

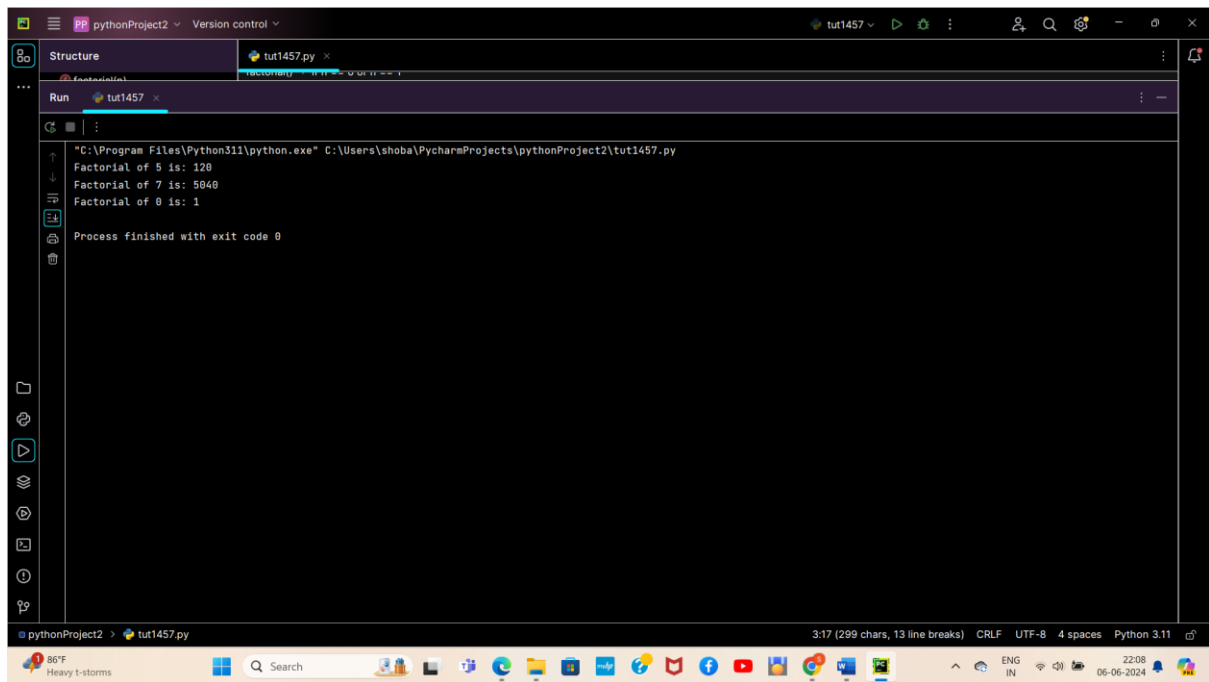
CSA0670-Design and Analysis of Algorithms for Tractability Problems.

5. Write a program to find the Factorial of a number using recursion.

Program:

```
def factorial(n):  
    if n == 0 or n == 1:  
        return 1  
    return n * factorial(n - 1)  
  
num = 5  
print("Factorial of {} is: {}".format(num, factorial(num)))  
  
num = 7  
print("Factorial of {} is: {}".format(num, factorial(num)))  
  
num = 0  
print("Factorial of {} is: {}".format(num, factorial(num)))
```

Output:



The screenshot shows the PyCharm IDE interface. The top toolbar includes icons for running and debugging. The 'Run' tab is active, displaying the execution output. The command prompt shows the path to the Python interpreter and the script file. The output text is as follows:

```
"C:\Program Files\Python311\python.exe" C:\Users\shoba\PycharmProjects\pythonProject2\tut1457.py
Factorial of 5 is: 120
Factorial of 7 is: 5040
Factorial of 8 is: 1
Process finished with exit code 0
```

The bottom status bar indicates the file is 'tut1457.py' with 3:17 (299 chars, 13 line breaks), CRLF line endings, UTF-8 encoding, 4 spaces, and Python 3.11.

Time Complexity: $O(n)$