CSE102 Structured Programming Language Sessional
Online on loops

Section: B
Time: 40 minutes

Problem description

You are given an input integer n. **You have to print the pattern as specified in the sample input/output.** The pattern will have $n + 1$ lines. In the k-th line, the number of stars ('*') is a coefficient of binomial expansion which is $C(n, k)$ where $0 \leq k \leq n$. The value of $C(n, k)$ can be computed as

$$C(n, k) = \frac{n!}{k!(n - k)!}$$

Rules

- You cannot use any library functions except printf() and scanf(). No other function usage is allowed
- You cannot define your own function. Write all your code in main()

Input

The input contains an integer n $(1 \leq n \leq 10)$.

Output

The output will contain $n + 1$ lines.
The k-th line will contain $C(n, k)$ number of '*' characters. The lines will be right aligned (see the sample I/O below)
For example, if $n = 3$, then , $C(3, 1) = 3$, $C(3, 2) = 3$, $C(3, 0) = 1$, $C(3, 3) = 1$.
Therefore, the output will contain $3 + 1 = 4$ lines with 1, 3, 3, and 1 stars respectively.
If $n = 6$, then $C(6, 0) = 1$, $C(6, 1) = 6$, $C(6, 2) = 15$, $C(6, 3) = 20$, $C(6, 4) = 15$, $C(6, 5) = 6$, and $C(6, 6) = 1$. So your output will contain 1, 6, 15, 20, 15, 6, 1 stars respectively.

Sample I/O

The

Input	Output
| 3 | ```
  *
***
***
  *
``` |
| 6 | ```
     *
   ******
 **************
******************
 **************
   ******
     *
``` |
| 8 | ```
                              *
                        ********
                  **************************
        ********************************************
**********************************************************
        ********************************************
                  **************************
                        ********
                              *
``` |

Marks distribution

Total marks:	20
Correct implementation of $C(n, k)$:	10
Correctly printing:	10

Submission Guideline

1. Create a new folder named "*<your 7-digit student ID>_online_loop*".
2. Your .c file should be named "*<your 7-digit student ID>.c*".
3. Put your .c file (not .exe or .o files) in the folder created in step 1.
4. Right click on the folder, select "*send to > compressed (zipped) folder*" to zip the folder.
5. Submit the zip file on moodle.

For example, if your student ID is 2305999, then, write your collusion in "2305999.c" and create a folder called "2305999_online_loop". Put the .c file in the folder and zip it.