Exercise #3

- You must understand how to find your ipynb file. If you upload a wrong file, you will receive a *grade of zero.* 務必自己練習 jupyter notebook 如何抓到你的 ipynb 檔案，考試上傳失敗就是 0 分
- 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

☐ **Problem 1**. Use the variables k and total to write a while loop that computes the **sum** of the **squares** of the first 50 counting numbers, and associates that value with total.

- ◘ Thus your code should associate 1*1 + 2*2 + 3*3 +... + 49*49 + 50*50 with total. Use no variables other than k and total.

☐ **Problem 2**. Write a while-loop program that reads a nonnegative integer and computes and prints its factorial repeatedly. **Input 0 to end the program. You should validate whether or not the input is a nonnegative integer.**

☐ **Problem 3**. Write a program that computes the value of e^x by using the formula:

$$e^x = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \cdots$$

☐ **Problem 4.** Input the upper number for the range. Find all of the perfect numbers in the range.

☐ **Problem 5**. Input a positive integer n, output the n-th value of the Fibonacci sequence. (starting at 0)

- ◘ For example, if n is associated with the value 8 then result would be associated with 21.