Exercise #4

- You don't need to turn in your homework, but you should practice all problems because they may appear in the next exam. 作業自己練習就好，不用繳交，之後考試可能會出現類似題目
- 想多找些題目練習程式的，可以到底下網站看看，有些考試題目會從裡面出
  If you want to find more questions to practice your program skill, you can look at the leetcode website and some exam questions will come out from leetcode.
  https://leetcode.com/problemset/all/

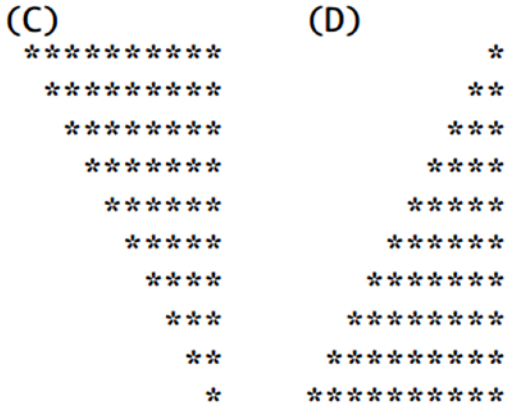
■ Part 1: using for-loop to solve the following problems

☐ **Problem 1**. 一個整數 a，a 加上 100 後是一個完全平方數，a 加上 268 又是一個完全平方數， 找 1...100,000 之間有多少符合條件？

A **square number** or **perfect square** is an integer that is the square of an integer. For example, 9 is a square number, since it can be written as 3 × 3. write a program to list the numbers between 1 to 100,000 that the number plus 100 and plus 268 is a perfect square, respectively.

Use sqrt() function. Import math

☐ **Problem 2**. Use for-loop to output the following patterns



☐ **Problem 3.** Write a program that reads a nonnegative integer n and computes and prints the answers of 1! + 2! + … + n!

Add a while-loop to continuously input n

Input 0 to end the program. You should verify that the input is a non-negative integer.

☐ **Problem 4.** ***(Prime Numbers)*** An integer is said to be *prime* if it's divisible by only 1 and itself.

For example, 2, 3, 5 and 7 are prime, but 4, 6, 8 and 9 are not.

Write a program that determines if a number is prime.

- Part 2: string
  - **Problem 5.** Assume that word is a variable of type String that has been assigned a value.

    Write a program whose value is a String consisting of the last three characters of the value of word.

    So if the value of word were **"biggest"** the output value would be **"est"**.