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Lab No: 05

Course: Artificial Intelligence

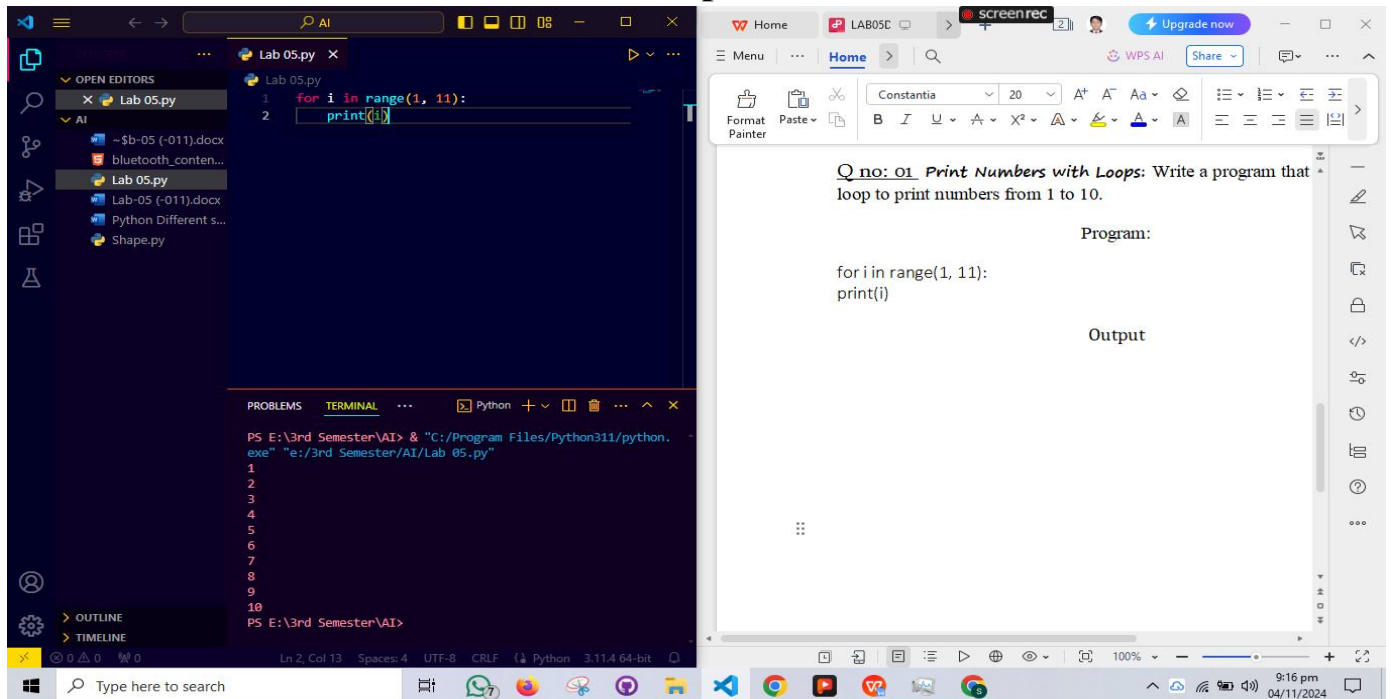
Instructor: Ma'am Aqsa Umar

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

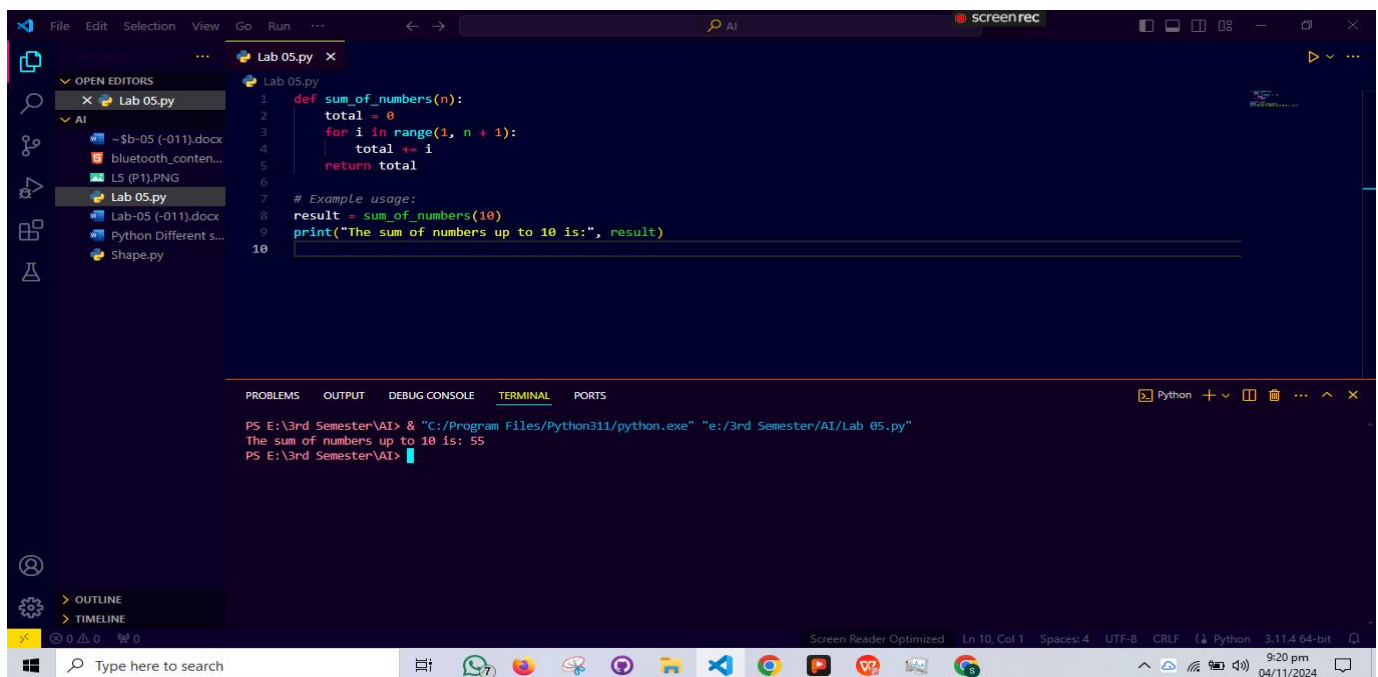


Q no: 02 *Calculate the Sum of Numbers:* Write a function that calculates the sum of all numbers up to a given number using a loop.

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 code editor with a file explorer on the left and a terminal at the bottom. The file explorer shows a project named 'AI' containing files like 'Lab 05.py', 'Lab-05 (-011).docx', 'bluetooth_conten...', 'L5 (P1).PNG', 'Python Different s...', and 'Shape.py'. The code editor displays the Python program for calculating the sum of numbers from 1 to 10. The terminal shows the command to run the program and the output: 'The sum of numbers up to 10 is: 55'.

```
File Edit Selection View Go Run ...  
Lab 05.py  
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 # Example usage:  
8 result = sum_of_numbers(10)  
9 print("The sum of numbers up to 10 is:", result)  
10  
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS  
PS E:\3rd Semester\AI> & "C:/Program Files/Python311/python.exe" "e:/3rd Semester/AI/Lab 05.py"  
The sum of numbers up to 10 is: 55  
PS E:\3rd Semester\AI>  
Type here to search  
Screen Reader Optimized Ln 10, Col 1 Spaces: 4 UTF-8 CRLF Python 3.11.4 64-bit  
9:20 pm 04/11/2024
```

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 contains 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  
8 star_pattern(5)  
9
```

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

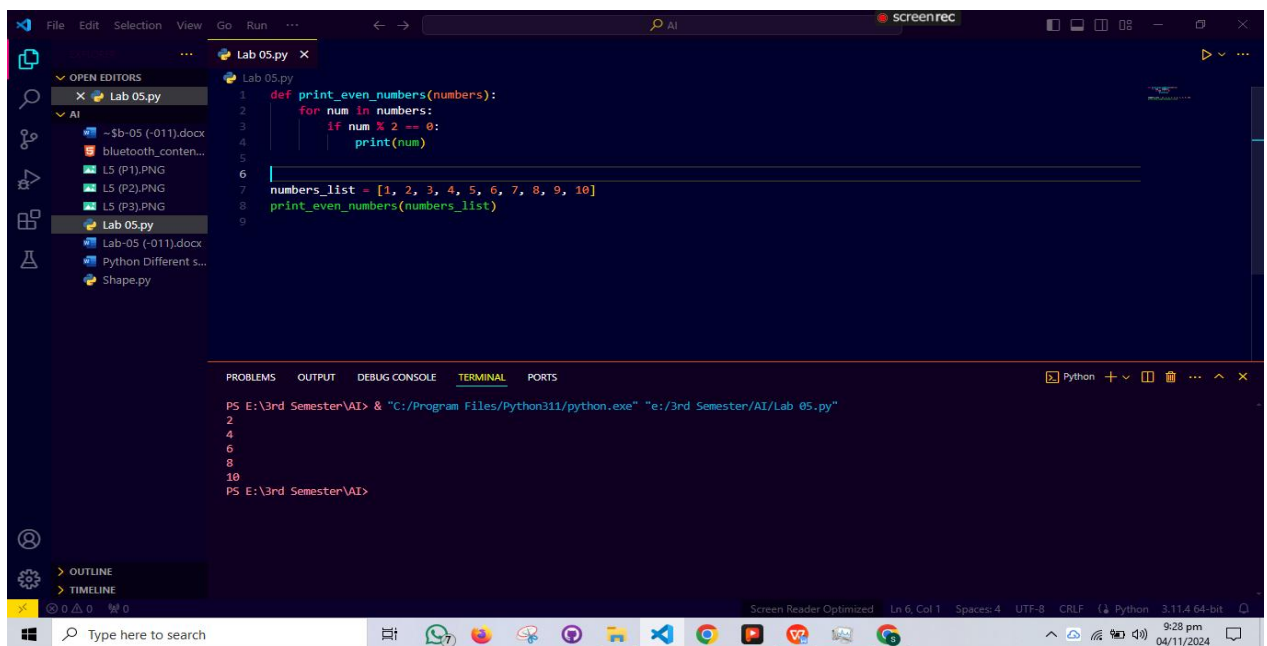
```
PS E:\3rd Semester\AI> & "C:/Program Files/Python311/python.exe" "e:/3rd Semester/AI/Lab 05.py"  
*  
**  
***  
****  
*****  
PS E:\3rd Semester\AI>
```

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 code editor with a dark theme. The editor has a sidebar on the left with a file explorer showing a project named 'AI' containing files like 'Lab 05.py', 'Lab 05 (-011).docx', and several PNG files. The main editor area displays the Python code for the 'print_even_numbers' function and its application to a list. Below the code editor is a terminal window showing the command to run the script and the resulting output, which lists the even numbers from the provided list.

```
File Edit Selection View Go Run ...  
Lab 05.py  
1 def print_even_numbers(numbers):  
2     for num in numbers:  
3         if num % 2 == 0:  
4             print(num)  
5  
6  
7 numbers_list = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]  
8 print_even_numbers(numbers_list)  
9  
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS  
Python  
PS E:\3rd Semester\AI> & "C:/Program Files/Python311/python.exe" "e:/3rd Semester/AI/Lab 05.py"  
2  
4  
6  
8  
10  
PS E:\3rd Semester\AI>
```

The End