

Collaboration Online Judgement System Demo

Overview:

This web App is serves as a combination of “google docs” and “online judgement”. It supports collaboration coding for a specific question. After logging in to same session/question, users can see their collaboration coders in this session, and they can see each other’s actions immediately, just like google docs. Users can also search their problems by keywords and a problem list that include these keywords will show up.

After clicking submit button, a python server is served as an executor to execute the code that users submitted on Docker. The executor now supports Java and Python, which is easy to add more language using same methods. After that, users can see their results that shown at the bottom of the page.

I use MongoDB as my database to store all the coding problems. I also use Redis as in-memory store in order to save the session info and user info as cache. It will expire in one hour after the user disconnect from the server or close the webpage.

Nginx service is used as a reverse proxy for load balancing. It can protect the server when a huge amount of request is coming in. Right now, I’m using round-robin as the methods for load balancing.

Demo:

Main page:

Online Judgement	Problem List	Add Problem	<input type="text" value="Search"/>	<input type="button" value="Search"/>
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easy

1. two sum

medium

2. Add Two Numbers

super

3. Median of Two Sorted Arrays

medium

4. Longest Palindromic Substring

easy

5. Reverse Integer

easy

6. Palindrome Number

medium

7. Container With Most Water

medium

8. three sum

super

9. Sum Root to Leaf Numbers

2. collaboration demo:

we can see that right now there are couple users logging in, we can see their unique id at the bottom (since its just random test users, their id is generated by socket with some UUID/GUID code)

once a coder is typing anything on the editor, all other coders in this session/problem will see the change immediately

Online Judgement

Problem List

Add Problem

Search

Search

5. Reverse Integer

Given a 32-bit signed integer, reverse digits of an integer.

Python

Reset

```
1= class Solution:
2= def example():
3=     #write your code here:
4=     print("demo for collaboration")
5=
```

uZYrEGUJHV1r6U9LAAAG,O_NGIWPFHLSNviaOAAAG,KJFluWVg4DcPA8FCAAAR

Submit Solution

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Submit Solution

Once we click submit solution button, we can see the result at the bottom (I simply generate some errors)

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Build output:

File

"example.py",

line 5 lalala

mistake ^

SyntaxError:

invalid syntax

, execute

output: null

Submit Solution

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Submit Solution

We can also use the search bar to search problems using keywords

[Online Judgement](#) [Problem List](#) [Add Problem](#) [Search](#)

easy

1. two sum

medium

8. three sum

super

9. Sum Root to Leaf Numbers

As an admin, I can also add questions to the problem list. Any save or change on this page done by admin will be update to MongoDB.

[Online Judgement](#) [Problem List](#) [Add Problem](#) [sum](#)

Problem Name

Add test questions

Problem Description

this is a test questions

Difficulty

super

Add problem











Successfully added

<div>medium</div> 8. three sum
<div>super</div> 9. Sum Root to Leaf Numbers
<div>super</div> 10. Add test questions

Database: (mLab)

Display mode: ☒ list ☐ table ([edit table view](#))

records / page 10 [1 - 8 of 8]

<pre>{ "_id": { "\$oid": "5b580cea0f63f0cd4b4f9ba5" }, "id": 1, "name": "two sum", "desc": "Given an array of integers, return indices of the two numbers such that they add up to a target value." }</pre>	 
<pre>{ "_id": { "\$oid": "5b580d110f63f0cd4b4f9ba6" }, "id": 2, "name": "Add Two Numbers", "desc": "You are given two non-empty linked lists representing two non-negative integers. The digits are stored in the reverse order of the list, and each node contains a single digit." }</pre>	 
<pre>{ "_id": { "\$oid": "5b580d600f63f0cd4b4f9ba8" }, "id": 3, "name": "Median of Two Sorted Arrays", "desc": "There are two sorted arrays nums1 and nums2 of size m and n respectively. Find the median of the two sorted arrays. The overall run time complexity should be O(log(m+n))." }</pre>	 
<pre>{ "_id": { "\$oid": "5b580d7e0f63f0cd4b4f9ba9" }, "id": 4, "name": "Longest Palindromic Substring", "desc": "Given a string s, find the longest palindromic substring in s. You may assume that the maximum length of s is 1000." }</pre>	 
<pre>{ "_id": { "\$oid": "5b580dab0f63f0cd4b4f9baa" }, "id": 5, "name": "Valid Palindrome", "desc": "Given a string, determine if it is a palindrome, considering only alphanumeric characters and ignoring cases." }</pre>	 

Thank you for watching! There is a readme file that shows how to play this app on localhost