

Online Judge

Code deep

Online Judge: It is a platform where we can submit our code, and it returns a verdict based upon the code provided for the given problem.

We are going to design a coding platform used for practicing coding, participating in contests, and engaging with the coding community.

Framework used: Django.

Database: MYSQL

Pages:

- Welcome page with logo and asking for login/register.
- For new user - Registration form – Name, DOB, student/professional, email ID and password
- Page to select topics like arrays, trees, graphs, string etc
- After selecting a topic, we will show problems list in easy, medium, and difficult order.
- After selecting a problem, the format of coding page
 - a. Left-side – show description of problem.
 - b. Right-side – Coding area with language preference
 - c. Run button - test user code with testcases given in problem description.
 - d. Submit button – test user code with all hidden testcases and returns verdict.
 - e. Custom input – We will take user input and provide two outputs expected output and output with user code. So, the user can also check edge cases with his own inputs before submitting the code.
- My submissions page so that user can check his/her versions of code.
- Editorial page for each problem with hints and solution code
- There will be a contest page and after we will ask a list of topics to select and select number of problems and based on input, we will select problems randomly and give contest for user.
- We will conduct monthly contests for user engagement.

- Leaderboard for all contests
- Editorial for all contests once they are finished.

Tables in Database:

- Users
 - a) ID
 - b) Name
 - c) Email id
 - d) Password(encrypted)
 - e) DOB
 - f) Student/professional
- Problems
 - a) ID
 - b) Problem Name
 - c) Problem Description
 - d) Topic to which this problem belongs.
 - e) Testcase 1
 - f) Solution one
 - g) Testcase 2
 - h) Solution two
 - i) File for hidden testcases
- Contests
 - a) Contest name
 - b) Contest time
 - c) No of problems
 - d) No of the users participated.
- Leaderboard
 - a) Name
 - b) Contest name
 - c) Time and date

- Submissions
 - a) Name
 - b) Problem name
 - c) Time and date
 - d) Submitted Code

Challenges:

- Manage number of submissions on site at same time.
- Need to deal with run time error, Time limit exceed and memory error.
- User code may be malicious.
- Users can submit heavy code like web scraping which uses more resources. We should prevent these types of operations.
- SQL injections
- Cross Side scripting

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