

# Introduction to Computers and Programming

## Homework 3

2022/09/27

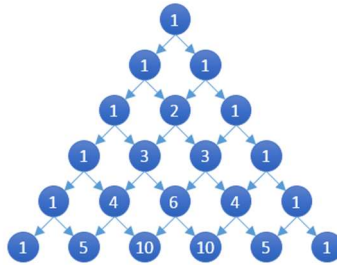
### 1. Deadline

You have one week to complete the homework. Hand in your homework via E3 before 2022/10/03 23:55. Note that late submissions will not be accepted. In addition, make sure that your code can be executed on Visual Studio Community 2019.

### 2. Problems

#### 2.1 Pascal Triangle

Pascal triangle is a triangular number pattern named after famous mathematician Blaise Pascal. The triangle may be constructed in the following manner: In row 0 (the topmost row), there is a unique nonzero entry 1. Each entry of each subsequent row is constructed by adding the number above and to the left with the number above and to the right, treating blank entries as 0.



**Hint:** To find k-th element in row n of a Pascal triangle we use following formula.

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

#### Input

One positive integer, representing the number of rows.

#### Output

Print out the Pascal triangle with correct pattern.

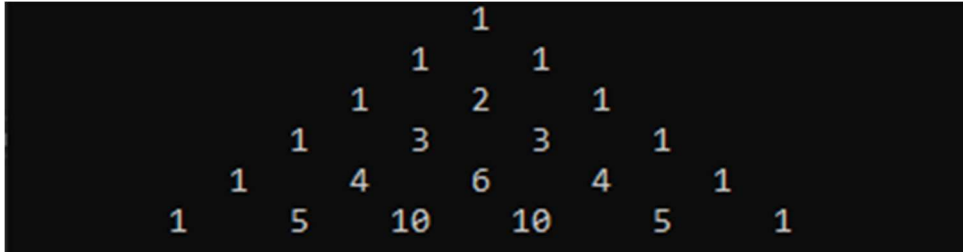
1. 3n white spaces at the beginning of each row.
2. The integers should be printed with 6-character width. (%6d)

### Example :

**Input**

6

**Output**



## 2.2 Sum of two prime numbers

Check whether a number can be express as sum of two prime numbers.

$$16 = 1 + 15$$

$$16 = 2 + 14$$

$$16 = 3 + 13 \rightarrow \text{both are prime}$$

$$16 = 4 + 12$$

$$16 = 5 + 11 \rightarrow \text{both are prime}$$

$$16 = 6 + 10$$

$$16 = 7 + 9$$

**Input**

One positive integer.

**Output**

Print out the formulas of all the possible combinations or “The number can’t be express as sum of two prime numbers.”

### Example 1:

**Input**

16

**Output**

16 can be written as 3 + 13.

16 can be written as 5 + 11.

### Example 2:

**Input**

11

**Output**

The number can’t be express as sum of two prime numbers.