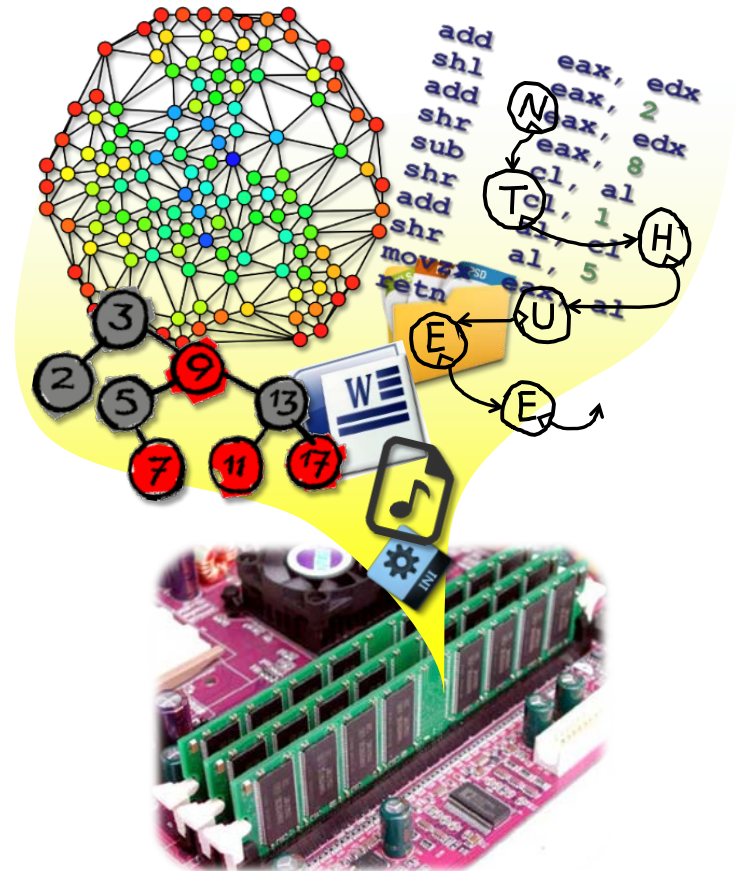# Data Structures

Intro to Online Judge

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NTHU EE

Spring 2018

Quiz Rule

- Quiz time: 18:30 – 20:10, 100 min
- One available sample input / output
- 10 test cases (inputs / outputs), which are not available to students
- No Internet, but you can bring one A4 page note
- We will have a roll call in quiz time
- Register contest before 18:30!!
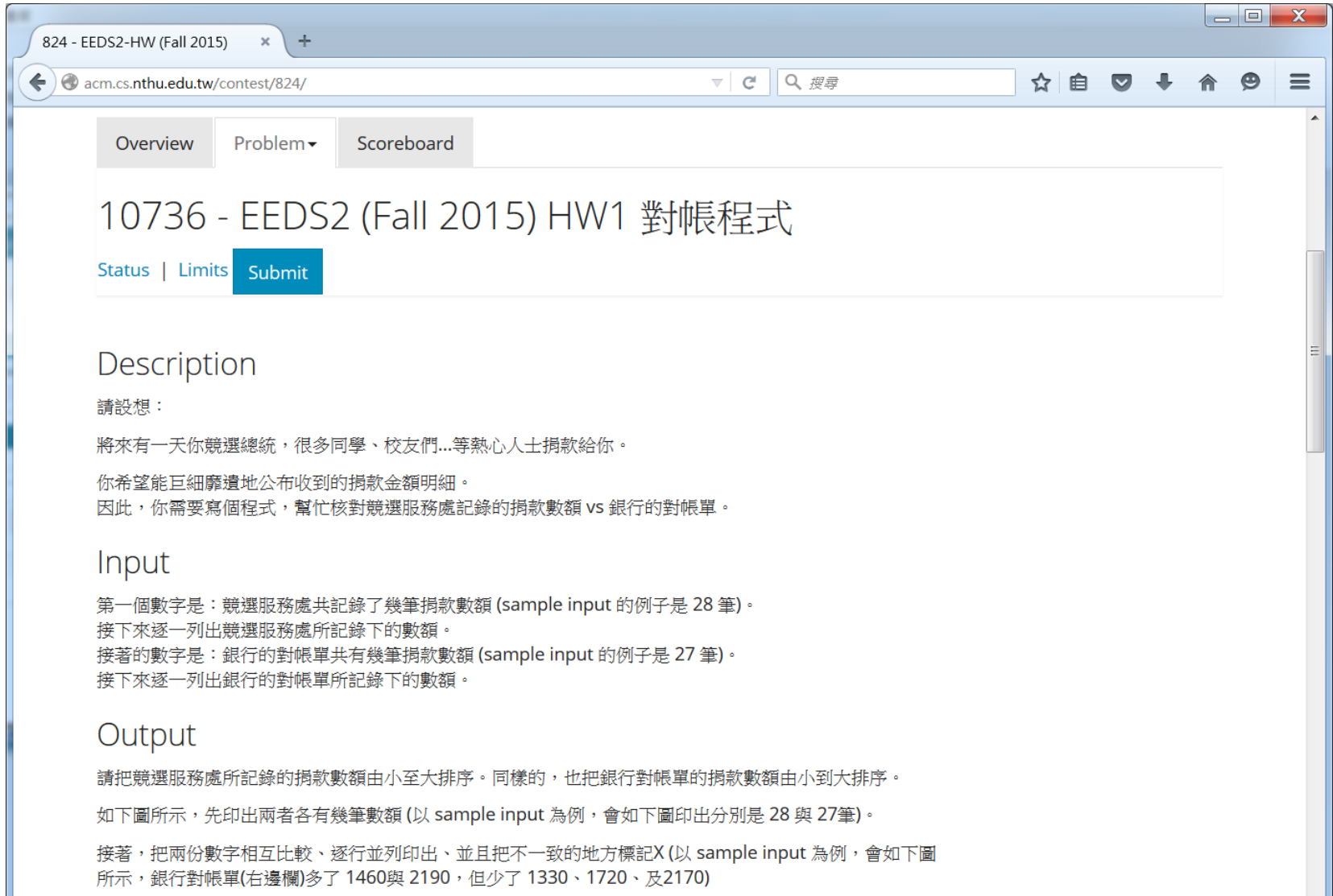
Register Contest

Register contest before 18:30!!!!
Or you can't attend quiz.

NTHU Online Judge
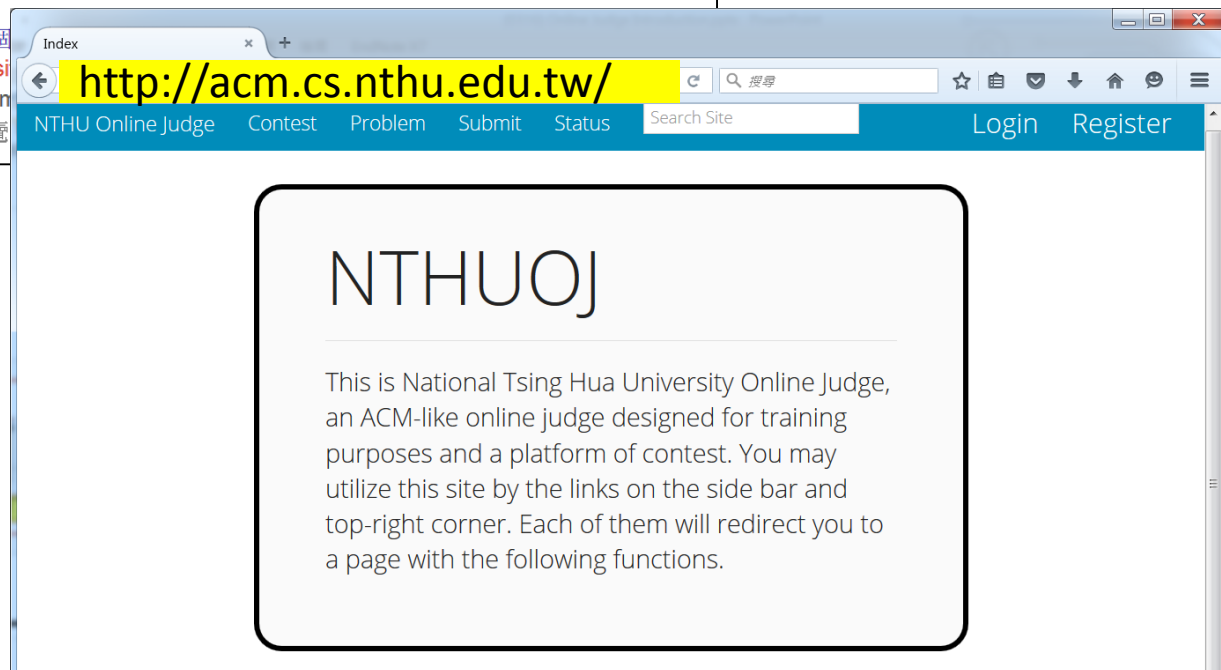
Problem Descriptions

824 - EEDS2-HW (Fall 2015)

acm.cs.nthu.edu.tw/contest/824/

Overview   Problem ▾   Scoreboard

10736 - EEDS2 (Fall 2015) HW1 對帳程式

Status | Limits   Submit

Description

請設想：

將來有一天你競選總統，很多同學、校友們…等熱心人士捐款給你。

你希望能巨細靡遺地公布收到的捐款金額明細。
因此，你需要寫個程式，幫忙核對競選服務處記錄的捐款數額 vs 銀行的對帳單。

Input

第一個數字是：競選服務處共記錄了幾筆捐款數額 (sample input 的例子是 28 筆)。
接下來逐一列出競選服務處所記錄下的數額。
接著的數字是：銀行的對帳單共有幾筆捐款數額 (sample input 的例子是 27 筆)。
接下來逐一列出銀行的對帳單所記錄下的數額。

Output

請把競選服務處所記錄的捐款數額由小至大排序。同樣的，也把銀行對帳單的捐款數額由小到大排序。

如下圖所示，先印出兩者各有幾筆數額 (以 sample input 為例，會如下圖印出分別是 28 與 27筆)。

接著，把兩份數字相互比較、逐行並列印出、並且把不一致的地方標記X (以 sample input 為例，會如下圖
所示，銀行對帳單(右邊欄)多了 1460與 2190，但少了 1330、1720、及2170)

Submit Your Code

Paste your code here
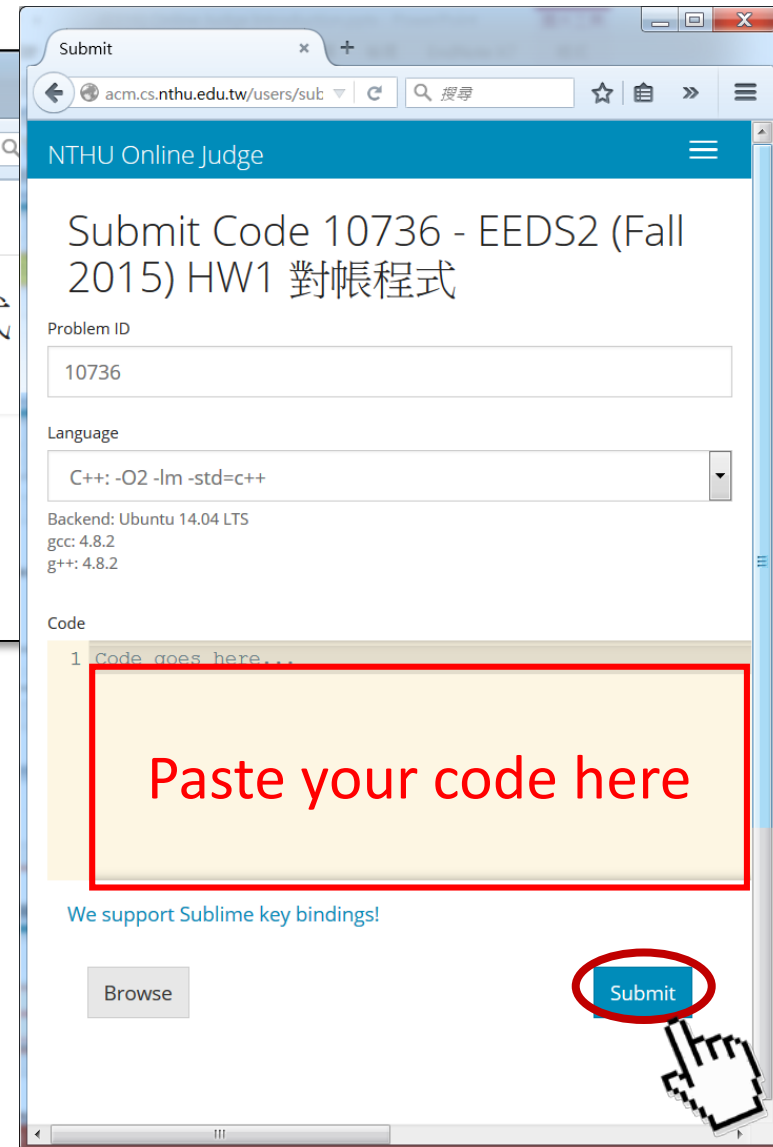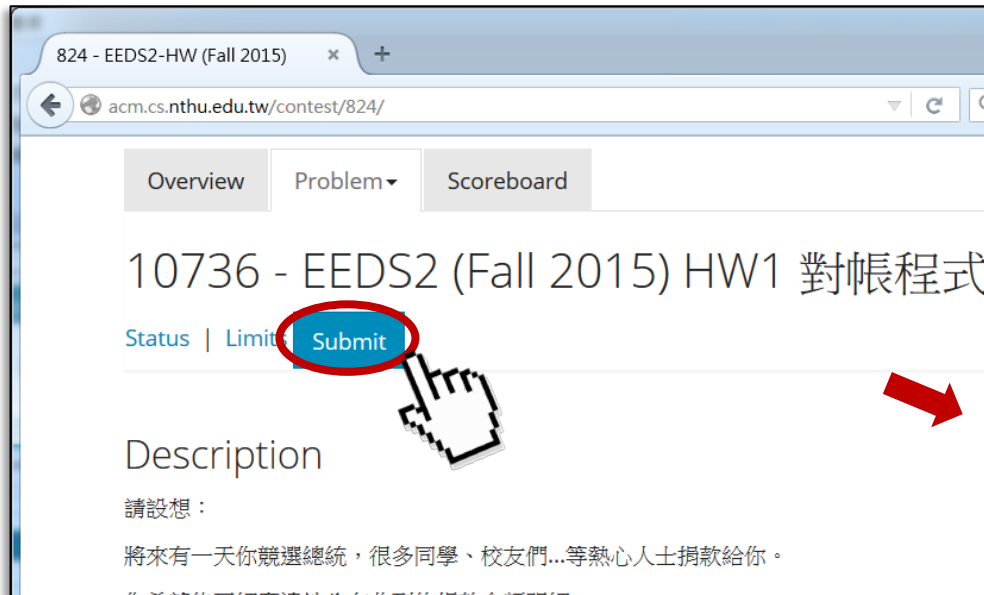
Check Out Your Results

Status of 1000 - The A+B Problem

Submit ID	Date	Username	Problem	Status	Source
1196052	2015-03-14 13:44:31	SC29182	1000 - The A+B Problem	All Accepted (2/2)	C
1196039	2015-03-14 13:37:56	DS2test	1000 - The A+B Problem	Not Accepted (0/2)	C++
1196038	2015-03-14 13:37:19	DS2test	1000 - The A+B Problem	Not Accepted (0/2)	C++
1195796	2015-03-13 14:12:21	DS2test	1000 - The A+B Problem	Judging by nthuoj-vm1	C++
1195795	2015-03-13 14:06:59	DS2test	1000 - The A+B Problem	Not Accepted (0/2)	C++
1195791	2015-03-13 13:55:07	DS2test	1000 - The A+B Problem	Not Accepted (0/2)	C++
1195790	2015-03-13 13:54:50	DS2test	1000 - The A+B Problem	Not Accepted (0/2)	C++
1195755	2015-03-13 11:26:07	DS2test	1000 - The A+B Problem	Not Accepted (0/2)	C++
1195750	2015-03-13 11:23:58	DS2test	1000 - The A+B Problem	Not Accepted (0/2)	C++
1195748	2015-03-13 11:20:16	hadesshark	1000 - The A+B Problem	All Accepted (2/2)	C++

Possible Results

- Compile Error
- Wrong Answer
- Runtime Error
- Restricted Function
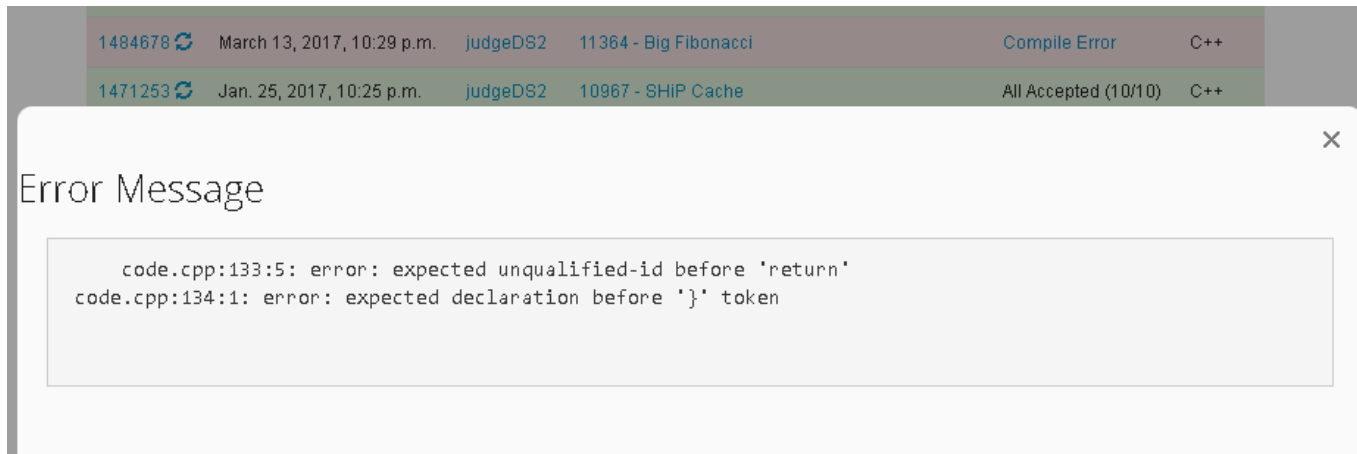- Representation Error
- Time limit exceeded

Per test case

Possible Results

- **Compile Error**: the code CANNOT be compiled
- **Wrong Answer**: the code can be compiled, but the outputs are not 100% identical to the expected results
- **Runtime Error**: the code can be compiled but faces errors during execution such as segmentation faults and division by zero
- **Restricted Function**: the code invokes some system-level functions such as fopen()
- **Representation Error**: the answer is almost correct except for some spaces or newline characters
- **Time limit exceeded**: it is probably that your code contains bugs that lead to infinite loops, or your algorithm is too complex

Compile Errors

- If the code cannot compile in your environment, either, you should read the error messages and resolve the errors in your environment.

- Online Judge can show what compile errors are

Runtime Error

- If your main function return non-zero values, OJ views it as a runtime error

- For example, the following code results in "Runtime Error" instead of "Wrong Answer"

```
#include <iostream>
using namespace std;
int main()
{
    cout << "these are definitely wrong answers";
    return 1;
}
```

- Similarly, exit(1) is interpreted as a runtime error

Runtime Error

- Segmentation faults and division-by-zero are also runtime errors

```cpp
#include <iostream>
using namespace std;
int a[100];
int main()
{
  for(int i=0; i<10000; i++){
    a[i] = 1;
  }
  return 0;
}
```

```cpp
#include <iostream>
using namespace std;
int a[100];
int main()
{
  for(int i=-10000; i<10000; i++){
    a[i] = 1;
  }
  return 0;
}
```

Runtime Error

- If your program uses too much memory, OJ treats it as a runtime error

Runtime Error

- Runtime error means that your program does contain a bug
  - A bug that violates the policies of the OS

- Runtime errors are difficult to debug
  - Your program can behave strangely
  - For example, adding useless variables into a program may change program behaviors

- Tips: Writing a program carefully in the first place
  - Array index, pointers, boundary conditions

Restricted Function

- fork, vfork, pause, create, truncate, chmod, chown, lchown, access, link, symlink, unlink, mkdir, rmdir, tmpfile, fopen, freopen, fopen64, freopen64, popen, rename, remove, fstream, ifstream, ofstream, setrlimit, getrlimit, system, sleep, execl, execv, execle, execve, execlp, execvp

- OJ can display the function name
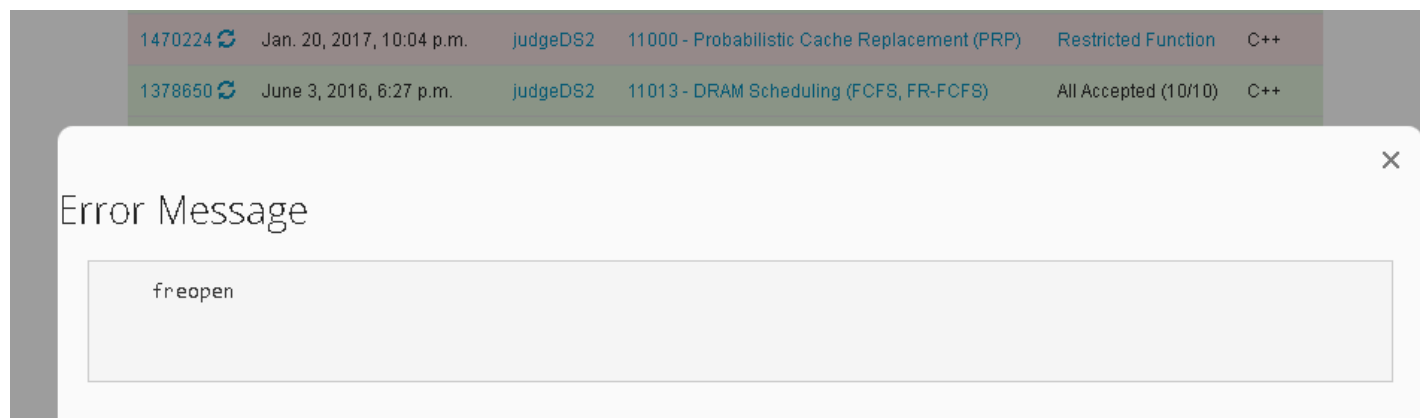
Wrong Answer

- You can feed sample inputs into your program and check whether the outputs are the same as the sample outputs
  - It is better to use a text comparison tool for comparing the outputs

- If your program work correctly with the sample inputs, you should check whether your program is not general enough to handle different inputs

- Runtime error can results in this situation, too

Time limit exceeded

- Your program contains an endless loop

- Your algorithm is not efficient enough

- Runtime error can results in this situation, too

Representation Error

- Answer is almost correct except for some spaces or newline characters

Hint

```cpp
#include <iostream>
using namespace std;
int main(void)
{
    //read until EOF
    while(cin >> ... ) {
        //processing ...
        cout << ...
    }
    return 0;
}
```

```cpp
#include <iostream>
using namespace std;
int main(void)
{
    //read until EOF
    while(scanf(…) != EOF) {
        //processing ...
        printf(…);
    }
    return 0;
}
```

The A+B Problem

```cpp
#include <iostream>
using namespace std;
int main(void)
{
  int a, b;
  //read until EOF
  while(cin >> a >> b ) {
    //processing ...
    cout << a+b << endl;
  }
  return 0;
}
```

The A+B Problem

```c
#include <stdio.h>
int main(void)
{
  int a, b;
  //read until EOF
  while(scanf("%d %d", &a, &b) != EOF) {
    //processing ...
    printf("%d\n", a+b);
  }
  return 0;
}
```

406

407

- We want 40 students to use R406 (Linux)