

Operation Imaginary II Introductory Session

27 May 2022

What is a grader?

A grader is a program to help to grade your code, especially when the task is interactive

TEMPLATE

```
1 #include "candles.h"
2
3 #include <vector>
4
5 using namespace std;
6
7 void birthday_candles(int N, int K, std::vector<int> B){
8     blow(1, N);
9     return;
10 }
```

X007 – Birthday Candles

You can use the information from the previous interactions to adjust your strategy

There would also be a 'sample grader' to help you to debug the code

Doing a grader problem

- Download the sample grader and **unzip** it to specified destination (replit, windows, mac)

SAMPLE GRADER

The sample grader reads the input in the following format:

line 1: N K

line 2: B_1 B_2 ... B_K

If your solution is correct, the output will be in the following format:

line 1: OK

line 2: C

If your solution is wrong, the output will be in the following format depending on the reason:

line 1: WA

line 2: Simple description of the reason for the wrong answer

[Download Attachments \(Sample Grader and Template\)](#)

File structure

- You can see the files
 - **candles.cpp** is the file that you need to modify – and **to submit**
 - **candles.h** is the header file(s) – it is necessary for compiling the code
 - **compile_cpp.sh**: for **mac** and **replit**. Type **bash compile_cpp.sh** to compile.
 - **compile_cpp.bat**: for **windows**. Type **compile_cpp** to compile.
 - **grader.cpp** is the grader – it is necessary for compiling the code
 - **sample-xx.in**: sample input

 candles	27/5/2022 0:05	C++ Source File	1 KB
 candles	27/5/2022 0:05	應用程式	142 KB
 candles.h	22/5/2022 17:25	C/C++ Header	1 KB
 compile_cpp	23/5/2022 17:02	Windows 批次檔案	1 KB
 compile_cpp	23/5/2022 16:56	Shell Script	1 KB
 grader	23/5/2022 2:42	C++ Source File	2 KB
 sample-01	23/5/2022 2:29	IN 檔案	1 KB

To compile and run the written code...

- Use either `compile_cpp.sh` or `compile_cpp.bat` to compile.
- For windows users,
 - Type `compile_cpp` to **compile**
 - Type `candles` (Note: depends on the problem name) to **run**
- For linux / replit users,
 - Type `bash compile_cpp.sh` to **compile**
 - Type `./candles` (Note: depends on the problem name) to **run**

Input

SAMPLE GRADER

The sample grader reads the input in the following format:

line 1: N K

line 2: B_1 B_2 $\dots$ B_K

Output

If your solution is correct, the output will be in the following format:

line 1: OK
line 2: C

If your solution is wrong, the output will be in the following format depending on the reason:

line 1: WA
line 2: Simple description of the reason for the wrong answer

Scoring

SCORING

On each test case, you will receive zero score if your program:

- does not exit correctly, or
- violates any rules mentioned in the section `Implementation`, or
- does not blow out all candles.

Otherwise, your score will depend on C , the number of times `blow()` is called, and opt , the optimal number of `blow()` needed.

$$score = \begin{cases} 100 & \text{if } C = opt \\ 25 + 50 \times (1 - \sqrt{\frac{C - opt}{K - opt}}) & \text{if } opt < C \leq K \\ 0 & \text{if } C > K \end{cases}$$

$K = 100$ $opt = 10$ $C = 10$ $score = 100.000$

Your score on a subtask is the lowest score you get among all test cases.

Hint for problem names

五月春夏豔陽天
花陰樹影低頭見
層叢綠葉熒光顯
閒取規尺作萬千

Thank you!