Question 1.


```python
for i in range(1,11):
    print(i)
```

Terminal output:
```
> & "C:/Users/AJAY KUMAR/AppData/Local/Programs/Python/Python313/python.exe" c:/Ajay/set_3/set_5.py
1
2
3
4
5
6
7
8
9
10
PS C:\Ajay\set_3>
```

Question 2.


```python
#     print(i)

# 2

for i in range(1,21):
    if i%2==0:
        print(i,"even number:")
```

Terminal output:
```
PS C:\Ajay\set_3> & "C:/Users/AJAY KUMAR/AppData/Local/Programs/Python/Python313/python.exe" c:/Ajay/set_3/set_5.py
PS C:\Ajay\set_3> & "C:/Users/AJAY KUMAR/AppData/Local/Programs/Python/Python313/python.exe" c:/Ajay/set_3/set_5.py
2 even number:
4 even number:
6 even number:
8 even number:
10 even number:
12 even number:
14 even number:
16 even number:
18 even number:
20 even number:
PS C:\Ajay\set_3>
```

Question 3.
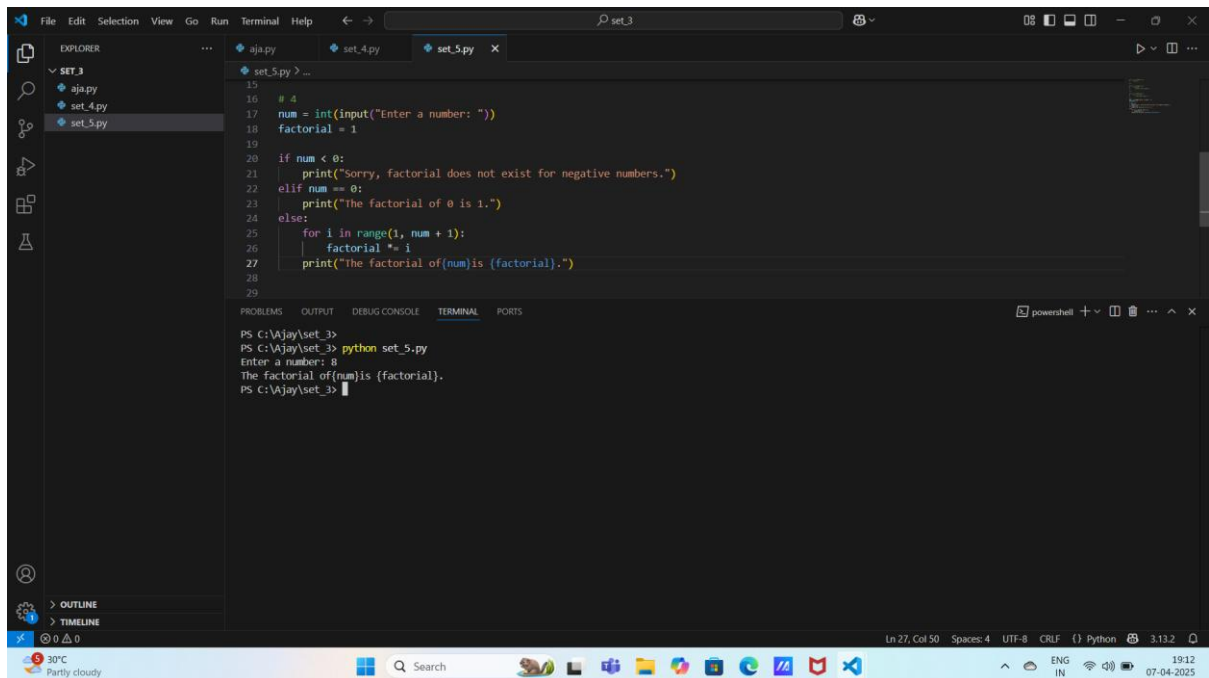

```python
7    #      if i%2==0:
8    #          print(i,"even number:")
9
10   # 3
11
12   for i in range(1,21):
13       if i % 2 != 0:
14           print("odd number",i)
15
16
```

```
PS C:\Ajay\set_3> python set_5.py
odd number 1
odd number 3
odd number 5
odd number 7
odd number 9
odd number 11
odd number 13
odd number 15
odd number 17
odd number 19
PS C:\Ajay\set_3>
```

Question 4.
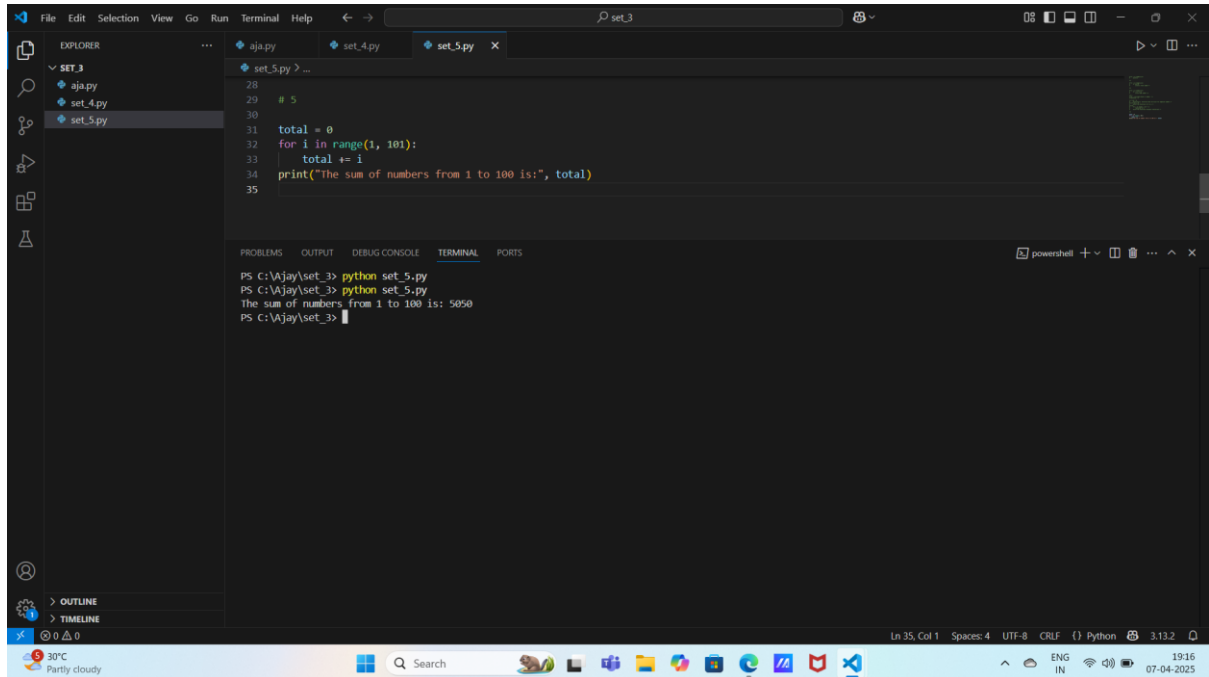

```python
15
16   # 4
17   num = int(input("Enter a number: "))
18   factorial = 1
19
20   if num < 0:
21       print("Sorry, factorial does not exist for negative numbers.")
22   elif num == 0:
23       print("The factorial of 0 is 1.")
24   else:
25       for i in range(1, num + 1):
26           factorial *= i
27       print("The factorial of{num}is {factorial}.")
28
29
```

```
PS C:\Ajay\set_3>
PS C:\Ajay\set_3> python set_5.py
Enter a number: 8
The factorial of{num}is {factorial}.
PS C:\Ajay\set_3>
```

Question 5.

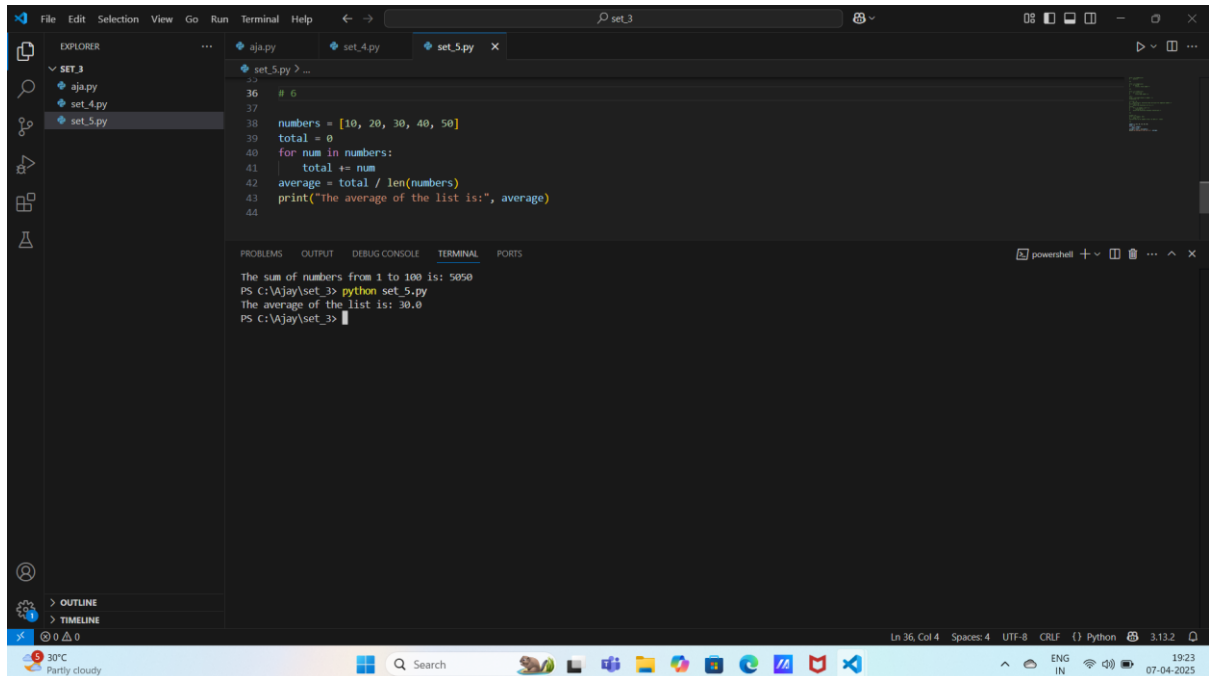

```python
# 5

total = 0
for i in range(1, 101):
    total += i
print("The sum of numbers from 1 to 100 is:", total)
```

Terminal output:
```
PS C:\Ajay\set_3> python set_5.py
PS C:\Ajay\set_3> python set_5.py
The sum of numbers from 1 to 100 is: 5050
PS C:\Ajay\set_3>
```

Question 6.
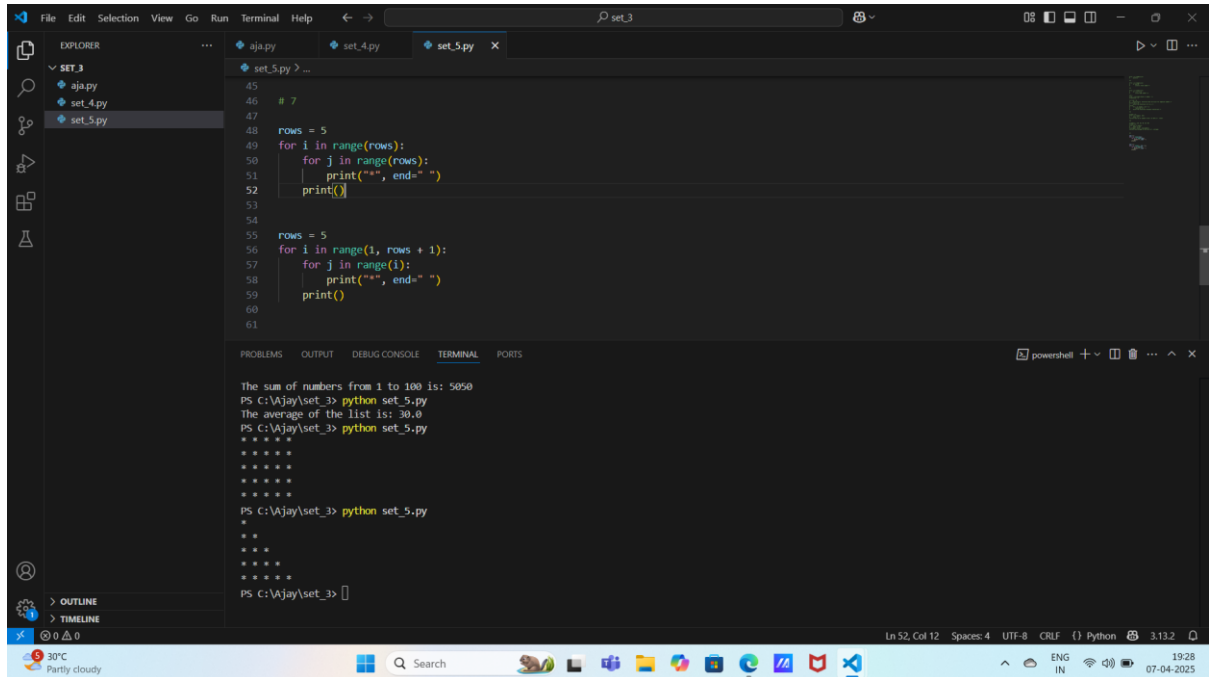

```python
# 6

numbers = [10, 20, 30, 40, 50]
total = 0
for num in numbers:
    total += num
average = total / len(numbers)
print("The average of the list is:", average)
```

Terminal output:
```
The sum of numbers from 1 to 100 is: 5050
PS C:\Ajay\set_3> python set_5.py
The average of the list is: 30.0
PS C:\Ajay\set_3>
```

Question 7.


```python
45
46   # 7
47
48   rows = 5
49   for i in range(rows):
50       for j in range(rows):
51           print("*", end=" ")
52       print()
53
54
55   rows = 5
56   for i in range(1, rows + 1):
57       for j in range(i):
58           print("*", end=" ")
59       print()
60
61
```

Terminal:
```
The sum of numbers from 1 to 100 is: 5050
PS C:\Ajay\set_3> python set_5.py
The average of the list is: 30.0
PS C:\Ajay\set_3> python set_5.py
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
PS C:\Ajay\set_3> python set_5.py
*
* *
* * *
* * * *
* * * * *
PS C:\Ajay\set_3>
```
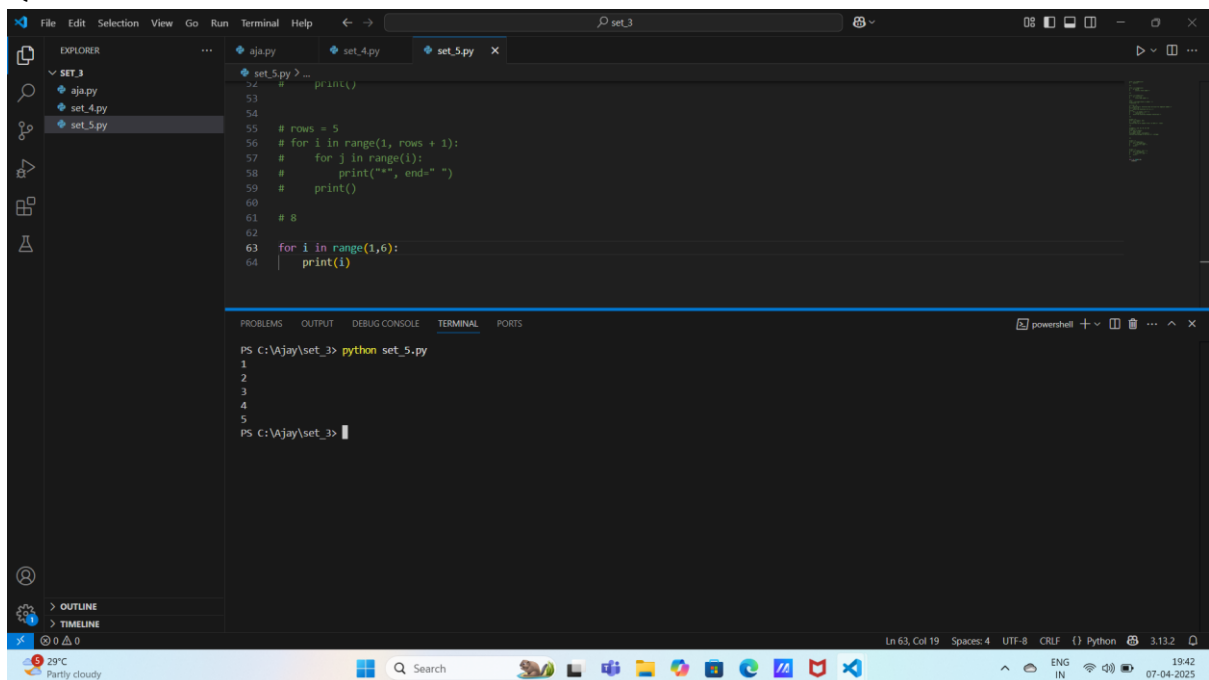
Question 8.


```python
52   #       print()
53
54
55   # rows = 5
56   # for i in range(1, rows + 1):
57   #     for j in range(i):
58   #         print("*", end=" ")
59   #     print()
60
61   # 8
62
63   for i in range(1,6):
64       print(i)
```
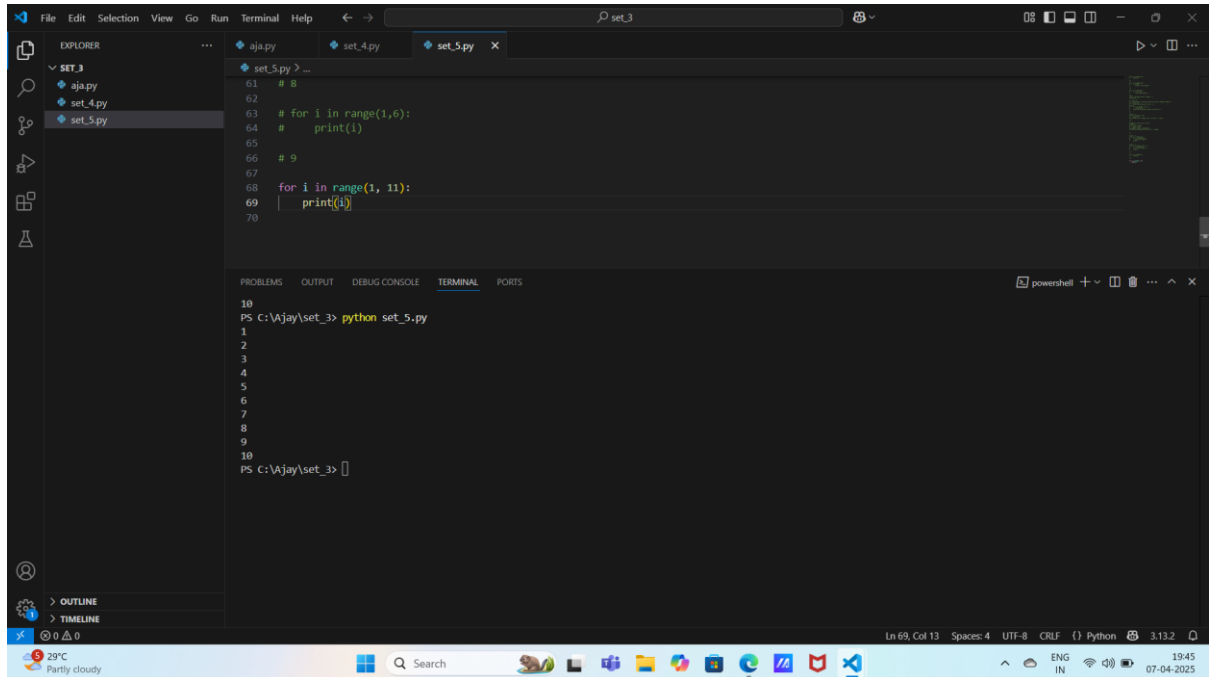
Terminal:
```
PS C:\Ajay\set_3> python set_5.py
1
2
3
4
5
PS C:\Ajay\set_3>
```

Question 9.


```python
61    # 8
62
63    # for i in range(1,6):
64    #     print(i)
65
66    # 9
67
68    for i in range(1, 11):
69        print(i)
70
```

Terminal output:
```
10
PS C:\Ajay\set_3> python set_5.py
1
2
3
4
5
6
7
8
9
10
PS C:\Ajay\set_3>
```

Question 10.


```python
69    #     print(i)
70
71    # 10
72
73    number=[10,20,30,40,10]
74    if len(number)>0 and (number)[0]==number[-1]:
75        print("it is true")
76    else:
77        print("false")
```

Terminal output:
```
PS C:\Ajay\set_3> python set_5.py
it is true
PS C:\Ajay\set_3>
```
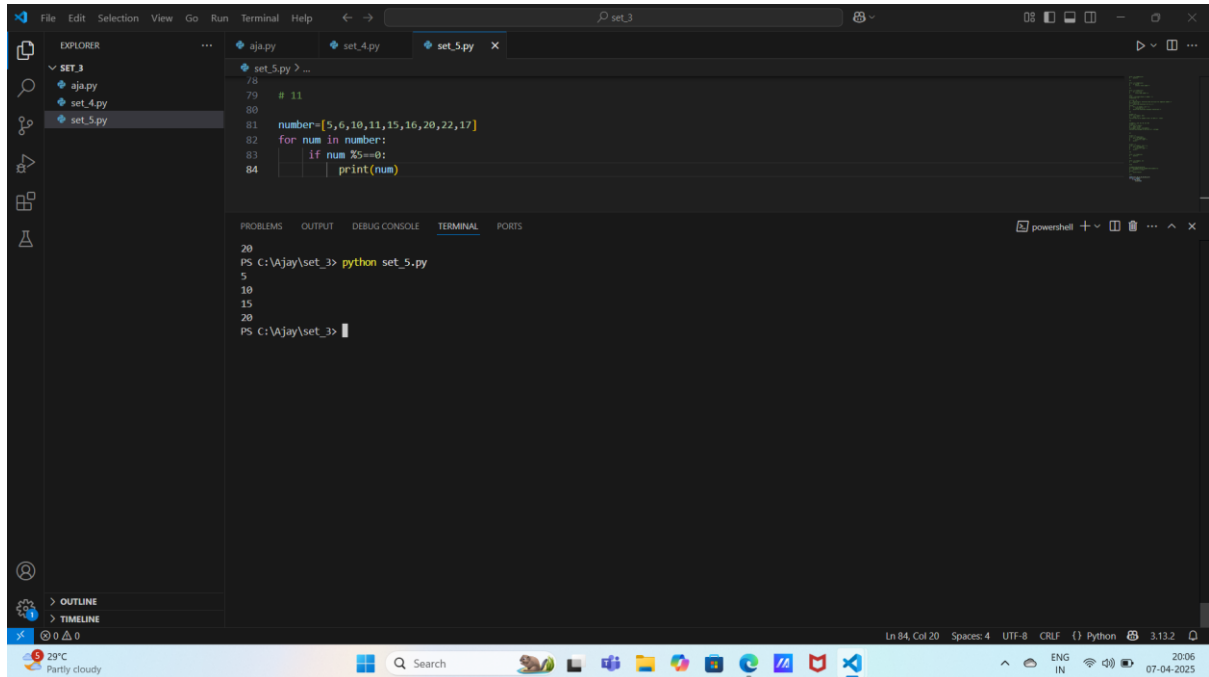
Question 11.
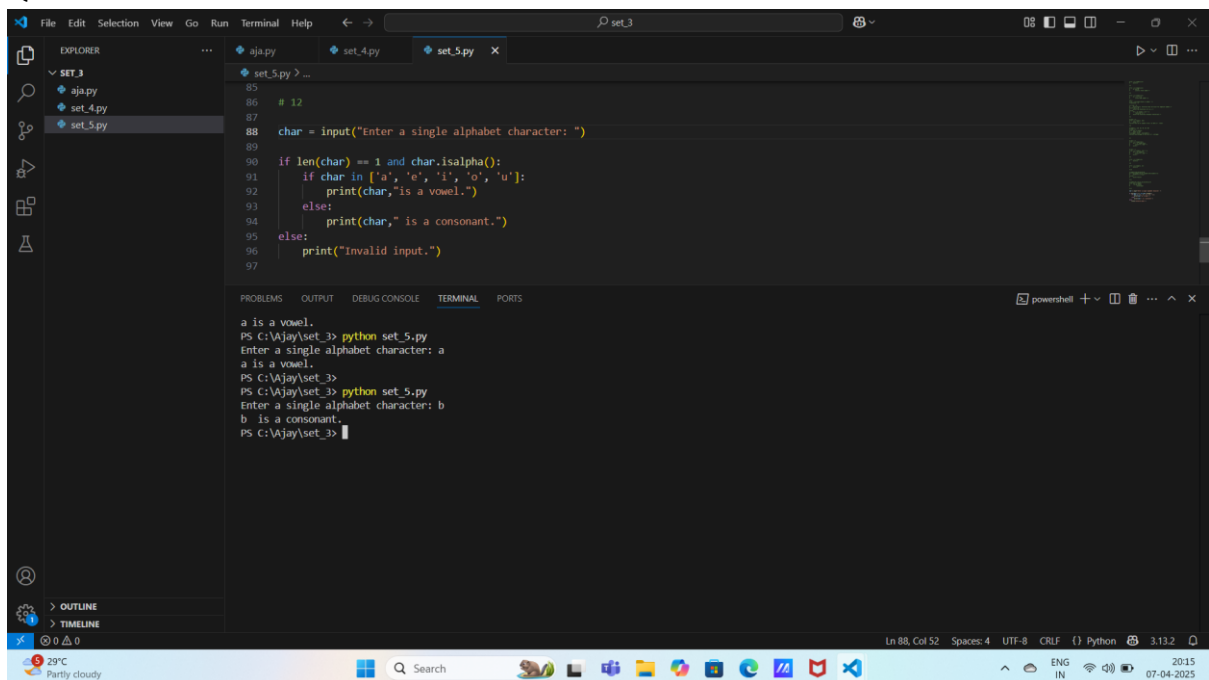

```python
78
79    # 11
80
81    number=[5,6,10,11,15,16,20,22,17]
82    for num in number:
83        if num %5==0:
84            print(num)
```

```
20
PS C:\Ajay\set_3> python set_5.py
5
10
15
20
PS C:\Ajay\set_3>
```

Question 12.
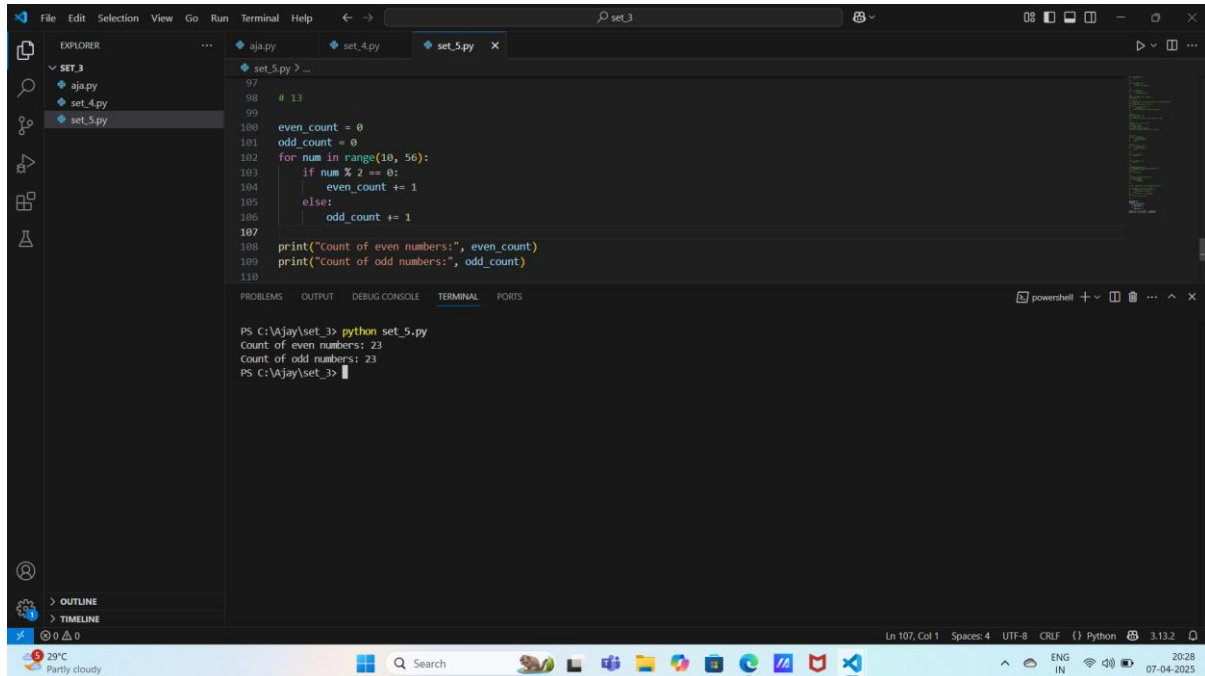

```python
85
86    # 12
87
88    char = input("Enter a single alphabet character: ")
89
90    if len(char) == 1 and char.isalpha():
91        if char in ['a', 'e', 'i', 'o', 'u']:
92            print(char,"is a vowel.")
93        else:
94            print(char," is a consonant.")
95    else:
96        print("Invalid input.")
97
```

```
a is a vowel.
PS C:\Ajay\set_3> python set_5.py
Enter a single alphabet character: a
a is a vowel.
PS C:\Ajay\set_3>
PS C:\Ajay\set_3> python set_5.py
Enter a single alphabet character: b
b  is a consonant.
PS C:\Ajay\set_3>
```

Question 13


```python
 97
 98    # 13
 99
100    even_count = 0
101    odd_count = 0
102    for num in range(10, 56):
103        if num % 2 == 0:
104            even_count += 1
105        else:
106            odd_count += 1
107
108    print("Count of even numbers:", even_count)
109    print("Count of odd numbers:", odd_count)
110
```
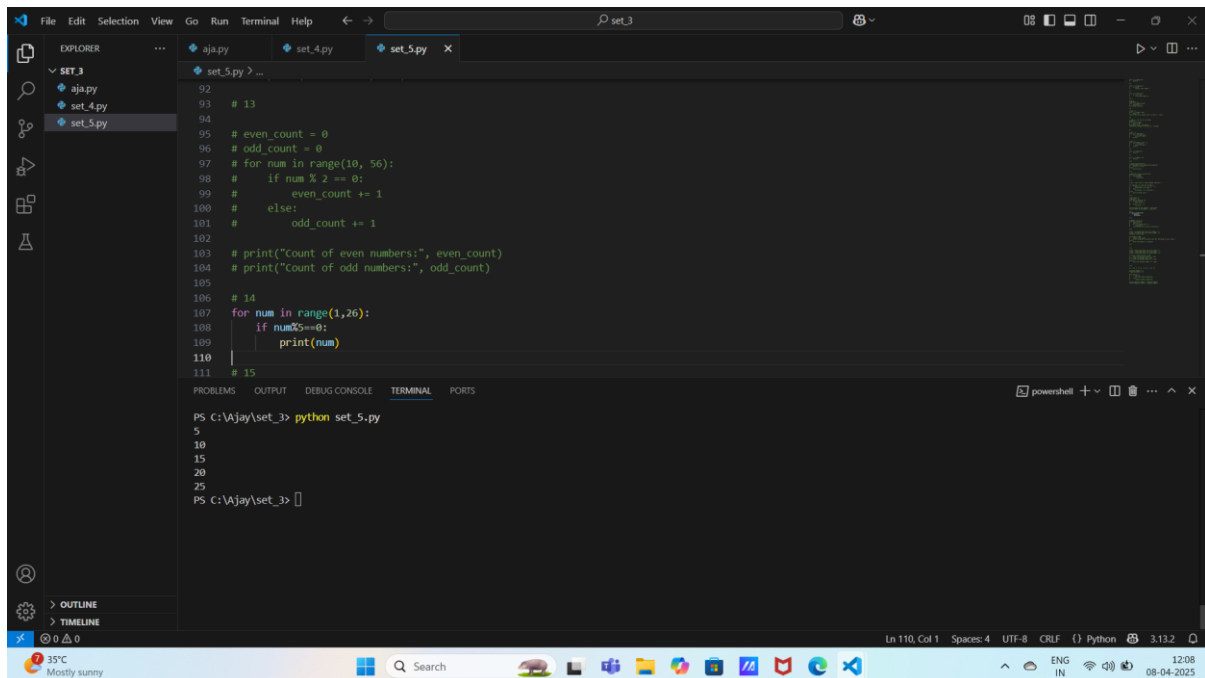
```
PS C:\Ajay\set_3> python set_5.py
Count of even numbers: 23
Count of odd numbers: 23
PS C:\Ajay\set_3>
```

Question 14
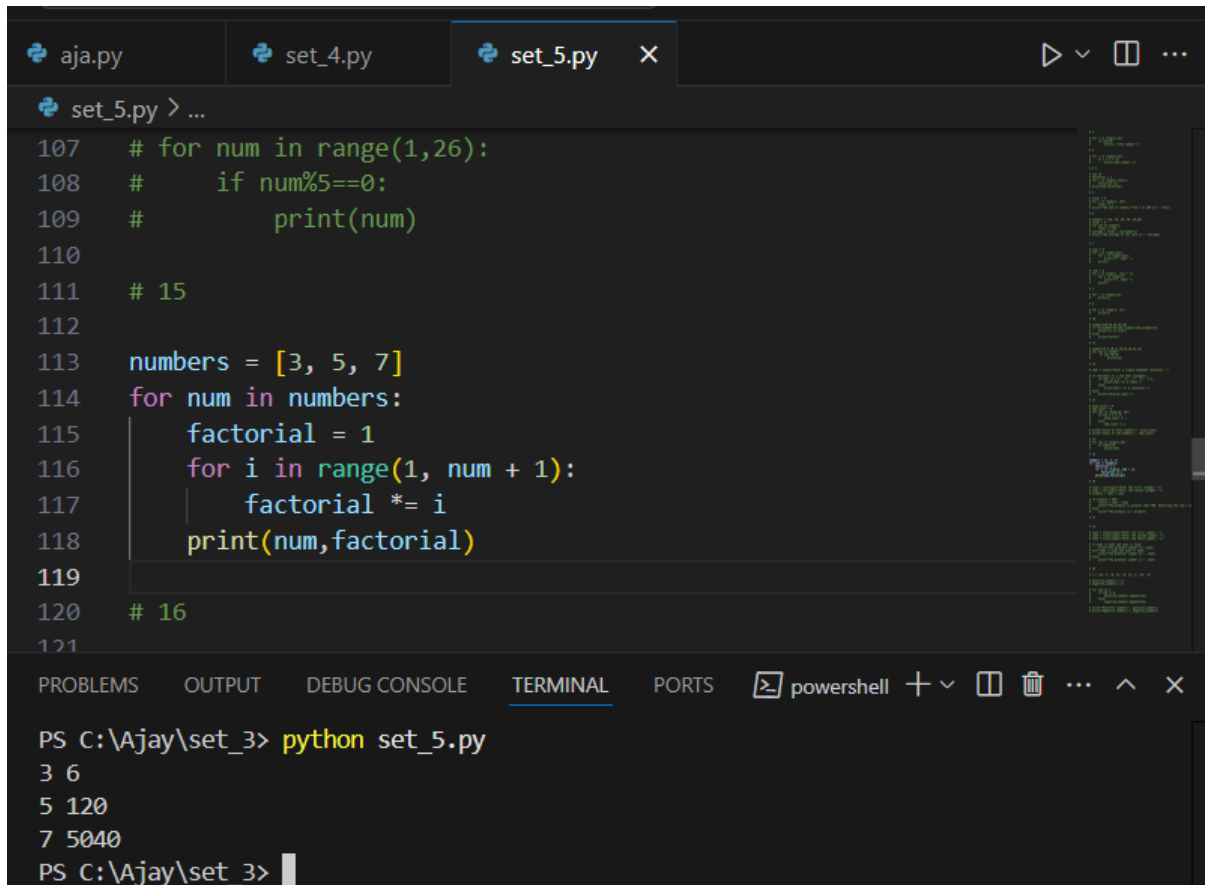

```python
 92
 93    # 13
 94
 95    # even_count = 0
 96    # odd_count = 0
 97    # for num in range(10, 56):
 98    #     if num % 2 == 0:
 99    #         even_count += 1
100    #     else:
101    #         odd_count += 1
102
103    # print("Count of even numbers:", even_count)
104    # print("Count of odd numbers:", odd_count)
105
106    # 14
107    for num in range(1,26):
108        if num%5==0:
109            print(num)
110
111    # 15
```

```
PS C:\Ajay\set_3> python set_5.py
5
10
15
20
25
PS C:\Ajay\set_3>
```

Question 15.

```
107    # for num in range(1,26):
108    #      if num%5==0:
109    #            print(num)
110
111    # 15
112
113    numbers = [3, 5, 7]
114    for num in numbers:
115        factorial = 1
116        for i in range(1, num + 1):
117            factorial *= i
118        print(num,factorial)
119
120    # 16
121
```

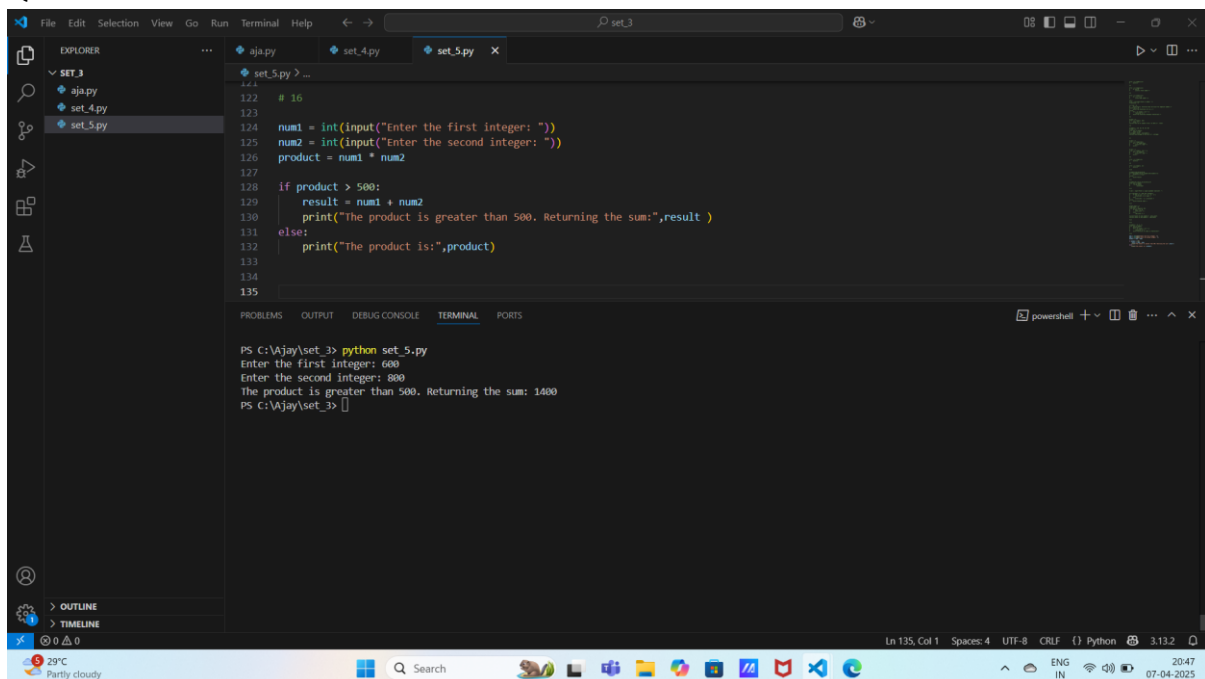PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   powershell

```
PS C:\Ajay\set_3> python set_5.py
3 6
5 120
7 5040
PS C:\Ajay\set_3>
```

Question 16.

```
122    # 16
123
124    num1 = int(input("Enter the first integer: "))
125    num2 = int(input("Enter the second integer: "))
126    product = num1 * num2
127
128    if product > 500:
129        result = num1 + num2
130        print("The product is greater than 500. Returning the sum:",result )
131    else:
132        print("The product is:",product)
133
134
135
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   powershell

```
PS C:\Ajay\set_3> python set_5.py
Enter the first integer: 600
Enter the second integer: 800
The product is greater than 500. Returning the sum: 1400
PS C:\Ajay\set_3>
```

Question 17.

```python
# 17

num1 = float(input("Enter the first number: "))
num2 = float(input("Enter the second number: "))

if num1 > num2:
    print("The greater number is",num1)
elif num2 > num1:
    print("The greater number is:",num2)
else:
    print("Both numbers are equal.")
```

```
PS C:\Ajay\set_3> python set_5.py
Enter the first number: 45
Enter the second number: 76
The greater number is: 76.0
PS C:\Ajay\set_3>
```
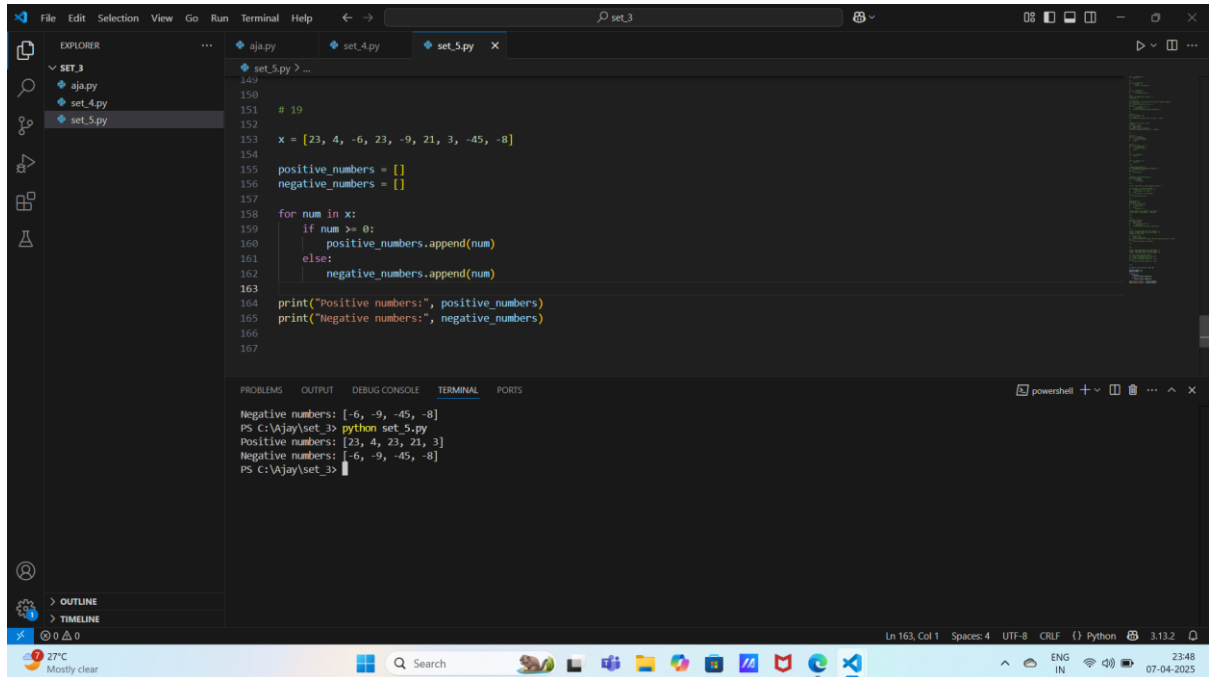
Question 18.

```python
num1 = float(input("Enter the first number: "))
num2 = float(input("Enter the second number: "))
num3 = float(input("Enter the third number: "))

if num1 >= num2 and num1 >= num3:
    print("The greatest number is:",num1)
elif num2 >= num1 and num2 >= num3:
    print("The greatest number is:", num2)
else:
    print("The greatest number is:" ,num3)
```

```
PS C:\Ajay\set_3> python set_5.py
Enter the first number: 80
Enter the second number: 55
Enter the third number: 95
The greatest number is: 95.0
PS C:\Ajay\set_3>
```

Question 19.

```python
# 19

x = [23, 4, -6, 23, -9, 21, 3, -45, -8]

positive_numbers = []
negative_numbers = []

for num in x:
    if num >= 0:
        positive_numbers.append(num)
    else:
        negative_numbers.append(num)

print("Positive numbers:", positive_numbers)
print("Negative numbers:", negative_numbers)
```

Terminal output:

```
Negative numbers: [-6, -9, -45, -8]
PS C:\Ajay\set_3> python set_5.py
Positive numbers: [23, 4, 23, 21, 3]
Negative numbers: [-6, -9, -45, -8]
PS C:\Ajay\set_3>
```