A MINI PROJECT

PROJECT NAME: PRIME OR COMPOSITE NUMBERS

LOVELY PROFESSIONAL UNIVERSITY
Transforming Education Transforming India

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Technologies used

PYTHON

- Python is a popular programming language.
- Python can be used on a server to create web applications.
- Python can connect to database systems.
- Python can be used to handle big data and perform complex mathematics.

About Project

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1.Title of our Project

Prime or Composite Numbers

2.Objective of our Project

In this project we have to enter a positive integer range [A,B] and system will find out the status (Prime or composite) of each available in the given range . At the end print the count also.

Example:

Range is (7,10)

Then the status of each number in the range is:

7 is prime
8 is composite or not prime
9 is composite
10 is composite
Count: 1 prime and 3 composite numbers in the range.

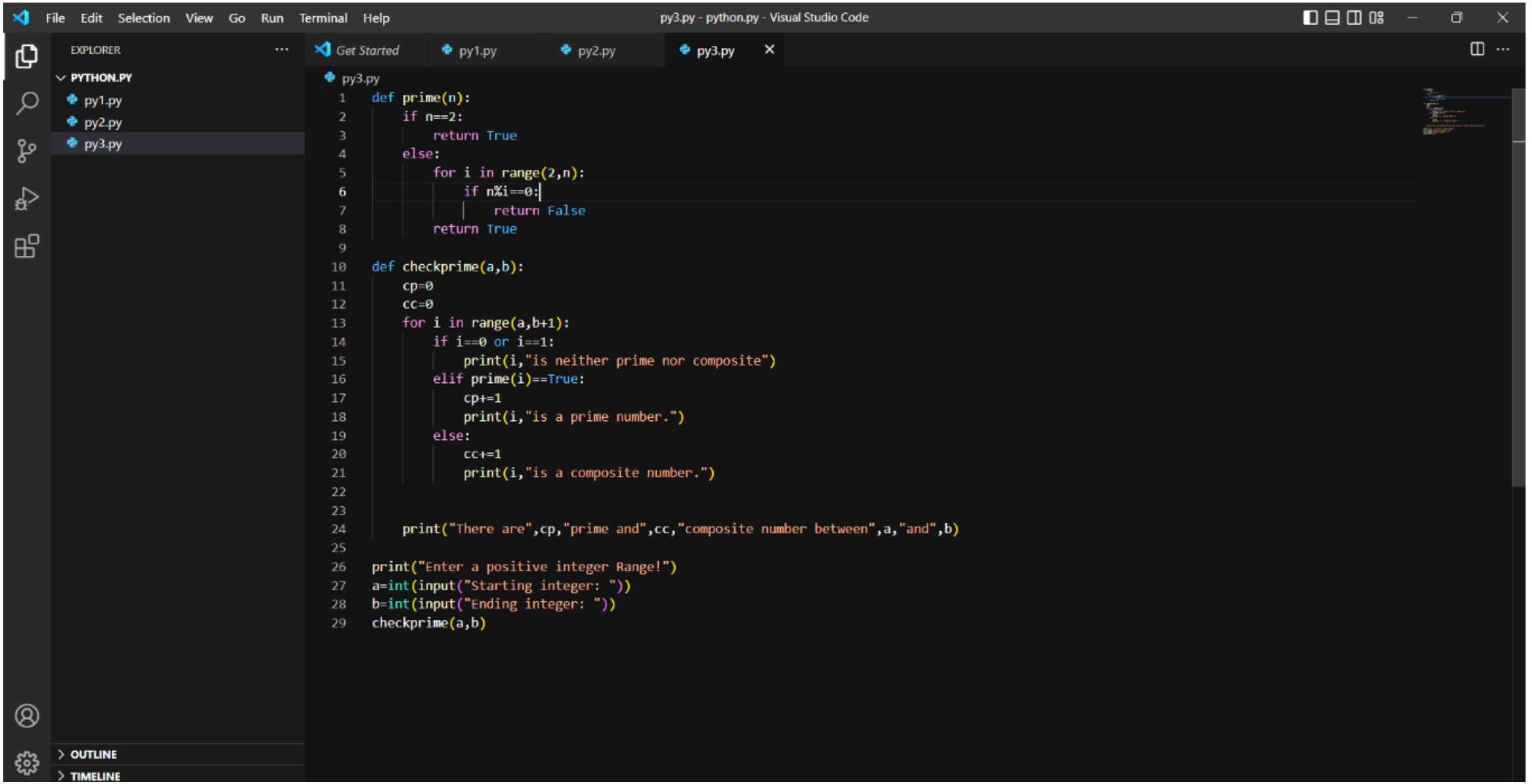
3.Brief description of our Project

Here we have declared two functions. The first one is Prime function of Boolean type function to check if the number is prime or composite . If the number is prime it shall return True else it will return False.

The second function is the checkPrime function . It takes two arguments a and b where a is the starting index and b is the ending index. In this there is an for iterator from a to b inclusive values

This goes through each integers between a and b and calls the Prime function for i. if it is true it will print “i, is a prime number” else it will print “it is a composite number” Here I have also taken to variables initiated with value 0 i.e countPrime and countComposite. If any of the conditions is satisfied the value of countPrime and countComposite is incremented by 1. Hence printing the number of prime and composite numbers at the end.

INPUT




```python
def prime(n):
    if n==2:
        return True
    else:
        for i in range(2,n):
            if n%i==0:
                return False
        return True

def checkprime(a,b):
    cp=0
    cc=0
    for i in range(a,b+1):
        if i==0 or i==1:
            print(i,"is neither prime nor composite")
        elif prime(i)==True:
            cp+=1
            print(i,"is a prime number.")
        else:
            cc+=1
            print(i,"is a composite number.")


    print("There are",cp,"prime and",cc,"composite number between",a,"and",b)

print("Enter a positive integer Range!")
a=int(input("Starting integer: "))
b=int(input("Ending integer: "))
checkprime(a,b)
```

Prime numbers are those numbers which are only divisible by 1 and the number itself.

py3.py

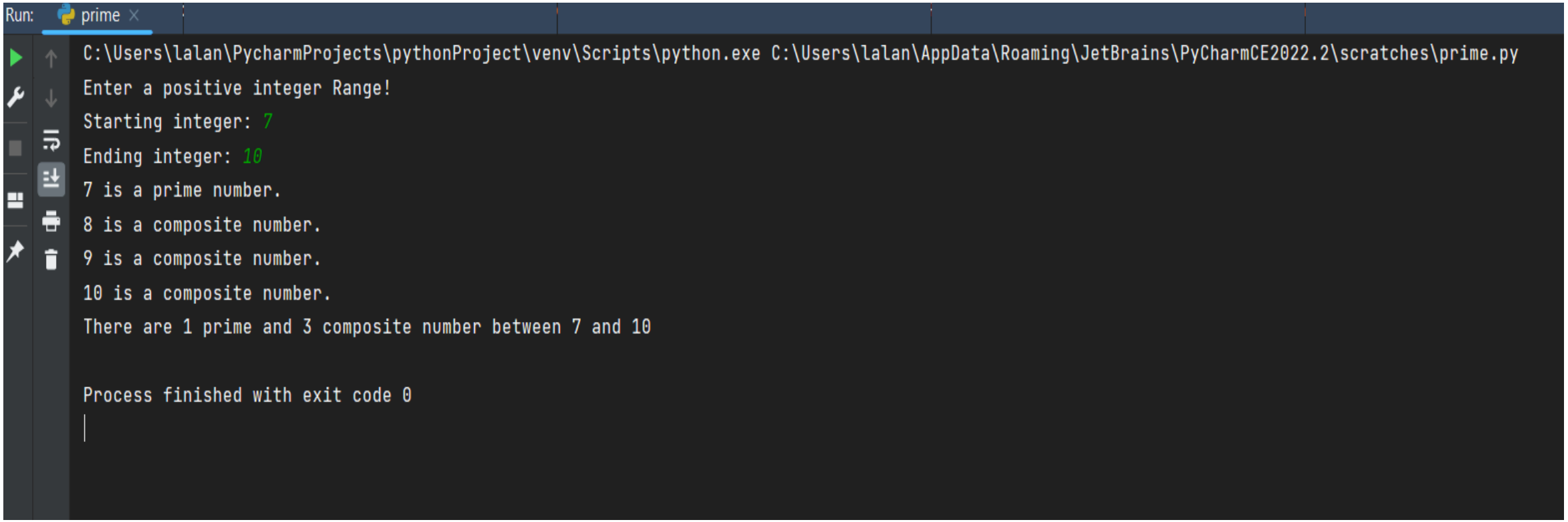
```
1   def prime(n):
2       if n==2:
3           return True
4       else:
5           for i in range(2,n):
6               if n%i==0:
7                   return False
8           return True
9
```

We have defined a Prime function of Boolean type .Here the integer n is checked if it is divisible by any integer between 2 to n-1. If it does it is a composite number. As 2 is a prime number it would have given an error so an edge case is taken that is at n==2 it should return True i.e. it is a prime number

Here a loop is taken from a (starting integer) to b (ending integer) from the user and the Prime function is called if it is true then it is a prime number else it is a composite number. 1 and 0 are neither prime nor composite numbers hence they are the edge cases and two variables are taken which counts the number of prime and composite numbers in the

```
9
10  def checkprime(a,b):
11      cp=0
12      cc=0
13      for i in range(a,b+1):
14          if i==0 or i==1:
15              print(i,"is neither prime nor composite")
16          elif prime(i)==True:
17              cp+=1
18              print(i,"is a prime number.")
19          else:
20              cc+=1
21              print(i,"is a composite number.")
22
23
24      print("There are",cp,"prime and",cc,"composite number between",a,"and",b)
25
```

OUTPUT



Here the range is taken from 7 to 10 . As 7 is a prime number the output is as shown. Same goes for other integers from 7 to 10.

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THANK YOU