Web_Prog Synopsis

Cohorto: A Student-Driven Freelancing Platform – Technical Abstract

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Technical Abstract

Cohorto is a web-based freelancing platform designed to connect businesses with verified student freelancers and teams. The platform provides an intuitive and efficient environment for collaboration, secure transactions, and streamlined project management. It is built to facilitate short-term project hiring with a focus on affordability, trust, and ease of use.

Core Architecture

- **Frontend Stack**
  - Next.js 14 with App Router for efficient server-side rendering
  - TypeScript for enhanced type safety and developer experience
  - React Server Components for optimized client-side performance
  - Tailwind CSS with shadcn/ui for responsive design

Data Layer & Backend

- **Database & Authentication**
  - Supabase PostgreSQL with real-time subscriptions
  - Row Level Security (RLS) for data access control
  - JWT-based authentication flow
  - Edge runtime for API optimization

Technical Implementation

1. **State Management & Data Flow**

   - Context API with custom hooks for global state
- Server Actions for type-safe mutations
- Optimistic updates for improved UX
- Route protection middleware

2. **Performance Optimization**

- Selective rendering strategies (ISR/SSG/SSR)
- Dynamic imports and code splitting
- Image optimization
- Client-side caching

3. **Security Measures**
   - PKCE authentication flow
   - HTTP-only cookies
   - Rate limiting
   - CSRF protection

Development & Deployment

- **CI/CD Pipeline**

- Automated testing with GitHub Actions
- Vercel deployment
- Environment configuration management
- Error tracking with Sentry

The platform's architecture is designed to scale horizontally while maintaining high availability and performance. Real-time features enable seamless collaboration between team members and clients, while the security implementation ensures data protection and user privacy.

This technical foundation provides a robust platform for student teams to showcase their skills and deliver high-quality solutions to clients, with built-in tools for project management and team collaboration.