

# Collaboration Online Judgement System Demo

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## 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.

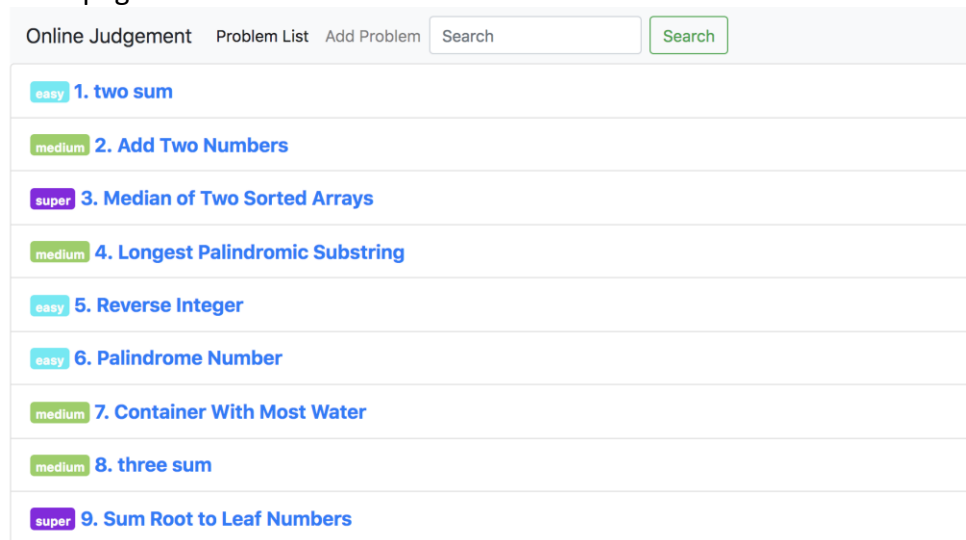
After clicking submit button, a python server is served as an executor to execute the code that users submitted on Docker. The executor now supports Java and Python, which is easy to add more language using same methods. After that, users can see their results that shown at the bottom of the page.

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:



The screenshot shows the main interface of the Online Judgement System. At the top, there is a navigation bar with links for 'Online Judgement', 'Problem List', and 'Add Problem'. To the right of these links is a search bar with a 'Search' button. Below the navigation bar, a list of coding problems is displayed, each with a difficulty level (easy, medium, or super) and a title. The problems are numbered 1 through 9.

Difficulty	Problem Title
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:

I can see that right now there are couple users logging in, and 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

### 5. Reverse Integer

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

Python

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

uZYrEGUJHV1r6U9LAAAG,O\_NGIWPFHLSNviaOAAAG,KJFluWVg4DcPA8FCAAAR

Online Judgement

Problem List

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

Python

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

uZYrEGUJHV1r6U9LAAAG,O\_NGIWPFHLSNviaOAAAG,KJFluWVg4DcPA8FCAAAR

Build output:

File

"example.py",

line 5 lalala

mistake ^

SyntaxError:

invalid syntax

, execute

output: null

Python

```
1-> class Solution:
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uZYrEGUJHV1r6U9LAAAG,O\_NGIWPFHLSNviaOAAAG,KJFluWVg4DcPA8FCAAAR

Build output:

File

"example.py",

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mistake ^

SyntaxError:

invalid syntax

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output: null

Users 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

Problem Description

Difficulty

[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 of the number." }</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