

Task 2.2P

Define a function which accepts a passed argument and calculates its factorial. A program accepts user's input and calls the function. (Please use recursive function call in the function definition.) (Sample output as shown in the following figure is for demonstration purposes only.)

The screenshot shows a Jupyter Notebook with a single code cell. The code defines a recursive function `recursive_factorial(x)` and a main execution block. The function uses a base case of `x == 0 or x == 1` to return 1, and a recursive case to return `x * recursive_factorial(x - 1)`. The main block uses a `while True` loop with a `try` block to get user input, check if it's a non-negative integer, and print the result of the recursive function. The output shows the program running and calculating the factorial of 5, resulting in 120.

```

In [1]: def recursive_factorial(x):
        if x == 0 or x == 1:
            return 1
        else:
            return x * recursive_factorial(x - 1)

        while True:
            try:
                # Get a non-negative integer from the user
                num = int(input("Please input a non-negative integer: "))
                # Check if the number is non-negative
                if num < 0:
                    print("Please enter a non-negative integer")
                    raise
            except ValueError:
                print("Please enter a valid integer")

            # Call the recursive factorial function and display the result
            print("Factorial of {} = {}".format(num, recursive_factorial(num)))

        Please input a non-negative integer: 5
        Please enter a non-negative integer
        Please input a non-negative integer: 5
        factorial of 5: 120
    
```