

DXC's

ConnectED

For Client Alchemy

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[Date]

High-Level Design Document

ConnectED: A Social Networking Platform

Abstract:

ConnectED is a dynamic social networking web application aimed at fostering connections among users with similar personal or professional interests. This document provides a comprehensive overview of the architecture, requirements, and design considerations necessary for the development of ConnectED. It outlines the technological stack, functional and non-functional requirements, assumptions, and future enhancements envisioned for the platform.

1. Introduction

Purpose of the Document:

This document serves as a guide for the high-level design of ConnectED, delineating the architectural framework, key objectives, and requirements crucial for the successful development and deployment of the social networking platform.

Scope of the Document:

The scope encompasses an in-depth examination of the architectural components, functional and non-functional requirements, as well as the strategic vision and future roadmap for ConnectED.

Overview of the Social Media Platform:

ConnectED endeavors to provide users with a vibrant platform conducive to forging meaningful connections, sharing diverse content, engaging in enriching discussions, and discovering like-minded individuals based on mutual interests.

Key Objectives and Goals of the System:

- Facilitate seamless user interactions and connections predicated on shared interests.
- Ensure a user-centric design approach for an intuitive and engaging user experience.
- Implement robust scalability, security, and reliability measures to uphold the integrity of the platform.
- Enable users to create, share, and interact with various forms of content, fostering a vibrant and inclusive online community.

2. Requirements and Goals

Functional Requirements:

- User Authentication and Authorization leveraging JWT for secure access.
- User Profile Management enabling users to update their profiles and explore others' profiles.

- Content Creation and Publishing encompassing the creation, viewing, updating, and deletion of posts.
- Social Interactions facilitating actions such as liking posts, replying to comments, and viewing liked content.
- Messaging and Notifications for seamless private communication between users.
- Search and Discovery functionalities empowering users to discover relevant content and profiles.

Non-Functional Requirements:

- Performance: Ensuring swift response times and minimal latency to enhance user experience.
- Scalability: Designing the system to accommodate a burgeoning user base and increasing traffic.
- Security: Implementing robust measures to safeguard user data and prevent unauthorized access.
- Availability: Ensuring uninterrupted access and reliability of the platform.
- Usability: Crafting an intuitive user interface to facilitate seamless navigation and interaction.

3. Assumptions and Prerequisites

Technology Stack:

- Java and Spring Boot for backend development.
- NodeJS for server-side JavaScript programming.
- MySQL for relational database storage.
- AngularJS for frontend development.
- HTML5/CSS3 for web page structure and styling.
- Junit for unit testing.
- Postman for API testing.
- Docker for containerization.

- Jenkins for continuous integration and deployment.
- AWS for hosting and cloud services.

Infrastructure Requirements:

- Web Servers for hosting frontend components.
- Application Servers for managing business logic.
- Databases for storing user data.

Data Privacy and Compliance:

- Implementing data encryption at rest and in transit.
- Ensuring compliance with data protection regulations such as GDPR.

4. Business Overview

Business Goals and Objectives:

- Cultivate meaningful connections among users.
- Provide a user-friendly platform conducive to social networking.
- Drive user engagement and retention.

Target Audience:

- Professionals seeking networking opportunities.
- Individuals interested in connecting with like-minded individuals.

Competitive Analysis:

- Analysing existing social networking platforms to identify unique features for integration into ConnectED.

5. High-Level Design

Architectural Overview:

Data Model:

- Leveraging MySQL for storing user profiles, posts, comments, and connections.

Application Design:

- Designing intuitive user interfaces utilizing AngularJS.
- Implementing client-server interaction for seamless user experience.
- Developing server-side logic for business functionalities.

Integration Points:

- Integrating third-party services for features like private messaging and content filtering.
- Designing RESTful APIs for seamless integration with external systems.

Security Design:

- Implementing JWT authentication and authorization mechanisms.

Performance Considerations:

- Implementing load balancing and caching strategies for optimal performance.
- Integrating CDN for efficient content delivery.

6. Application Modules

User Management Module:

- Facilitating user registration, authentication, and profile management.

Content Management Module:

- Enabling users to create, publish, and interact with posts and comments.

Social Interaction Module:

- Facilitating social interactions such as liking posts and replying to comments.

Messaging Module:

- Implementing private messaging functionality for users.

Search and Discovery Module:

- Empowering users to search for content and discover new connections based on interests.

7. Transactions and User Flows

User Registration and Authentication Flow:

Written Description:

- Users register with ConnectED providing necessary details.
- Upon registration, users receive an email for verification.
- Verified users log in securely using their credentials.

Profile Setup Flow:

Flowchart:

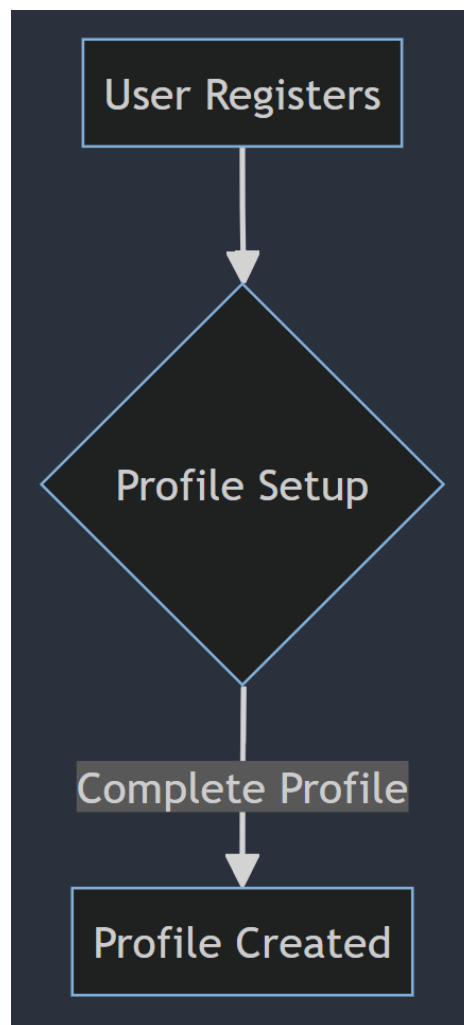


Figure 1: Profile Setup Flow

Written Description:

- After registration, users are prompted to set up their profile.

- Users input personal details, interests, and preferences to complete their profiles.

Content Creation Flow:

Flowchart:



Figure 2: Content Creation Flow

Written Description:

- Users create content such as posts or comments.
- Content is published and made accessible to other users within the platform.

Social Interaction Flow:

Flowchart:

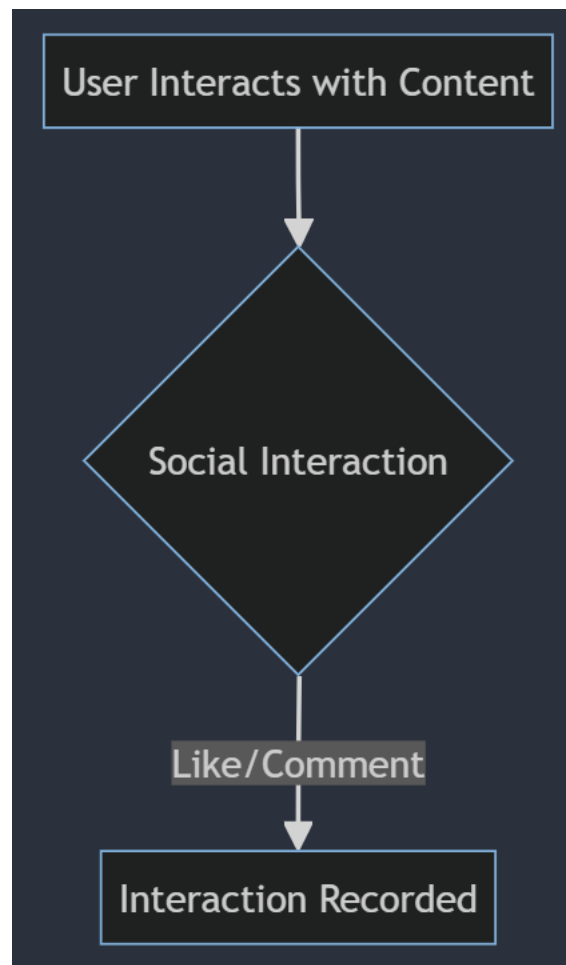


Figure 3: Social Interaction Flow

Written Description:

- Users engage with content by liking posts, commenting, or replying to comments.
- Interactions are recorded and displayed on the respective content.

Messaging Flow:

Written Description:

- Users initiate private messages with other users through the messaging feature.
- Messages are sent securely and are accessible only to the intended recipients.

Search and Discovery Flow:

Flowchart:



Figure 4: Search and Discovery Flow

Written Description:

- Users search for specific content or profiles using keywords or filters.
- Relevant content or profiles are displayed based on the search criteria.

8. Future Enhancements

Feature Roadmap:

- Implement features such as push notifications, social media visualization, and user blocking.

Technology Upgrades:

- Upgrade to newer versions of technologies for enhanced performance and security.

Scalability Improvements:

- Implement scalability measures to handle increasing user base and traffic.

9. Conclusion

Summary of Key Points:

- ConnectED is designed to facilitate meaningful connections among users with similar interests.
- The platform incorporates robust security measures, intuitive user interfaces, and scalable architecture.

Next Steps:

- Proceed with detailed design, development, and testing phases as outlined in this document.
- Continuously monitor and improve the platform to meet evolving user needs and industry standards.