
🚀 Phase 1: Foundation & User System

Goal: Set up authentication, profiles, and basic communication

1️⃣ Backend (Spring Boot + PostgreSQL)

✅ Set up Spring Boot project with PostgreSQL
✅ Implement **user authentication** (JWT + Spring Security)
✅ Design **user schema** (profiles, skills, achievements)
✅ Create API endpoints for user data
✅ Deploy a basic backend on **Render/Vercel/Fly.io**

2️⃣ Frontend (React + Tailwind CSS)

✅ Set up **React with Vite**
✅ Implement **login/signup pages** (JWT authentication)
✅ Create **user dashboard & profile page**
✅ Setup routing with `react-router-dom`
✅ Connect frontend to backend API

3️⃣ Real-time Communication (WebSockets in Spring Boot & React)

✅ Set up **Spring Boot WebSocket server**
✅ Implement **basic real-time chat** feature
✅ Build **group discussions/forums** (like Discord/Reddit threads)

🔥 Phase 2: Coding Contests System

Goal: Implement a **LeetCode-style coding contest system**

4️⃣ Contest System Backend

✅ Create **contest schema** (title, duration, problems, participants)
✅ Develop API for **contest creation & participation**
✅ Implement **leaderboard tracking** in PostgreSQL
✅ Setup **WebSocket for real-time updates** (e.g., live rank updates)

5️⃣ Problem Submission & Judging System

✅ Implement **problem schema** (title, description, constraints, test cases)
✅ Allow **users to submit code**
✅ Set up a **code execution system** using **Docker**
✅ Support multiple languages (Python, Java, C++)
✅ Implement **automated scoring** & test case evaluation

6️⃣ Frontend for Contests

✅ Contest listing page
✅ Contest participation UI
✅ Code editor using **Monaco Editor (VS Code editor for React)**
✅ Submission & leaderboard page

💡 Phase 3: Gamification & Engagement

Goal: Make the platform **engaging & competitive**

7️⃣ Badges, Ranks & Achievements

✅ Implement **XP & ranking system** based on contest performance
✅ Create **badges & milestones** (e.g., "Problem Solver", "Top Coder")
✅ Display **leaderboards**

8️⃣ Networking & Mentorship

✅ Add **friend system** (follow/unfollow)
✅ Implement **mentorship program** (connect juniors with seniors)
✅ Allow **project showcasing** (users share projects, get feedback)

9️⃣ Job & Internship Listings

✅ Create a **job board** where companies post internships
✅ Allow users to **apply for opportunities**

🌎 Phase 4: Scaling & Deployment

Goal: Make the platform **production-ready & scalable**

🔧 Backend Scaling

✅ Implement **Redis caching** for fast leaderboard updates
✅ Optimize **database queries** (PostgreSQL indexing, pagination)
✅ Secure **WebSockets & API endpoints**

🔗 Frontend Enhancements

✅ Improve **UI/UX with Material UI / Tailwind**
✅ Optimize **SEO & performance**
✅ Add **progressive web app (PWA) features**

🚀 Deployment & Monetization

✅ Deploy on **AWS/GCP/Vercel**
✅ Consider **premium features** (paid mentorship, special contests)