Python Frank's Factorial Factory

Time required: 60 minutes

- Comment each line of code as shown in the tutorials and other code examples.
- Follow all directions carefully and accurately.
- Think of the directions as minimum requirements.

Pseudocode

1. Write pseudocode for the exercise
2. Submit with the assignment

Factorial

In mathematics, the factorial is the product of all positive whole numbers less than or equal to a target number.

In a math equation, factorial is denoted with an exclamation mark.

For example, let's calculate the factorial of 5:

```
5! = 5 x 4 x 3 x 2 x 1 = 120
```

How It Works

One way to solve this problem is to iterate the value from start to end using a for or a while loop. For every number, multiply by the last product and accumulate the result.

Tutorial 1: Frank's Factorial Factory

This is a hard coded program that finds the factorial of 9!

```python
"""
   Name: factorial.py
   Author:
   Created:
   Purpose: Find factorial of a number
"""

# Find the factorial of this number
number = 7
# Starting point to calculate factorial of given number
# 1 * 1 is the first factorial calculation
factorial = 1

for n in range(1, number + 1):

    # Multiply current factorial * n, accumulate the product
    factorial = factorial * n

    # Print each result to show the individual calculations
    print(f" Factorial of {n} = {factorial}")
```

Example run:

```
Factorial of 1 = 1
Factorial of 2 = 2
Factorial of 3 = 6
Factorial of 4 = 24
Factorial of 5 = 120
Factorial of 6 = 720
Factorial of 7 = 5040
```

Assignment 1: Factorial Factory with Input

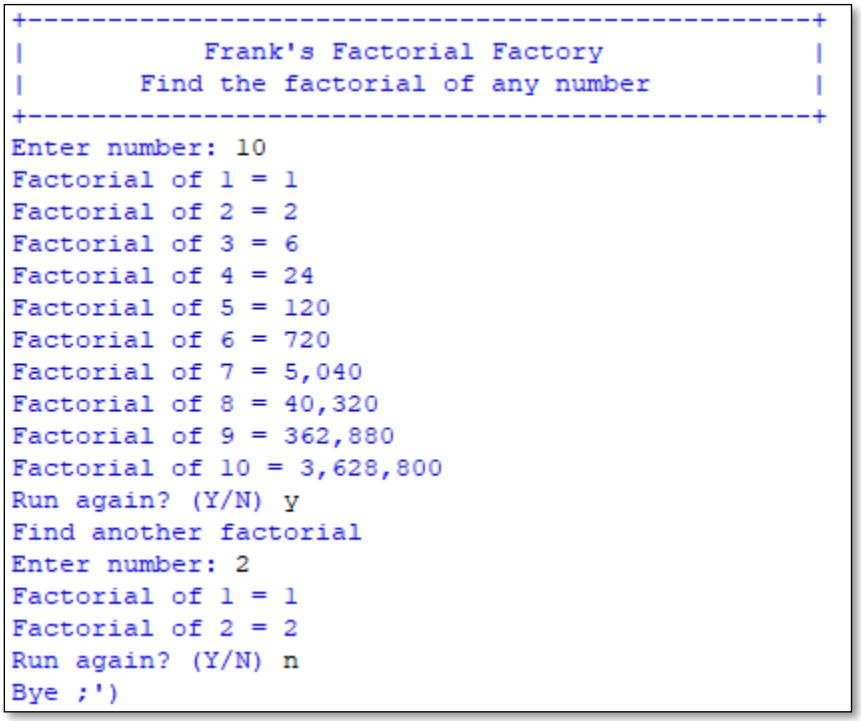
Requirements

At a minimum, create the following functions

1. **main**: This will primarily be function calls
2. **title**: Print a creative program title
3. **input**: Get whole number input from user
4. **factorial**: Calculate and print the factorial of the number
5. **menu**: Add a menu loop that allows the user to run the program again

Example run:

```
+-------------------------------------------------+
|           Frank's Factorial Factory             |
|       Find the factorial of any number          |
+-------------------------------------------------+
Enter number: 10
Factorial of 1 = 1
Factorial of 2 = 2
Factorial of 3 = 6
Factorial of 4 = 24
Factorial of 5 = 120
Factorial of 6 = 720
Factorial of 7 = 5,040
Factorial of 8 = 40,320
Factorial of 9 = 362,880
Factorial of 10 = 3,628,800
Run again? (Y/N) y
Find another factorial
Enter number: 2
Factorial of 1 = 1
Factorial of 2 = 2
Run again? (Y/N) n
Bye ;')
```



Assignment Submission

1. Attach the pseudocode.
2. Attach the program files.

3. Attach screenshots showing the successful operation of the program.
4. Submit in Blackboard.