

Online Judge (OJ): High level Design

Online Judge provides a seamless environment to write, compile, and run your code effortlessly. Organize and participate in college contests, challenging your skills in a competitive setting. Access a curated collection of problem sheets to enhance your coding abilities across various topics. Track your progress, celebrate achievements, and identify areas for improvement.

Main Features :

- Authentication
- Authorization
- Code compilation, execution and submission
- Profile Progress
- Leaderboard

FRONTEND:

1. Tech Stack :-

- Next js
- Language:Typescript
- Styling: Tailwind css

2. Pages :-

- Home page
- Sign In / Sign up page
- Problem set page
- Individual Problem
- Profile Page
- About
- Contest Page

DATABASE :

1. Tech Stack :-

- MongoDB

2. Model :-

- Users/Admin (Username/Email, Name, Password, Phone(optional))
- Problem
- Test Case
- Submission

SERVER 1:

1. Tech Stack :

- Node.js Express.js
- JWT, Bcrypt, Zod etc..

2. API :-

- **Signin / signup** → (api/user/signin) (api/user/signup)
- **Authorization** → (api/main/author) (either it is user or admin)
- **Profile** → (api/user/profile) (as long as the user logged in that is token exist in local storage)
- **DashBoard** → (api/user/dashboard)
- **Problem Set** → (api/problem/problemSet)
- **Individual Problem** → (api/problem?problemID)
- **All contest** → (api/contest/allContest)
- **Individual Contest** → (api/contest?contestID)
- **Past submission** → (api/problem/submission?problemID)
- **Past contest** → (api/contest/submission?contestID)
- **Problem upload** → (api/admin/problemUpload)
- **Contest upload** → (api/admin/contestUpload)

SERVER 2:

1. Tech Stack :

- Node.js Express.js
- JWT, Bcrypt, etc.

2. API :-

- Code Compilation → (api/code/run)
- Code Submission → (api/code/submission)

Version Control :- GitHub

Containerization :- Docker and ECR

Deployment :- AWS, Vercel