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Lab No: 05

Course: Artificial Intelligence

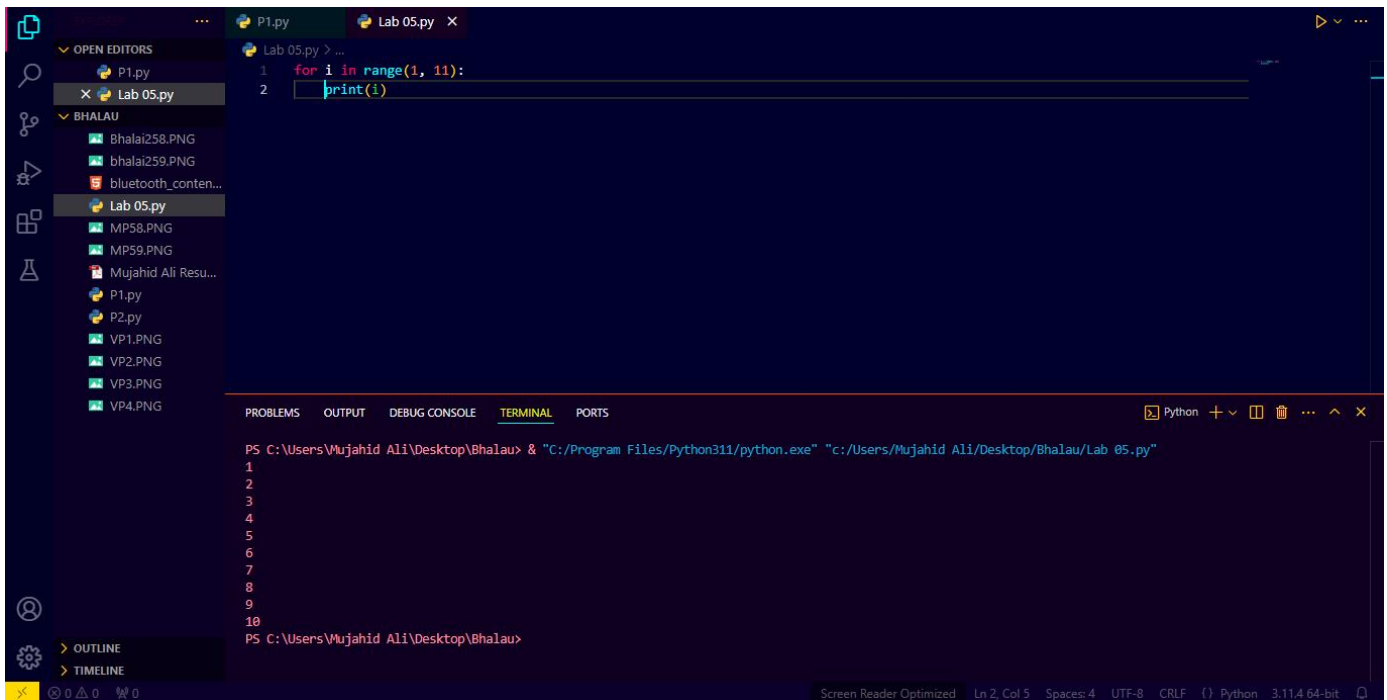
Instructor: Ma'am Aqsa Umar

Q no: 01 *Print Numbers with Loops:* Write a program that uses a loop to print numbers from 1 to 10.

Program:

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

Output



The screenshot shows a Python IDE with a dark theme. The left sidebar displays the 'OPEN EDITORS' and 'BHALAU' file explorer. The main editor window shows a Python file named 'Lab 05.py' with the following code:

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

The bottom panel shows the 'TERMINAL' output, which displays the execution of the program:

```
PS C:\Users\Mujahid Ali\Desktop\Bhalau> & "C:/Program Files/Python311/python.exe" "c:/Users/Mujahid Ali/Desktop/Bhalau/Lab 05.py"  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
PS C:\Users\Mujahid Ali\Desktop\Bhalau>
```

The status bar at the bottom indicates 'Screen Reader Optimized', 'Ln 2, Col 5', 'Spaces: 4', 'UTF-8', 'CRLF', 'Python', and '3.11.4 64-bit'.

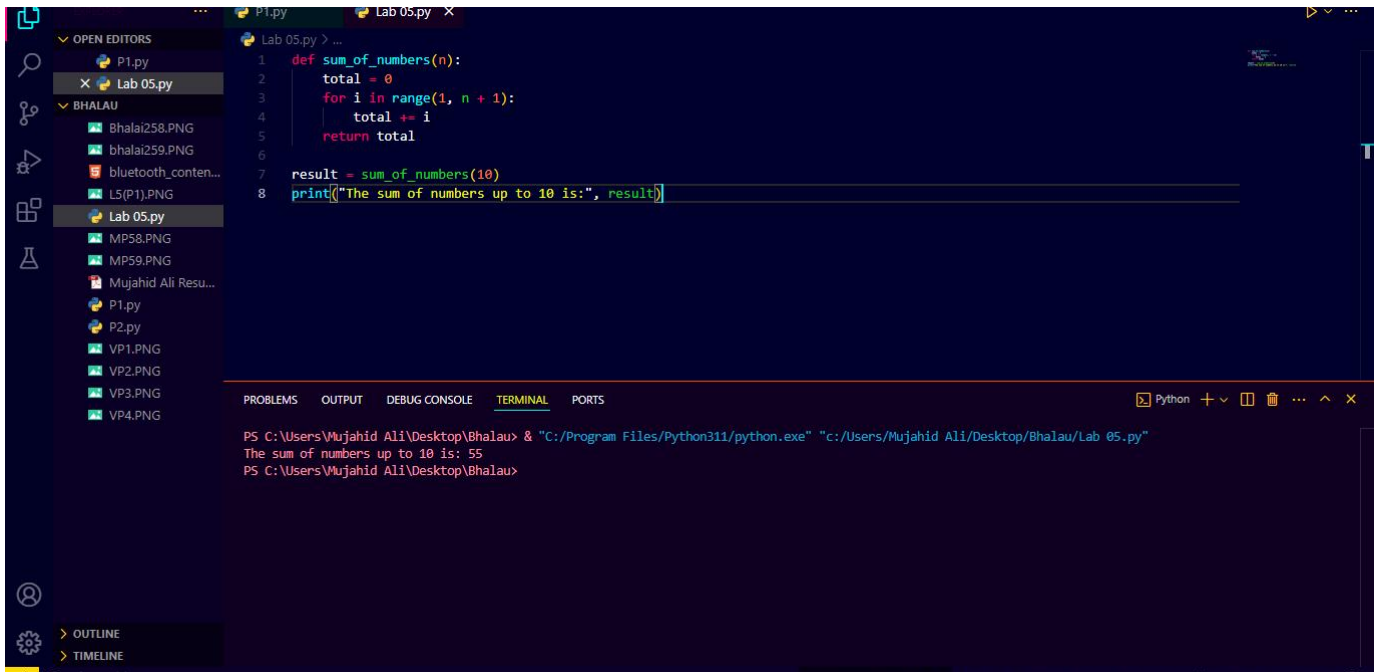
Q no: 02 *Calculate the Sum of Numbers:* Write a function that calculates the sum of all numbers up to a given number using a loop.

Program

```
def sum_of_numbers(n):  
    total = 0  
    for i in range(1, n + 1):  
        total += i  
    return total
```

```
result = sum_of_numbers(10)  
print("The sum of numbers up to 10 is:", result)
```

Output



The screenshot shows a Python IDE with a dark theme. The left sidebar displays a file explorer with a project named 'BHALAU' containing various image files and Python files. The main editor window shows the code for 'Lab 05.py', which defines a function 'sum_of_numbers(n)' and calls it with '10'. The bottom panel shows the 'TERMINAL' output, which displays the command to run the script and the resulting output: 'The sum of numbers up to 10 is: 55'.

```
1 def sum_of_numbers(n):  
2     total = 0  
3     for i in range(1, n + 1):  
4         total += i  
5     return total  
6  
7 result = sum_of_numbers(10)  
8 print("The sum of numbers up to 10 is:", result)
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Mujahid Ali\Desktop\Bhalau> & "C:/Program Files/Python311/python.exe" "c:/Users/Mujahid Ali/Desktop/Bhalau/Lab 05.py"  
The sum of numbers up to 10 is: 55  
PS C:\Users\Mujahid Ali\Desktop\Bhalau>
```

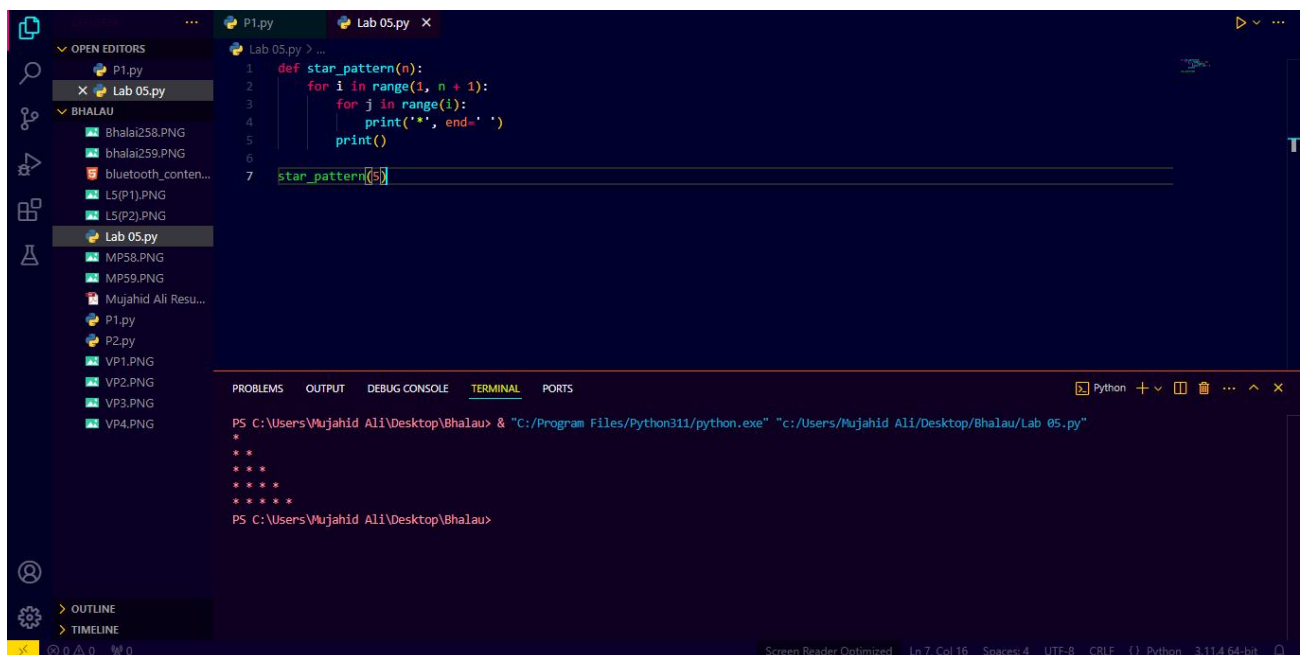
Q no: 03 *Display a Star Pattern:* Write code using loops and nested loops to create star pattern.

Program

```
def star_pattern(n):  
    for i in range(1, n + 1):  
        for j in range(i):  
            print('*', end=' ')  
        print()
```

```
star_pattern(5)
```

Output



The screenshot shows a Python IDE with a file explorer on the left, a code editor in the center, and a terminal at the bottom. The code editor displays the following Python code:

```
1 def star_pattern(n):  
2     for i in range(1, n + 1):  
3         for j in range(i):  
4             print('*', end=' ')  
5         print()  
6  
7 star_pattern(5)
```

The terminal shows the command to run the script and the resulting star pattern output:

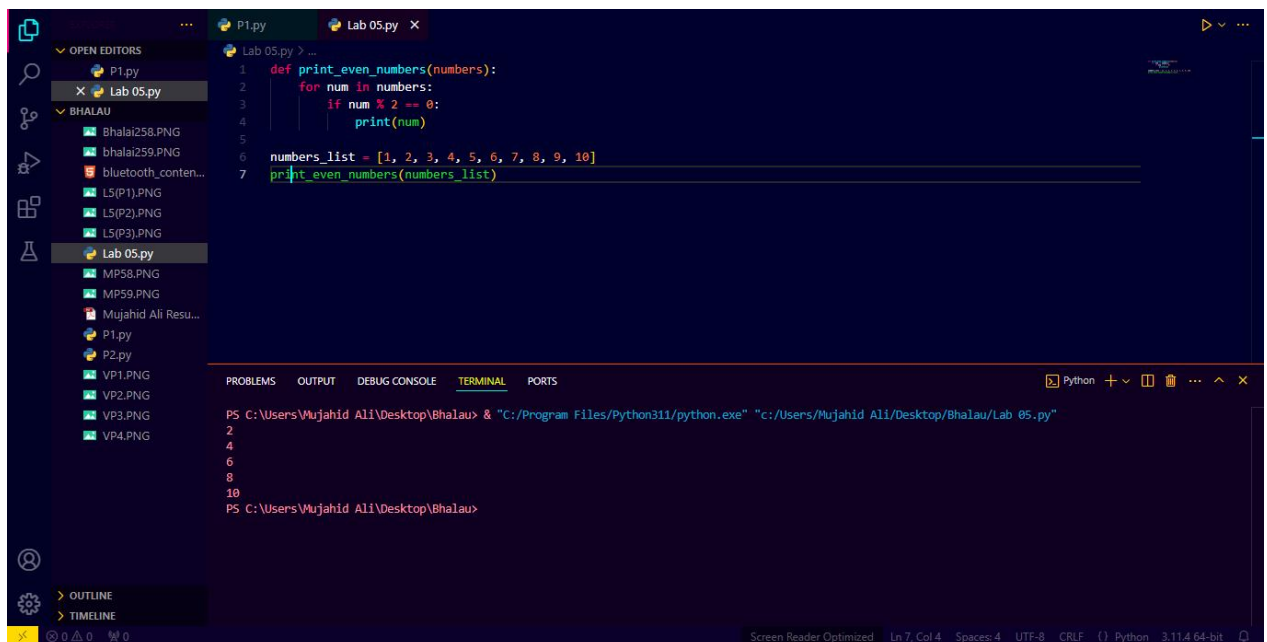
```
PS C:\Users\Mujahid Ali\Desktop\Bhalau> "C:/Program Files/Python311/python.exe" "c:/Users/Mujahid Ali/Desktop/Bhalau/Lab 05.py"  
*  
* *  
* * *  
* * * *  
* * * * *  
PS C:\Users\Mujahid Ali\Desktop\Bhalau>
```

Q no: 04 *Find Even Numbers in a List:* Write a function that takes a list of numbers and prints only the even numbers.

Program

```
def print_even_numbers(numbers):  
    for num in numbers:  
        if num % 2 == 0:  
            print(num)  
  
numbers_list = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]  
print_even_numbers(numbers_list)
```

Output



The screenshot shows a Python IDE with a dark theme. The left sidebar displays the 'OPEN EDITORS' list with files like P1.py, Lab 05.py, and BHALAU. The main editor window shows the code for 'Lab 05.py' with the function 'print_even_numbers' and the list 'numbers_list'. The bottom panel shows the 'TERMINAL' output, which displays the even numbers from the list: 2, 4, 6, 8, 10.

```
def print_even_numbers(numbers):  
    for num in numbers:  
        if num % 2 == 0:  
            print(num)  
  
numbers_list = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]  
print_even_numbers(numbers_list)
```

```
PS C:\Users\Mujahid Ali\Desktop\Bhalau> "C:/Program Files/Python311/python.exe" "c:/Users/Mujahid Ali/Desktop/Bhalau/Lab 05.py"  
2  
4  
6  
8  
10  
PS C:\Users\Mujahid Ali\Desktop\Bhalau>
```

The End