

ENGG1340 Computer Programming II  
COMP2113 Programming Technologies  
Module 7 Checkpoint Exercise

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Instructions:

For each single question or each group of questions in the Checkpoint exercise, please type your answer right after the question in this Word document.

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**Checkpoint 7.1 (Please submit your answer to Moodle)**

There may be error(s) in the following statement. Correct the error(s) if any, if no error, please write “no error”.

```
ofstream cfile;  
  
cfile.open (c.txt, ios::ate, ios::binary); [Assuming the file c.txt exists.]
```

Ans: The method on file stream objects expects only 2 arguments, the file name and the open mode. In the code above two different open methods are provided. The `std::ios::ate` method moves the pointer to the end of the file immediately after opening while the `std::ios::binary` method ensures that text output to the file and input from the file is comparable. To correct this error, simply open the file with just one openmode (either `ios::ate` or `ios::binary`)

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**Checkpoint 7.2 (Please submit your answer to Moodle)**

LeetCode is a popular and famous platform and community among developers over the world. It is a well-developed platform for challenging yourselves on coding skills as well as practising and preparing for interviews for the Tech Giant companies like Google, Microsoft, Facebook, etc.

Visit <https://leetcode.com/> and register for an account by clicking “Create account” (Fig. 1). You may see the page of account sign up for registering your account (Fig. 2).

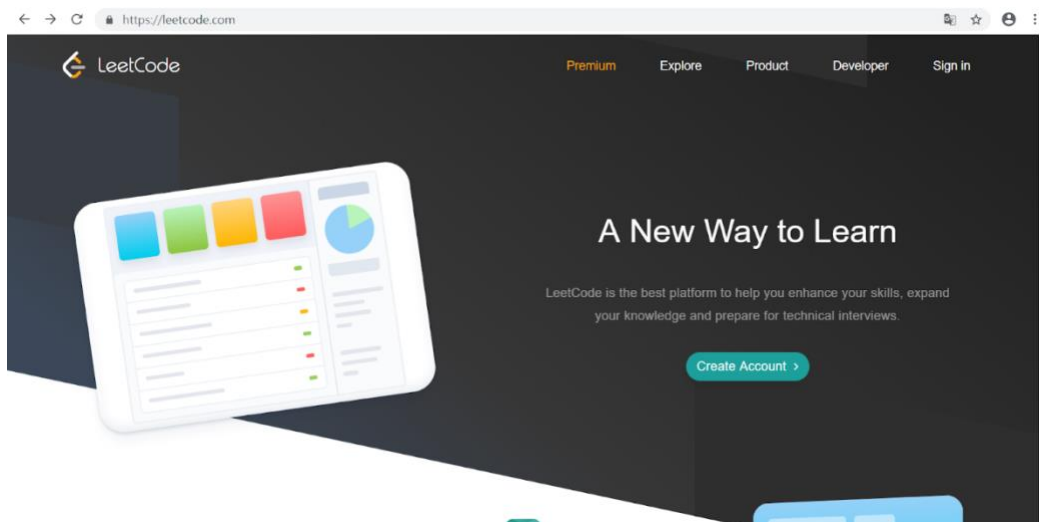


Figure 1

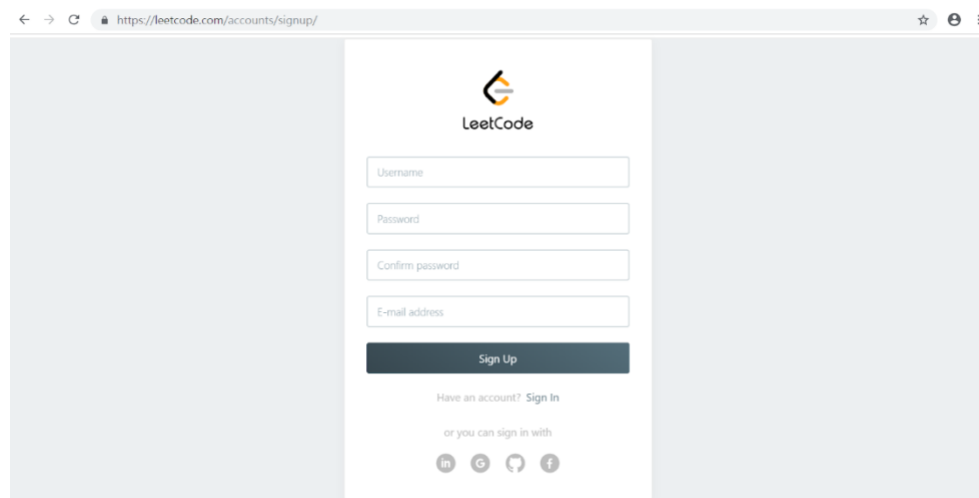


Figure 2

After successful signup, please log in. You should be able to see the following page after login (Fig. 3). Choose Problem #1 (Title: Two Sum), and you will be brought to the problem description and a VPL-like online coding environment (Fig. 4).

#	Title	Solution	Acceptance	Difficulty	Frequency
1	Two Sum	41.4%	Easy		
2	Add Two Numbers	30.5%	Medium		
3	Longest Substring Without Repeating Characters	27.4%	Medium		
4	Median of Two Sorted Arrays	25.5%	Hard		
5	Longest Palindromic Substring	26.5%	Hard		

Figure 3

Explore these tabs too

Make sure you choose to write in C++

Write your code within this function twoSum(). This is a member function of the C++ class Solution.

The function accepts two input parameters, "nums" being a vector of int and "target" being an int. You will learn about the STL class vector later. For the time being, think about it as an array. Indeed you can access the integers stored in nums the same way as an array.

The function also returns a vector of int which stores the two indices of the two numbers which add up to the value stores in "target". You will need to create a vector<int> which can store 2 integers. You can do so by using the following statement: `vector<int> answer(2, 0);` which declares the variable "answer" as vector<int> with two elements and both elements are initialized to 0.

Figure 4

Explore also the tabs “Solution”, “Submissions” and “Discuss”. In particular, under “Submission”, you will be able to find the information of your submissions (Fig. 5).

Time Submitted	Status	Runtime	Memory	Language
a year ago	Accepted	6 ms	N/A	cpp
a year ago	Wrong Answer	N/A	N/A	cpp
a year ago	Accepted	182 ms	N/A	cpp
a year ago	Accepted	183 ms	N/A	cpp
a year ago	Accepted	183 ms	N/A	cpp

Figure 5

When you click on the status of each submission, you will be able to see the runtime (i.e., how fast your solution is) and the memory consumption. Also, you can see how your solution is ranked among other submission from all over the world in terms of runtime (Fig. 6). You can keep improving your solution in order to beat others!

## Accepted Solutions Runtime Distribution

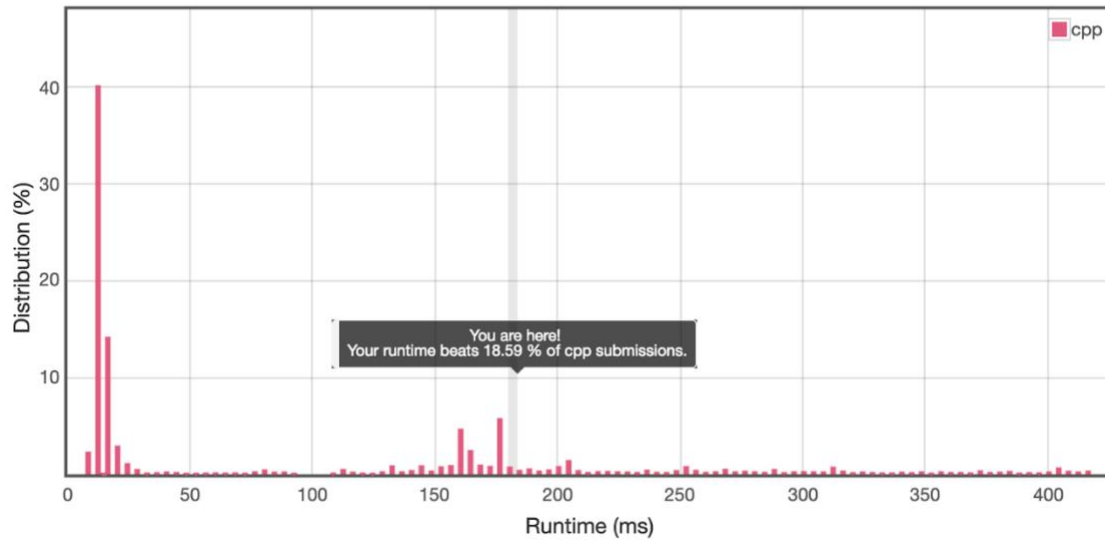


Figure 6

**Please complete Problem #1 (Title: Two Sum) and provide a screen capture (similar to that in Fig. 5) for your submission.**

An example (vectorcode.cpp) for simple usage of vector is included for your reference.

Description

Solution

Discuss (999+)

Submissions

Success Details >

Runtime: 716 ms, faster than 12.18% of C++ online submissions for Two Sum.

Memory Usage: 10.2 MB, less than 67.02% of C++ online submissions for Two Sum.

Next challenges:

3Sum
4Sum
Two Sum II - Input Array Is Sorted
Two Sum III - Data structure design
Subarray Sum Equals K
Two Sum IV - Input is a BST
Two Sum Less Than K
Max Number of K-Sum Pairs
Count Good Meals
Count Number of Pairs With Absolute Difference K
Number of Pairs of Strings With Concatenation Equal to Target
Find All K-Distant Indices in an Array

Show off your acceptance:

Time Submitted	Status	Runtime	Memory	Language
04/04/2022 20:04	Accepted	716 ms	10.2 MB	cpp
04/04/2022 19:53	Accepted	728 ms	10.1 MB	cpp

C++

Autocomplete

```

1 class Solution {
2 public:
3     vector<int> twoSum(vector<int>& nums, int target) {
4
5         vector<int> result(2,0);
6         // First Pass (Outer Pass)
7         for (int i{0}; i < nums.size()-1; i++)
8         {
9             // Second Pass (Inner Pass)
10            for (int j{i+1}; j < nums.size(); j++)
11            {
12                if (nums[i] + nums[j] == target)
13                {
14                    result[0] = i, result[1] = j;
15                    return result;
16                }
17            }
18        }
19
20        return result;
21    }
22 }

```

Your previous code was restored from your local storage. [Reset to default](#)

Testcase

Run Code Result

Debugger

Accepted Runtime: 0 ms

Your input

[2,7,11,15]

9

Output

[0,1]

Diff