

PD2 2023

HW1

CSIE@NCKU 2023

Homework Description:

Given an Integer value N as the input (from command line arguments), please list all combinations “line by line” to the console in the form of “(X,Y)”, where $X+Y=N$, $X \geq 0$ and $Y \geq 0$. The output should be sorted by X in ascending order. Please also show the maximum value of $X*Y$ in the last line.

Deadline:

2023/3/14 23:59.

HW1 should be submitted before the deadline. No excuse to submit your code after the deadline. TA will copy your code at 2023/3/15 0:01. If your code is not in the HW1 Folder, you will get score '0'.

Example:

When $N=5$. The output will be (print in the console):

(0,5)

(1,4)

(2,3)

(3,2)

(4,1)

(5,0)

6

Input:

5

Output:

(0,5)

(1,4)

(2,3)

(3,2)

(4,1)

(5,0)

6

Note:

1. $N > 0$ and $N < 1000$.
2. Remember to order the output by X line by line. We will examine your correctness by our shell script without any excuse.
3. Please list the result to console. We will use the shell operator ">" to an output file named "result".
4. You need to declare the executable file named "**hw1**" which will be generated by using your makefile with "make all".
5. We will only give a single integer as the input. You don't need to take care of any datatype exception.
6. For the convenience of checking your homework, **Output** must **not contain any blank characters or other characters**, otherwise your score will be deducted.

Correct format :

```
(0,5)
(1,4)
(2,3)
(3,2)
(4,1)
(5,0)
6
```

Incorrect format :

```
(0,5)      (<<blank characters)
(1,4)
(2,3)
(3,2)
(4,1)
(5,0)
6
```

How to Submit:

Please pay attention to the following instructions when submitting homework:

1. Under your account folder, create the folder named "**HW1**".
(*Please note that you must pay attention to the correct capitalization. If we cannot correctly copy the folder HW1, you will get score '0'.)
2. Put every necessary file under the folder, including :
 - i. Your **main program**, such as main.cpp, main.h, program.h, etc.
 - ii. **makefile** (*Name your executable file as "**hw1**")
3. Make sure it works normally under the folder and all files are in the correct path.

Examples of files submitted:

```
netdb@2023pd2:/home/vs6112030/HW1$ pwd
/home/vs6112030/HW1
netdb@2023pd2:/home/vs6112030/HW1$ ls
hw1  main.cpp  makefile
```

Example code of reading command line arguments:

```
#include <iostream>
using namespace std;

int main(int argc, char** argv)
{
    cout << "You have entered " << argc
          << " arguments:" << "\n";

    for (int i = 0; i < argc; ++i)
        cout << argv[i] << "\n";

    return 0;
}
```