

Assignment-CO2

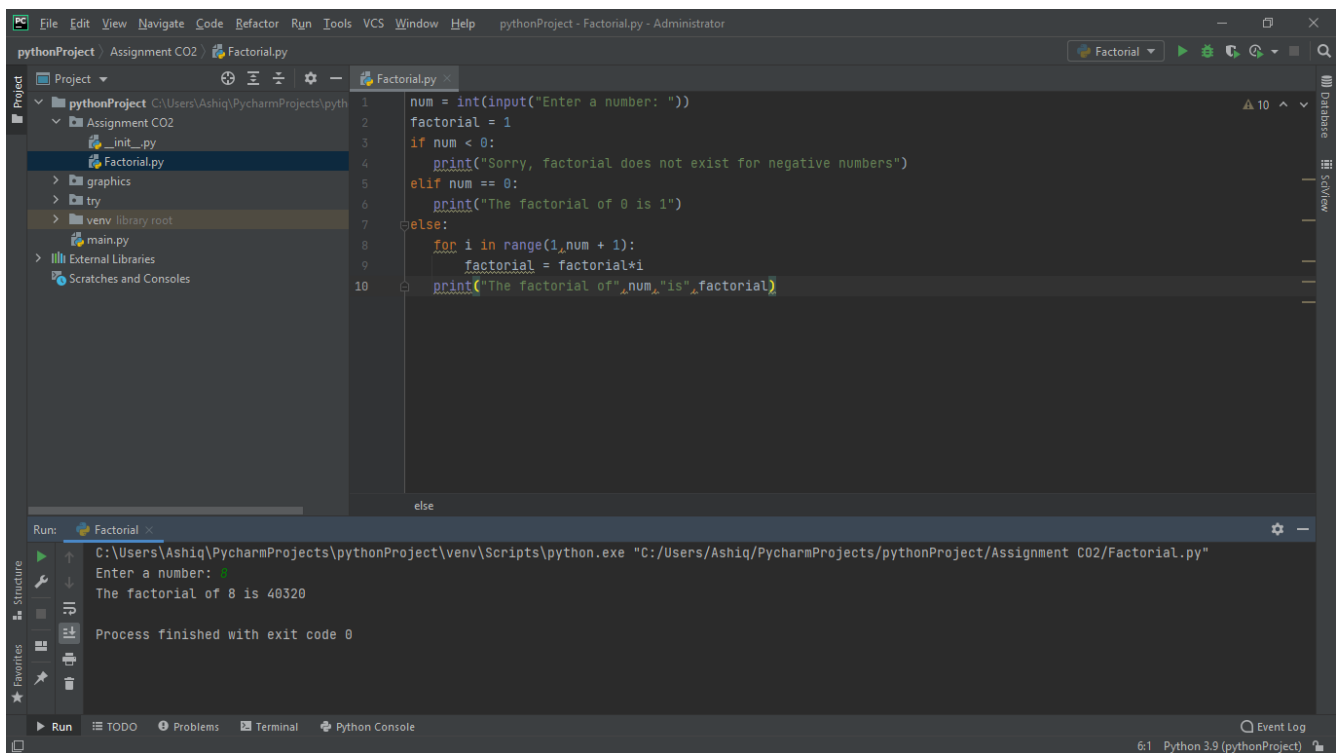
submission on 03/02/21

1. Write a program to find the factorial of a number?

Program

```
num = int(input("Enter a number: "))
factorial = 1
if num < 0:
    print("Sorry, factorial does not exist for negative numbers")
elif num == 0:
    print("The factorial of 0 is 1")
else:
    for i in range(1, num + 1):
        factorial = factorial*i
    print("The factorial of", num, "is", factorial)
```

Output



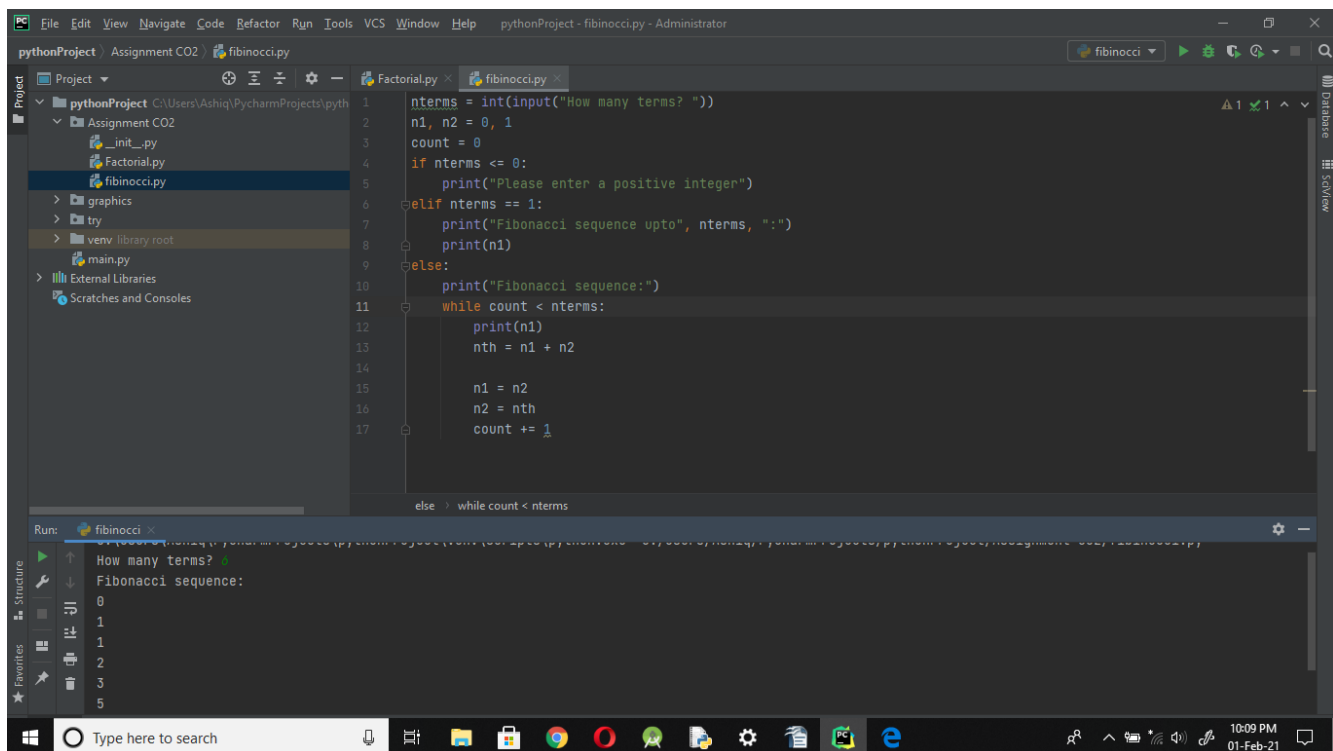
2.Generate Fibonacci series of N terms ?

Program

```
nterms = int(input("How many terms? "))
n1, n2 = 0, 1
count = 0
if nterms <= 0:
    print("Please enter a positive integer")
elif nterms == 1:
    print("Fibonacci sequence upto",nterms,":")
    print(n1)
else:
    print("Fibonacci sequence:")
    while count < nterms:
        print(n1)
        nth = n1 + n2

        n1 = n2
        n2 = nth
        count += 1
```

Output



The screenshot displays the PyCharm IDE interface. The main editor window shows the Python code for generating the Fibonacci series. The code is as follows:

```
1 nterms = int(input("How many terms? "))
2 n1, n2 = 0, 1
3 count = 0
4 if nterms <= 0:
5     print("Please enter a positive integer")
6 elif nterms == 1:
7     print("Fibonacci sequence upto", nterms, ":")
8     print(n1)
9 else:
10    print("Fibonacci sequence:")
11    while count < nterms:
12        print(n1)
13        nth = n1 + n2
14
15        n1 = n2
16        n2 = nth
17        count += 1
```

The left sidebar shows the project structure with files like `__init__.py`, `Factorial.py`, and `fibonacci.py`. The bottom panel shows the output of the program, which is:

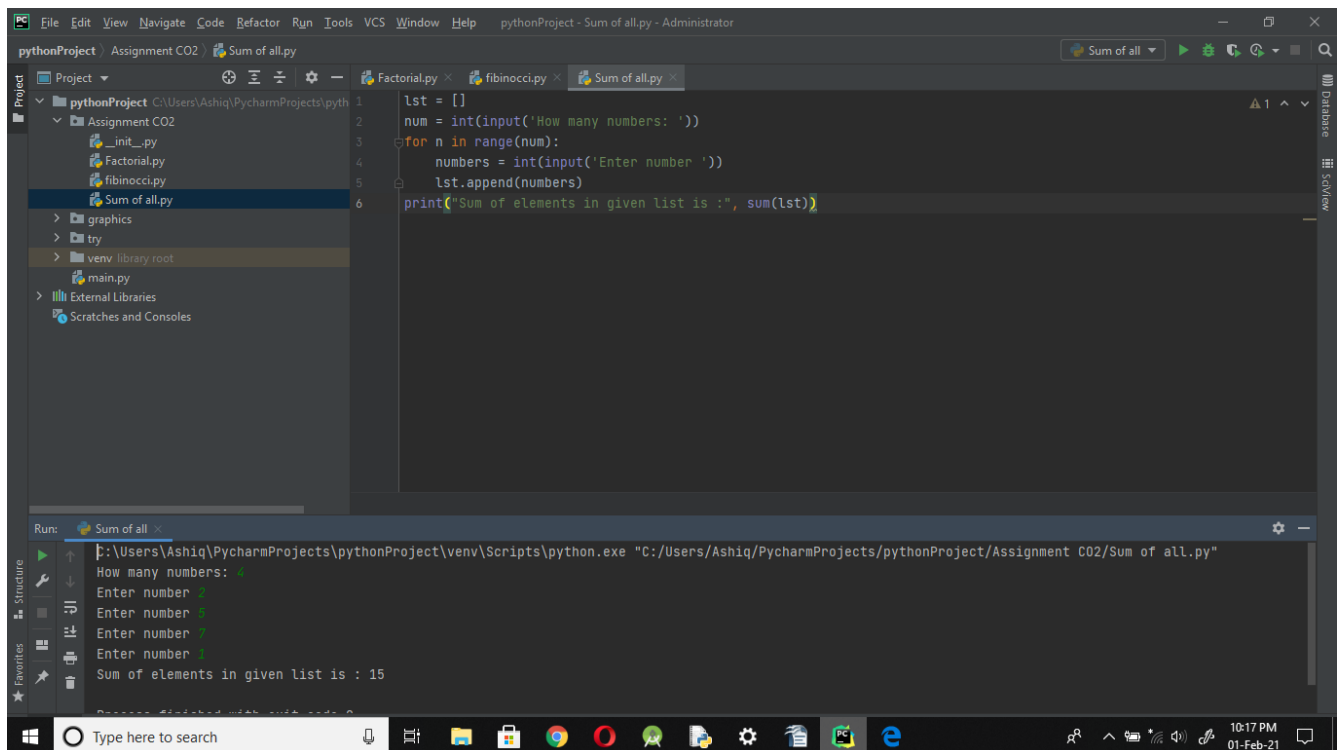
```
Run: fibonacci x
How many terms? 5
Fibonacci sequence:
0
1
1
2
3
5
```

3. Find the sum of all items in a list ?

Program

```
lst = []
num = int(input('How many numbers: '))
for n in range(num):
    numbers = int(input('Enter number '))
    lst.append(numbers)
print("Sum of elements in given list is :", sum(lst))
```

Output

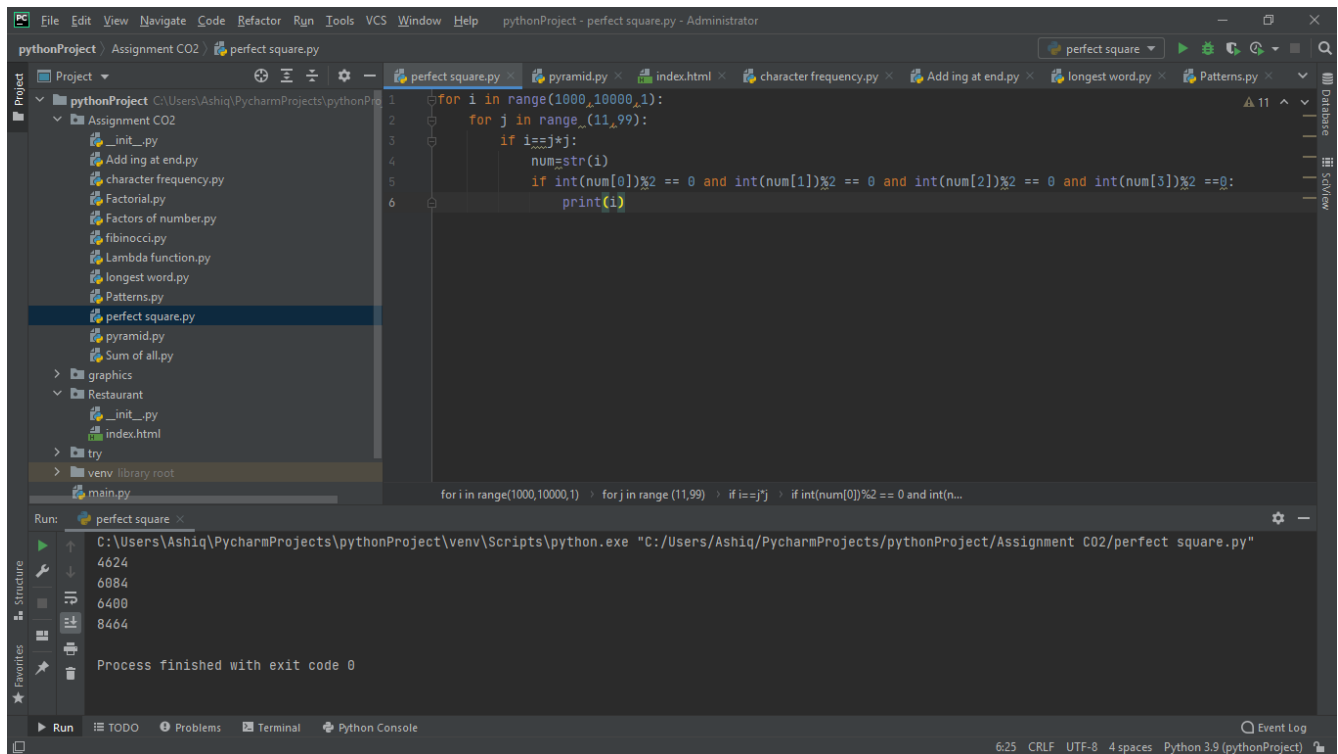
The screenshot shows the PyCharm IDE interface. The top toolbar includes icons for File, Edit, View, Navigate, Code, Refactor, Run, Tools, VCS, Window, and Help. The project explorer on the left shows a project named 'pythonProject' with a sub-project 'Assignment C02' containing files like '_init_.py', 'Factorial.py', 'fibonacci.py', and 'Sum of all.py'. The main editor window displays the code for 'Sum of all.py', which is identical to the program provided in the previous block. The bottom console window shows the execution output: 'How many numbers: 5', followed by five prompts 'Enter number' with user inputs, and finally 'Sum of elements in given list is : 15'. The Windows taskbar at the bottom shows the system clock as 10:17 PM on 01-Feb-21.

4. Generate a list of four digit numbers in a given range with all their digits even and the number is a perfect square ?

Program

```
for i in range(1000,10000,1):
    for j in range(11,99):
        if i==j*j:
            num=str(i)
            if int(num[0])%2 == 0 and int(num[1])%2 == 0 and int(num[2])%2 == 0 and int(num[3])%2
==0:
                print(i)
```

Output



```
1 for i in range(1000,10000,1):
2     for j in range(1,11,99):
3         if i==j*j:
4             num=str(i)
5             if int(num[0])%2 == 0 and int(num[1])%2 == 0 and int(num[2])%2 == 0 and int(num[3])%2 == 0:
6                 print(i)
```

Run: perfect square

C:\Users\Ashiq\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:/Users/Ashiq/PycharmProjects/pythonProject/Assignment C02/perfect square.py"

4624
6084
6400
8464

Process finished with exit code 0

5.Display the given pyramid with step number accepted from user ?

Eg: N=4

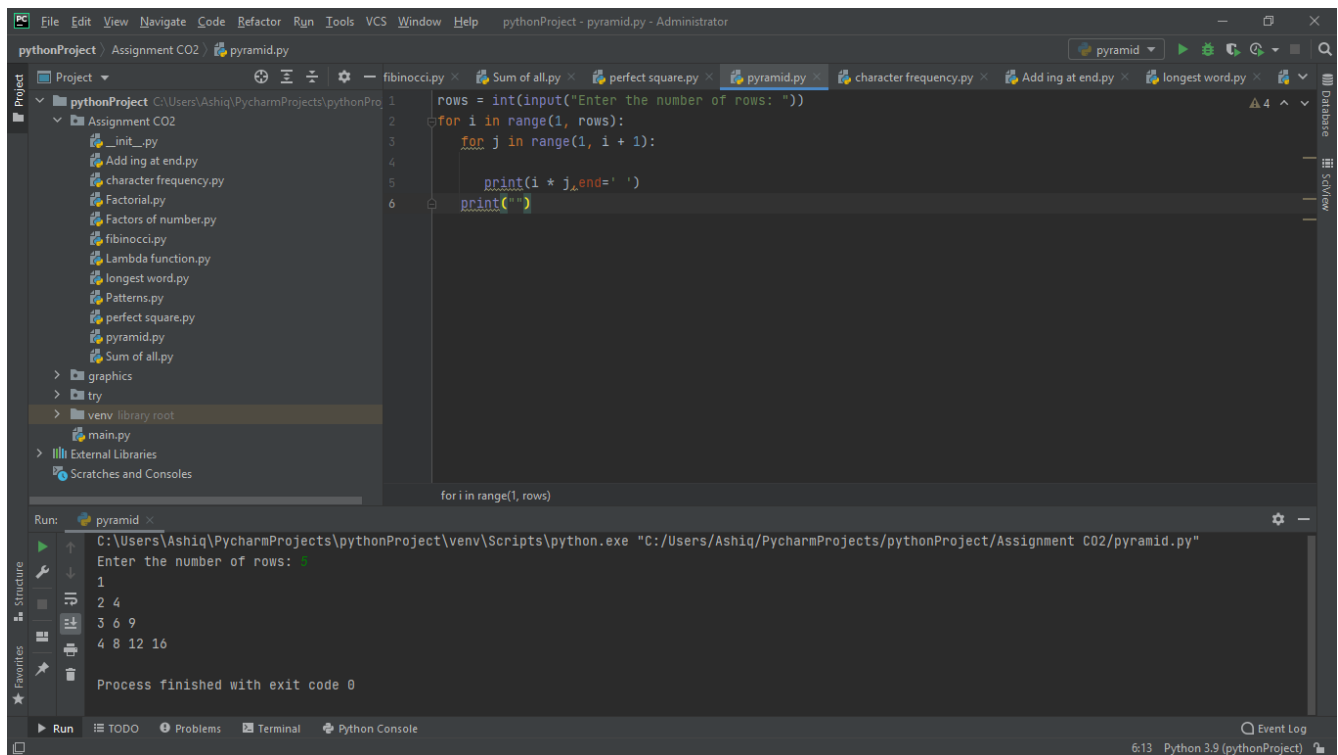
1
2 4
3 6 9
4 8 12 16

Program

```
rows = int(input("Enter the number of rows: "))
for i in range(1, rows):
    for j in range(1, i + 1):

        print(i * j,end=' ')
    print("")
```

Output



```
1 rows = int(input("Enter the number of rows: "))
2
3 for i in range(1, rows):
4     for j in range(1, i + 1):
5         print(i * j, end= ' ')
6     print("")
```

Run: pyramid

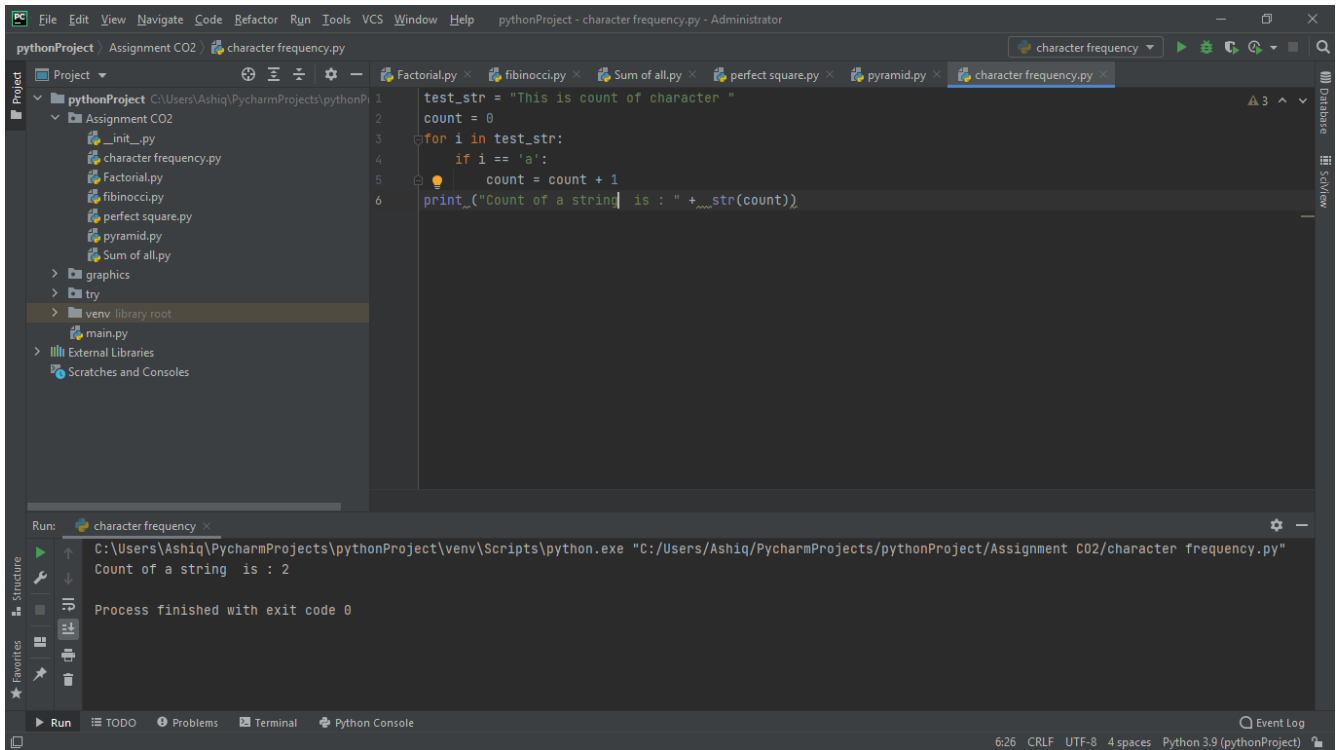
```
C:\Users\Ashiq\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:/Users/Ashiq/PycharmProjects/pythonProject/Assignment C02/pyramid.py"
Enter the number of rows: 4
1
2 4
3 6 9
4 8 12 16
Process finished with exit code 0
```

6.Count the number of characters (character frequency) in a string ?

Program

```
test_str = "This is count of character"
count = 0
for i in test_str:
    if i == 'a':
        count = count + 1
print ("Count of a string is : " + str(count))
```

Output



The screenshot shows the PyCharm IDE interface. The main editor window displays a Python script named `character frequency.py` with the following code:

```
1 test_str = "This is count of character "  
2 count = 0  
3 for i in test_str:  
4     if i == 'a':  
5         count = count + 1  
6 print("Count of a string is : " + str(count))
```

The left sidebar shows the project structure for `pythonProject`, including a folder `Assignment C02` containing several Python files like `_init_.py`, `character frequency.py`, `Factorial.py`, `fibonacci.py`, `perfect square.py`, `pyramid.py`, and `Sum of all.py`. The bottom panel shows the `Run` output for `character frequency`, displaying the command executed and the output:

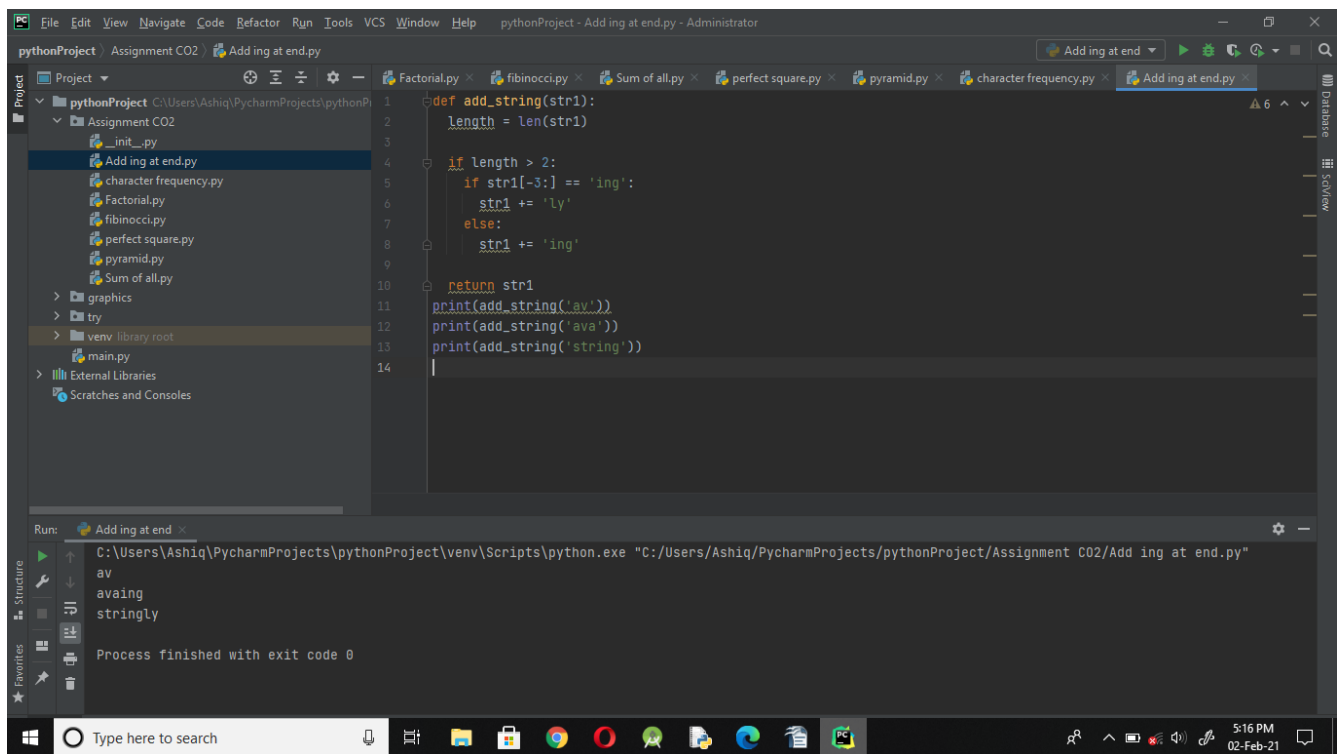
```
C:\Users\Ashiq\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:/Users/Ashiq/PycharmProjects/pythonProject/Assignment C02/character frequency.py"  
Count of a string is : 2  
Process finished with exit code 0
```

7. Add 'ing' at the end of a given string. If it already ends with 'ing', then add 'ly' ?

Program

```
def add_string(str1):  
    length = len(str1)  
  
    if length > 2:  
        if str1[-3:] == 'ing':  
            str1 += 'ly'  
        else:  
            str1 += 'ing'  
  
    return str1  
print(add_string('av'))  
print(add_string('ava'))  
print(add_string('string'))
```

Output



The screenshot shows the PyCharm IDE interface. The main editor window displays a Python script named 'Add ing at end.py'. The script defines a function 'add_string(str1)' that checks the length of the input string. If the length is greater than 2, it checks if the last three characters are 'ing'. If so, it appends 'ly' to the string; otherwise, it appends 'ing'. The function returns the modified string. Below the function definition, there are three print statements: 'print(add_string('av'))', 'print(add_string('ava'))', and 'print(add_string('string'))'. The Run window at the bottom shows the output of the script: 'av', 'avaing', and 'stringly'. The process finished with exit code 0.

```
def add_string(str1):
    length = len(str1)
    if length > 2:
        if str1[-3:] == 'ing':
            str1 += 'ly'
        else:
            str1 += 'ing'
    return str1
print(add_string('av'))
print(add_string('ava'))
print(add_string('string'))
```

Run: Add ing at end

C:\Users\Ashiq\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:/Users/Ashiq/PycharmProjects/pythonProject/Assignment C02/Add ing at end.py"

av
avaing
stringly

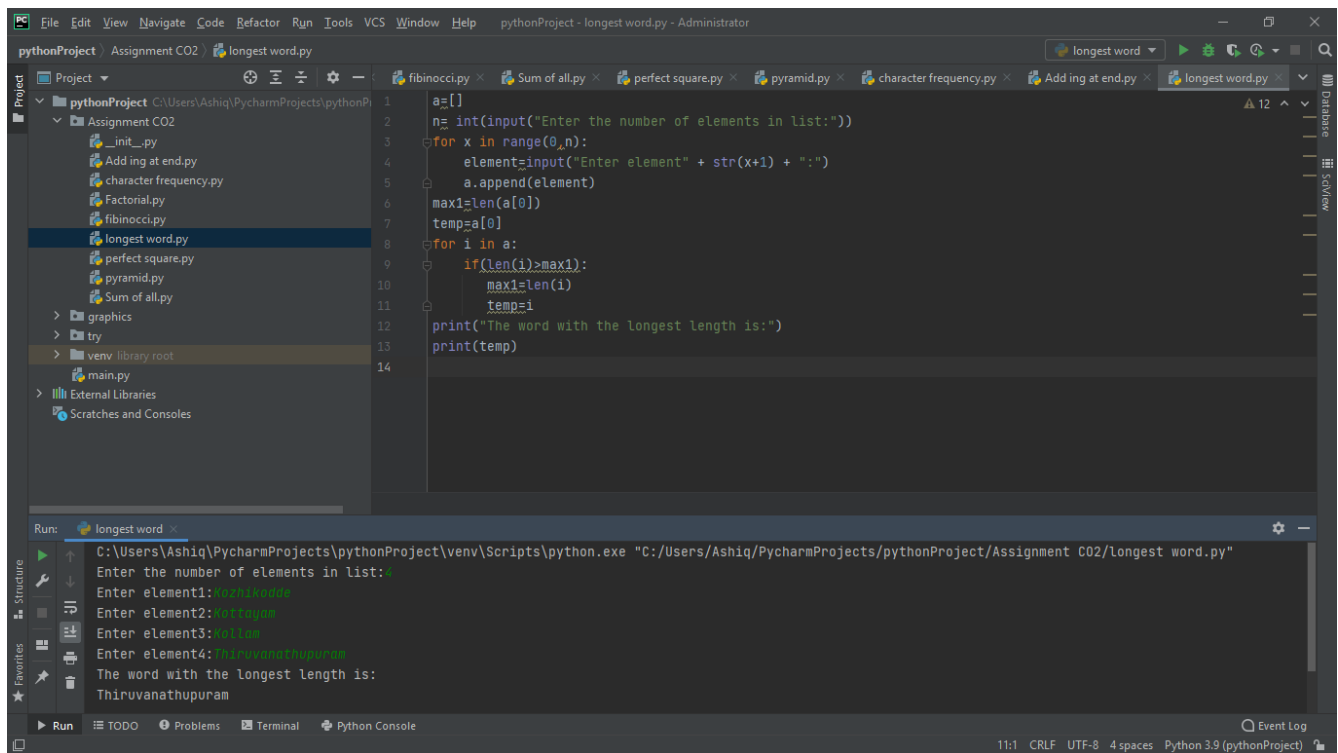
Process finished with exit code 0

8. Accept a list of words and return length of longest word ?

Program

```
a=[]
n= int(input("Enter the number of elements in list:"))
for x in range(0,n):
    element=input("Enter element" + str(x+1) + " :")
    a.append(element)
max1=len(a[0])
temp=a[0]
for i in a:
    if(len(i)>max1):
        max1=len(i)
        temp=i
print("The word with the longest length is:")
print(temp)
```

Output



```
pythonProject - longest word.py - Administrator
pythonProject Assignment C02 longest word.py
Project
  pythonProject C:\Users\Ashiq\PycharmProjects\pythonProject
    Assignment C02
      _init_.py
      Adding at end.py
      character frequency.py
      Factorial.py
      fibonacci.py
      longest word.py
      perfect square.py
      pyramid.py
      Sum of all.py
    graphics
    try
    venv library root
    main.py
  External Libraries
  Scratches and Consoles
longest word
1 a=[]
2 n= int(input("Enter the number of elements in list:"))
3 for x in range(0,n):
4     element=input("Enter element" + str(x+1) + ":")
5     a.append(element)
6     max1=len(a[0])
7     temp=a[0]
8     for i in a:
9         if(len(i)>max1):
10             max1=len(i)
11             temp=i
12 print("The word with the longest length is:")
13 print(temp)
14
Run: longest word
C:\Users\Ashiq\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:/Users/Ashiq/PycharmProjects/pythonProject/Assignment C02/longest word.py"
Enter the number of elements in list:4
Enter element1:venkataswami
Enter element2:kalitagan
Enter element3:allan
Enter element4:Thiruvananthapuram
The word with the longest length is:
Thiruvananthapuram
```

9. Construct following pattern using nested loop ?

```
*
* *
* * *
* * * *
* * * * *
* * * *
* * *
* *
*
```

Program

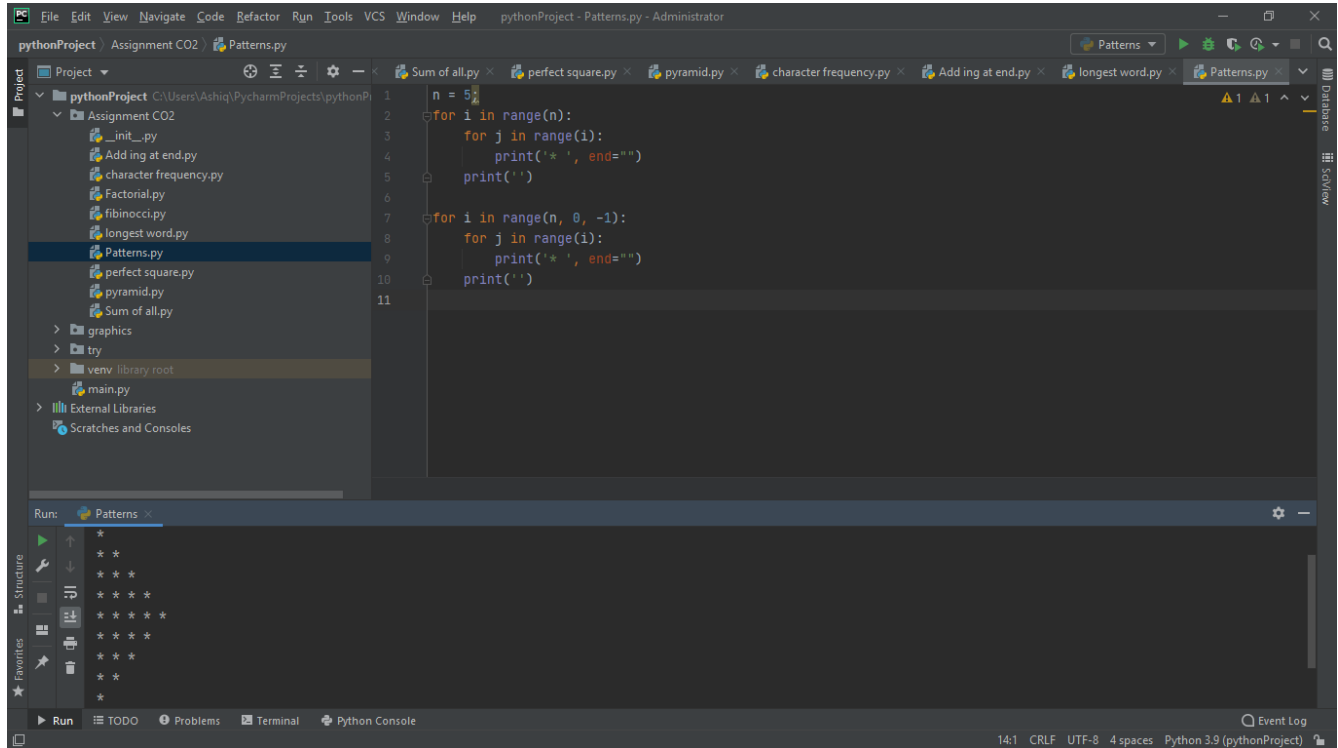
```
n=5;
for i in range(n):
    for j in range(i):
        print (*' ', end="")
    print("")
```

```
for i in range(n,0,-1):
    for j in range(i):
```



```
print('* ', end="")
print("")
```

Output

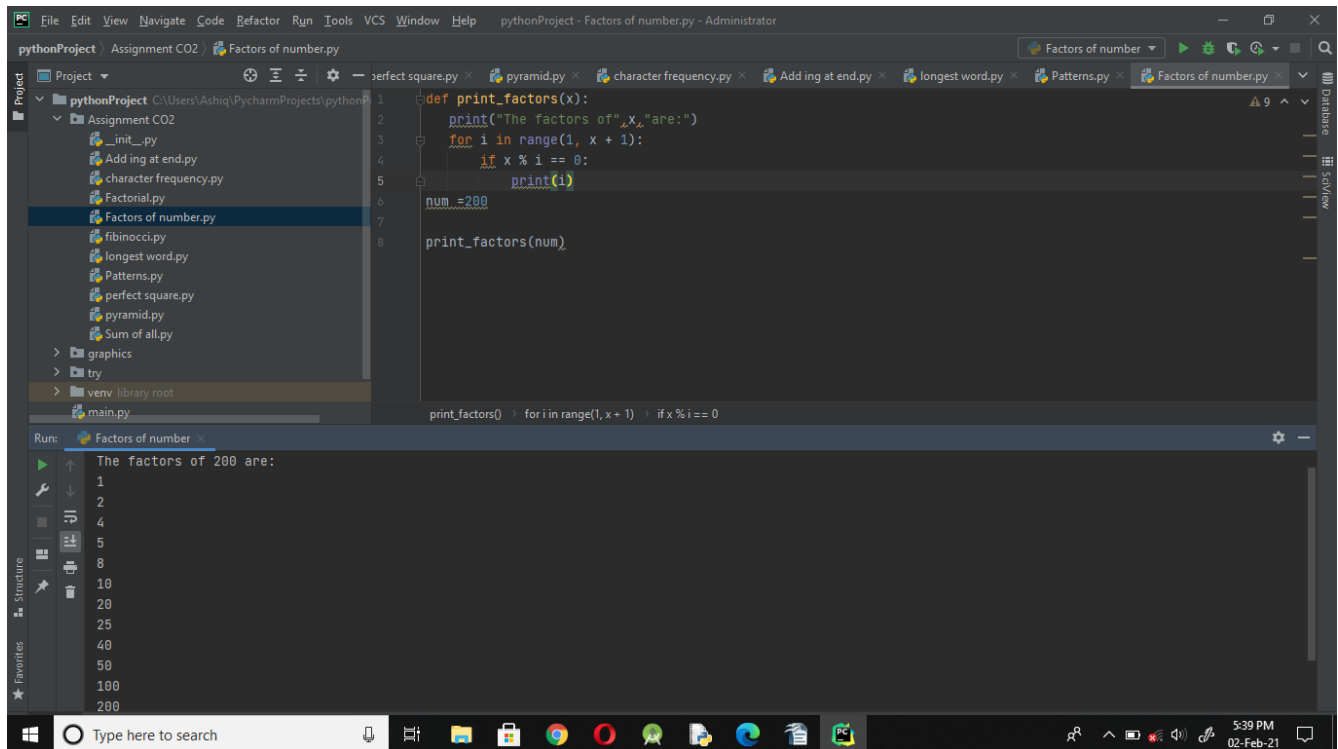


10.Generate all factors of a number ?

Program

```
def print_factors(x):
    print("The factors of",x,"are:")
    for i in range(1, x + 1):
        if x % i == 0:
            print(i)
num = 200
print_factors(num)
```

Output



The screenshot shows the PyCharm IDE with a project named 'pythonProject'. The file explorer on the left shows a folder 'Assignment CO2' containing several Python files, including 'Factors of number.py'. The main editor window displays the code for 'Factors of number.py':

```
1 def print_factors(x):
2     print("The factors of", x, "are:")
3     for i in range(1, x + 1):
4         if x % i == 0:
5             print(i)
6
7 num = 200
8
9 print_factors(num)
```

The 'Run' console at the bottom shows the output of the program:

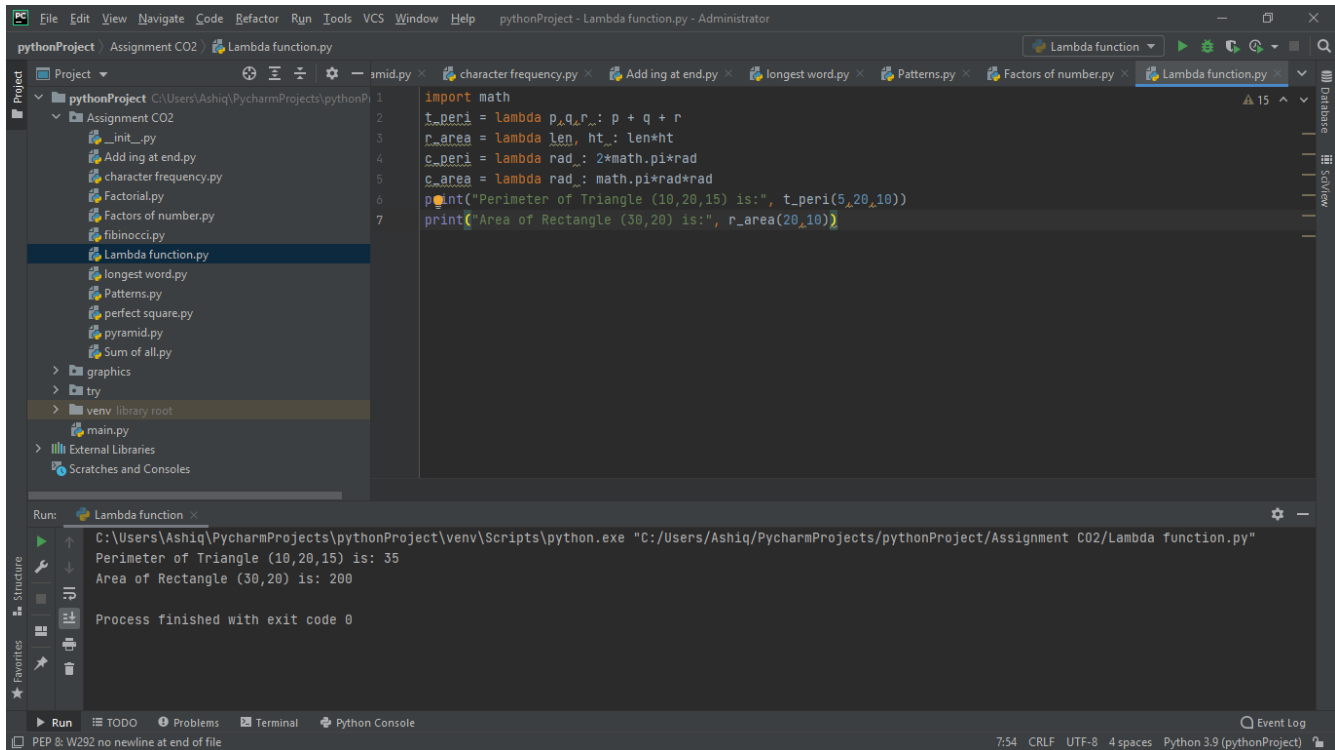
```
Run: Factors of number
The factors of 200 are:
1
2
4
5
8
10
20
25
40
50
100
200
```

11. Write lambda functions to find area of square, rectangle and triangle ?

Program

```
import math
t_peri = lambda p,q,r : p + q + r
r_area = lambda len, ht : len*ht
c_peri = lambda rad : 2*math.pi*rad
c_area = lambda rad : math.pi*rad*rad
print("Perimeter of Triangle (10,20,15) is:", t_peri(5,20,10))
print("Area of Rectangle (30,20) is:", r_area(20,10))
```

Output



The screenshot displays the PyCharm IDE interface. The main editor window shows a Python file named `Lambda function.py` with the following code:

```
1 import math
2 t_peri = lambda p,q,r: p + q + r
3 r_area = lambda len, ht: len*ht
4 c_peri = lambda rad: 2*math.pi*rad
5 c_area = lambda rad: math.pi*rad*rad
6 print("Perimeter of Triangle (10,20,15) is:", t_peri(5,20,10))
7 print("Area of Rectangle (30,20) is:", r_area(20,10))
```

The left sidebar shows the project structure for `pythonProject`, including a folder `Assignment C02` containing several Python files, and a `venv` directory.

The bottom panel shows the `Run` output for the `Lambda function` task. The command executed is `C:\Users\Ashiq\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:/Users/Ashiq/PycharmProjects/pythonProject/Assignment C02/Lambda function.py"`. The output is:

```
Perimeter of Triangle (10,20,15) is: 35
Area of Rectangle (30,20) is: 200
Process finished with exit code 0
```

The status bar at the bottom indicates the file encoding is UTF-8, the line ending is CRLF, and the Python version is 3.9.