HIGH LEVEL DESIGN FOR OJ

OVERVIEW

Designing a Full stack Online Judge using Django framework.Users will be able to submit their codes in different languages and our Online Judge will be returning a verdict based on the code submitted for the provided question.

FRONTEND

- Authentication/Login Page:
  - ❖ Email id
  - ❖ Password
  - ❖ Register Button
  - ❖ Forgot Password Option
  - ❖ Submit Button

- Home Page (After Login):
  - ❖ Title of each problem

- Problem Details Page:
  - ❖ Problem Statement
  - ❖ Constraints
  - ❖ Input
  - ❖ Output
  - ❖ Code Space
  - ❖ Run Button
  - ❖ Submit Button
  - ❖ Verdict Space

DATABASE

- **User**
  - ❖ User Id
  - ❖ Name
  - ❖ Email

❧ Password

- **Problems**
  - ❧ Prob Id
  - ❧ User id
  - ❧ Title
  - ❧ Statement
  - ❧ I/p & O/p

- **Test Cases**
  - ❧ Prob id
  - ❧ I/p
  - ❧ O/p

- **Submission**
  - ❧ Submit Id
  - ❧ User id
  - ❧ Prob id
  - ❧ Verdict
  - ❧ Code

BACKEND

- **Rest API's:**
  - ❧ /login/
  - ❧ /register/
  - ❧ /prob_lists/
  - ❧ /prob_id/
  - ❧ /submit/
  - ❧ /run/
  - ❧ /logout/

SECURITY

- **Flaws**

- ❖ Thousands of users submitting solutions at a time
- ❖ Submitting Malicious codes
- ❖ Unauthorized Login
- ❖ DDOS attack

- ● **Solutions**
  - ❖ Introducing Rate Limiter methods
  - ❖ Making containers using Docker
  - ❖ Custom Isolation