Nexora

Digital Innovations

Building the Future, One Breakthrough at a Time.

TaskFlow Developer Documentation

1. Introduction

1.1 Why Build TaskFlow?

TaskFlow is designed to streamline task management for small teams, offering real-time collaboration, intuitive task tracking, and intelligent workflow automation. Existing solutions are either too complex or lack essential real-time features, making TaskFlow the ideal balance between simplicity and efficiency.

1.2 Unique Selling Proposition (USP)

- **Real-time collaboration** with instant updates.
- **Task dependencies and priority management.**
- **Secure authentication** using OAuth and JWT.
- **Scalable architecture** based on modern web technologies.

1.3 Target Audience

- Startups and small teams looking for an efficient task management tool.
- Developers interested in real-time systems.
- Project managers who require streamlined workflows.

2. System Overview

2.1 Core Features

A. Task Management

- Task creation with priority, deadline, and assignment.
- Progress tracking (To-Do → In Progress → Completed).
- Task dependencies for structured workflows.

B. Real-Time Collaboration

- Live updates using WebSockets.
- Commenting, file uploads, and team discussions.

C. Team Management

- Roles and permissions (Admin, Member).
- Team invitations via email or link.

D. Progress Tracking

- Performance insights and task completion reports.
- Automated deadline notifications.

2.2 Technical Stack

Component	Technology
Frontend	Next.js
Backend	Node.js + Express
Real-Time	Socket.io
Database	PostgreSQL
Authentication	NextAuth.js + JWT
File Storage	AWS S3
Hosting	Vercel (Frontend) + AWS EC2 (Backend)

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3. Architecture & System Logic

3.1 Task Management Logic

- Tasks stored in PostgreSQL with unique IDs.
- Task status updates trigger WebSocket events.

3.2 Real-Time Collaboration

- Comments stored in PostgreSQL, broadcast via WebSockets.
- File uploads stored securely in AWS S3.

3.3 Team & Role Management

- Role-based permissions restrict actions.

3.4 Progress Tracking

- Analytics engine tracks performance.
- Notification system for deadlines.

3.5 Authentication & Security

- NextAuth.js with OAuth and JWT.
- Encrypted data storage and session management.

4. Implementation Plan

Phase 1: Basic Task Management

- User authentication.
- Task creation, assignment, and tracking.

Phase 2: Real-Time Collaboration

- WebSocket implementation.
- Comments and file uploads.

Phase 3: Analytics & Performance Tracking

- Dashboard development.
- Automated reminders.

Phase 4: Security Enhancements

- Role-based access controls.
- Data encryption.

Phase 5: Scalability & Optimizations

- Database indexing.
- Load balancing using Kubernetes.

5. Deployment Strategy

5.1 Frontend Deployment

- Hosted on **Vercel** for global availability.

5.2 Backend Deployment

- **Dockerized Node.js** backend on AWS EC2.

5.3 Database Hosting

- Managed PostgreSQL via **Neon.tech** or AWS RDS.

5.4 File Storage Management

- **AWS S3** for scalable and secure file handling.

6. Future Enhancements

- **Mobile App**: React Native implementation.
- **Third-Party Integrations**: Slack, Google Calendar.
- **AI-Powered Insights**: Predictive task completion.

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7. Summary of Key Benefits

7.1 For Small Teams

✅ Real-time collaboration. ✅ Simple yet powerful task tracking. ✅ Automated performance insights.

7.2 For Developers

✅ Hands-on experience with real-time systems. ✅ Scalable full-stack architecture. ✅ Efficient authentication and security.

TaskFlow is the ultimate real-time task management solution designed to empower small teams, providing streamlined collaboration, robust analytics, and a scalable infrastructure.