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Practical-4

Aim: - Write a program using functions.

- a) Python Program to Find Factorial of Number
- b) Python Program to Find Sum of Natural Numbers Using Recursion

- Python Program to Find Factorial of Number

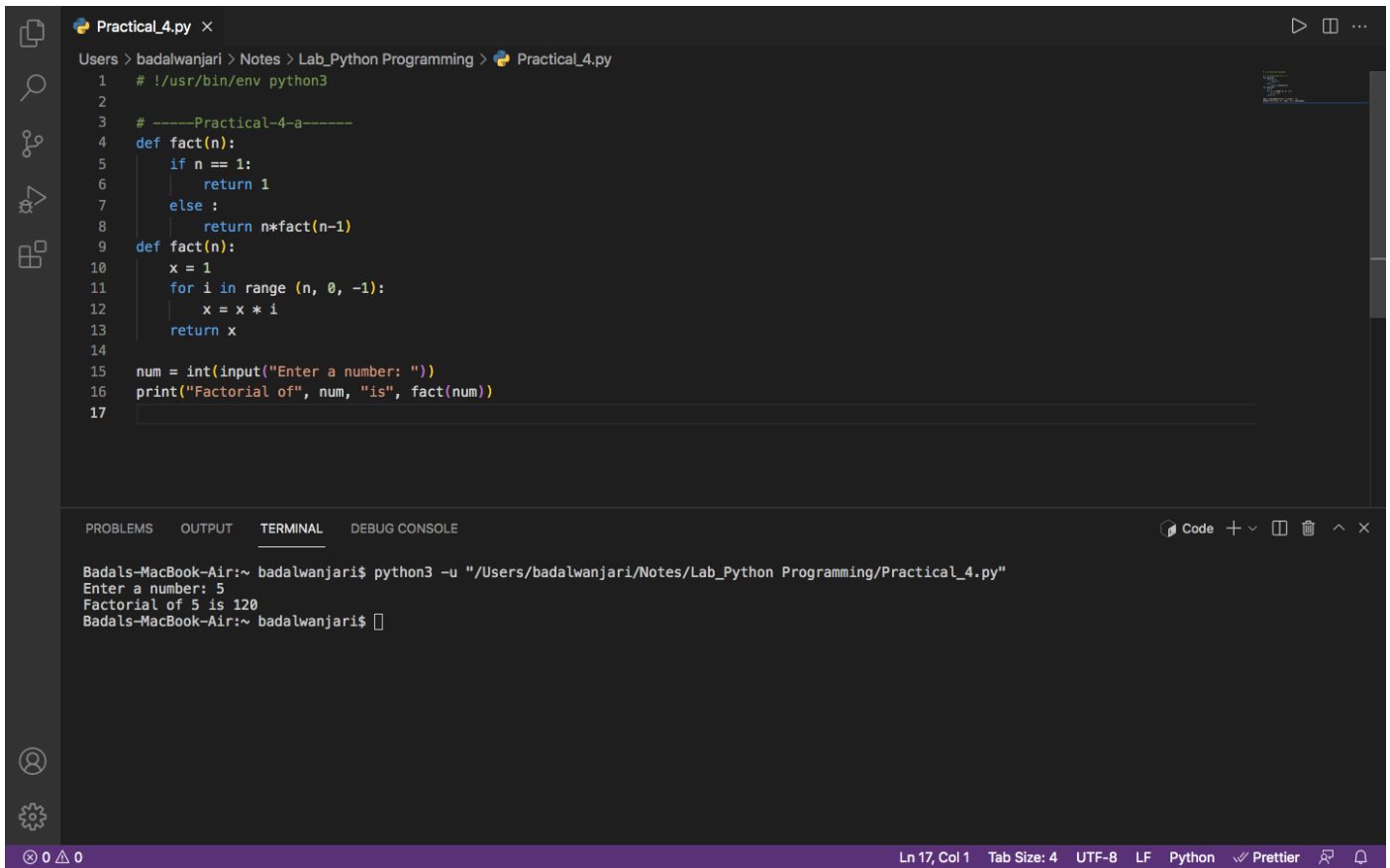
Program:

```
# -----Practical-4-a-----  
def fact(n):  
    if n == 1:  
        return 1  
    else :  
        return n*fact(n-1)  
def fact(n):  
    x = 1  
    for i in range (n, 0, -1):  
        x = x * i  
    return x  
  
num = int(input("Enter a number: "))  
print("Factorial of", num, "is", fact(num))
```

Output:

```
Enter a number: 5  
Factorial of 5 is 120
```

Screenshot:



The screenshot displays a Visual Studio Code editor window with a file named `Practical_4.py`. The code is a Python script that calculates the factorial of a user-input number. It includes a shebang line, a comment, and two functions: `fact(n)` using recursion and `fact(n)` using a loop. The script prompts the user to enter a number and prints the result.

```
1 #!/usr/bin/env python3
2
3 # -----Practical-4-a-----
4 def fact(n):
5     if n == 1:
6         return 1
7     else :
8         return n*fact(n-1)
9 def fact(n):
10     x = 1
11     for i in range (n, 0, -1):
12         x = x * i
13     return x
14
15 num = int(input("Enter a number: "))
16 print("Factorial of", num, "is", fact(num))
17
```

The terminal output shows the script being executed with the command `python3 -u "/Users/badalwanjari/Notes/Lab_Python Programming/Practical_4.py"`. The user enters `5`, and the output is `Factorial of 5 is 120`.

Badals-MacBook-Air:~ badalwanjari\$ python3 -u "/Users/badalwanjari/Notes/Lab_Python Programming/Practical_4.py"
Enter a number: 5
Factorial of 5 is 120
Badals-MacBook-Air:~ badalwanjari\$

The status bar at the bottom indicates the current position is `Ln 17, Col 1`, the tab size is `4`, the encoding is `UTF-8`, the line ending is `LF`, the language is `Python`, and the formatter is `Prettier`.

- [Python Program to Find Sum of Natural Numbers Using Recursion](#)

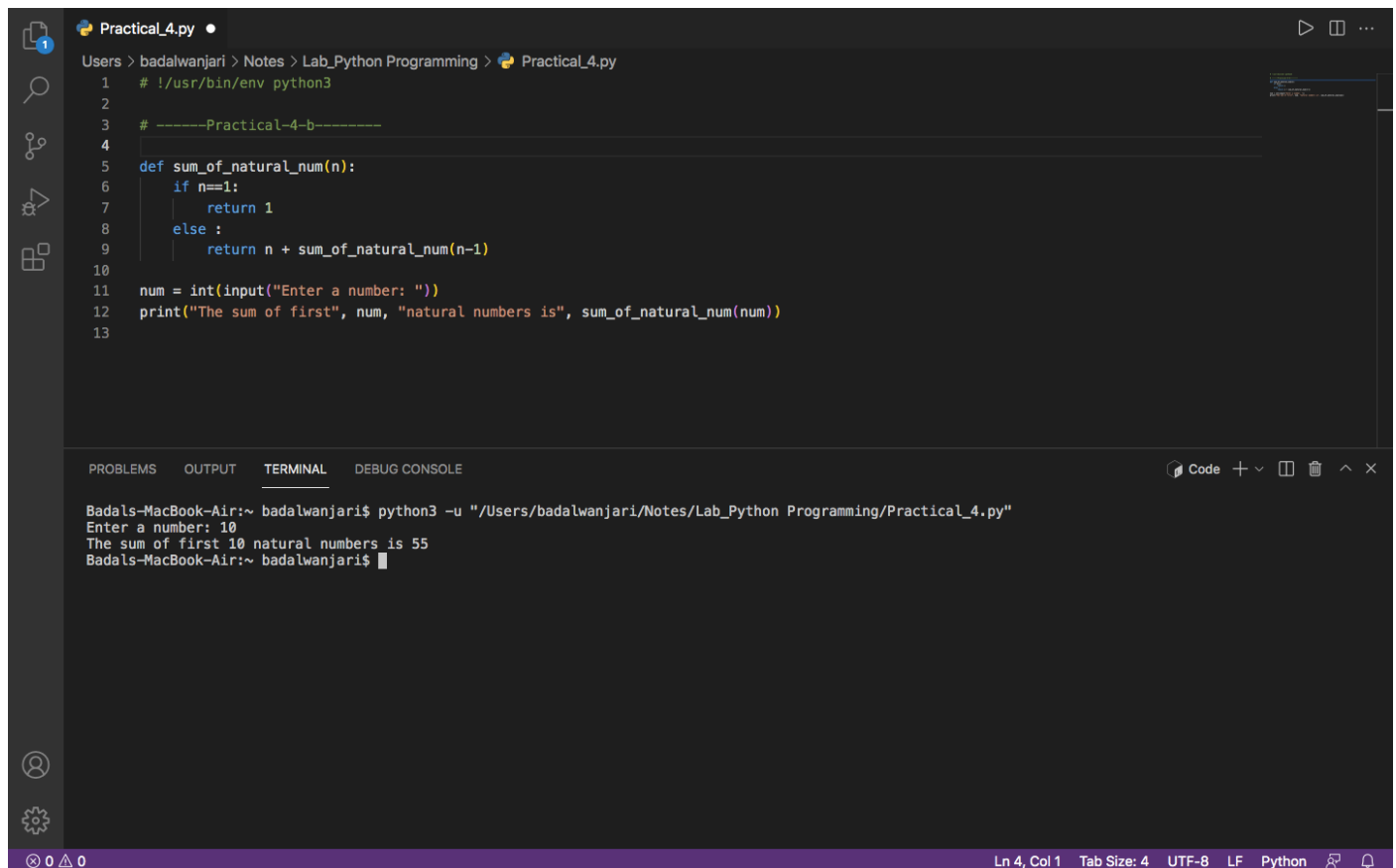
Program :

```
# -----Practical-4-b-----  
  
def sum_of_natural_num(n):  
    if n==1:  
        return 1  
    else :  
        return n + sum_of_natural_num(n-1)  
  
num = int(input("Enter a number: "))  
print("The sum of first", num, "natural numbers is", sum_of_natural_num(num))
```

Output:

```
Enter a number: 10  
The sum of first 10 natural numbers is 55
```

Screenshot :



The screenshot shows a code editor window titled 'Practical_4.py'. The code is the same as shown in the previous block. Below the code editor, there is a terminal window showing the execution of the program. The terminal output is as follows:

```
Badals-MacBook-Air:~ badalwanjari$ python3 -u "/Users/badalwanjari/Notes/Lab_Python Programming/Practical_4.py"  
Enter a number: 10  
The sum of first 10 natural numbers is 55  
Badals-MacBook-Air:~ badalwanjari$
```

Result: I have studied functions in python and completed practical-4.