

## Online Code Judge Breakdown

### High Level Design

- **Database - (Mongo DB)**

#### **Collection 1 - User**

1. ID - unique Identifier
2. FirstName - string
3. LastName - string
4. UserName - string
5. Password - string

#### **Collection 2 - Problem**

1. ID - unique Identifier
2. Title - string
3. Description - string
4. Type - string (String/Array/Linked List) (Optional)
5. Difficulty - string (Easy/Medium/Hard) (Optional)

#### **Collection 3 - TestCase**

1. ID - unique Identifier
2. ProblemID -unique Identifier
3. Input - string
4. Output - string

#### **Collection 4 - Submission**

1. ID - unique Identifier
2. ProblemID - unique Identifier
3. TestCaseID - unique Identifier
4. UserID - unique Identifier
5. Code - string
6. SubmittedAt - DateTime

- **Backend REST APIs**

Sr No	API Name	Description
1	Register	onboard/register new users
2	Login	provide successful login to Online Judge Platform
3	FetchProblemList	fetches list of problems stored in Database
4	FetchProblemDetail	fetches details of a particular problem stored in Database
5	RunCode	compile code, pass input and return the output
6	SubmitCode	compile code, pass input, compare DB_Output with Code_Output, Save Verdict (Accepted/ Wrong Answer) & return the output
7	CreateProblem	User1 can create new problems
8	EditProblem	User1 can edit existing problem
9	DeleteProblem	User1 can delete problems

- **Frontend**

**Screen 1** - Authentication (Register/Login/Logout)

**Screen 2** - Problem List

**Screen 3** - Problem Detail

**Screen 4** - Submission Page

**Screen 5** - Create Problem

**Screen 6** - Edit Problem

**Screen 7** - Delete Problem