In this assignment, you can use all the Python built-in functions as well as the math module. You cannot use any other module.

1. **Please write all the three following functions in one Jupyter notebook file.**
2. Write a function named “factorial”.
   1. It takes a non-negative integer as the only parameter. It returns the factorial of this integer. Note that 0! = 1.
   2. Catch the following exceptions and provide appropriate error message:
      1. Non-numeric argument
      2. Non-integer number
      3. Negative integer
3. Write a function named “combination”.
   1. It takes two inputs: the first input integer n is the total number of objects in a set; the second input integer k is the number of objects selected from the set.
   2. The function returns an integer showing the number of combinations of N objects taken n at a time.
   3. Must use your own function “factorial”.
4. Write a function named “permutation”.
   1. It takes two inputs: the first input integer n is the total number of objects in a set; the second input integer k is the number of objects selected from the set.
   2. The function returns an integer showing the number of permutations of N objects taken n at a time.
   3. Must use your own function “factorial”.
5. **In the Jupyter notebook, use your functions to answer all the questions on Slides 4 and 5 of Ch04.ppt that accompanies the video AWS04. Make sure you provide succinct comments in your Jupyter notebook so that people understand what you try to do.**