

Project Proposal: Social Media Web Application

1. Project Overview

The goal of this project is to develop a Social Media Web Application that allows users to connect, share content, and interact with each other. The application will include features such as user authentication, posting content (text, images, and videos), stories, direct messaging, notifications, and a personalized profile page. The application will be built using Next.js as a full-stack framework and PostgreSQL as the primary database.

This project aims to provide a seamless and engaging user experience while ensuring scalability, security, and performance.

2. Objectives

The main objectives of this project are:

- **User Authentication:** Allow users to sign up, log in, and manage their accounts securely.
- **Content Sharing:** Enable users to create and share posts (text, images, and videos) and stories.
- **Social Interaction:** Provide features for users to like, comment, share, and report posts.
- **Notifications:** Notify users about new followers, likes, comments, and other activities.
- **Direct Messaging:** Allow users to send and receive private messages.
- **Personalized Profiles:** Let users customize their profiles with profile pictures, bios, and highlighted stories.
- **Admin Panel:** Provide admins with tools to manage users and review reported content.
- **Search Functionality:** Enable users to search for other users and content.
- **Responsive Design:** Ensure the application is fully responsive and works seamlessly across devices.

3. Scope

The project will include the following features:

- **Frontend:** Built using Next.js for server-side rendering (SSR) and static site generation (SSG).
- **Backend:** Built using Next.js API Routes for handling server-side logic.
- **Database:** PostgreSQL will be used to store user data, posts, messages, and other application data.
- **Authentication:** Implement secure user authentication using JWT (JSON Web Tokens).
- **Real-Time Features:** Use Socket.io for real-time messaging and notifications.

- **Deployment:** The application will be deployed on Vercel for seamless integration with Next.js.

4. Technology Stack

- **Frontend:** Next.js (React), Tailwind CSS (for styling).
- **Backend:** Next.js API Routes.
- **Database:** PostgreSQL.
- **Authentication:** JWT (JSON Web Tokens).
- **Real-Time Communication:** Socket.io.
- **Deployment:** Vercel.
- **Version Control:** GitHub.

5. Key Features

User Authentication:

- Sign up with email, username, and password.
- Login with email/username and password.
- Email verification for new accounts.
- Password reset functionality.

Home Page:

- **Stories Section:** Display stories from followed users (images or videos that disappear after 24 hours).
- **Posts Section:** Display posts from followed users with options to like, comment, share, and save.
- **Create Post:** Allow users to create and share posts (text, images, or videos).
- **Recommended Friends:** Suggest new users to follow.

Post Interaction:

- **Like:** Users can like posts.
- **Comment:** Users can comment on posts and view all comments.
- **Share:** Users can share posts with their friends.
- **Save:** Users can save posts to view later.
- **Report:** Users can report posts for inappropriate content (e.g., bullying, offensive language).

Profile Page:

- Display user information (profile picture, username, bio).
- Show user posts and highlighted stories.
- Allow users to edit, archive, or delete their posts.

- Let users view their saved posts.

Notifications:

- Notify users about new followers, likes, comments, and shares.
- Real-time notifications using Socket.io.

Direct Messaging:

- Real-time chat between users.
- Notifications for new messages.

Admin Panel:

- Admins can view and manage reported posts.
- Admins can view all users and their details.
- Admins can take action on reported content (e.g., delete posts, warn users).

Search Functionality:

- Search for users and content.
- Display search results in a dedicated search page.

Settings Page:

- Edit profile information.
- Change password.
- Toggle account privacy (public or private).

Support Page:

- Provide a form for users to contact support.

6. Deliverables

Project Documentation:

- Project proposal, system design, and architecture.
- Database schema and ER diagrams.
- API documentation.
- User manual and technical documentation.

Source Code:

- Well-structured and documented code hosted on GitHub.
- Modular and reusable components.

Deployed Application:

- A live version of the application hosted on Vercel.
- README file with installation and setup instructions.

Testing & Quality Assurance:

- Test cases and test plans.
- Bug reports and resolutions.

Final Presentation:

- PowerPoint/PDF presentation summarizing the project.
- Video demonstration (optional).

7. Risks & Mitigation

- **Risk:** Delays in development due to complex features.
 - **Mitigation:** Break down tasks into smaller subtasks and set intermediate deadlines.
- **Risk:** Performance issues with real-time features.
 - **Mitigation:** Optimize Socket.io implementation and use efficient database queries.
- **Risk:** Security vulnerabilities in user authentication.
 - **Mitigation:** Follow best practices for JWT and password hashing (e.g., bcrypt).

8. Conclusion

This project aims to deliver a modern, scalable, and user-friendly social media web application using Next.js and PostgreSQL. By leveraging the power of Next.js for both frontend and backend development, we can ensure a seamless and performant user experience. The application will be designed with security, scalability, and usability in mind, making it a robust platform for social interaction.