

# COSC2429 – Introduction to Programming

## Assessment 2 – Test 1 – 2022C

### Individual – Timed Programming Test 1

**Deadline:** Saturday 10:00 AM + 05 minutes, Week 4

**Late work:** No late submissions

#### Submission Instructions

- 1) Only submit the python files, name your files as question1.py, question2.py, ....
  - No capital letter in the file names
  - Make sure it works properly (PyCharm, Python 3.8x)
  - If you use any other python version/IDE, you must note that in the comment at the beginning of your code
- 2) Place all your files in **ONE folder**:
  - named the folder as **<Your sID\_Name>**, where 'sID' is your student ID, and 'name' is your full name. This is a correct way to name your folder: s1234567\_NguyenMinhNhat
- 3) Zip the folder <Your sID\_Name>, and submit **only this zip file** to Canvas
- 4) Point deduction will be given if you:
  - Have incorrect file names, function names, variable names.
  - Forget file header in the correct format.
  - Forget function docstrings in the correct format.
  - Have no or little code comment.
  - Writing too long and repetitive code where iteration can help shorten it.
  - Place all your code in the main program without using functions.

#### Question 1

Assume that in some defective production line, one faulty item was produced after every six nonfaulty items. To track the faulty items within a certain period of time, we need to complete the following tasks:

- a. Define a function with an integer parameter **n** that prints all integers in the interval **[n, 4n)** that are divisible by **7**. *Note: the interval **[n, 4n)** contains all integers from **n** (inclusive) to **4n** (exclusive).*
- b. In the main program (user interface), the prompt asks the user to input an integer **num** that is greater than **2**. Call the function you wrote in part a. with the parameter value **num** and display the output which should look like in the example below.

*Input:* Enter an integer number: 10

*Output:* 14  
21  
28  
35

*Explanation:* there are four integers in the interval **[10, 40)** that are divisible by **7**. They are **14, 21, 28, and 35**.

#### Question 2

Write a function to find the factorial of a positive integer number. The factorial means to multiply all whole numbers from the chosen positive integer number down to 1.

For example, the factorial of 4 is:  $4! = 4 \times 3 \times 2 \times 1 = 24$

Then, in the main program ask users to enter an integer number and prompt the factorial of that number. *Note that the factorial of 0 is 1, and no factorial for negative numbers.*

*Example 1: Input:* Enter an interger number: 5

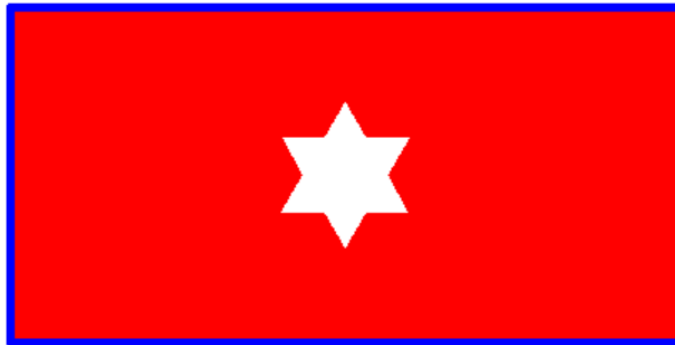
*Output:* The fatorial of 5 is 120.

*Example 2: Input:* Enter an interger number: -15

*Output:* Factorial does not exist for negative numbers.

### Question 3

Draw a flag using Turtle as shown in the figure below. The dimension of the flag is **400 x 200**. The **border of the flag** must have pen of size "**5 points**" and colour set as **blue**. A star like graphics is located at the center of the flag in **white colour**. This means, the graphics must have **06 pointed shapes, with the internal degree of 60** and the orientation as shown in the figure. You may use for/while loop to avoid repetition in the code.



### Question 4

Define a function to reverse a given integer number. Then, in the main program ask users to input one integer number and show the reverse of that number.

*Example 1: Input:* Enter an interger number: 12345

*Output:* The reversed number is 54321

*Example 2: Input:* Enter an interger number: -12345

*Output:* The reversed number is -54321

----- End of the Test -----