on SQL & NoSQL design
- i. Developers would design the API-first approach along with implementing:
 - API Gateway
 - Service Registry
 - Application Load Balancer
- j. Developers & QA would work on testing OWASP standards
- k. SCM would be Github and for CI/CD Jenkins and Jenkins Plugins would be utilized
- l. Deployment and DevOps pipeline would be using AWS
- m. QA activities would comprise of manual and automation testing
- n. QA members would work on creating test cases and work on Test Case Management
- o. QA would also be responsible for result analysis and defect reporting + also do ticket management
- p. Map frontend/backend issues
- q. Team members would also actively take part on retro meetings
- r. Automation testing would comprise of:
 - Functional testing using Selenium
 - Performance testing would be conducted using JMeter
 - API Testing using Postman/SOAPUI
- s. Code quality and management using SonarCube
- t. Each participant would be expected to present the project developed at the end of 3 sprints
- u. Each participant would undergo multiple rounds of interview + QnA, spread across 8 weeks

3-tier architecture would comprise of:

a.Web Servers: These servers host the front-end components of your application, responsible for handling user requests, rendering web pages, and responding to user interactions.

b.Application Servers: Application servers contain the business logic of the application. They handle critical functionalities such as user authentication, friend requests, post creation and updates, and more.

c.Databases: Databases store user data such as user profiles, posts, comments, and connections. Your architecture can incorporate both relational databases and NoSQL databases.

Managing Media Storage

As users upload images and videos, social media applications must effectively manage a vast amount of multimedia content. To efficiently manage these assets:

External Storage: Store media files in external storage solutions such as Amazon S3 (Simple Storage Service) to overcome size limitations and ensure high availability.

Content Filtering: Implement content filtering services like Amazon Rekognition to scan and filter user-generated content for objectionable material before storing it in S3, ensuring the safety and integrity of your platform.

Analyzing User Activity

To understand user behavior, track engagement, and make data-driven decisions, you'll need to analyze user activity:

Clickstream Analysis: Utilize AWS Kinesis streams to capture and analyze clickstream data for real-time user behavior analysis. This information can be stored in S3 for future processing and deeper analysis.

Security and Monitoring:

Ensure the security and stability of your social media application with these AWS services:

Identity and Access Management (IAM): Manage user access and permissions using Amazon Cognito or AWS Identity and Access Management to secure your AWS resources.

Encryption: Encrypt data at rest and in transit using AWS Key Management Service (KMS) and secure HTTPS connections with Amazon ACM (Certificate Manager).

Application Firewall: AWS Web Application Firewall (WAF) protects against common web application attacks.

High-Level Features of the Project: [detailed user stories would be developed and shared]

- Create, read, update and delete posts
- Like and unlike posts
- Create, reply to, read, update and delete nested comments
- Markdown for posts and comments
- Sign up and login using JWT for authentication
- Integrate or develop a private chat messaging application
- View profiles of users and browse through their posts, liked posts and comments
- Infinite scrolling
- Sort posts by attributes such as like count, comment count and date created
- Profanity filtering and posting/commenting cooldowns
- Update bio which can be viewed by other users
- Search for posts by their title
- View the users who liked a particular post

- Integrate Gephi <https://gephi.org/> for social media visualization
- User Blocking: Block users to prevent interactions
- Push Notifications: Receive notifications for important updates and interactions.
- Fully responsive layout