Batch Name: Infosys FP5.0 Summer 2018

Enrollment No: R171217044

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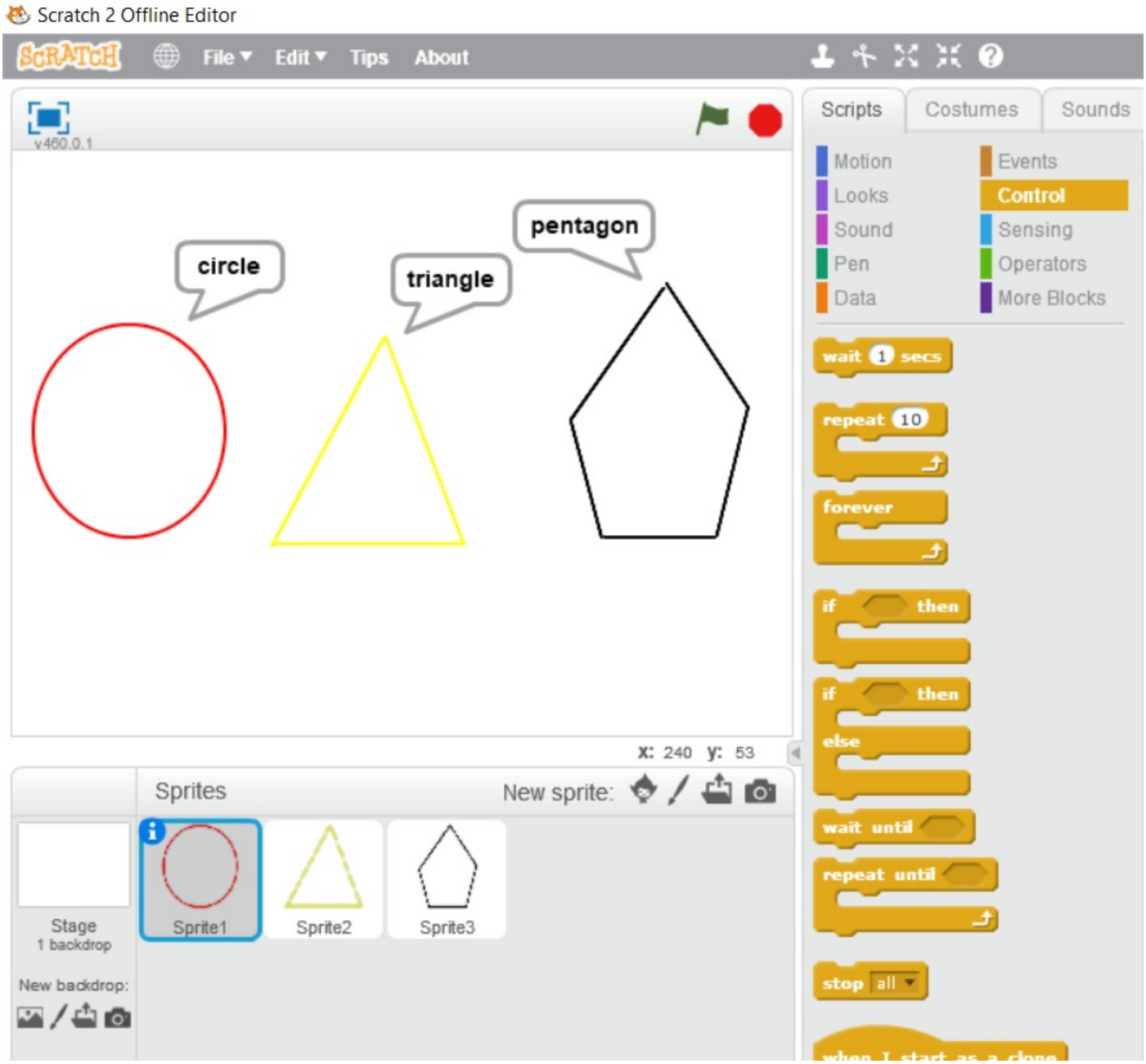
Sem: SEM-II

Branch: CSE-DEVOPS

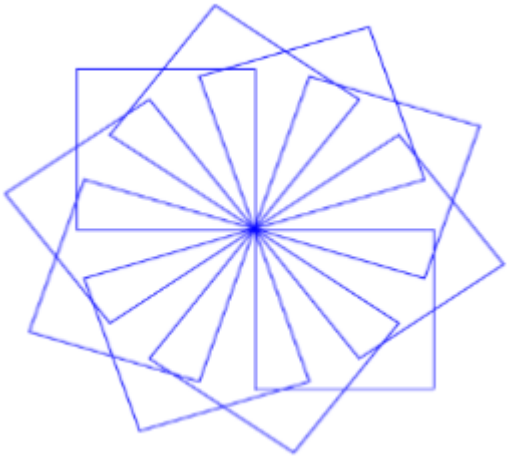
ASSIGNMENT 1

1) Take a text input from the user as one of the three shape names – "square", "triangle" or "pentagon". Based on the input, draw either a red square, yellow triangle or black pentagon.

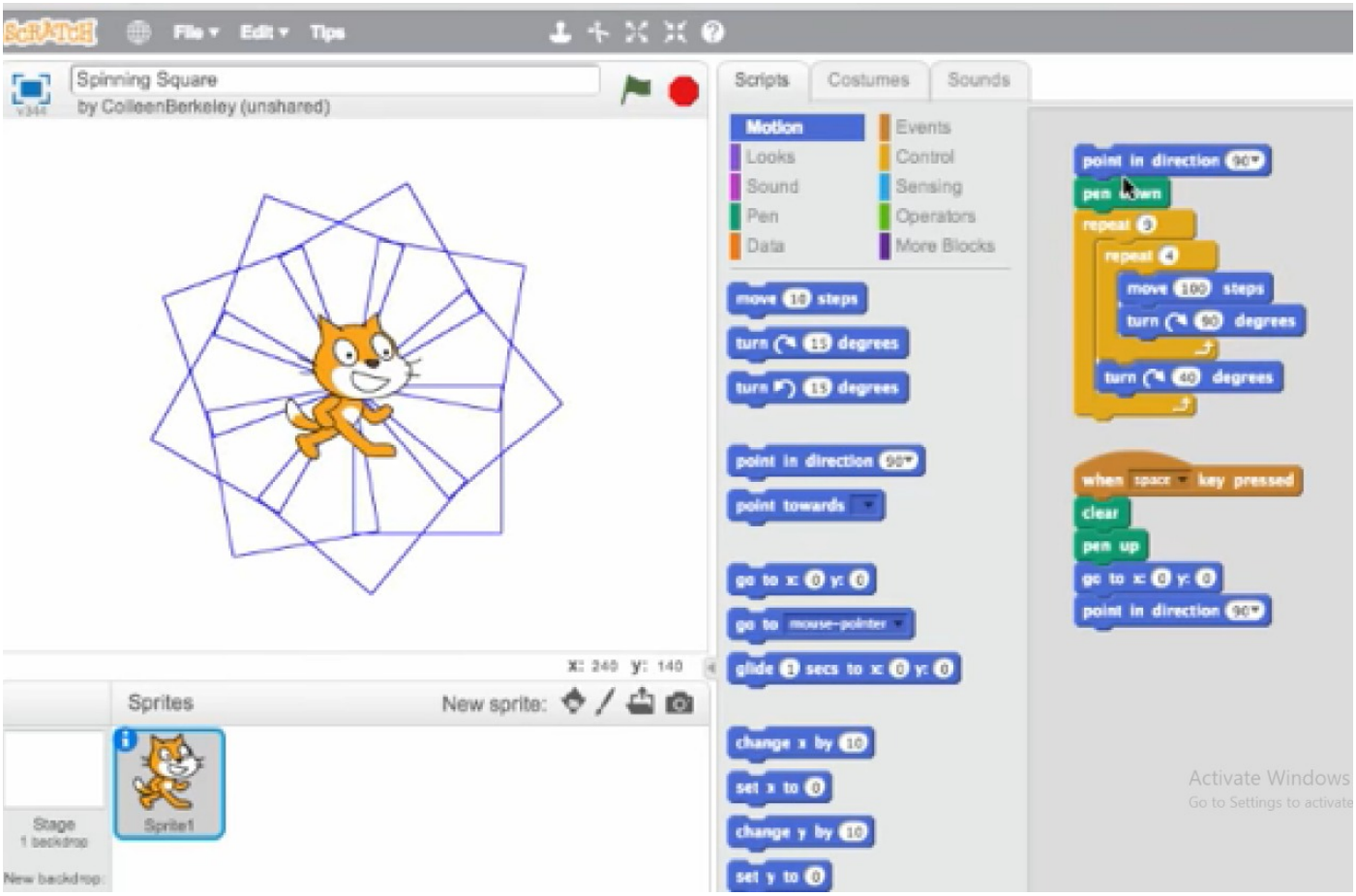
Ans:



2) Create the following pattern using Scratch.

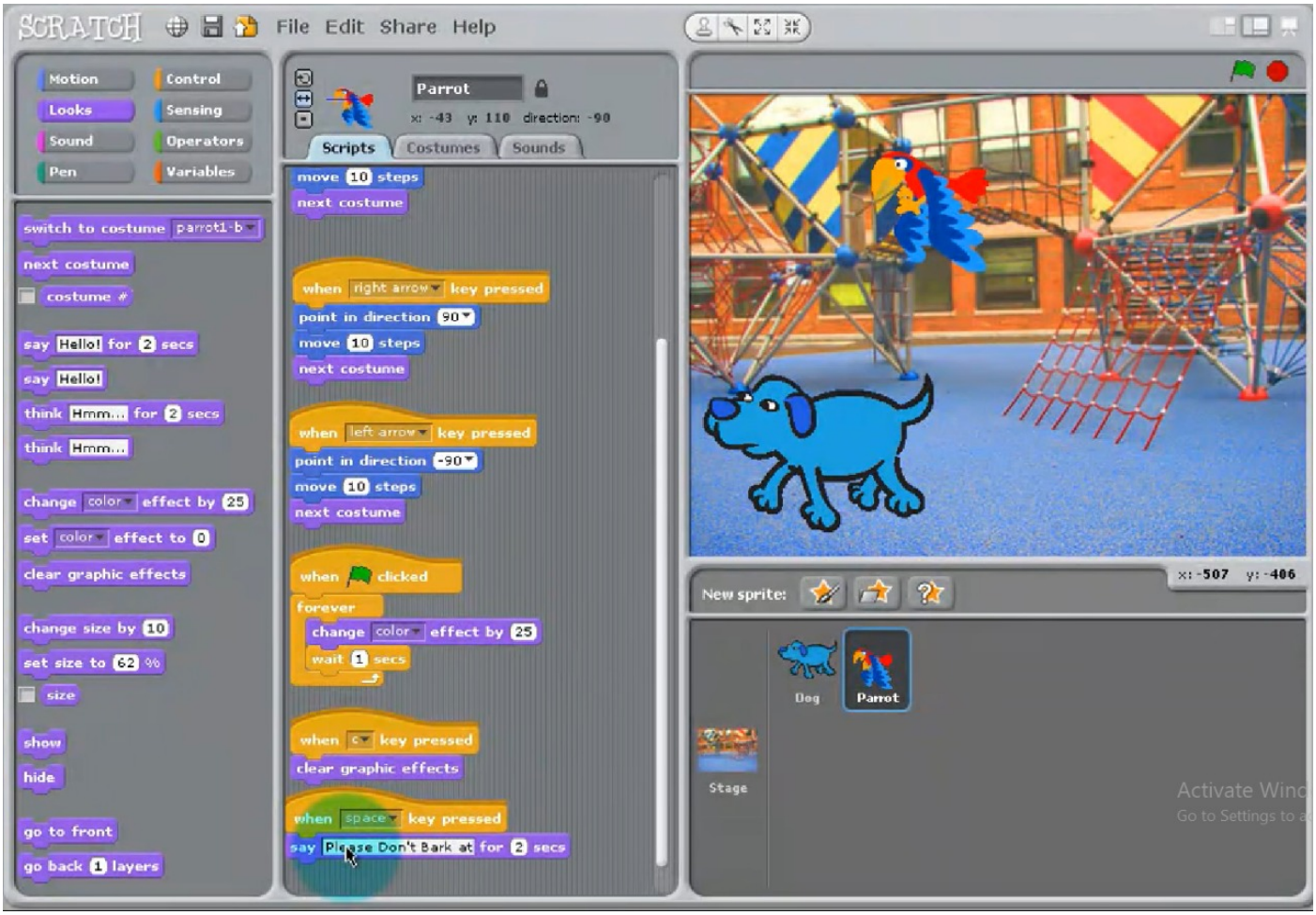


Ans:



3) Create or import two Sprites and use your imagination to make them do different actions simultaneously. For example: "A bird is flying and a dog is walking at the same time."

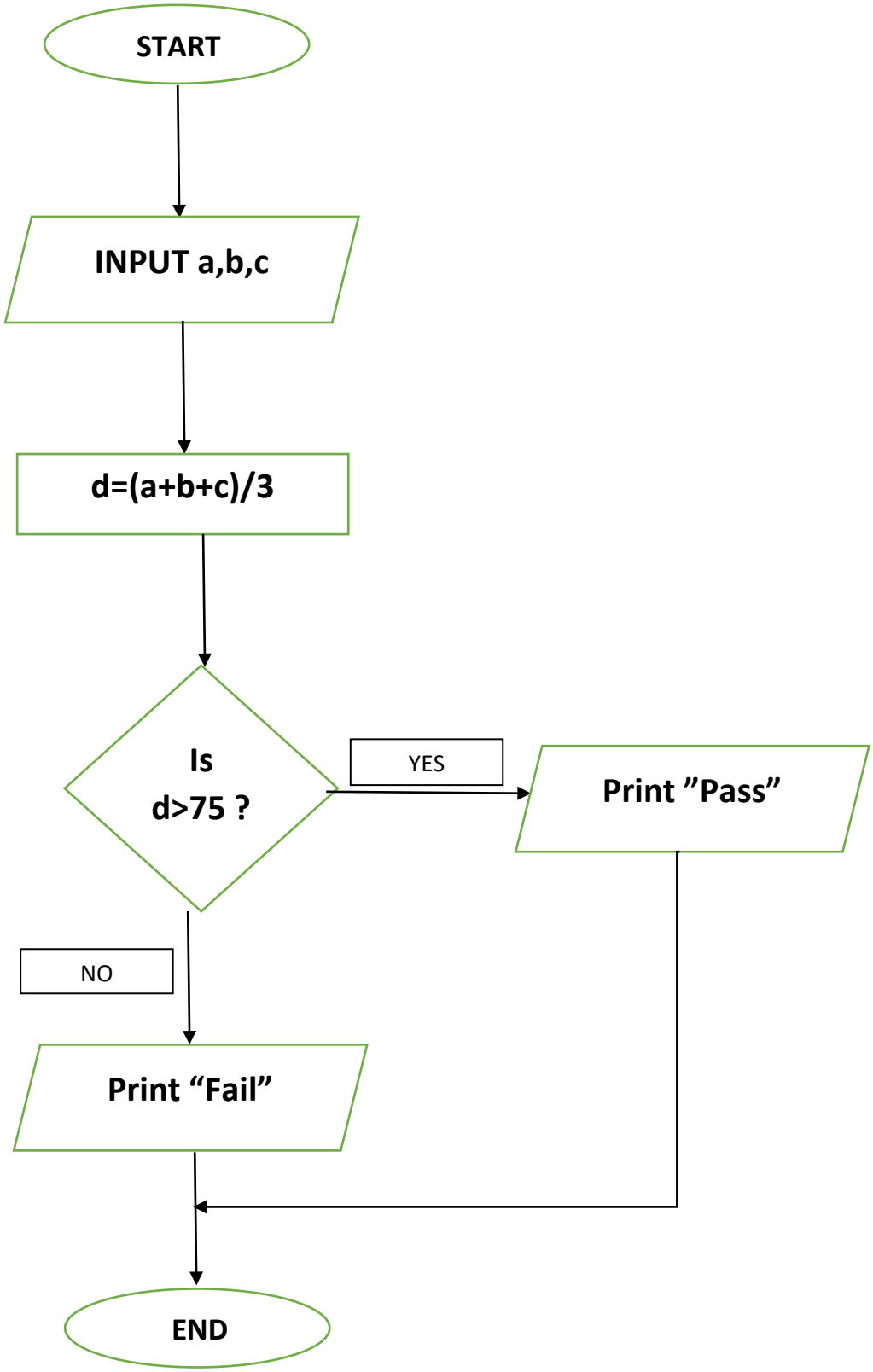
Ans:



ASSIGNMENT 2

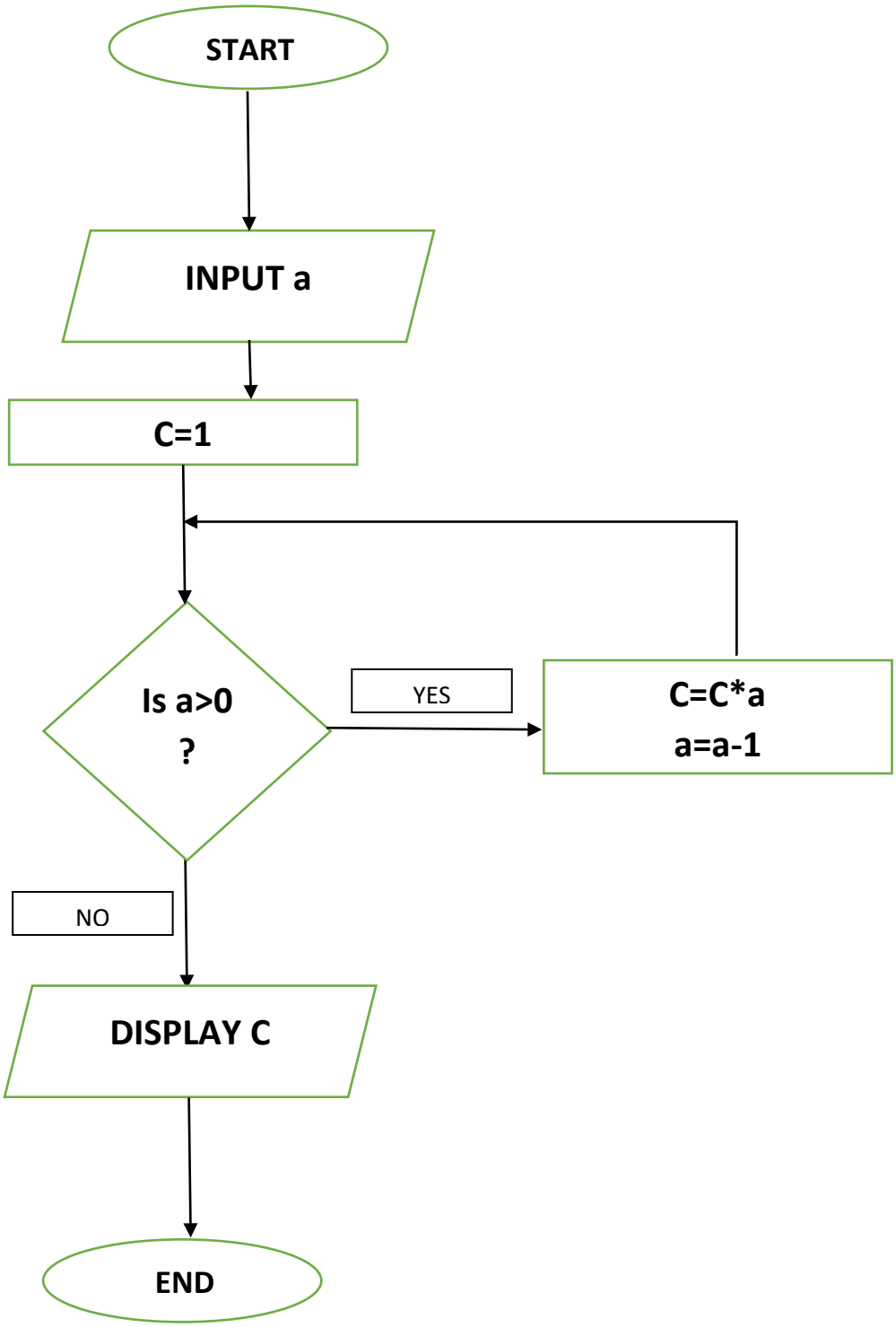
1. Calculate the average of three numbers. If average is greater than or equal to 75, print "Pass", else print "Fail".

Ans:



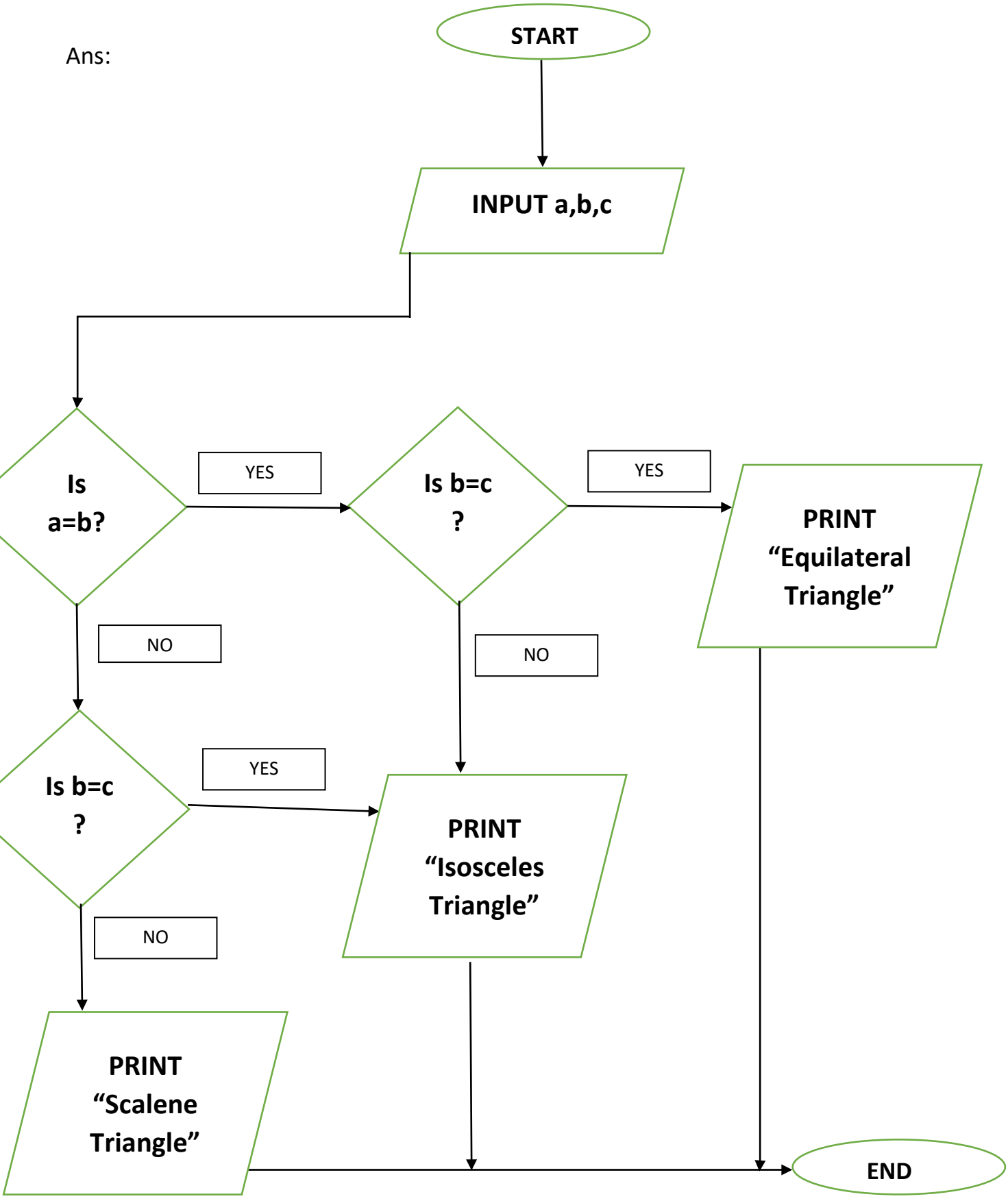
2) Calculate and print the factorial of a number

Ans:



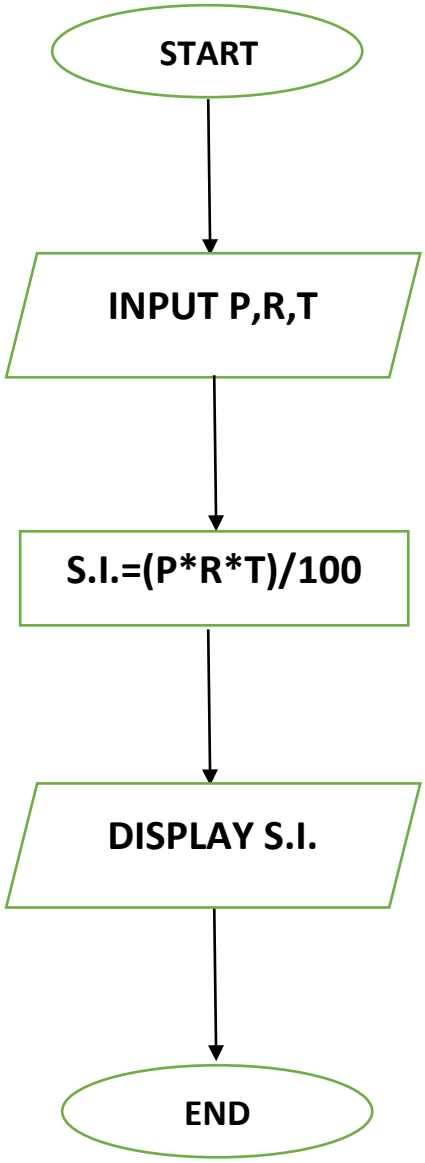
2. Accept the lengths of three sides of a triangle as input from the user. Based on the input, print if the given triangle is "Equilateral", "Isosceles" or "Scalene".

Ans:


START
INPUT a,b,c
Is a=b?
YES
Is b=c ?
YES
PRINT "Equilateral Triangle"
NO
NO
Is b=c ?
YES
PRINT "Isosceles Triangle"
NO
PRINT "Scalene Triangle"
END

Accept the values of principal amount, rate of interest and number of years as an input from the user. Calculate and print the simple interest.

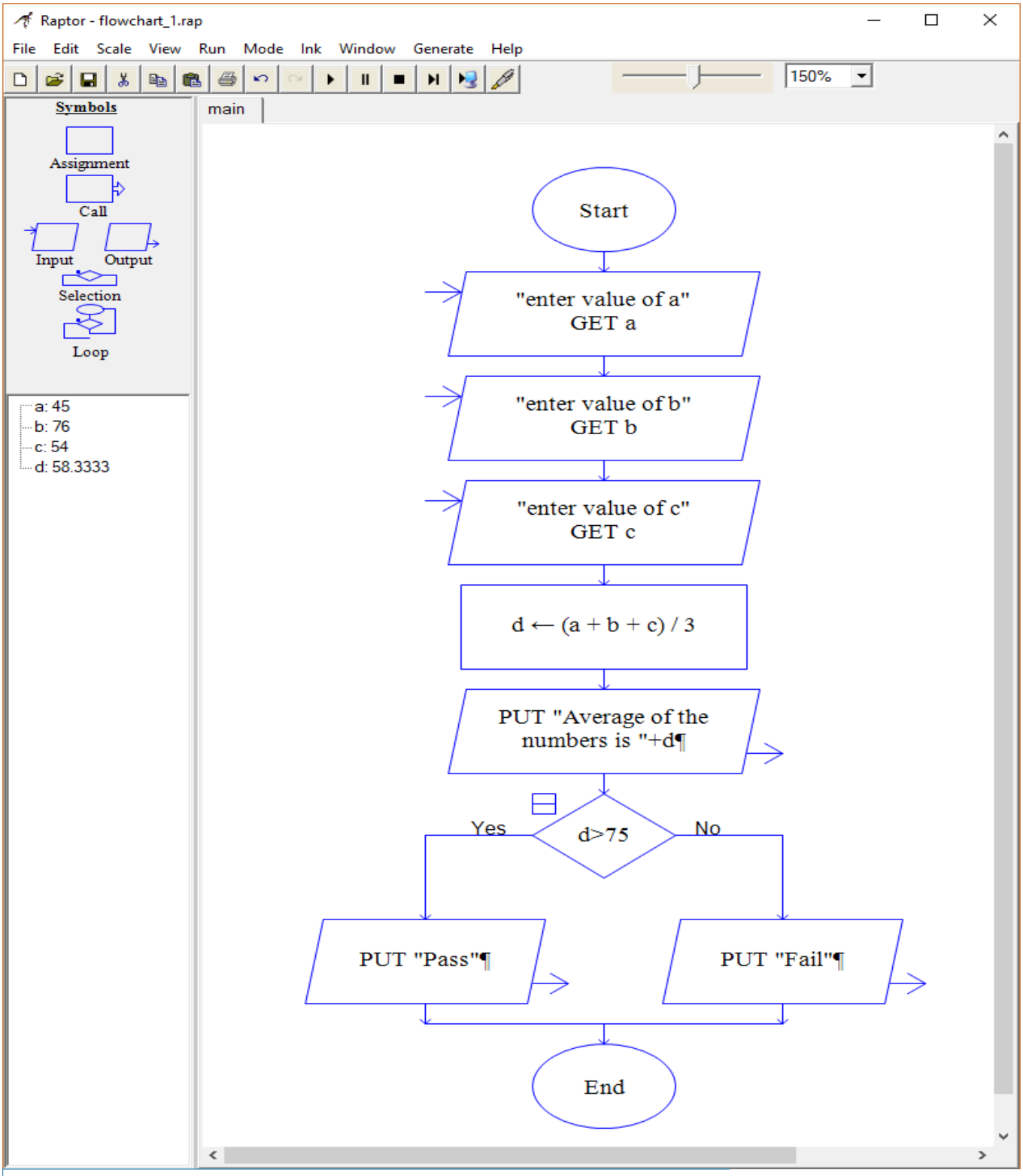
Ans:



ASSIGNMENT 3

In previous section, you have created the flowcharts for the following problems. Now, use Raptor tool to create and execute flowcharts for these problems. Observe the output for different set of inputs.

1) Calculate the average of three numbers. If average is greater than or equal to 75, print "Pass", else print "Fail".

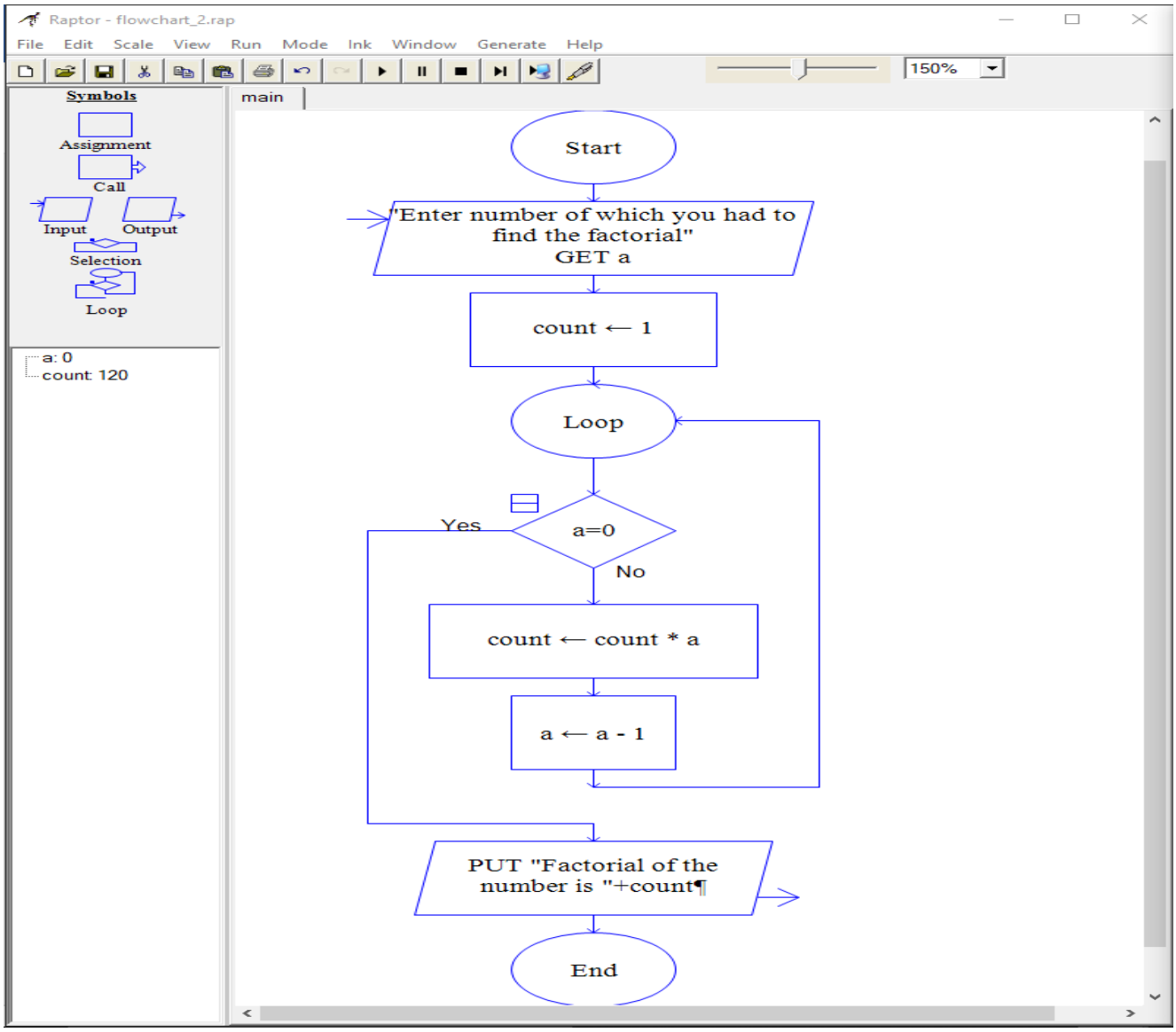


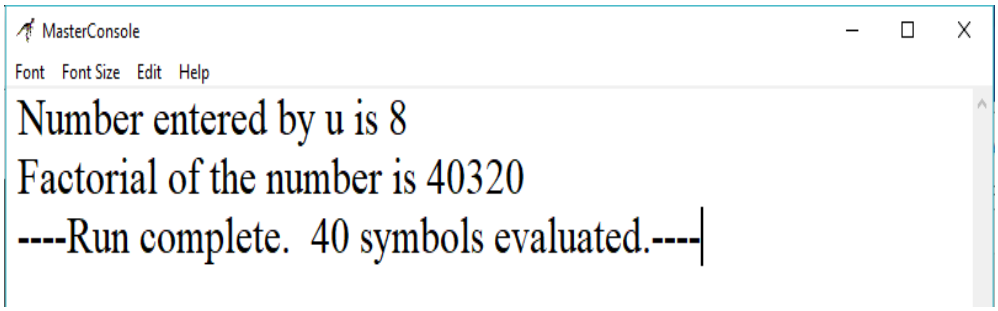
MasterConsole

Font Font Size Edit Help

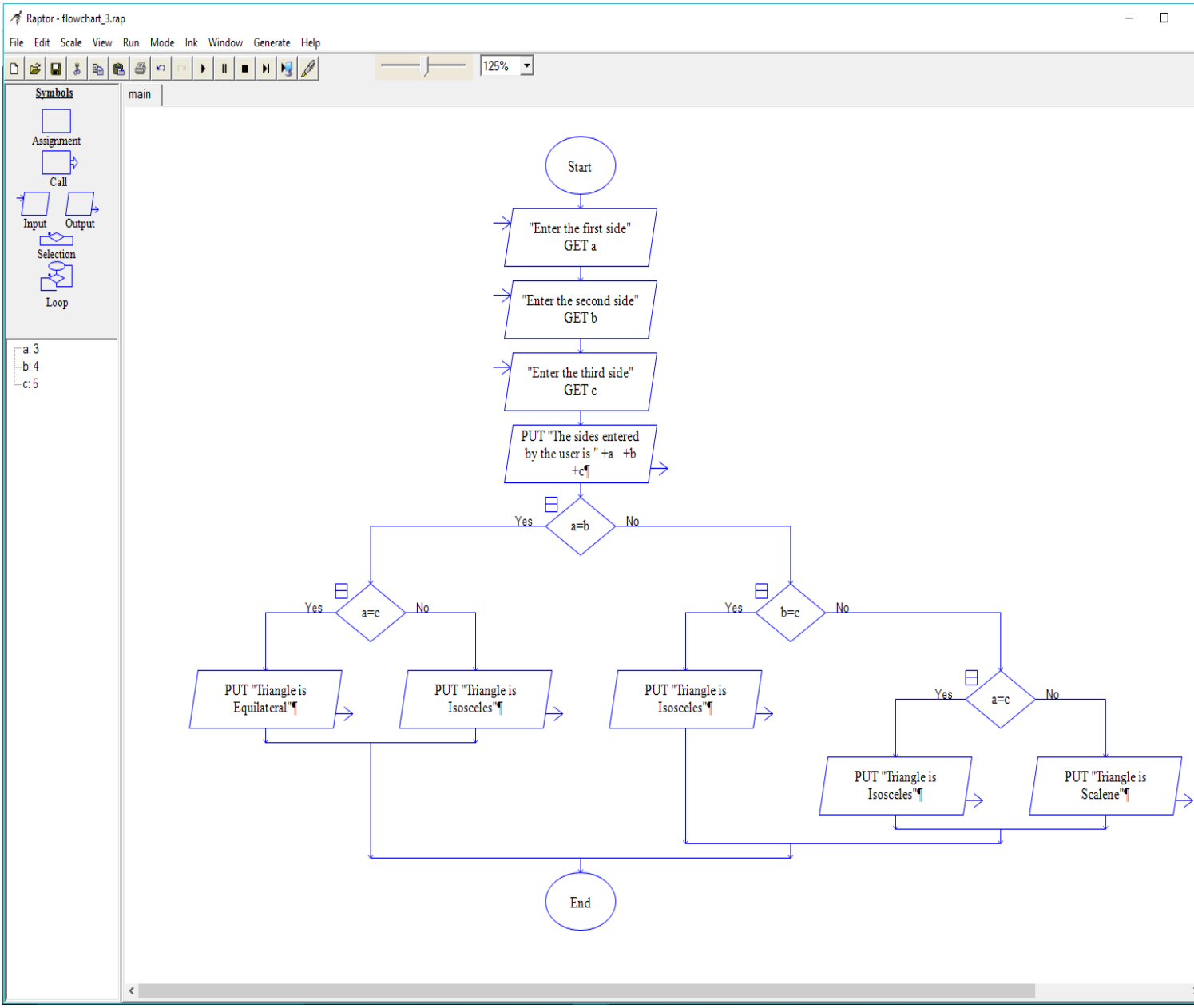
```
Average of the numbers is 88
Pass
----Run complete.  9 symbols evaluated.----
Average of the numbers is 58.3333
Fail
----Run complete.  9 symbols evaluated.----
```

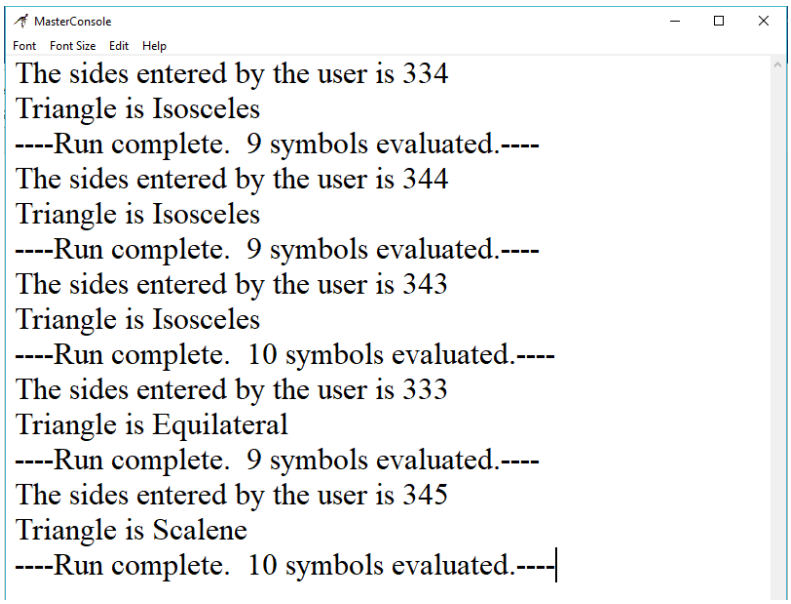
2) Calculate and print the factorial of a number



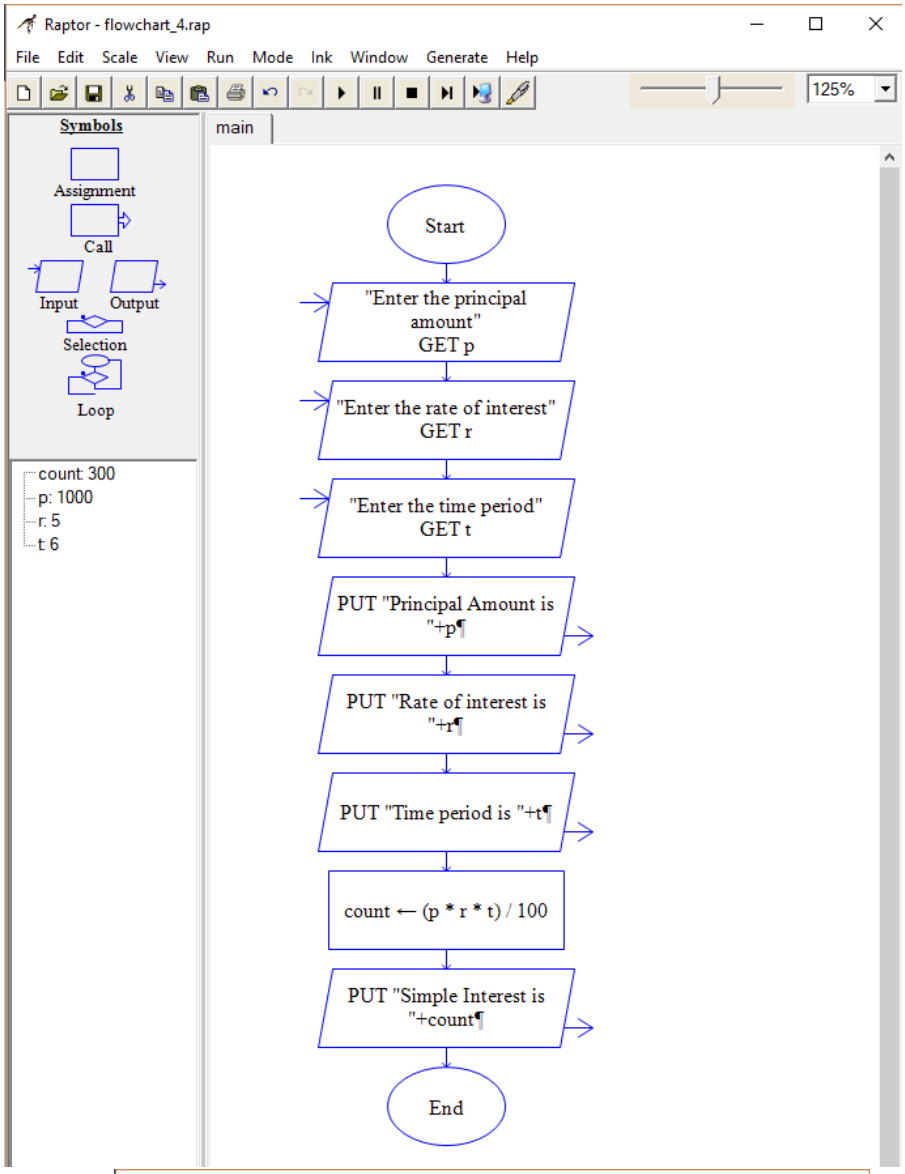


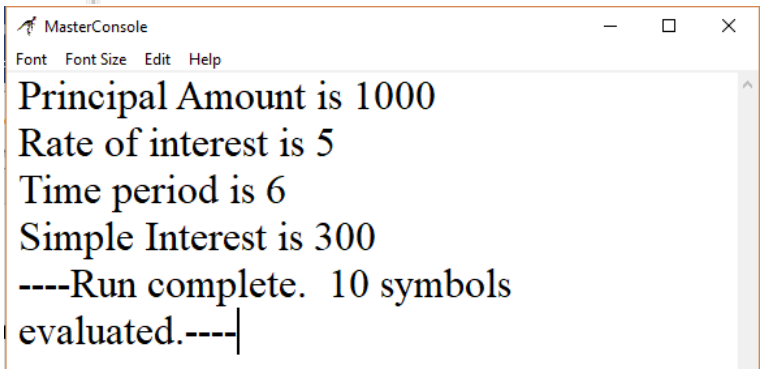
3) Accept the lengths of three sides of a triangle as input from the user. Based on the input, print if the given triangle is "Equilateral", "Isosceles" or "Scalene".





4) Accept the values of principal amount, rate of interest and number of years as an input from the user. Calculate and print the simple interest.





ASSIGNMENT 4

Q1: Write Pseudo Code:

1) To check whether a given number is even or odd.

Ans: **Step 1:** Start

Step 2: [Take Input] Read: N

Step 3: Check: If N%2 == 0 Then

Print : N is an Even Number.

Else

Print : N is an Odd Number.

Step 4: Exit

2) To find factorial of a given number.

Ans: To calculate n!, given n

Step 1: Input integer number n

Step 2: If n< 0 , Output “error”, stop,
Else, Initialise Product to 1

Step 3: If n=0 or n=1, Output Product,Stop
Else, Initialise Multiplier to 2

Step 4: Redefine Product=Product* Multiplier

Step 5: Increment Multiplier by 1

Step 6: If Multiplier is less than or equal to n , go to 6
Else, Output Product

3) To calculate ‘x’ to the power of ‘n’ using a while loop.

Ans: **Step 1:** Input integer number n and x.

Step 2: Initialize a function **double** pow(**double** x, **int** n) {

Step 3: if (n < 0) **return** pow(1.0 / x, -n)

Step 4: **if** (n == 0) **return** 1.0

Step 5: if (n == 1) **return** x

Step 6: if (n % 2 == 0) **return** pow(x * x, n / 2)

Step 7: Default it will **return** x * pow(x * x, (n - 1) / 2)

4) To print the multiples of 3 between 1 to 20.

Ans**: Step 1:** Initialize a variable i and j. Make j static with a value equal to 3.

Step 2: Initialize a variable n=20 or define a limit variable.

Step 3: Design a for loop as for(i=1;i<=n/3;i++)

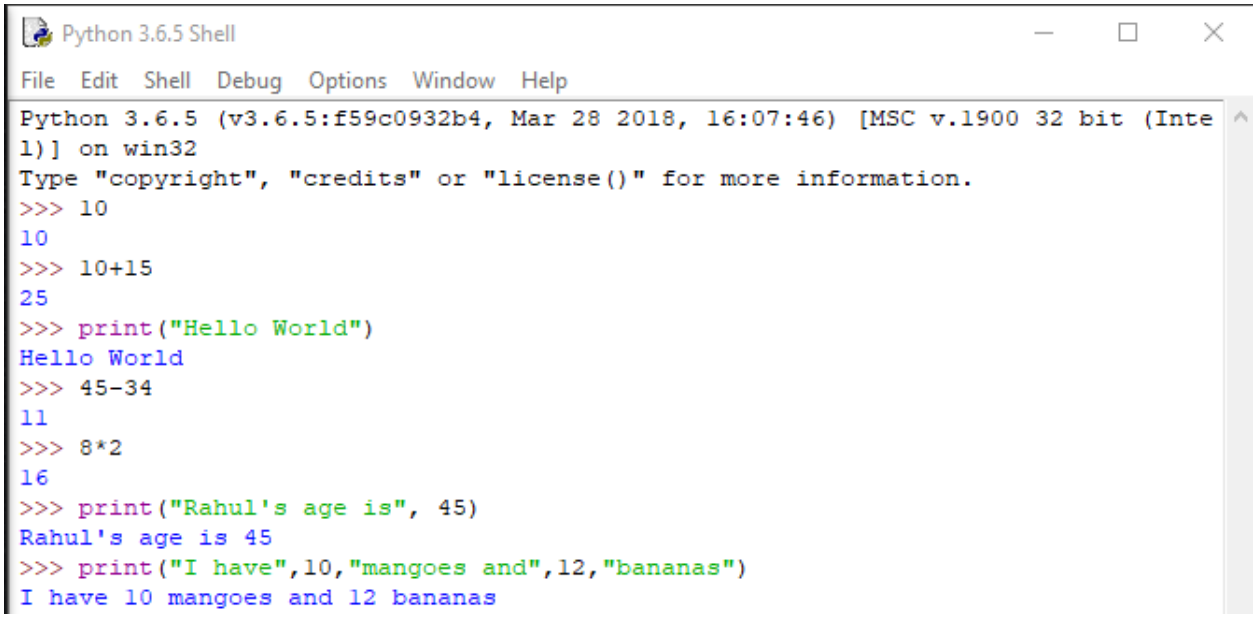
Step 4: Return 3*i

Step 5: Print the values received by the function and close the program

ASSIGNMENT 5

Open the Python IDLE and execute the following commands. Observe the output.

1) 10 + 15
   "It will display the sum of 10 and 15 that is 25 after the clicking of enter key."
2) Print("Hello World")
   "It will print hello world after we press enter key"
3) 45-34
   "It will give us difference of 45 and 34 after we press enter key."
4) 8*2
   "It will display the products of 8 and 2 after we press enter key"
5) Print("Rahul's age is",45)
   It will give us the output as follows: "Rahul's age is 45"
6) Print("I have",10,"mangoes and",12,"bananas")
   I will give us the output as follows: "I have 10 mangoes and 12 bananas"



ASSIGNMENT 6

Open Python IDLE and execute the following commands. Observe the output.

1) emp_number = 1233
   Assign the value to the emp_number variable.
2) print(“Emoployee Number:”, emp_number)
   It will print the output as follows:
   Employee Number: 1233
3) emp_salary = 16745.50
   It will assign value to “emp_salary” variable.
4) emp_name = “Jerry Squaris”
   It will assign string value to the “emp_name” variable.
5) print(“Employee Salary and Name:”,emp_salary,emp_number)
   It will print the output as follows:
   Employee Salary and Name: 16745.5 Jerry Squaris
6) emp_salary = 23450.34
   It will assign new value to same “emp_salary” variable.

7) print(“Upadted Employee Salary:”,emp_salary)
   It will print the output as follows:
   “Updated Employee Salary: 23450.34”

```
>>> emp_number=1233
>>> print("Employee Number:",emp_number)
Employee Number: 1233
>>> emp_salary=16745.50
>>> emp_name="Jerry Squaris"
>>> print("Employee Salary and Name:",emp_salary,emp_name)
Employee Salary and Name: 16745.5 Jerry Squaris
>>> emp_salary=23450.34
>>> print("Updated Employee Salary:",emp_salary)
Updated Employee Salary: 23450.34
```

ASSIGNMENT 7

Execute the following Python statements in IDLE and observe the output:

1) customer_id=101
   Assign the value to a variable named as customer_id.
2) type(customer_id)
   Give the datatype of the variable taken as an argument.
3) customer_name="John"
   Assign the value to a variable named as customer_name.
4) type(customer_name)
   Give the datatype of the variable taken as an argument.
5) bill_amount=675.45
   Assign the value to a variable named as bill_amount.
6) type(bill_amount)
   Give the datatype of the variable taken as an argument.

7) x=5.3+0.9j
   Assign the value to a variable named as x
8) type(x)
   Give the datatype of the variable taken as an argument.
9) print(customer_id,customer_name,bill_amount)
   It will give output as follows:

10) print(x.real)
   "It will print the real part of the complex number"
11) print(x.imag+3)
   "It will increase the imaginary part by 3 and print it"
12) Flag=True
   "It will store boolean variable in the Flag"
13) Type(Flag)
   "It will give us the name of the datatype of the variable to which it belongs"
14) Y="Flag"
   "It will store the string variable in the variable named as y".
15) Type(y)
   "It will give us the name of the datatype to which it will belong"

```
Python 3.6.5 (v3.6.5:f59c0932b4, Mar 28 2018, 16:07:46) [MSC v.1900 32 bit (Inte
l)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> customer_id=101
>>> type(customer_id)
<class 'int'>
>>> customer_name="John"
>>> type (customer_name)
<class 'str'>
>>> bill_amount=675.45
>>> type(bill_amount)
<class 'float'>
>>> x=5.3+0.9j
>>> type(x)
<class 'complex'>
>>> print(customer_id,customer_name,bill_amount)
101 John 675.45
>>> print(x.real)
5.3
>>> print(x.imag+3)
3.9
>>> Flag=True
>>> type(Flag)
<class 'bool'>
>>> y="False"
>>> type(y)
<class 'str'>
```

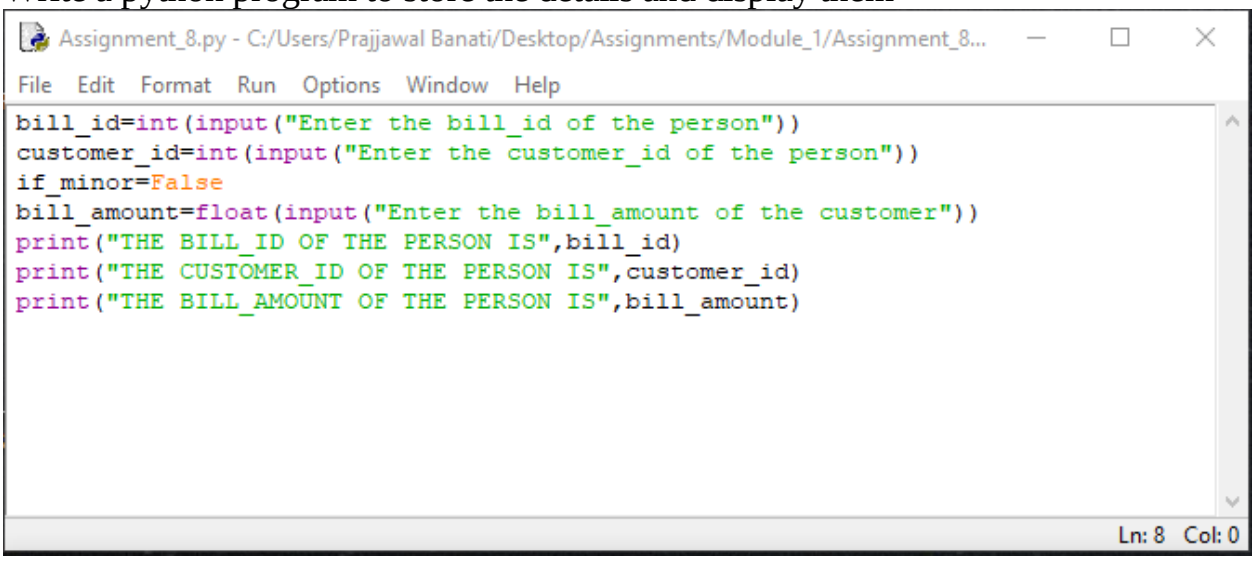
ASSIGNMENT 8

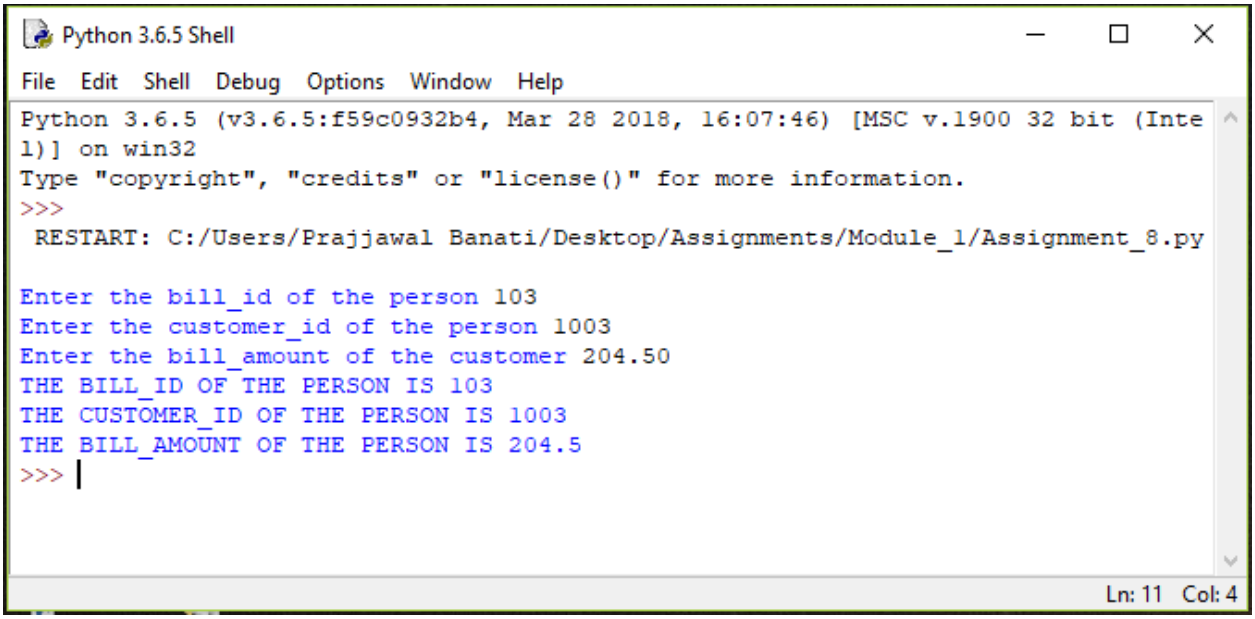
In a retail application, shopkeeper wants to keep a track of following details of a customer. Sample values are
provided.

•bill_id = 101
•customer_id = 1001

•customer_name = "Rahul"
•if_minor = False
•bill_amount = 2000.50

Write a python program to store the details and display them



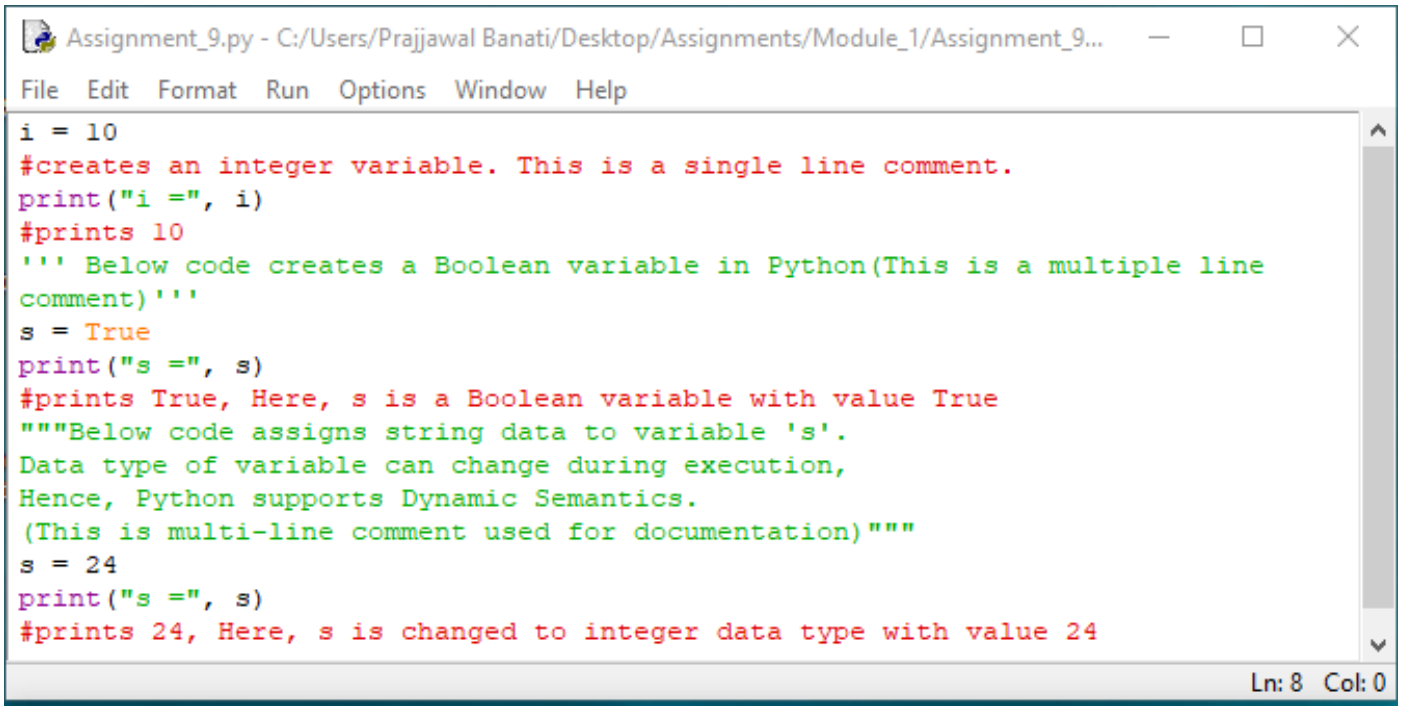


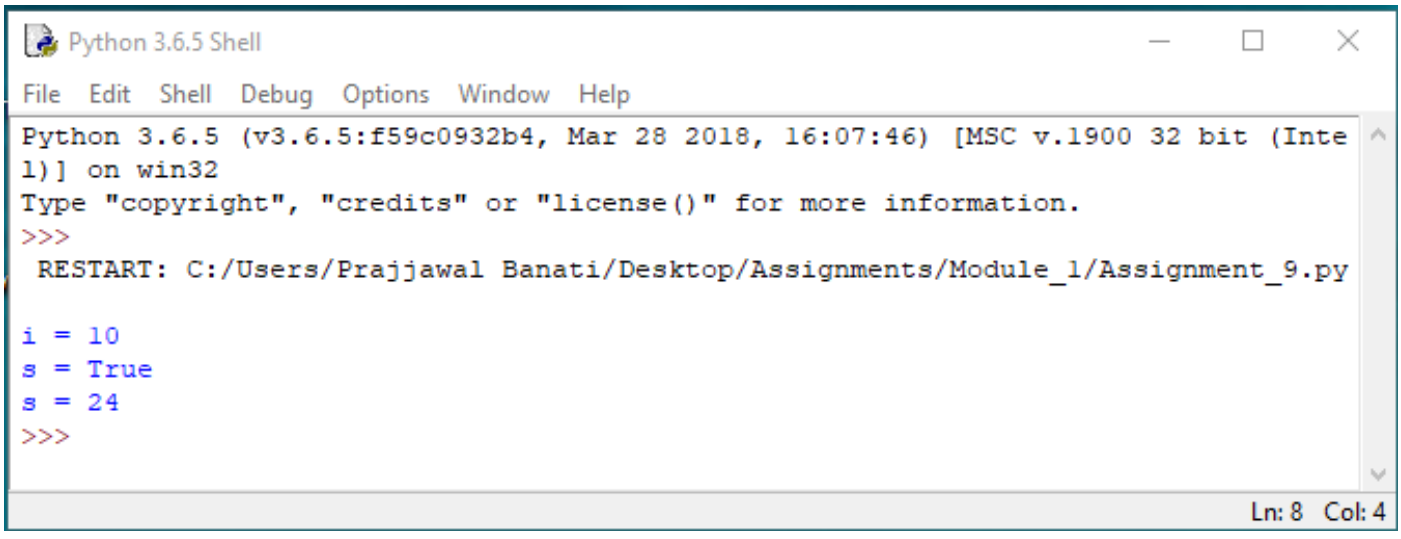
ASSIGNMENT 9

Execute the following commands and observe the usage of different types of commenting styles.

```
i = 10
# creates an integer variable. This is a single line comment.
print("i =", i)
# prints 10
'''
Below code creates a Boolean variable in Python
(This is a multiple line comment)
'''
```

```
s = True
print("s =", s)
#prints True, Here, s is a Boolean variable with value True
"""
Below code assigns string data to variable 's'. Data type of variable can change during execution,
Hence, Python supports Dynamic Semantics.
(This is multi-line comment used for documentation)
"""
s = 24
print("s =", s)
#prints 24, Here, s is changed to integer data type with value 24
```

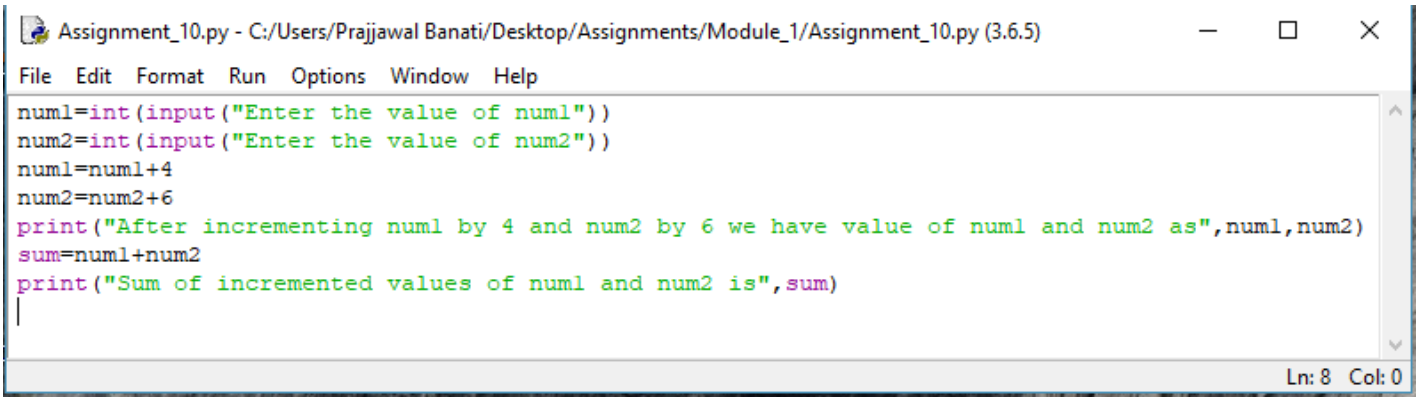


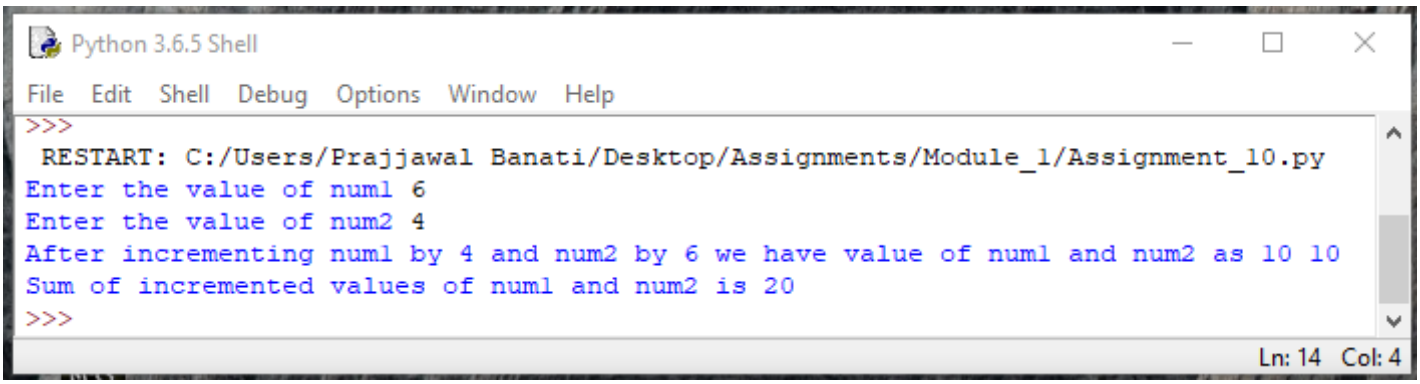


ASSIGNEMENT 10

Write a Python program for the following requirements:

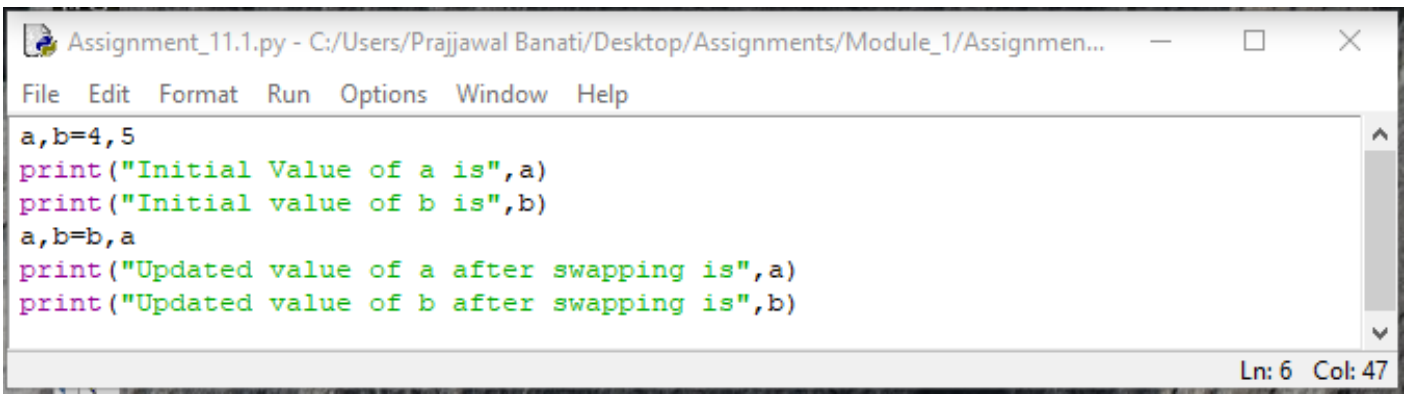
• Prompt the user to input two numbers num1 and num2
• Increment num1 by 4 and num2 by 6
• Find and print the sum of new values of num1 and num2

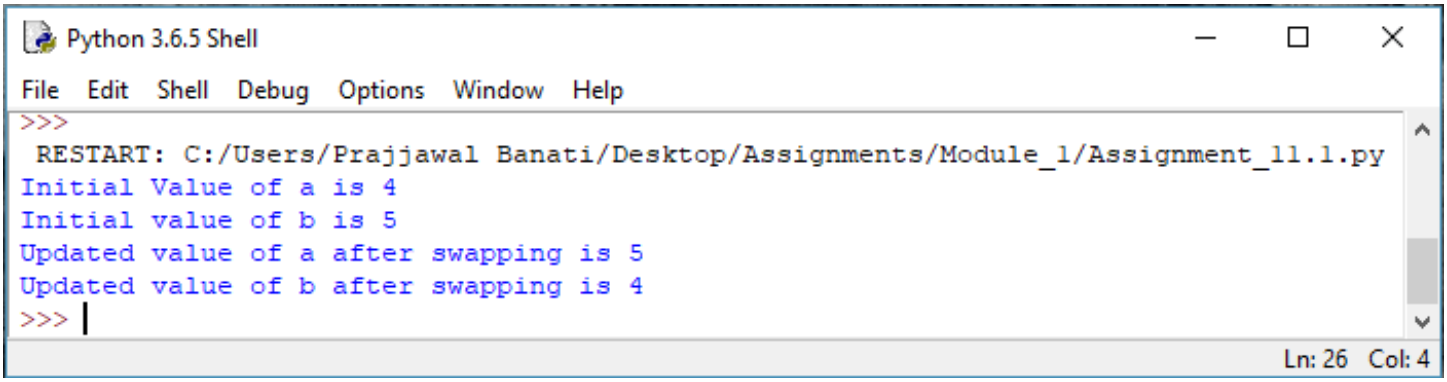




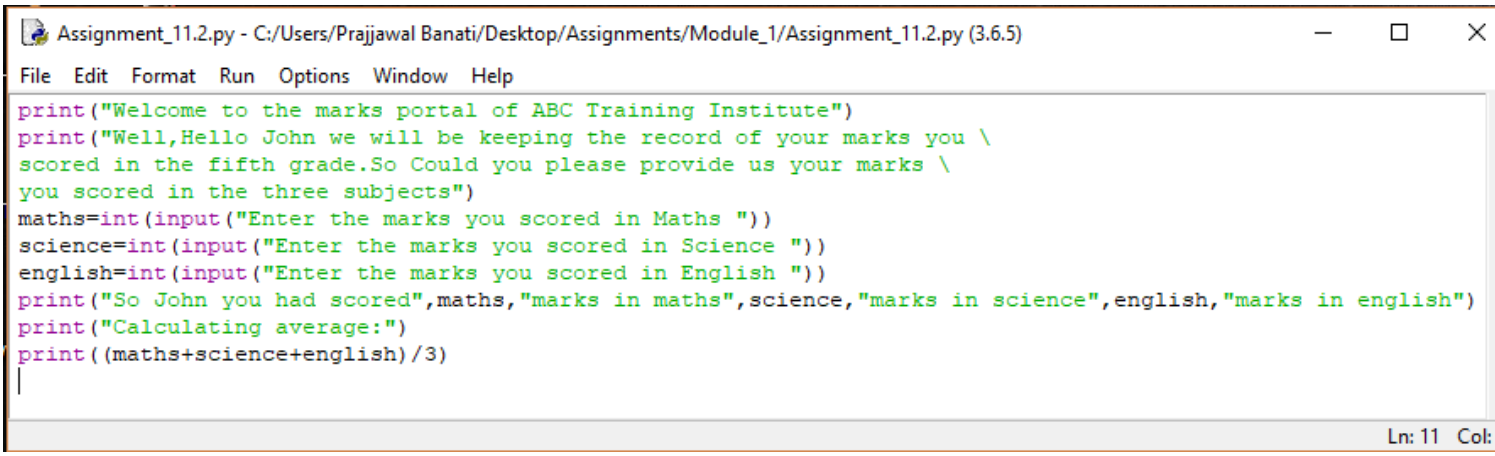
ASSIGNMENT 11

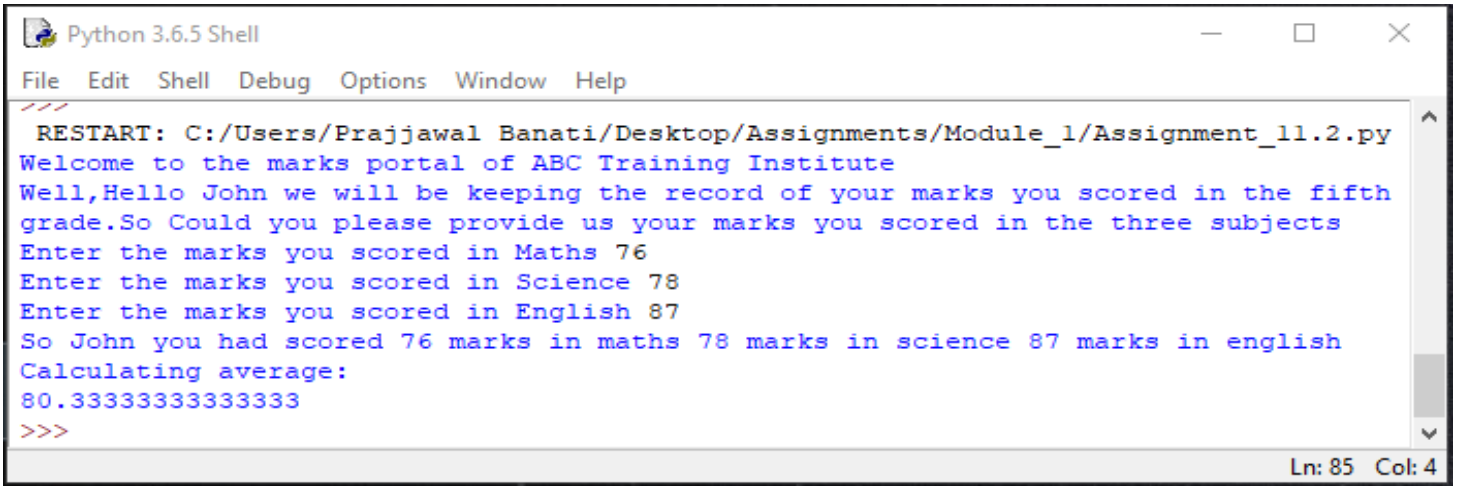
1) Consider two variables 'a' and 'b' in Python such that a = 4 and b = 5. Swap the values of 'a' and 'b' without using a temporary variable. Print the values of 'a' and 'b' before and after swapping





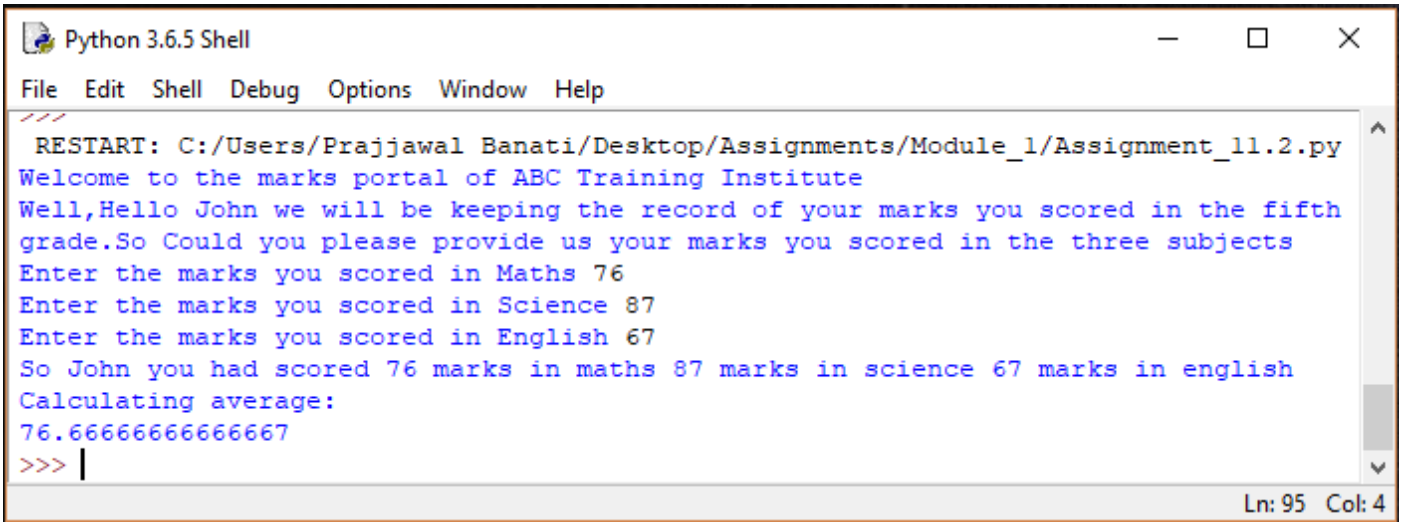
2) Consider the scenario of processing marks of a student in ABC Training Institute. John, the student of fifth grade takes exams in three different subjects. Create three variables to store the marks obtained by John in three
subjects. Find and display the average marks scored by John.



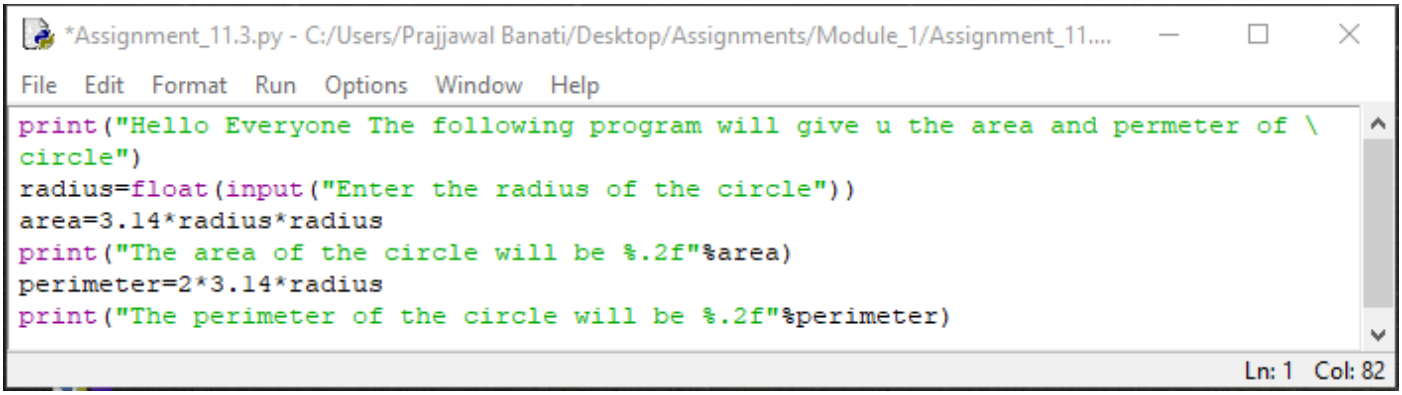


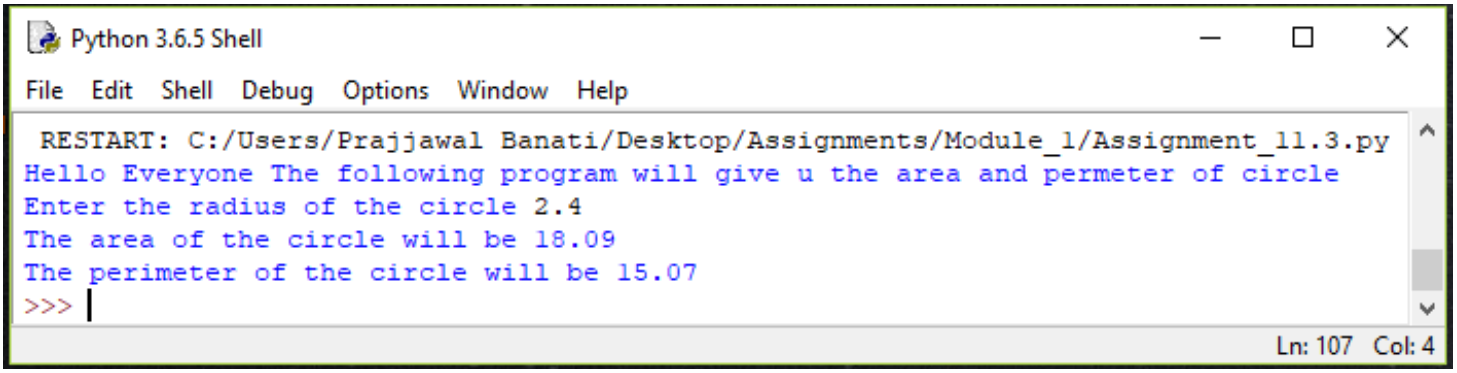
Now change the marks in one of the subjects and observe the output. Did the value of average change?

Ans: YES, AS NOW NEW VALUES WILL BE ASSIGNED TO SAME VARIABLES.



3) Given the value of radius of a circle, write a Python program to calculate the area and perimeter of the circle. Display both the values.



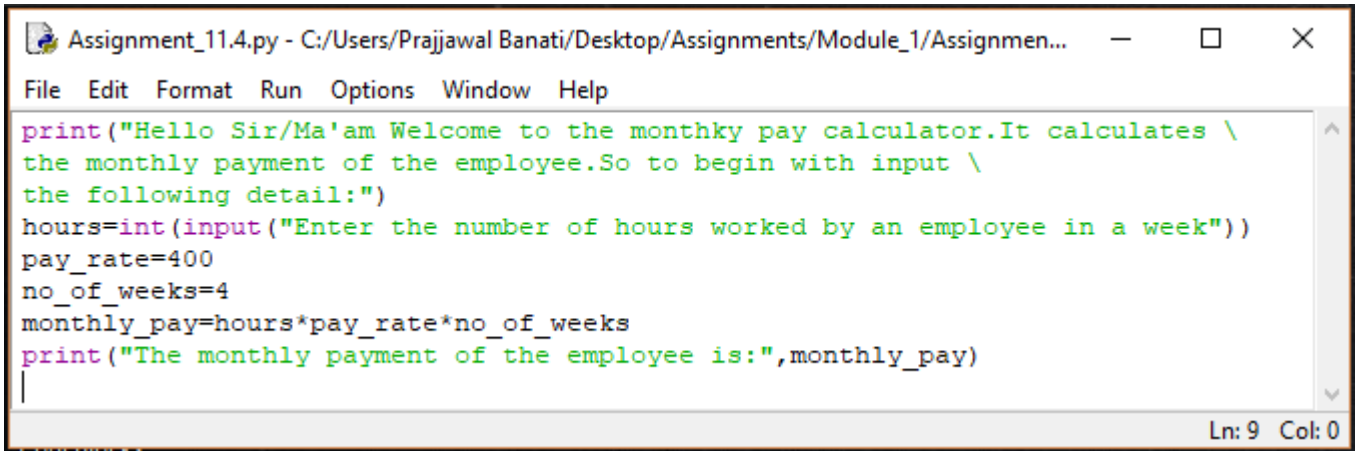


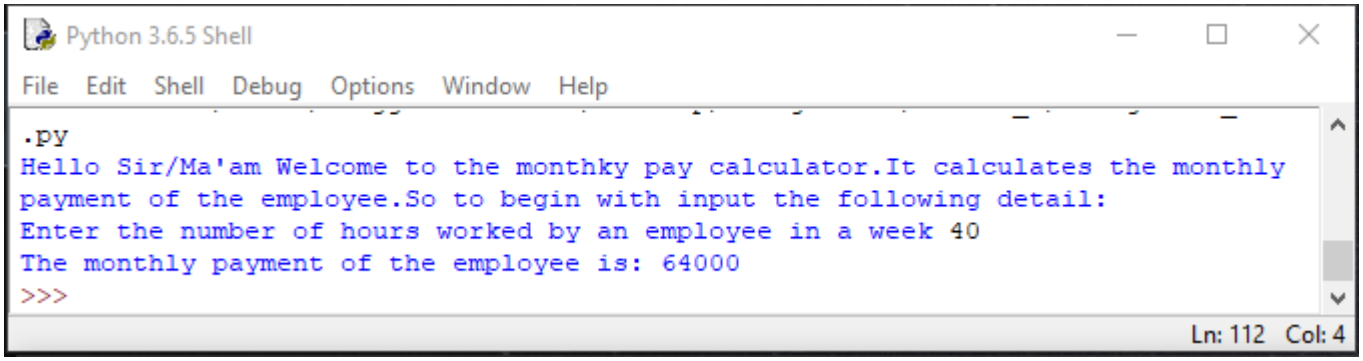
4) The finance department of a company wants to compute the monthly pay of its employees. Monthly pay should be calculated as mentioned in the formula below. Display all the employee details.

Monthly Pay = Number of hours worked in a week * Pay rate per hour * No. of weeks in a month

- The number of hours worked by the employee in a week should be considered as 40
- Pay rate per hour should be considered as Rs.400
- Number of weeks in a month should be considered as 4

Write a Python program to implement the above real world problem.





ASSIGNEMENT 12

Identify the sections of the given program where the coding standards are not followed and correct them.

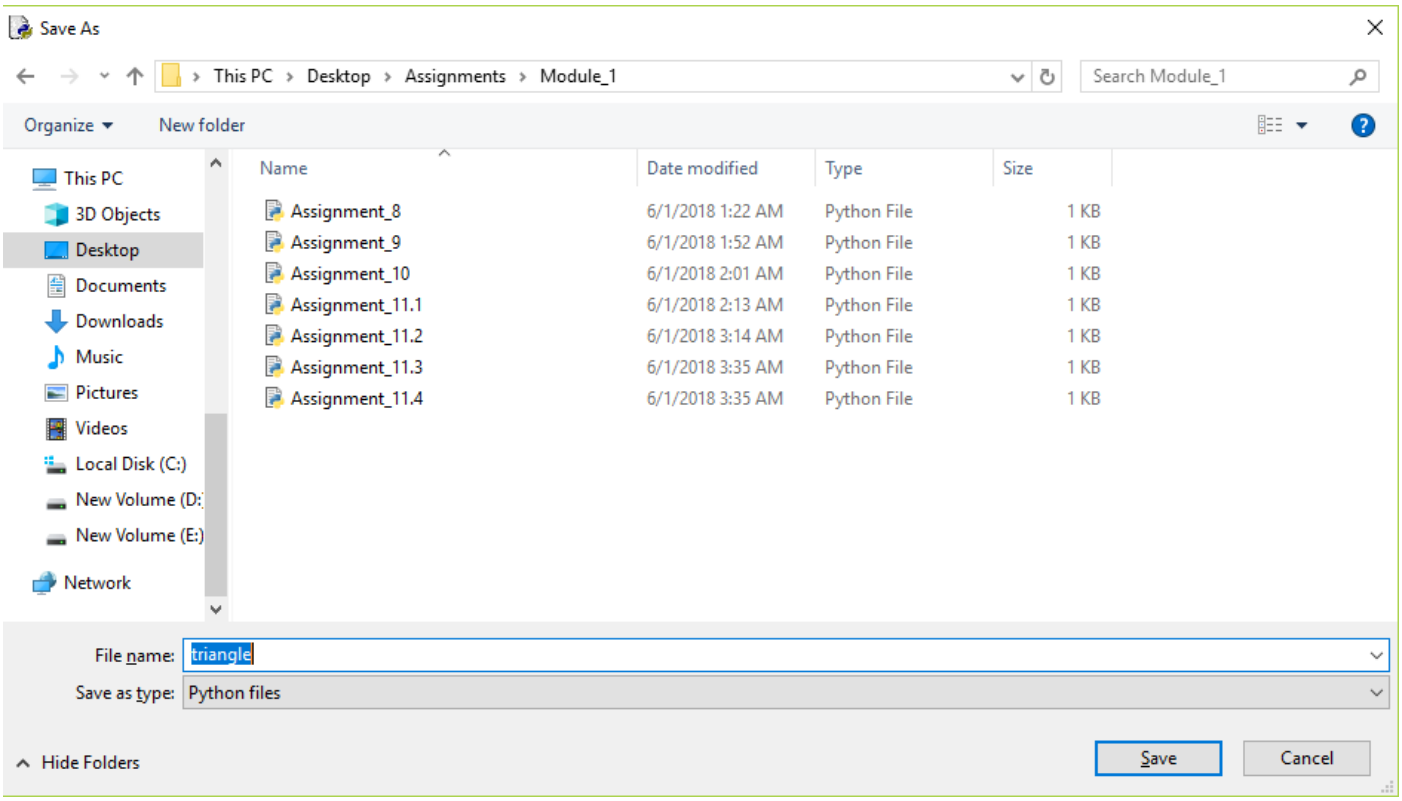
1) itemNo= 1005
   Ans: Firstly, all the letters should be in lowercase and secondly a combination of two words should be separated by _ mark. And also there must be spaces between the binary operators. So the right representation of the variable is:
   item_no = 1005
2) unitprice = 250
   Ans: Firstly we need underscore mark to separate the two words, So the right representation is
   unit_price = 250
3) quantity=2
   Ans: Space between the binary operators
   quantity = 2
4) amount=quantity*unitprice
   Ans: amount = quantity * unit_price
5) print(“Item No:”itemNo)
   Ans: Firstly there must be space after the “Item No: ” so that it makes easy for the user to read the item no. and does not mix anything and one more thing itemNo

should be all in lowercase and also spaced by underscore mark (‘_’) , So the correct representation is
Print(“Item No: ”item_no)

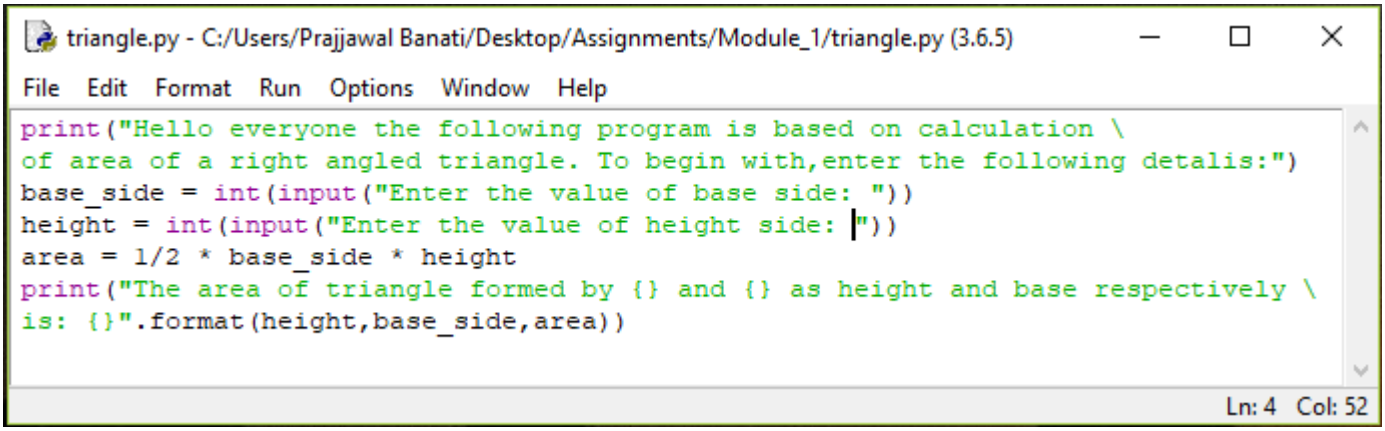
6) print(“Bill Amount:”,amount)
Ans: The correct representation is:
Print(“Bill Amount: ”,amount)

ASSIGNMENT

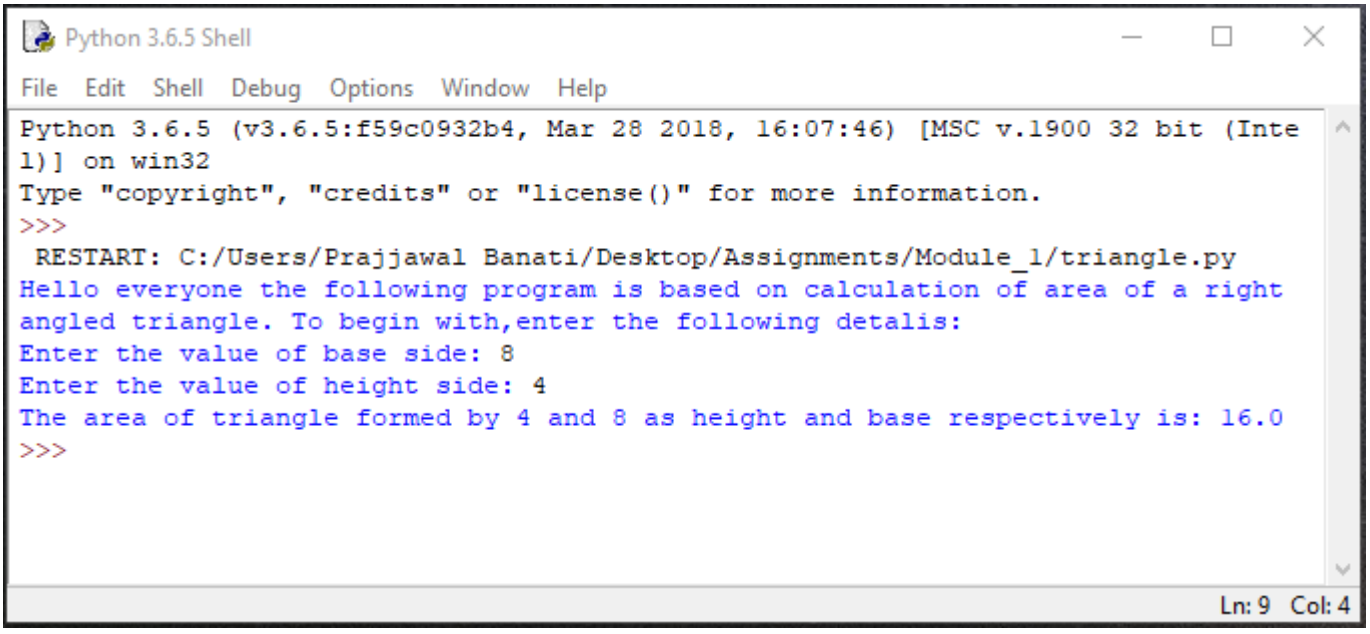
1) Create a file in PYTHON Idle named as triangle.py



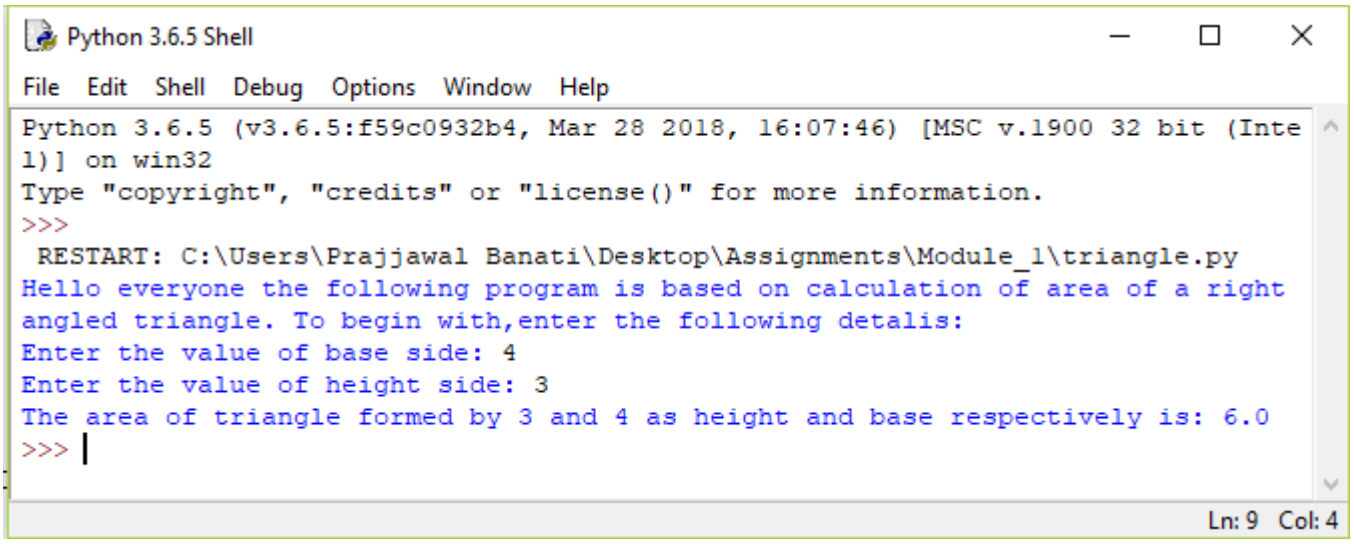
2) Write a Python program to calculate and print the area of the triangle. Prompt the user to input the values for base and height of the triangle.



3) Execute the program(use 'Run Module' under 'Run' tab) and observe the output.



4) Close the file, open it again and execute it once more with different values. Observe the output.



ASSIGNMENT 13

1) Consider the scenario of retail store management again. The store provides discount for all bill amounts based on the criteria below:

Bill Amount	Discount %
>= 1000	5
>= 500 and < 1000	2
> 0 and < 500	1

Write a Python program to find the net bill amount after discount. Observe the output with different values of bill amount. Assume that bill amount will be always greater than zero:

Assignment_13.py - C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_...

File Edit Format Run Options Window Help

```
print("Hello User! Welocome to discount portal of the store. This portal will\
 calculate the discount on your bill amount. To begin with please: ")
bill_amount=int(input("Enter the bill amount."))
if bill_amount >= 1000:
    print("Congrats You avail 5% discount")
    bill= bill_amount - bill_amount*0.05
    print("Discount applied to your bill is ",bill_amount*0.05," and total due b
elif 1000>bill_amount>=500:
    print("You avail 2% discount")
    bill= bill_amount - bill_amount*0.02
    print("Discount applied to your bill is",bill_amount*0.02,"and total due bil
else:
    print("You avail 1% discount")
    bill=bill_amount-bill_amount*0.01
    print("Discount applied to your bill is",bill_amount*0.01,"and total due bil
print("HAPPY SHOPPING!!!!!!!")
```

Ln: 4 Col: 23

Python 3.6.5 Shell

File Edit Shell Debug Options Window Help

```
Python 3.6.5 (v3.6.5:f59c0932b4, Mar 28 2018, 16:07:46) [MSC v.1900 32 bit (Intel
)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
 RESTART: C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_13.py
Hello User! Welocome to discount portal of the store. This portal will calculate
the discount on your bill amount. To begin with please:
Enter the bill amount. 2000
Congrats You avail 5% discount
Discount applied to your bill is  100.0  and total due bill is  1900.0
HAPPY SHOPPING!!!!!!!
>>>
 RESTART: C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_13.py
Hello User! Welocome to discount portal of the store. This portal will calculate
the discount on your bill amount. To begin with please:
Enter the bill amount. 800
You avail 2% discount
Discount applied to your bill is 16.0 and total due bill is  784.0
HAPPY SHOPPING!!!!!!!
>>>
 RESTART: C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_13.py
Hello User! Welocome to discount portal of the store. This portal will calculate
the discount on your bill amount. To begin with please:
Enter the bill amount. 400
You avail 1% discount
Discount applied to your bill is 4.0 and total due bill is  396.0
HAPPY SHOPPING!!!!!!!
>>>
```

Ln: 24 Col: 4

2) Extend the above program to validate the customer id. Customer ids in the range of 101 and 1000 (both inclusive) should only be considered valid.

Assignment_13.2.py - C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_13.2.py (3.6.5)

File Edit Format Run Options Window Help

```
print("Hello User! Welcome to discount portal of the store. This portal will\
 calculate the discount on your bill amount. To begin with please: ")
customer_id=int(input("Enter your customer Id by which you got yourself registered \
in the store: "))
if 1000 > customer_id >= 101:
    bill_amount=int(input("Enter the bill amount."))
    if bill_amount >= 1000:
        print("Congrats You avail 5% discount")
        bill= bill_amount - bill_amount*0.05
        print("Discount applied to your bill is ",bill_amount*0.05," and total due bill is ",bill)
    elif 1000>bill_amount>=500:
        print("You avail 2% discount")
        bill= bill_amount - bill_amount*0.02
        print("Discount applied to your bill is",bill_amount*0.02,"and total due bill is ",bill)
    else:
        print("You avail 1% discount")
        bill=bill_amount-bill_amount*0.01
        print("Discount applied to your bill is",bill_amount*0.01,"and total due bill is ",bill)
else:
    print("You are not a valid customer please sign in with the right customer ID")
print("HAPPY SHOPPING!!!!!!!")
```

Ln: 4 Col: 14

Python 3.6.5 Shell

File Edit Shell Debug Options Window Help

```
>>>
 RESTART: C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_13.2.py
Hello User! Welcome to discount portal of the store. This portal will calculate the discount
on your bill amount. To begin with please:
Enter your customer Id by which you got yourself registered in the store: 500
Enter the bill amount. 1000
Congrats You avail 5% discount
Discount applied to your bill is  50.0  and total due bill is  950.0
HAPPY SHOPPING!!!!!!!
>>>
========== RESTART: Shell ==========
>>>
 RESTART: C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_13.2.py
Hello User! Welcome to discount portal of the store. This portal will calculate the discount
on your bill amount. To begin with please:
Enter your customer Id by which you got yourself registered in the store: 2000
You are not a valid customer please sign in with the right customer ID
HAPPY SHOPPING!!!!!!!
>>>
 RESTART: C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_13.2.py
Hello User! Welcome to discount portal of the store. This portal will calculate the discount
on your bill amount. To begin with please:
Enter your customer Id by which you got yourself registered in the store: 99
You are not a valid customer please sign in with the right customer ID
HAPPY SHOPPING!!!!!!!
>>>
```

Ln: 41 Col: 4

ASSIGNMENT 14

Implement the following in Python:

1) Display all even numbers between 50 and 80 (both inclusive) using "for" loop.

Assignment_14.1.py - C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_14.1.py (3.6.5)

File Edit Format Run Options Window Help

```
print("Hello the following program will print the even numbers between \
50 and 80 using 'for' loop")
ch=input("So,Shall we start(y|n): ")
if ch=="y":
    for value in range(49,81):
        if value%2==0:
            print(value)
elif ch=="n":
    print("Please press y key on the keyboard to run the program")
else:
    print("Wrong! Input Please Try Again!!!!!")
```

Ln: 13

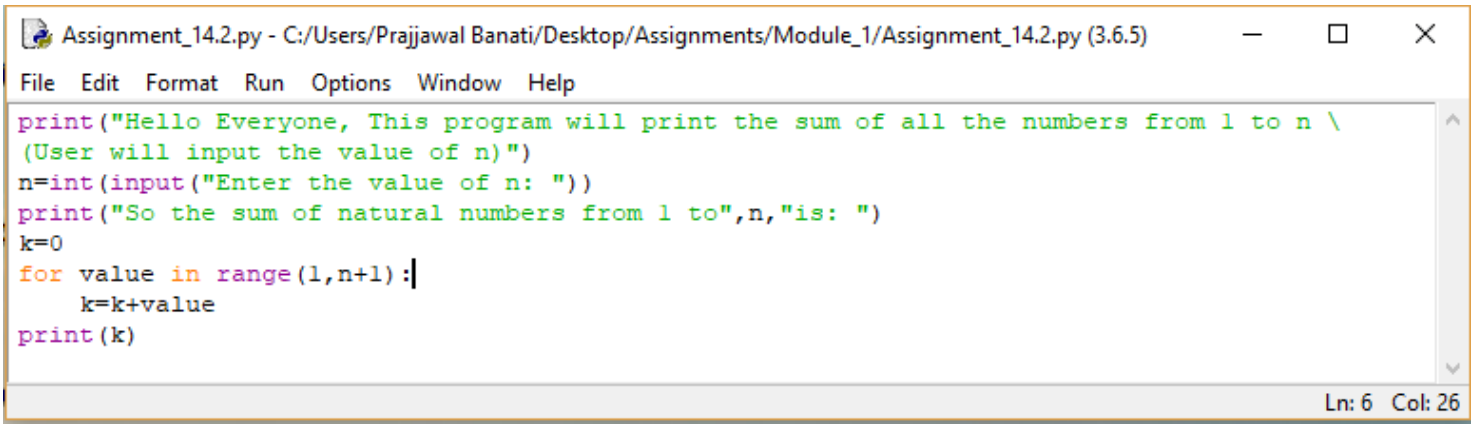
Python 3.6.5 Shell

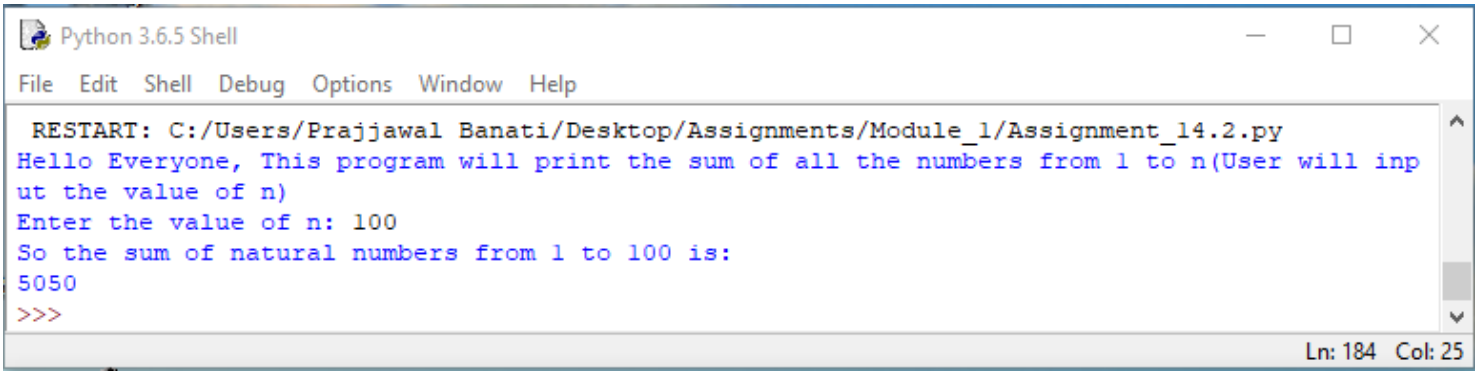
File Edit Shell Debug Options Window Help

```
>>>
 RESTART: C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_14.1.py
Hello the following program will print the even numbers between 50 and 80 using 'for' loop
So,Shall we start(y|n): y
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
>>>
```

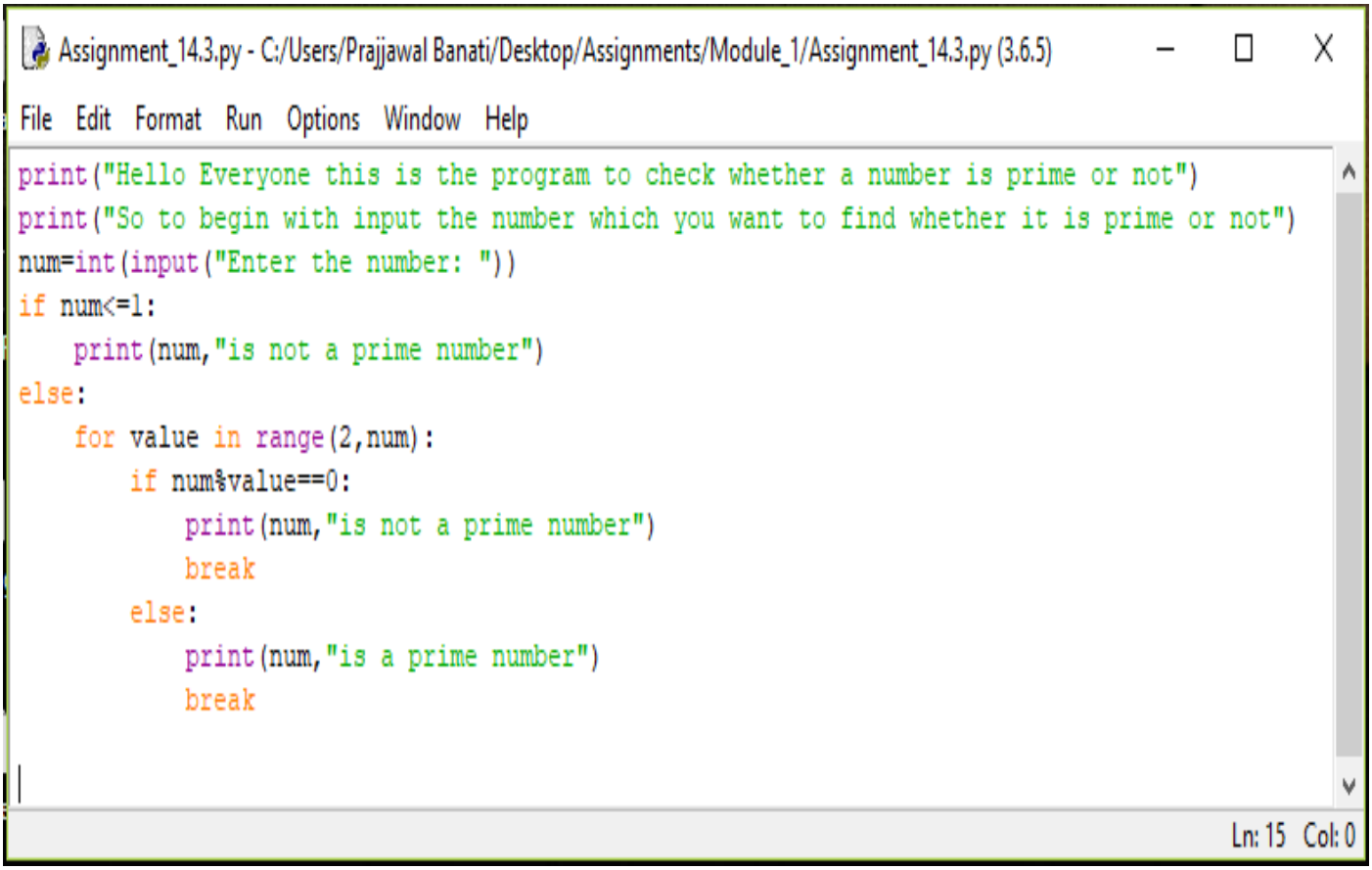
Ln: 118 Col: 3

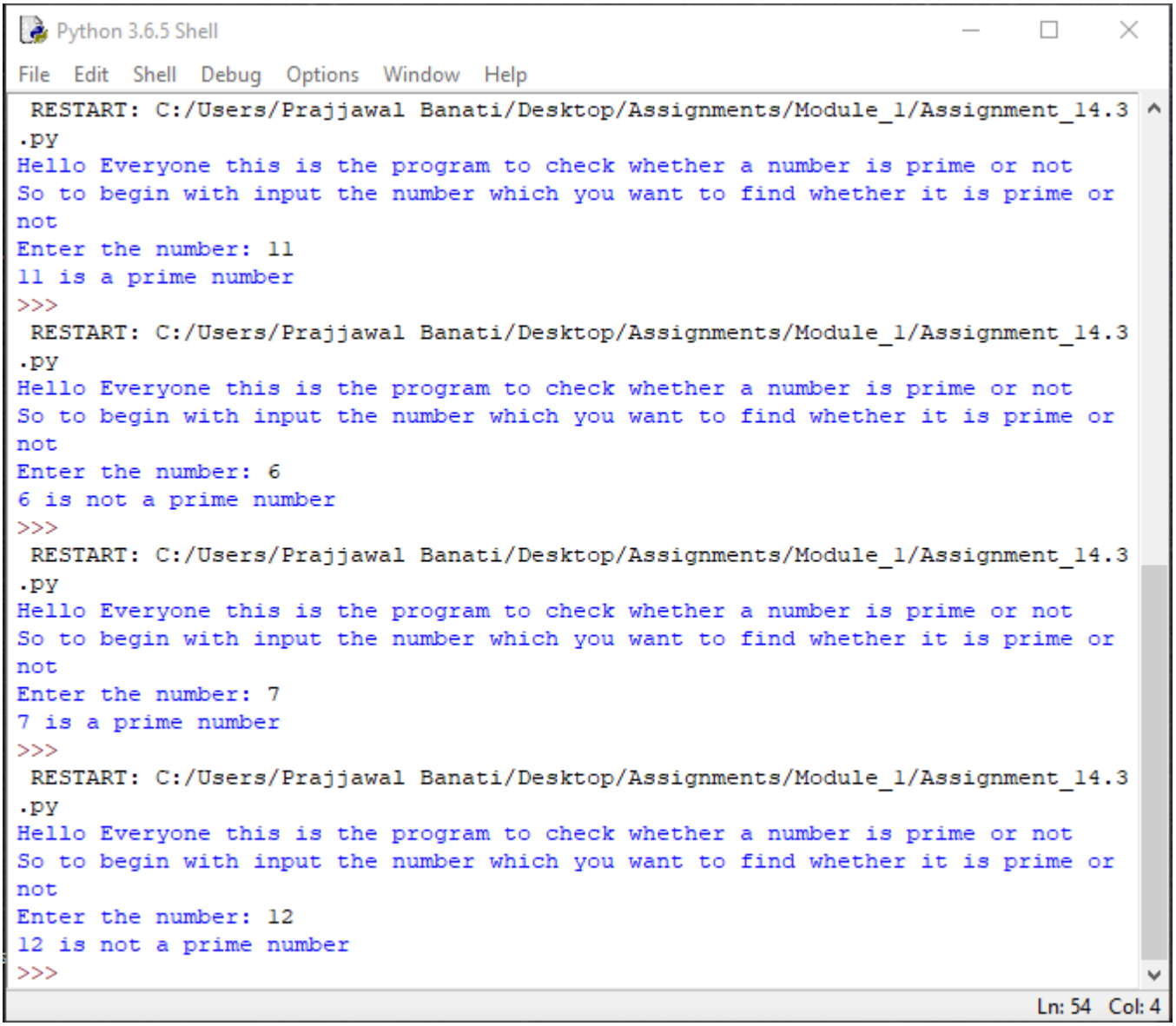
2) Add natural numbers up to n where n is taken as an input from user. Print the sum.



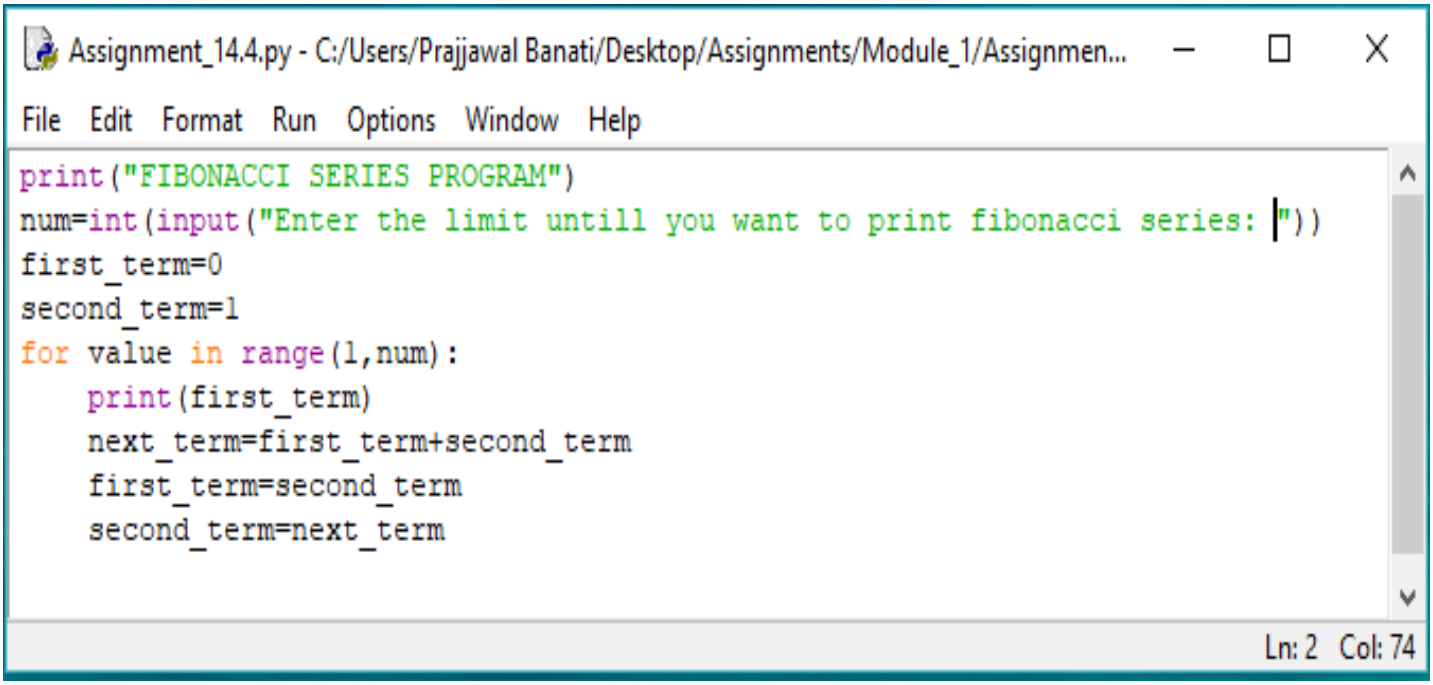


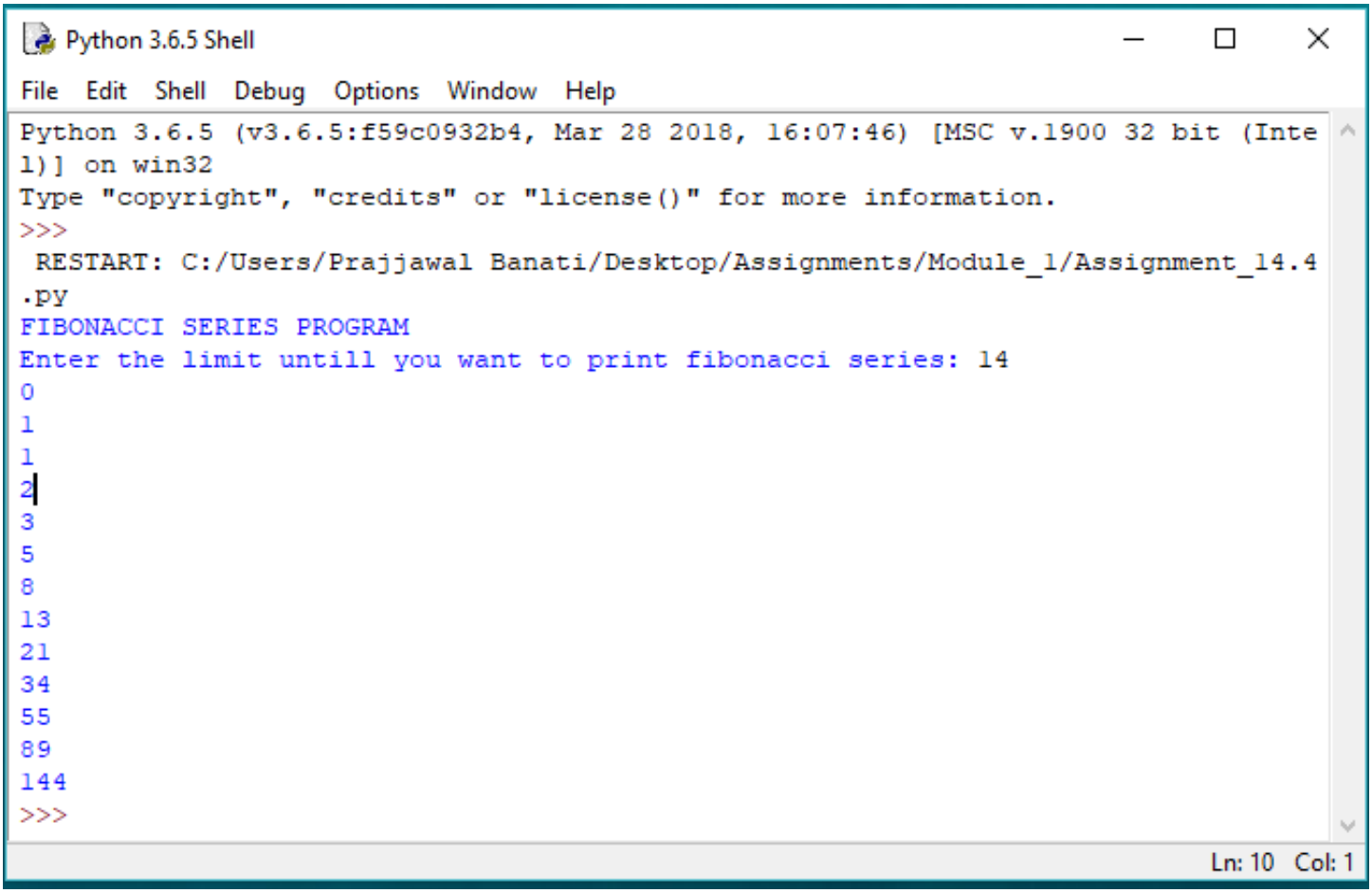
3) Prompt the user to enter a number. Print whether the number is prime or not.





4) Print Fibonacci series till nth term where n is taken as an input from user.

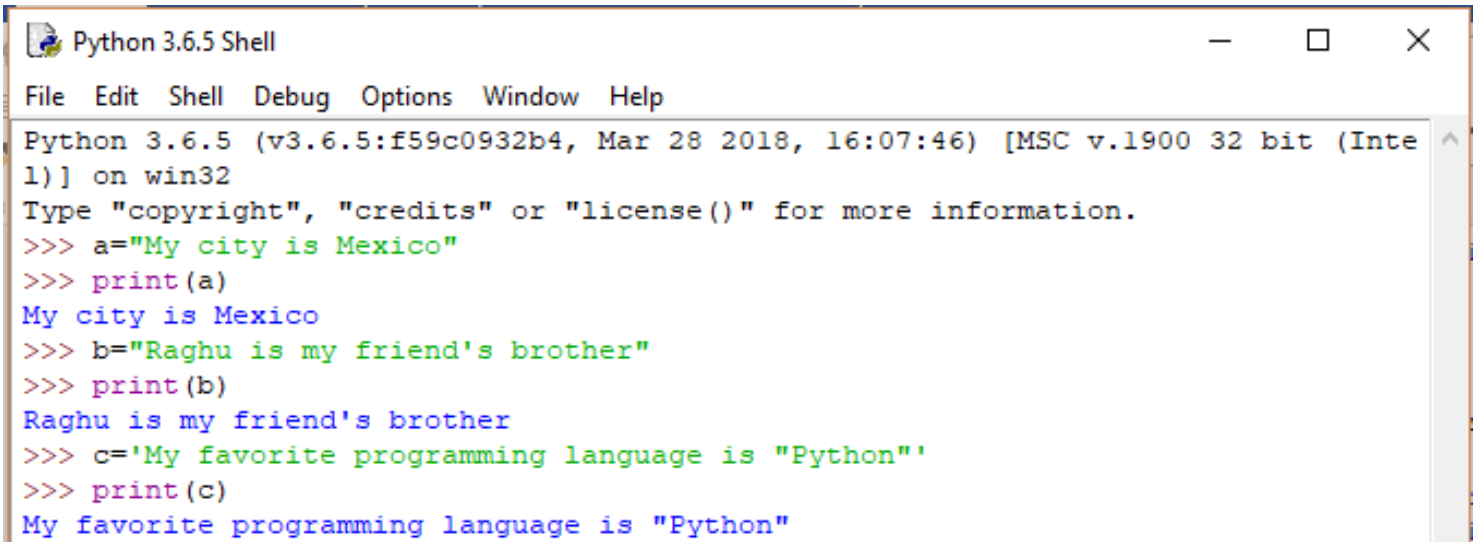




ASSIGNMENT 15

Create four string variables a, b, c, d
to store the following values and display them:

- My city is Mexico
- Raghu is my friend's brother
- My favorite programming language is "Python"
- Python is a widely used high-level, general-purpose, interpreted, dynamic programming language. It's design philosophy emphasizes code readability, and it's syntax allows programmers to express concepts in fewer lines of code than possible in languages such as "C++" or "Java".



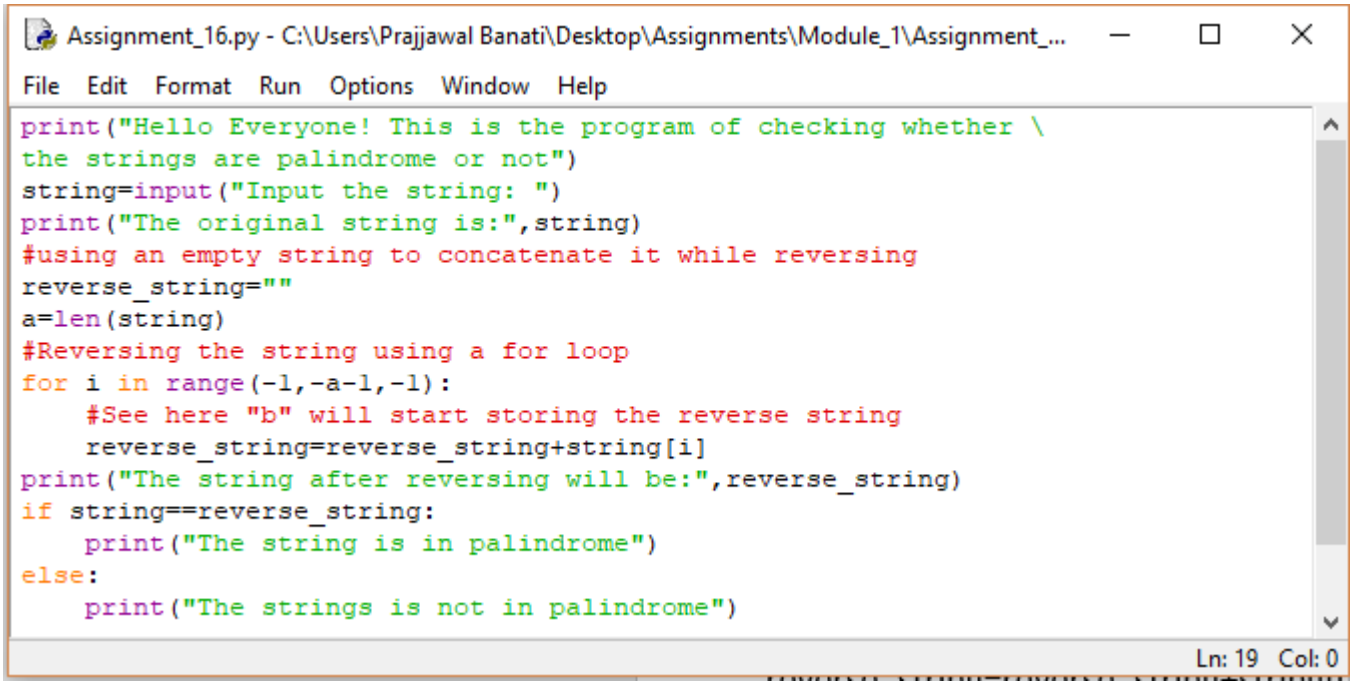
```
>>> d='''Python is a widely used high-level, general-purpose, interpreted, dynam
ic programming language. It's design philosophy emphasizes code readability, and
 it's syntax allows programmers to express concepts in fewer lines of code than
possible in languages such as "C++" or "Java".'''
>>> print(d)
Python is a widely used high-level, general-purpose, interpreted, dynamic progra
mming language. It's design philosophy emphasizes code readability, and it's syn
tax allows programmers to express concepts in fewer lines of code than possible
in languages such as "C++" or "Java".
>>>
```

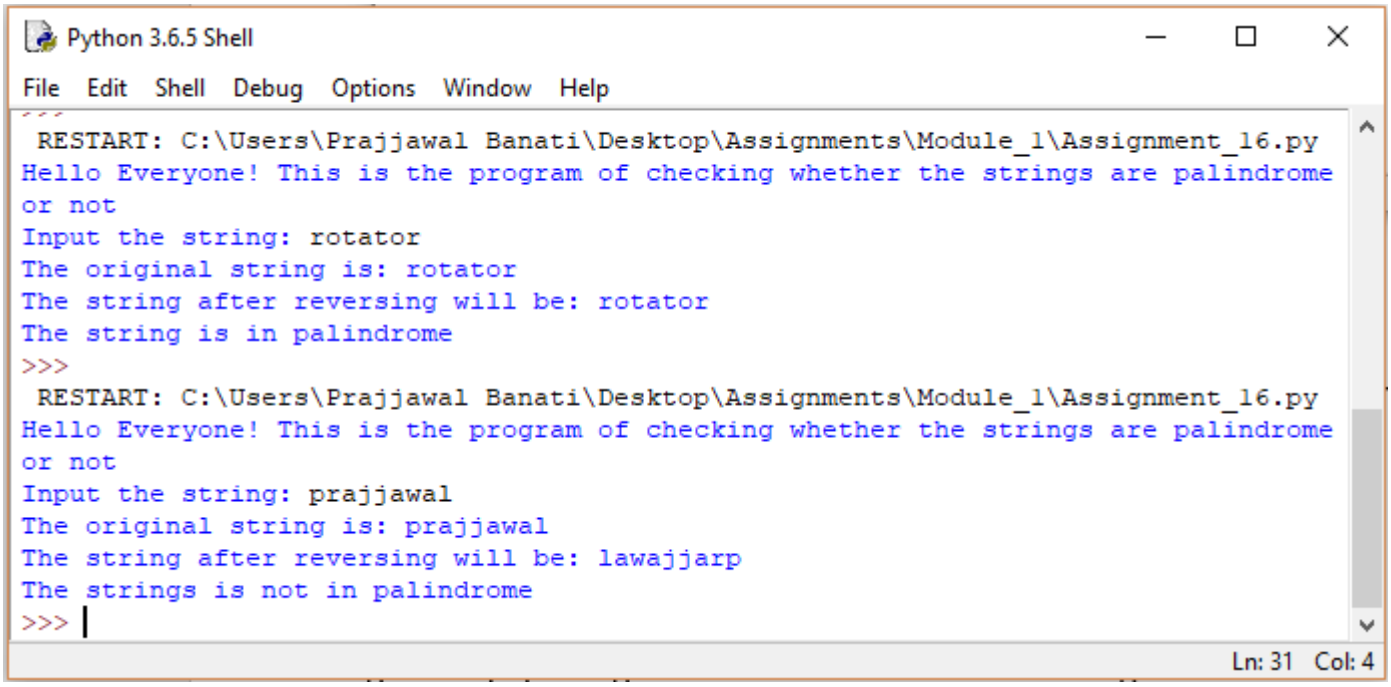
ASSIGNMENT 16

Accept a string as an input from the user. Check if the accepted string is palindrome or not.
• If the string is palindrome, print "String is palindrome", otherwise print "String is not palindrome".
• Also print the actual and the reversed strings.
Note – Ignore the case of characters.
Hint – A palindrome string remains the same if the characters of the string are reversed.
Ans:

Code:

```
print("Hello Everyone! This is the program of checking whether \
the strings are palindrome or not")
string=input("Input the string: ")
print("The original string is:",string)
#using an empty string to concatenate it while reversing
reverse_string=""
a=len(string)
#Reversing the string using a for loop
for i in range(-1,-a-1,-1):
   #See here "b" will start storing the reverse string
   reverse_string=reverse_string+string[i]
print("The string after reversing will be:",reverse_string)
if string==reverse_string:
   print("The string is in palindrome")
else:
   print("The strings is not in palindrome")
```





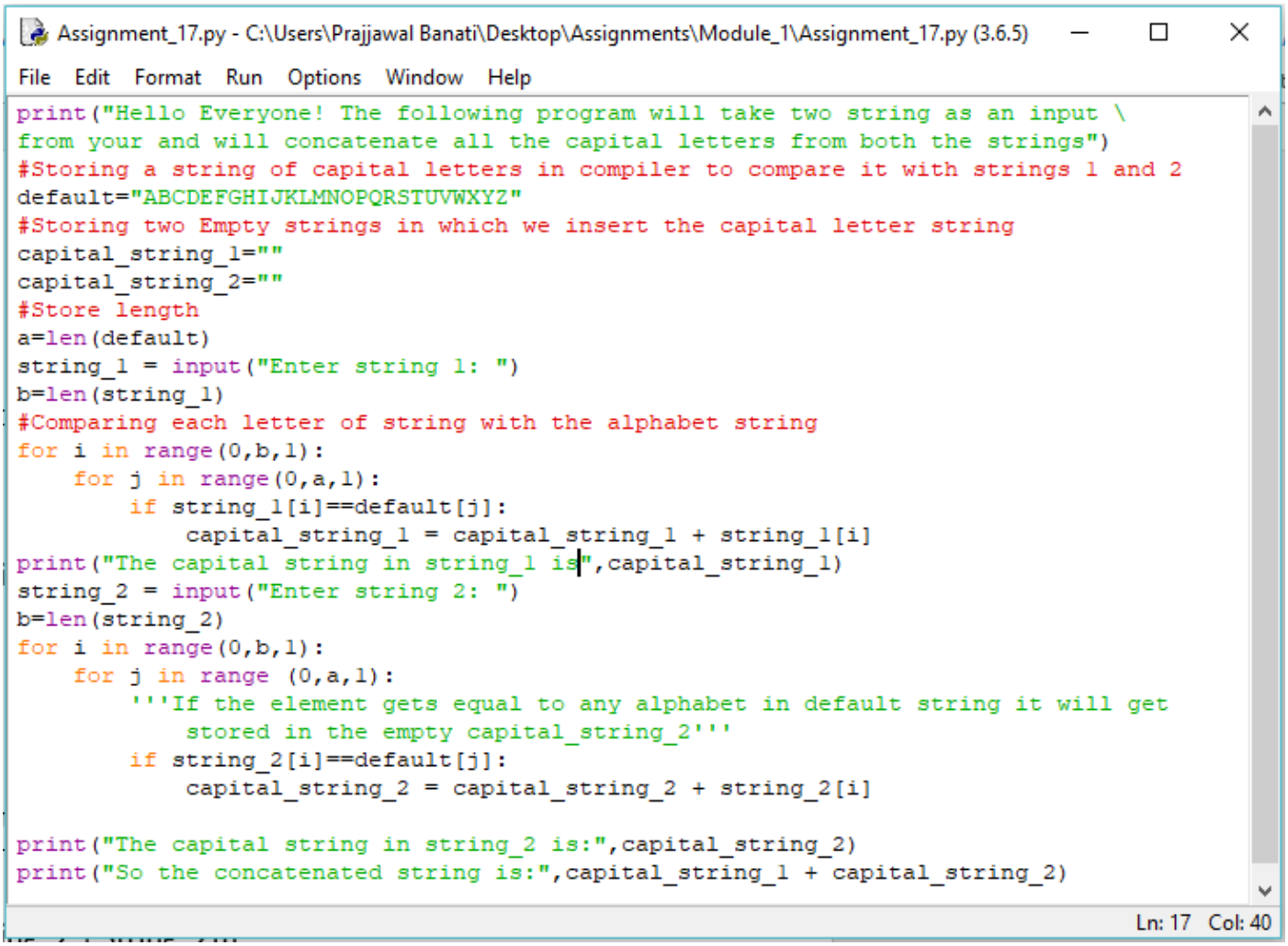
ASSIGNMENT 17

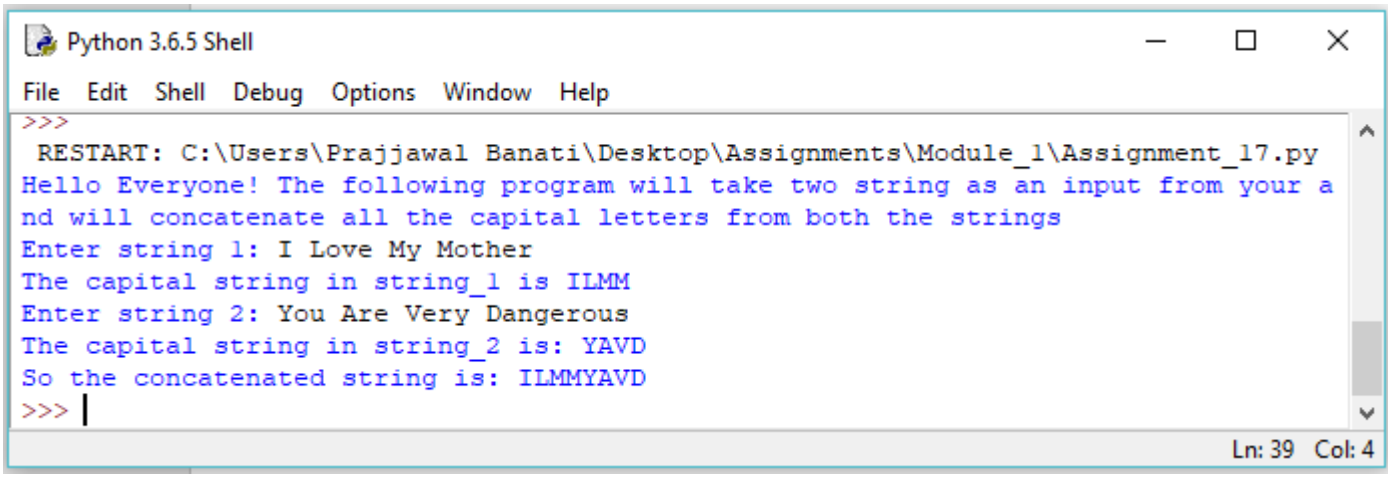
Accept two strings 'string1' and 'string2' as an input from the user. Generate a resultant string, such that it is a concatenated string of all upper case alphabets from both the strings in the order they appear. Print the actual and the resultant strings.
Note: Each character should be checked if it is a upper case alphabet and then it should be concatenated to the
resultant string.
Sample Input: string1: I Like C
string2: Mary Likes Python
Output: ILCMLP

Code:

```
print("Hello Everyone! The following program will take two string as an input \
from your and will concatenate all the capital letters from both the strings")
#Storing a string of capital letters in compiler to compare it with strings 1 and 2
default="ABCDEFGHIJKLMNOPQRSTUVWXYZ"
#Storing two Empty strings in which we insert the capital letter string
capital_string_1=""
capital_string_2=""
#Store length
a=len(default)
string_1 = input("Enter string 1: ")
b=len(string_1)
#Comparing each letter of string with the alphabet string
for i in range(0,b,1):
   for j in range(0,a,1):
      if string_1[i]==default[j]:
         capital_string_1 = capital_string_1 + string_1[i]
print("The capital string in string_1 is",capital_string_1)
string_2 = input("Enter string 2: ")
b=len(string_2)
for i in range(0,b,1):
   for j in range (0,a,1):
      '''If the element gets equal to any alphabet in default string it will get
         stored in the empty capital_string_2'''
      if string_2[i]==default[j]:
         capital_string_2 = capital_string_2 + string_2[i]

print("The capital string in string_2 is:",capital_string_2)
print("So the concatenated string is:",capital_string_1 + capital_string_2)
```





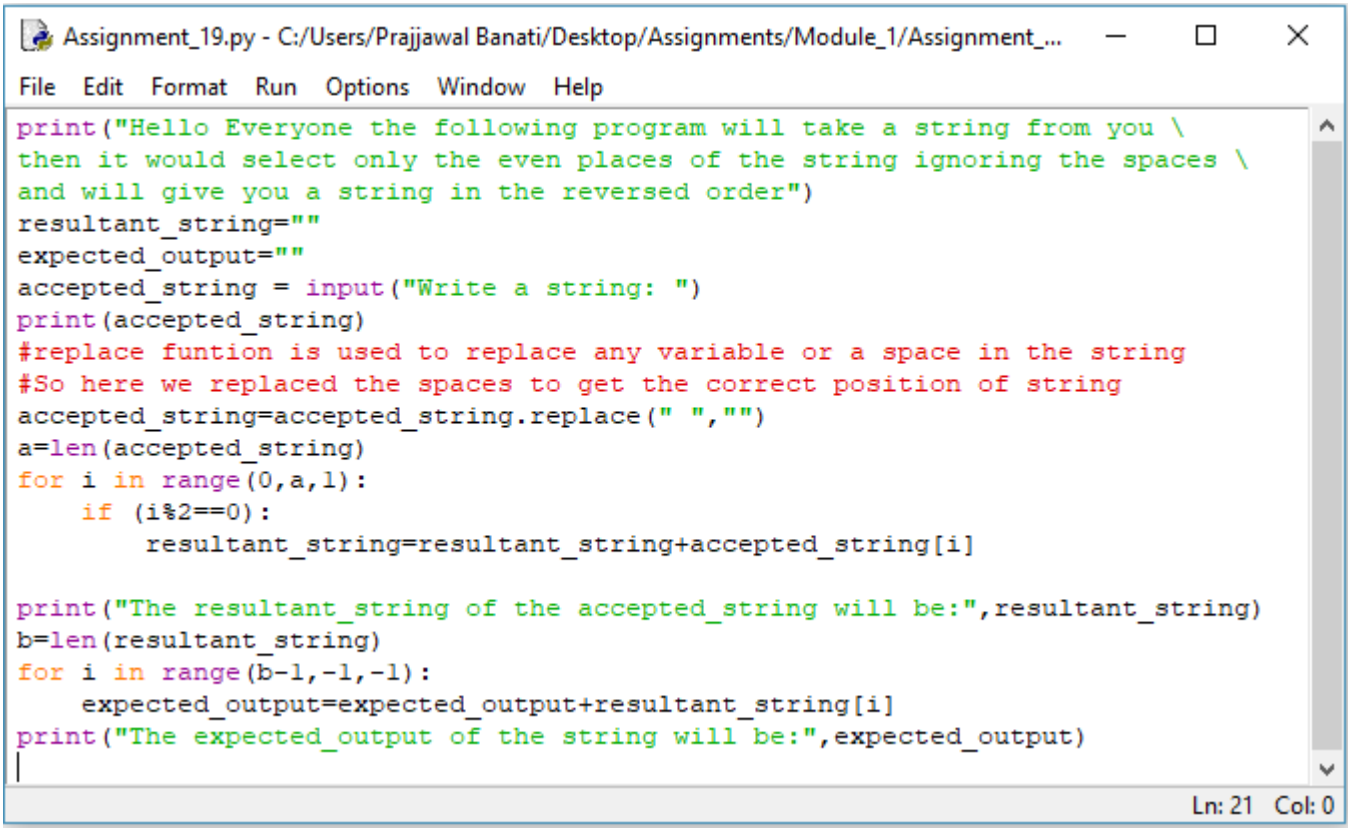
ASSIGNMENT 19

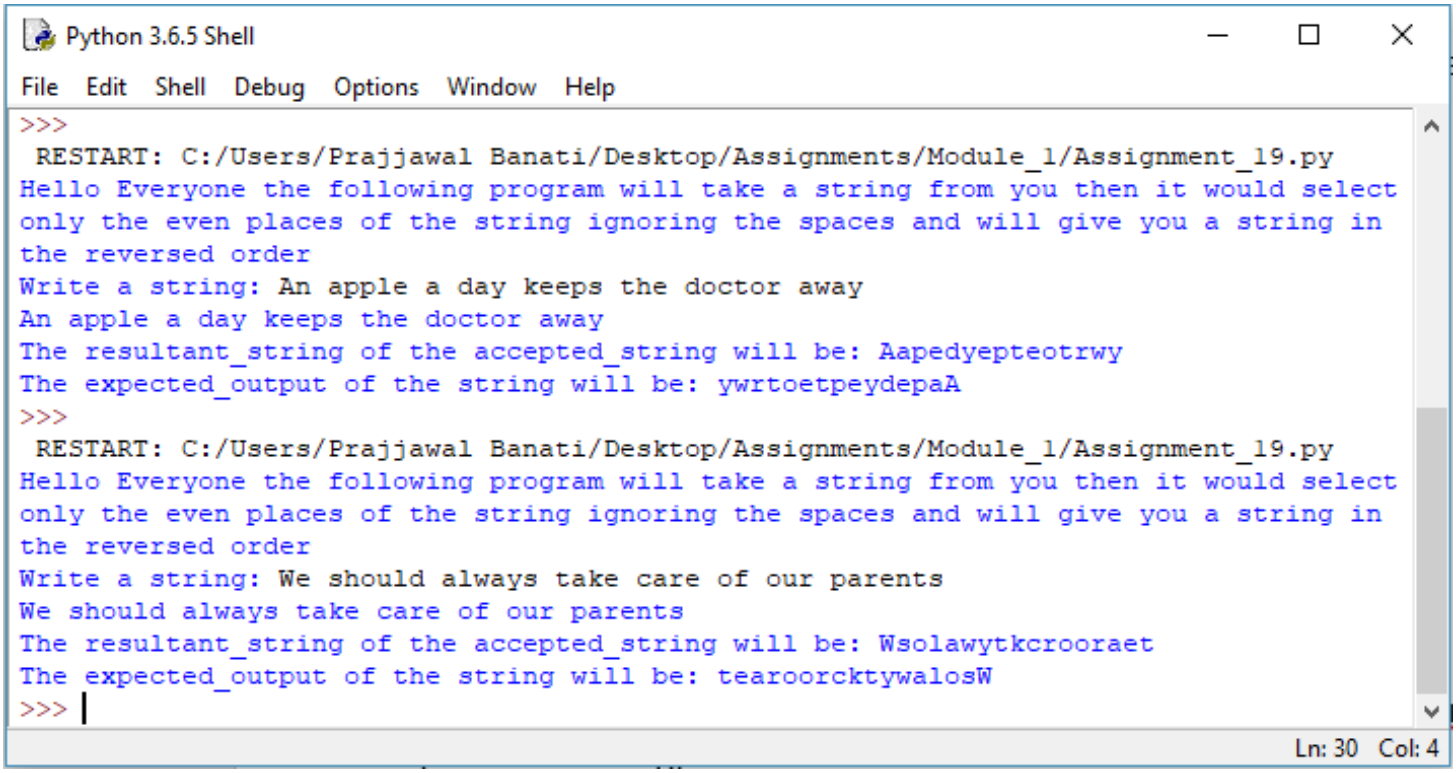
1) Write a Python program to accept a string 'accepted_string'. Generate a resultant string 'resultant_string' such that 'resultant_string' should contain all characters at the even position of 'accepted_string'(ignoring blank spaces). Display “resultant_string' in reverse order.
   accepted_string: An apple a day keeps the doctor away
   resultant_string: Aapedyepteotrwy
   expected_output: ywrtoetpeydepaA

Code:

```
print("Hello Everyone the following program will take a string from you \
then it would select only the even places of the string ignoring the spaces \
and will give you a string in the reversed order")
resultant_string=""
expected_output=""
accepted_string = input("Write a string: ")
print(accepted_string)
#replace funtion is used to replace any variable or a space in the string
#So here we replaced the spaces to get the correct position of string
accepted_string=accepted_string.replace(" ","")
a=len(accepted_string)
for i in range(0,a,1):
   if (i%2==0):
      resultant_string=resultant_string+accepted_string[i]

print("The resultant_string of the accepted_string will be:",resultant_string)
b=len(resultant_string)
for i in range(b-1,-1,-1):
   expected_output=expected_output+resultant_string[i]
print("The expected_output of the string will be:",expected_output)
```



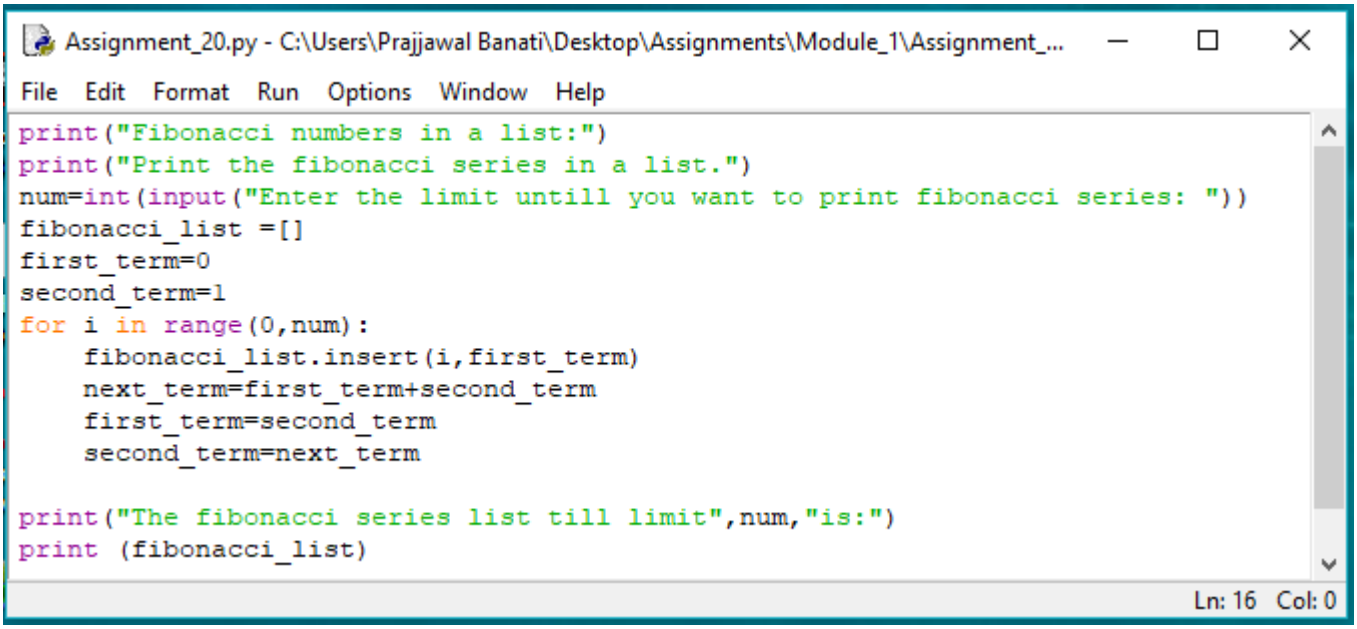


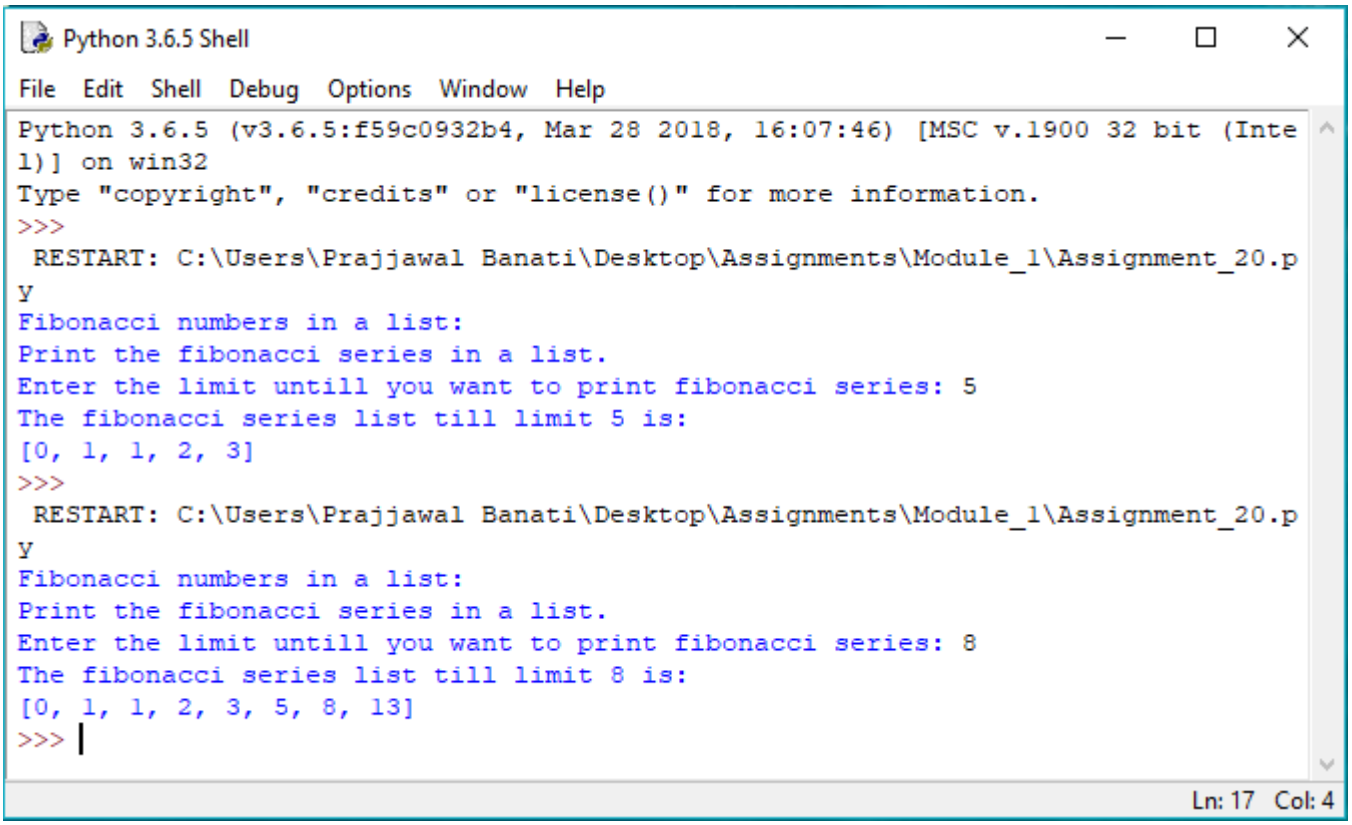
ASSIGNMENT 20

1) Write a Python program to generate first 'n' Fibonacci numbers where 'n' is accepted as an input from the user. Store the generated Fibonacci numbers in a list and display the output.
   Sample input: 5
   Sample output: [0, 1, 1, 2, 3]

Ans:
```
print("Fibonacci numbers in a list:")
print("Print the fibonacci series in a list.")
num=int(input("Enter the limit untill you want to print fibonacci series: "))
fibonacci_list =[]
first_term=0
second_term=1
for i in range(0,num):
   fibonacci_list.insert(i,first_term)
   next_term=first_term+second_term
   first_term=second_term
   second_term=next_term

print("The fibonacci series list till limit",num,"is:")
print (fibonacci_list)
```





ASSIGNMENT 21

1) The "Variety Retail Store" sells different varieties of Furniture to the customers. The list of furniture available with its respective cost is given below:

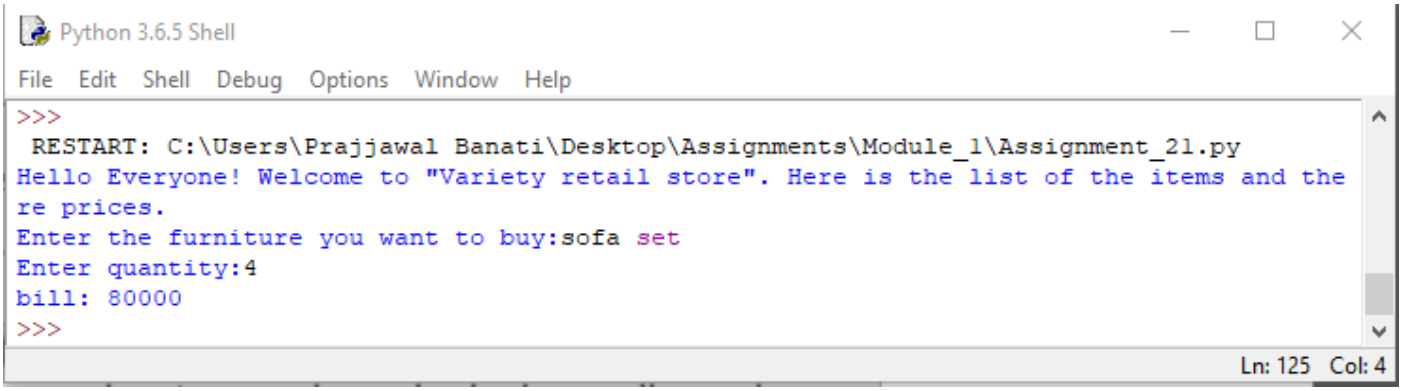
Furniture	Sofa set	Dining table	T.V. Stand	Cupboard
Cost in Rs.	20,000	8,500	4,599	13,920

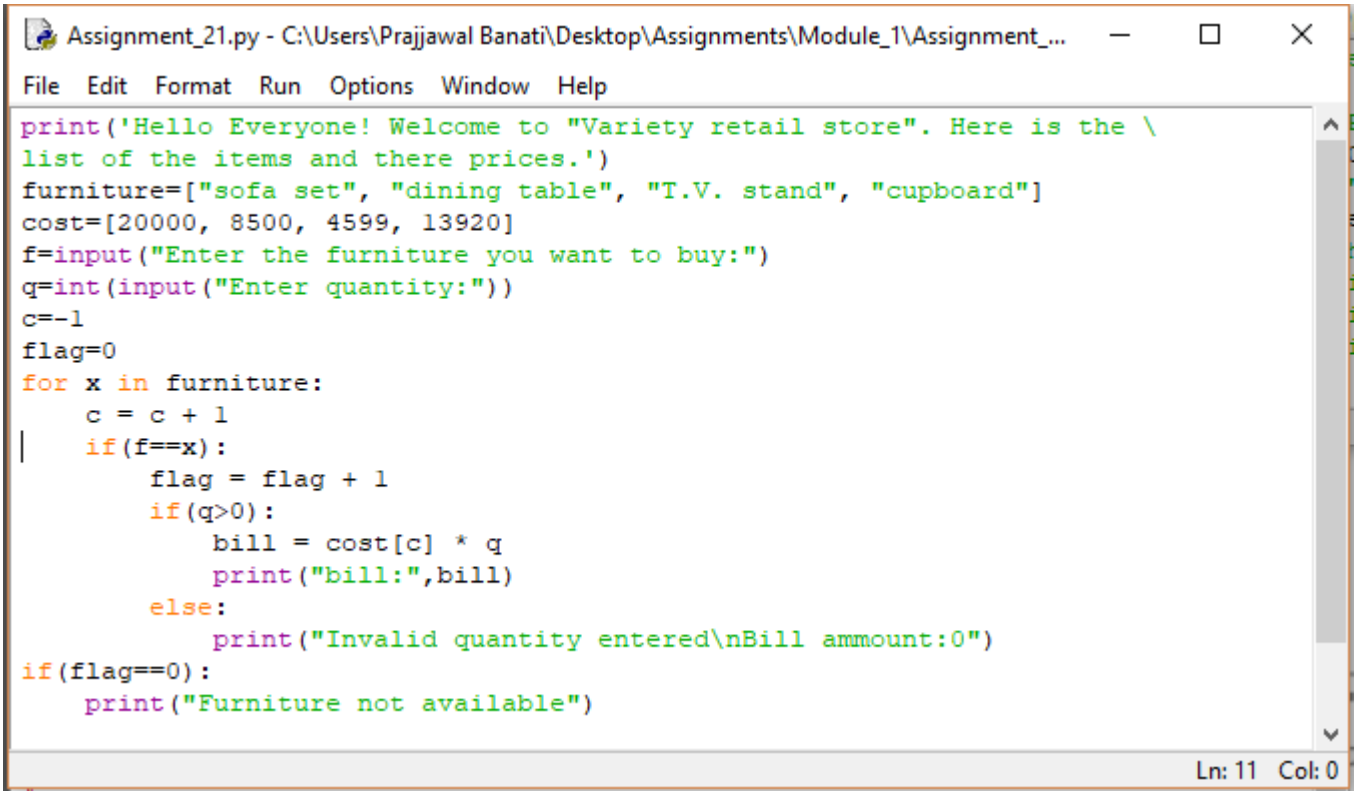
The furniture and its corresponding cost should be stored as a list. A customer can order any furniture in any quantity (the name and quantity of the furniture will be provided). If

the required furniture is available in the furniture list (given above) and quantity to be purchased is greater than zero, then bill amount should be calculated. In case of invalid values for furniture required by the customer and quantity to be purchased, display appropriate error message and consider bill amount to be 0. Initialize required furniture and quantity with different values and test the results. Write a Python program to calculate and display the bill amount to be paid by the customer based on the furniture bought and quantity purchased.

Ans:

```
print('Hello Everyone! Welcome to "Variety retail store". Here is the \
list of the items and there prices.')
furniture=["sofa set", "dining table", "T.V. stand", "cupboard"]
cost=[20000, 8500, 4599, 13920]
f=input("Enter the furniture you want to buy:")
q=int(input("Enter quantity:"))
c=-1
flag=0
for x in furniture:
    c = c + 1
    if(f==x):
        flag = flag + 1
        if(q>0):
            bill = cost[c] * q
            print("bill:",bill)
        else:
            print("Invalid quantity entered\nBill ammount:0")
if(flag==0):
    print("Furniture not available")
```



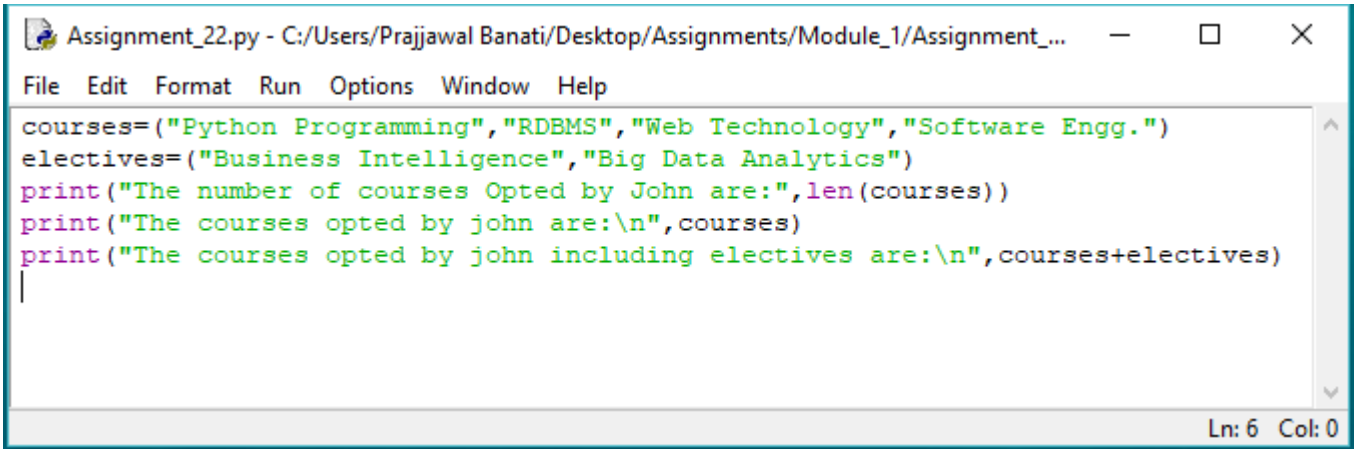


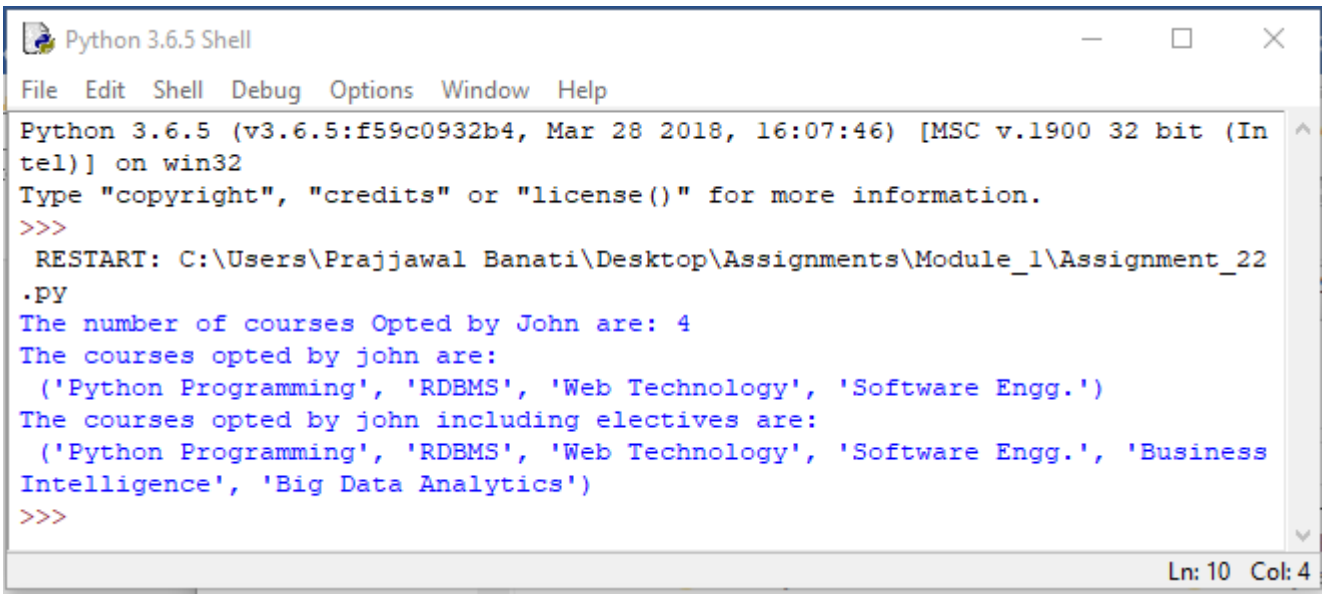
ASSIGNMENT 22

Consider the list of courses opted by a Student "John" and available electives at ABC Training Institute:
courses = ("Python Programming", "RDBMS", "Web Technology", "Software Engg.")
electives = ("Business Intelligence", "Big Data Analytics")
Write a Python Program to satisfy business requirements mentioned below:
1. List the number of courses opted by John.
2. List all the courses opted by John.
3. John is also interested in elective courses mentioned above. Print the updated tuple including electives.

Ans:

```
courses=("Python Programming","RDBMS","Web Technology","Software Engg.")
electives=("Business Intelligence","Big Data Analytics")
print("The number of courses Opted by John are:",len(courses))
print("The courses opted by john are:\n",courses)
print("The courses opted by john including electives are:\n",courses+electives)
```





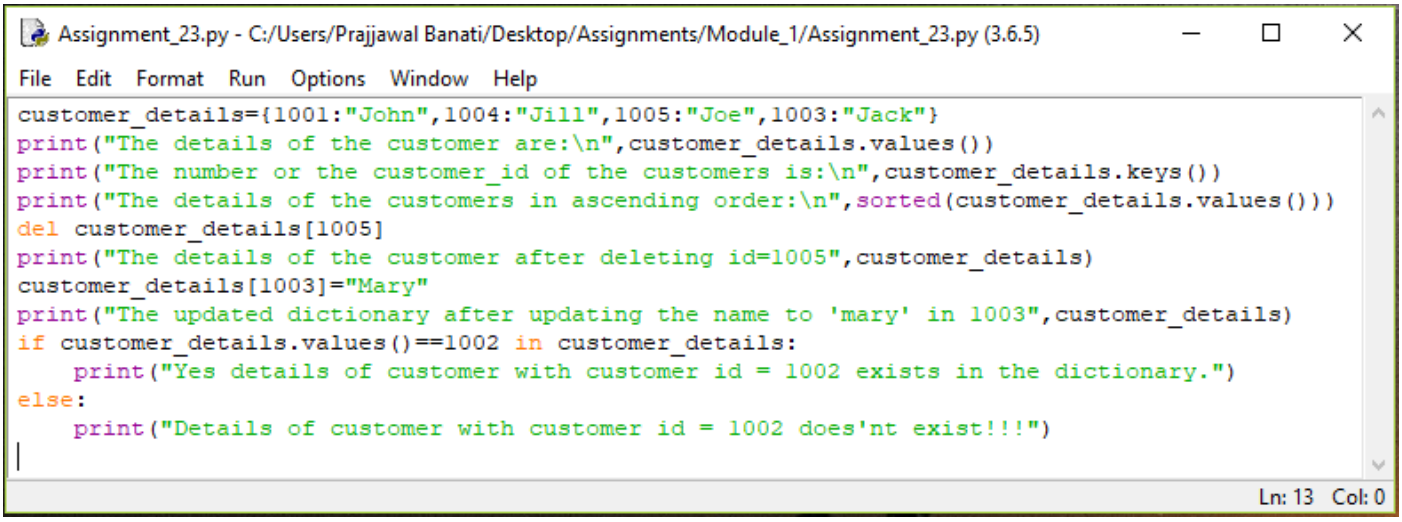
ASSIGNMENT 23

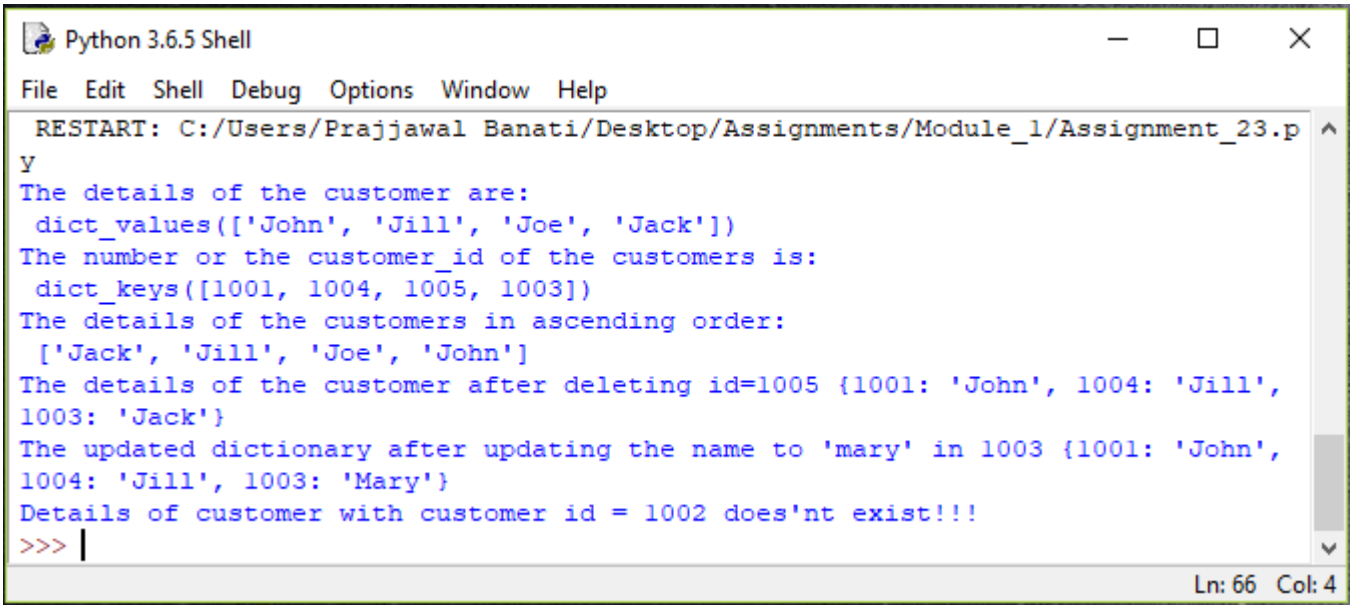
Given below is a dictionary 'customer_details' representing customer details from a Retail Application. Customer Id
is the key and Customer Name is the value.
customer_details = { 1001 : "John", 1004 : "Jill", 1005: "Joe", 1003 : "Jack" }
Write Python code to perform the operations mentioned below:
a) Print details of customers.
b) Print number of customers.
c) Print customer names in ascending order.
d) Delete the details of customer with customer id = 1005 and print updated dictionary.
e) Update the name of customer with customer id = 1003 to "Mary" and print updated dictionary.
f) Check whether details of customer with customer id = 1002 exists in the dictionary.

Ans:

```
customer_details={1001:"John",1004:"Jill",1005:"Joe",1003:"Jack"}
print("The details of the customer are:\n",customer_details.values())
print("The number or the customer_id of the customers is:\n",customer_details.keys())
```

```
print("The details of the customers in ascending
order:\n",sorted(customer_details.values()))
del customer_details[1005]
print("The details of the customer after deleting id=1005",customer_details)
customer_details[1003]="Mary"
print("The updated dictionary after updating the name to 'mary' in
1003",customer_details)
if customer_details.values()==1002 in customer_details:
   print("Yes details of customer with customer id = 1002 exists in the dictionary.")
else:
   print("Details of customer with customer id = 1002 does'nt exist!!!")
```





ASSIGNMENT 24

Consider a scenario from ABC Training Institute. The given table shows the marks scored by students of grade XI in
Python Programming course.

Student Name	Marks Scored
John	86.5
Jack	91.2
Jill	84.5
Harry	72.1
Joe	80.5

Write a Python program to meet the requirements mentioned below:
a. Display the name and marks for every student.
b. Display the top two scorers for the course.
c. Display class average of this course.
Hint- Implement the solution using a dictionary.

Ans:

ASSIGNMENT 25

Consider the scenario from "Variety Retail Store" discussed in 'List' section. The list of furniture available with its respective cost is given below:

Furniture	Sofa set	Dining table	T.V. Stand	Cupboard
Cost in Rs.	20,000	8,500	4,599	13,920

A customer can order any furniture in any quantity. If the required furniture is available in the furniture list(given above) and quantity to be purchased is greater than zero, then bill amount should be calculated. In case of invalid values for furniture required by the customer and quantity to be purchased, display appropriate error message and consider bill amount to be 0. Initialize required furniture and quantity with different values and test the results. Calculate and display the bill amount to be paid by the customer based on the furniture bought and quantity purchased. Implement the given scenario using:
1) List of tuples
2) Dictionary

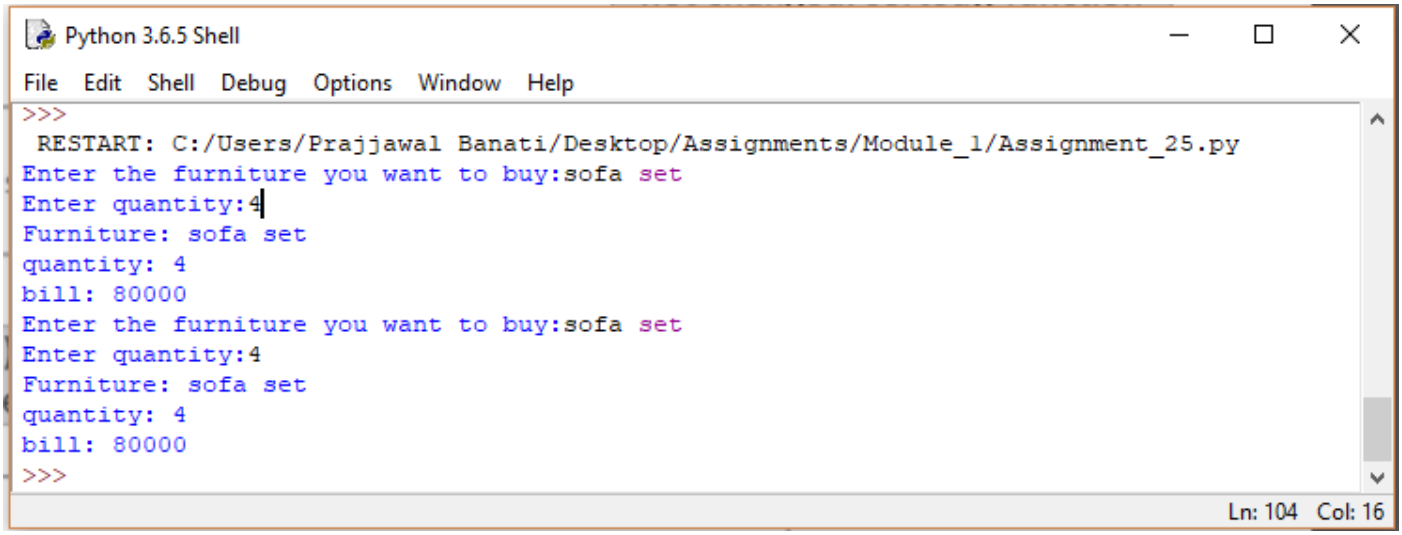
Ans:

```
#tuple_representation

furniture=("sofa set", "dining table", "T.V. stand", "cupboard")
cost=(20000, 8500, 4599, 13920)
f=input("Enter the furniture you want to buy:")
q=int(input("Enter quantity:"))
c=-1
flag=0
for x in furniture:
   c = c + 1
   if(f==x):
      flag = flag + 1
      if(q>0):
         bill = cost[c] * q
         print("Furniture:",x,"\nquantity:",q)
         print("bill:",bill)
      else:
         print("Invalid quantity entered\nBill ammount:0")
if(flag==0):
   print("Furniture not available")

#dictionary_representation

furniture={"sofa set":20000, "dining table":8500, "T.V. stand":4599, "cupboard":13920}
f=input("Enter the furniture you want to buy:")
q=int(input("Enter quantity:"))
#c=-1
flag=0
for key in furniture:
   #c = c + 1
   if(f==key):
      flag = flag + 1
      if(q>0):
         bill = furniture[key] * q
         print("Furniture:",key,"\nquantity:",q)
         print("bill:",bill)
      else:
         print("Invalid quantity entered\nBill ammount:0")
if(flag==0):
   print("Furniture not available")
```



Assignment_25.py - C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_...

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```
#tuple_representation

furniture=("sofa set", "dining table", "T.V. stand", "cupboard")
cost=(20000, 8500, 4599, 13920)
f=input("Enter the furniture you want to buy:")
q=int(input("Enter quantity:"))
c=-1
flag=0
for x in furniture:
    c = c + 1
    if(f==x):
        flag = flag + 1
        if(q>0):
            bill = cost[c] * q
            print("Furniture:",x,"\nquantity:",q)
            print("bill:",bill)
        else:
            print("Invalid quantity entered\nBill ammount:0")
if(flag==0):
    print("Furniture not available")

#dictionary_representation

furniture={"sofa set":20000, "dining table":8500, "T.V. stand":4599, "cupboard":
f=input("Enter the furniture you want to buy:")
q=int(input("Enter quantity:"))
#c=-1
flag=0
for key in furniture:
    #c = c + 1
    if(f==key):
        flag = flag + 1
        if(q>0):
            bill = furniture[key] * q
            print("Furniture:",key,"\nquantity:",q)
            print("bill:",bill)
        else:
            print("Invalid quantity entered\nBill ammount:0")
if(flag==0):
    print("Furniture not available")
```

Ln: 41 Col: 0

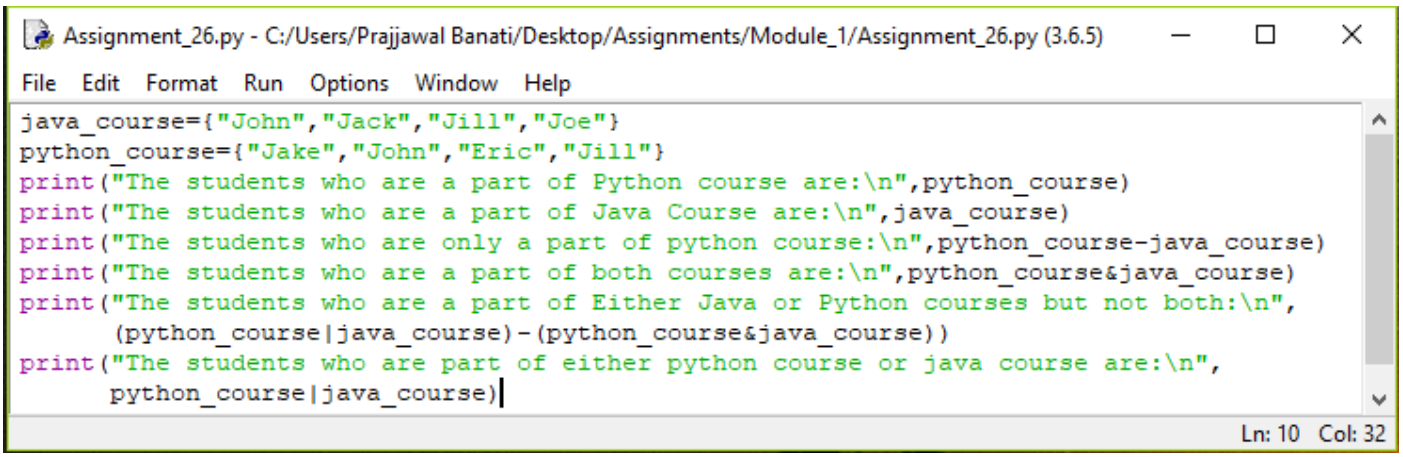
ASSIGNMENT 26

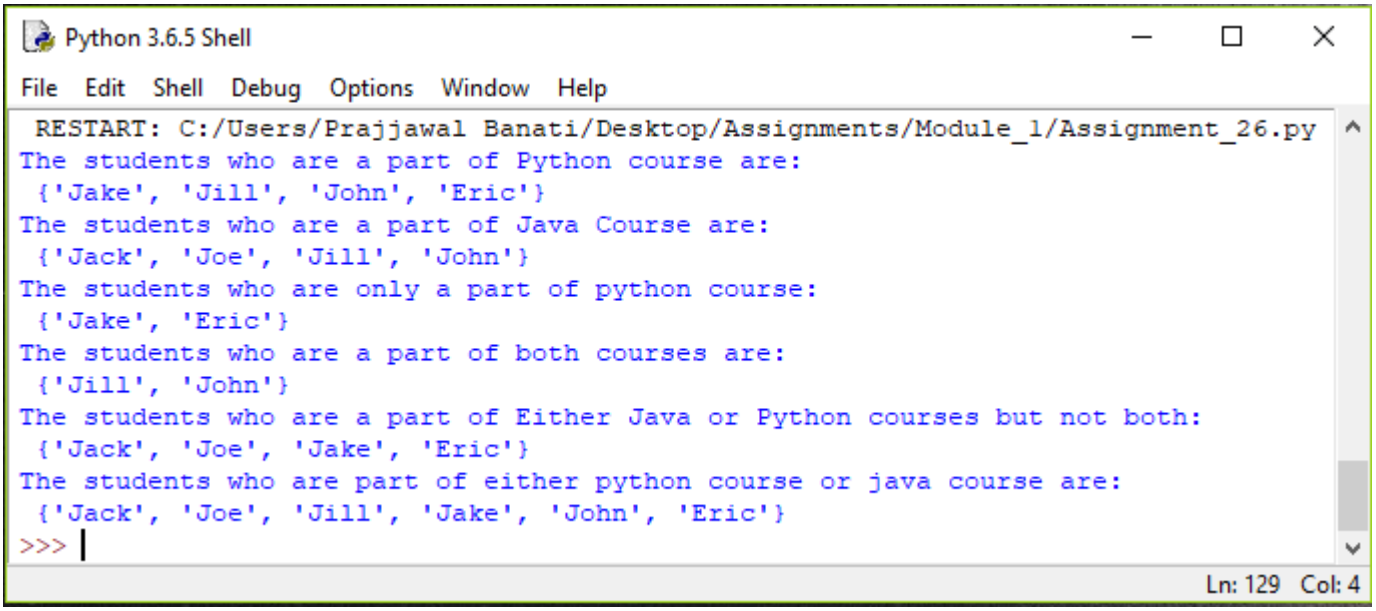
Consider a scenario from ABC Training Institute. Given below are two Sets representing the names of students
enrolled for a particular course:
java_course = {"John", "Jack", "Jill", "Joe"}
python_course = {"Jake", "John", "Eric", "Jill"}
Write a Python program to list the number of students enrolled for:

1) Python course
2) Java course only
3) Python course only
4) Both Java and Python courses
5) Either Java or Python courses but not both
6) Either Java or Python courses

Ans:

```
java_course={"John","Jack","Jill","Joe"}
python_course={"Jake","John","Eric","Jill"}
print("The students who are a part of Python course are:",python_course)
print("The students who are a part of Java Course are:",java_course)
print("The students who are only a part of python course:",python_course-java_course)
print("The students who are a part of both courses are:",python_course&java_course)
print("The students who are a part of Either Java or Python courses but not
both:",(python_course|java_course)-(python_course&java_course))
print("The students who are part of either python course or java course
are:",python_course|java_course)
```





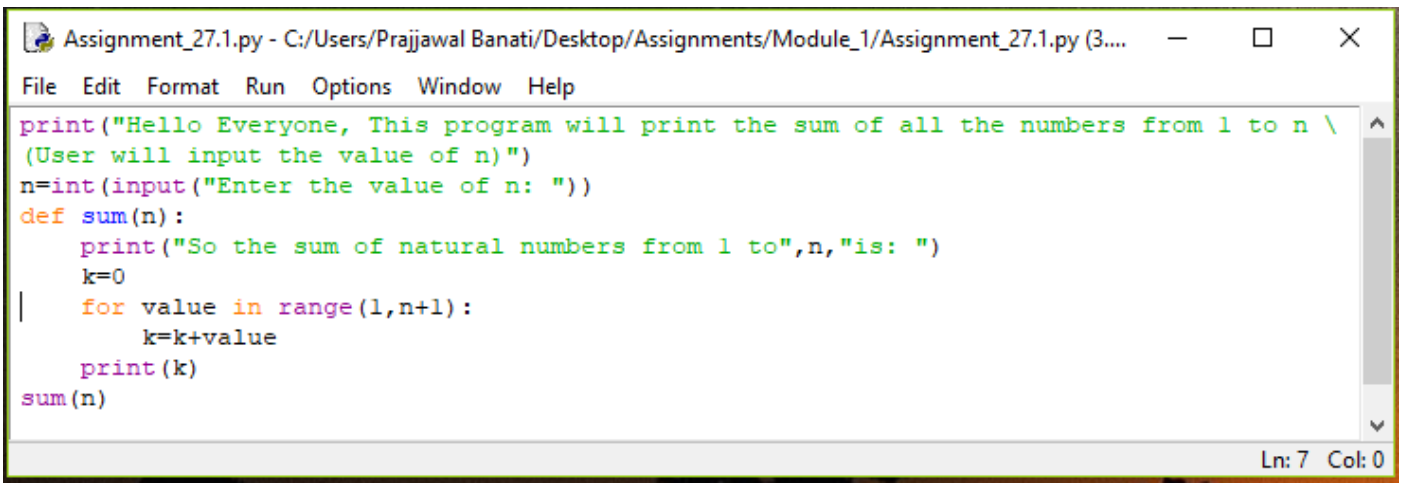
ASSIGNMENT 27

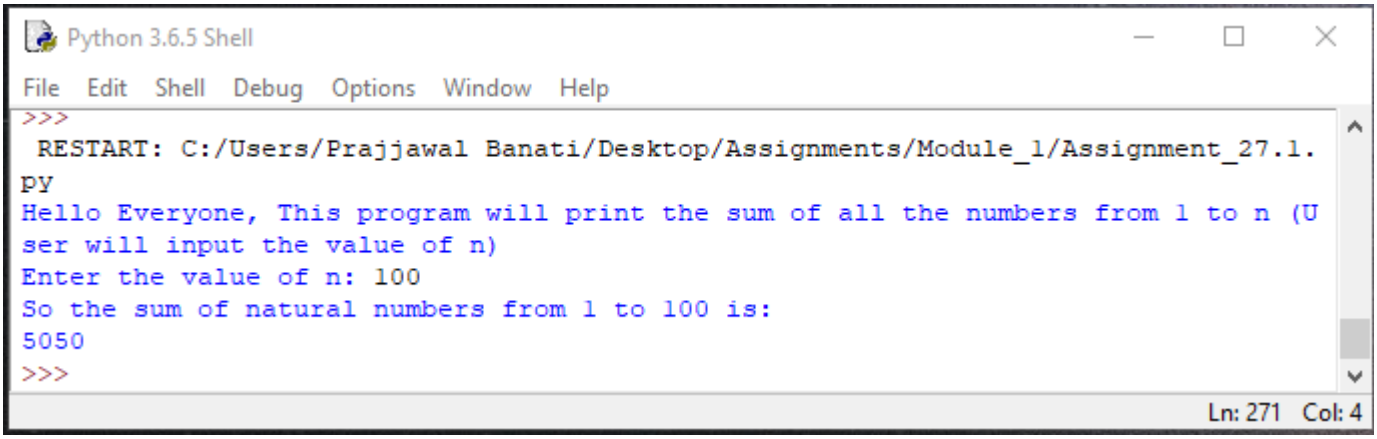
Using functions, re-write and execute Python program to:

1. Add natural numbers upto n where n is taken as an input from user.

Ans:

```
print("Hello Everyone, This program will print the sum of all the numbers from 1 to n \
(User will input the value of n)")
n=int(input("Enter the value of n: "))
def sum(n):
   print("So the sum of natural numbers from 1 to",n,"is: ")
   k=0
   for value in range(1,n+1):
      k=k+value
   print(k)
sum(n)
```

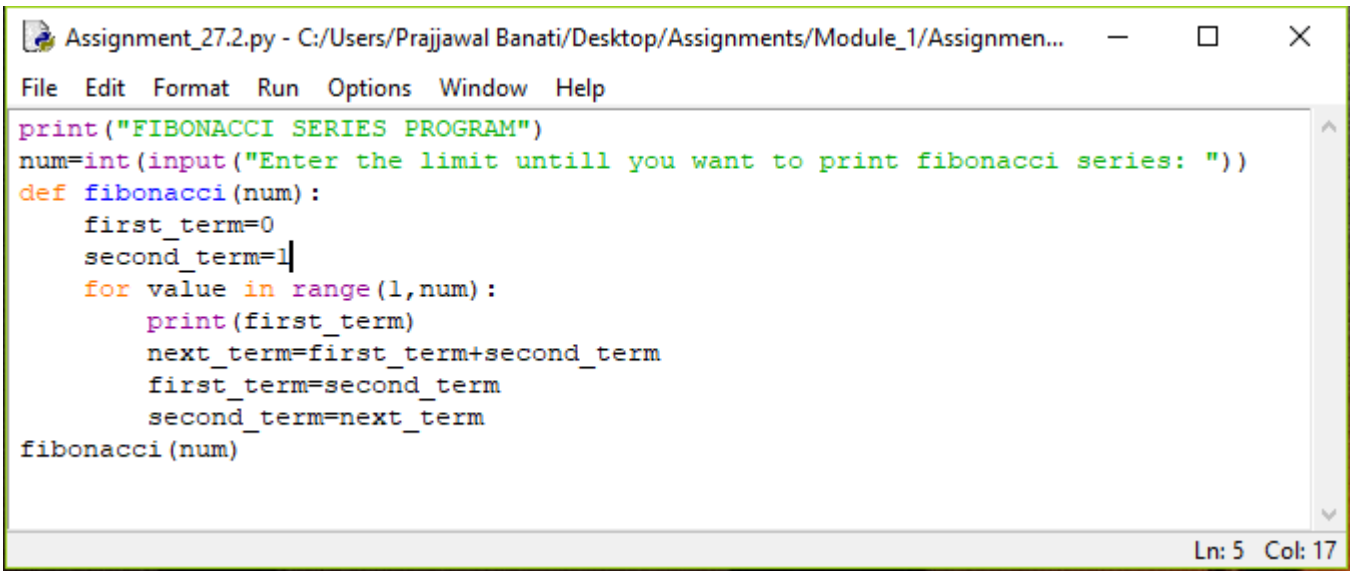


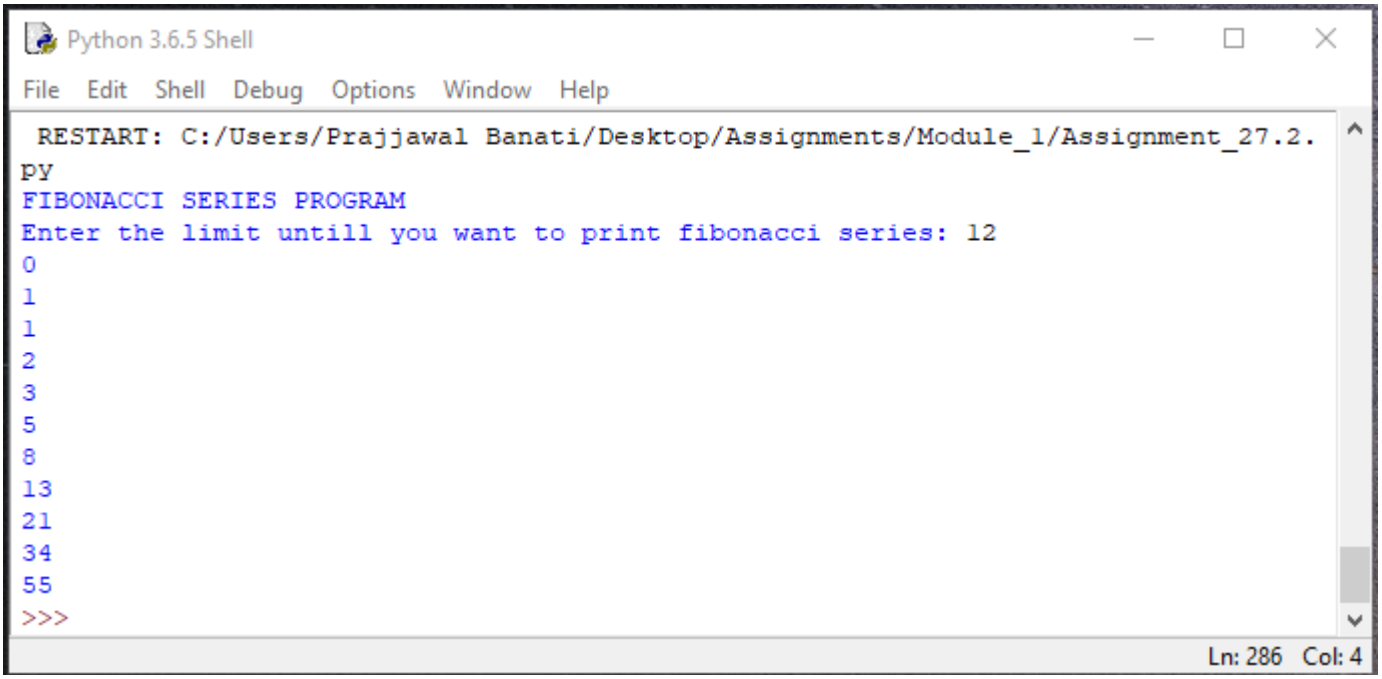


2) Print Fibonacci series till nth term (Take input from user).

Ans:

```
print("FIBONACCI SERIES PROGRAM")
num=int(input("Enter the limit untill you want to print fibonacci series: "))
def fibonacci(num):
   first_term=0
   second_term=1
   for value in range(1,num):
      print(first_term)
      next_term=first_term+second_term
      first_term=second_term
      second_term=next_term
fibonacci(num)
```





ASSIGNMENT 28

At an airport, a traveler is allowed entry into the flight only if he clears the following checks:
1.Baggage Check
2.Immigration Check
3.Security Check
The logic for the check methods are given below:
check_baggage (baggage_weight)
•returns True if
baggage_weight is greater than or equal to 0 and less than or equal to 40. Otherwise returns False.

check_immigration (expiry_year)
•.returns True if expiry_year is greater than or equal to 2001 and less than or equal to 2025. Otherwise returns False.

check_security(noc_status)
•.returns True if noc_status is 'valid' or 'VALID', for all other values return False.

traveler()
•.Initialize the traveler Id and traveler name and invoke the functions check_baggage(), check_immigration() and check_security() by passing required arguments.

•.Refer the table below for values of arguments.
•.If all values of check_baggage(), check_immigration() and check_security() are true, display traveler_id and traveler_name display "Allow Traveler to fly!"

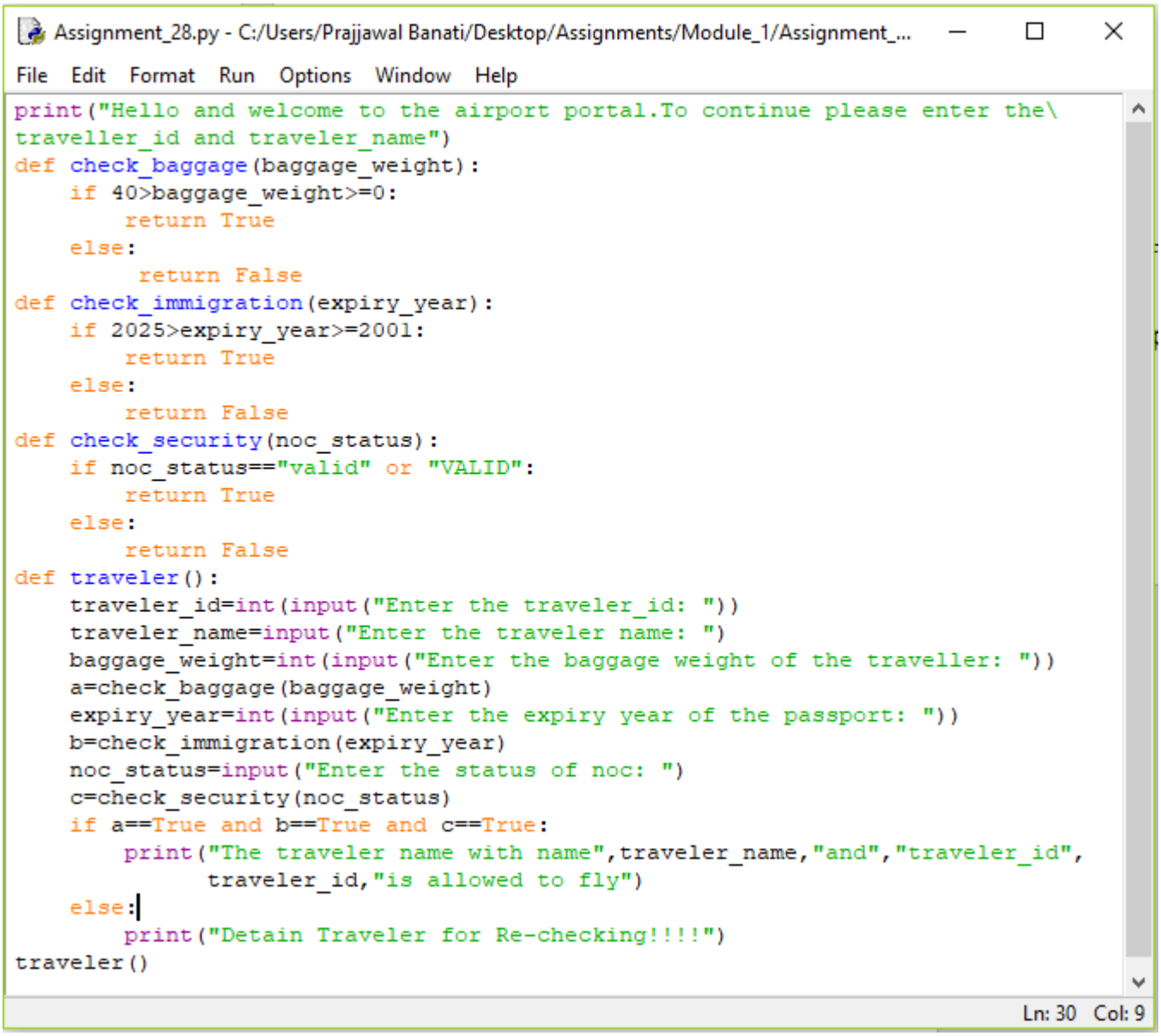
Variable	Value
traveler_id	1001
traveler_name	Jim
baggage_weight	35
expiry_year	2019
noc_status	VALID

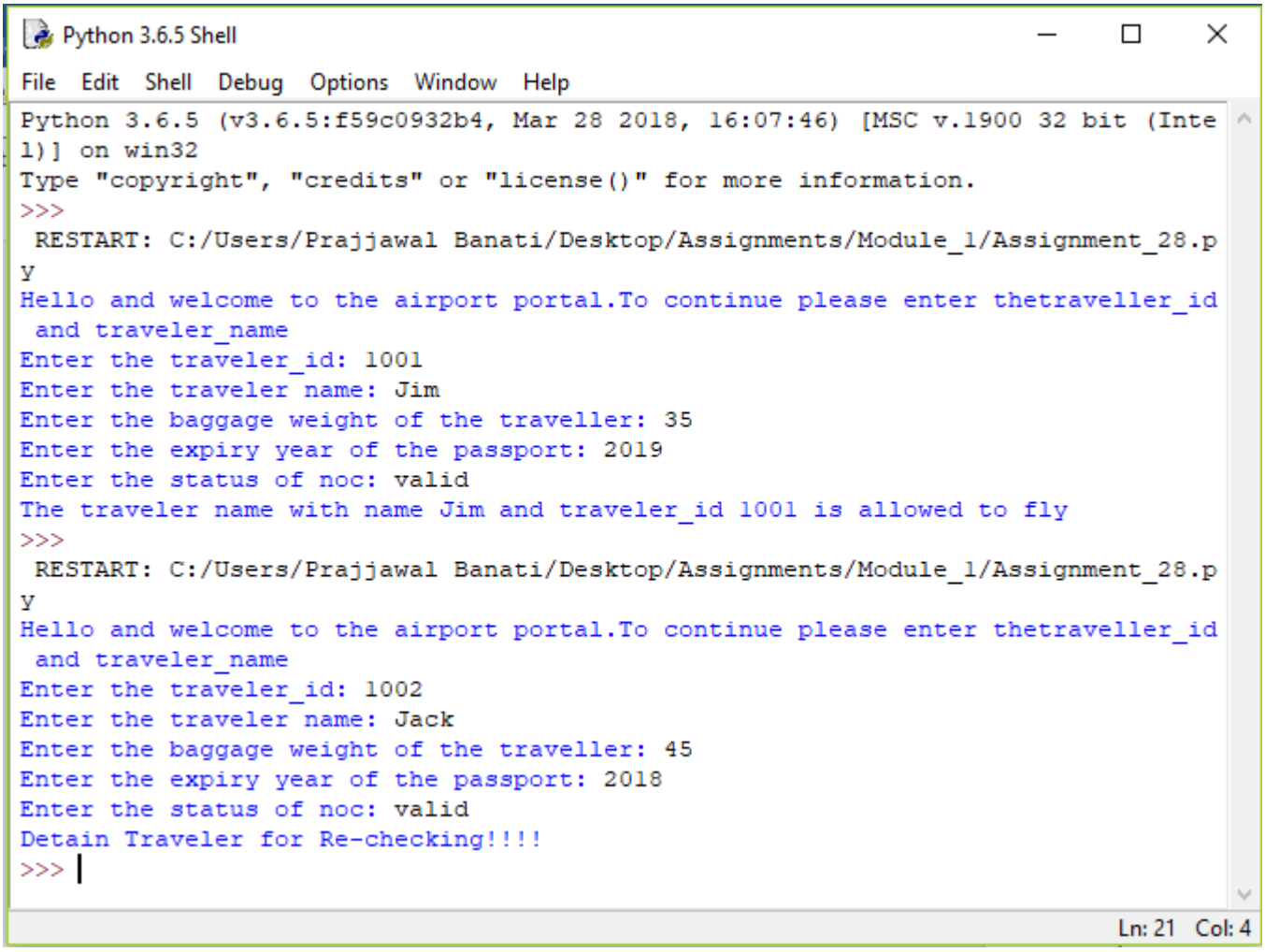
Otherwise,display traveler_id and traveler_name display "Detain Traveler for Re-checking!“ Invoke the traveler() function. Modify the values of different variables in traveler() function and observe the output.

Ans:

```
print("Hello and welcome to the airport portal.To continue please enter the\
traveller_id and traveler_name")
def check_baggage(baggage_weight):
    if 40>baggage_weight>=0:
        return True
    else:
         return False
def check_immigration(expiry_year):
    if 2025>expiry_year>=2001:
        return True
    else:
        return False
def check_security(noc_status):
    if noc_status=="valid" or "VALID":
        return True
    else:
        return False
def traveler():
    traveler_id=int(input("Enter the traveler_id: "))
    traveler_name=input("Enter the traveler name: ")
    baggage_weight=int(input("Enter the baggage weight of the traveller: "))
    a=check_baggage(baggage_weight)
    expiry_year=int(input("Enter the expiry year of the passport: "))
    b=check_immigration(expiry_year)
    noc_status=input("Enter the status of noc: ")
    c=check_security(noc_status)
```

```
    if a==True and b==True and c==True:
        print("The traveler name with name",traveler_name,"and","traveler_id",
            traveler_id,"is allowed to fly")
    else:
        print("Detain Traveler for Re-checking!!!!")
traveler()
```

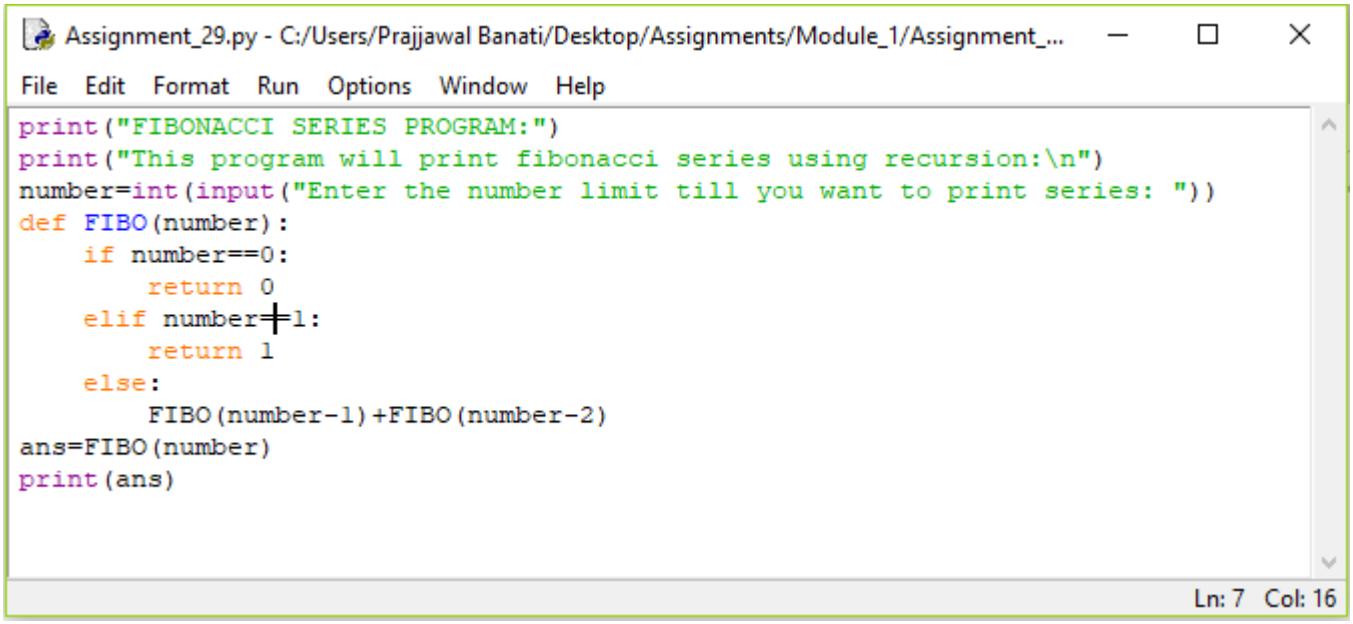


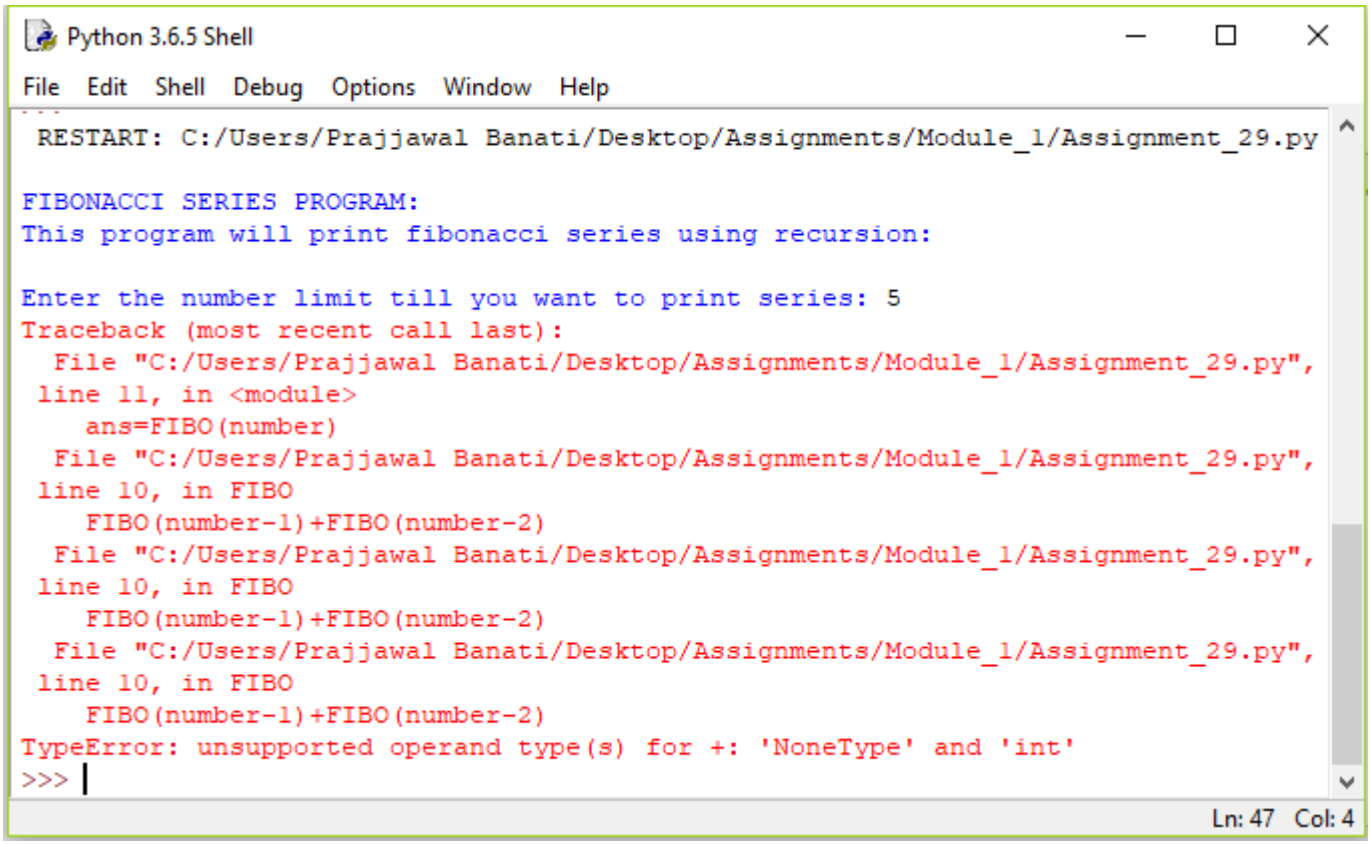


ASSIGNMENT 29

Consider the pseudo code for generating Fibonacci series using Recursion:
FIBO (number)
1. if (number = 0) then
2. return (0)
3. else if (number = 1) then
4. return (1)
5. else
6. return FIBO(number - 1) + FIBO(number - 2)
7. end if
Write a program in Python to implement the same using Recursion and execute it in Eclipse. Print appropriate error message if the user enters negative number as input.

Ans:





ASSIGNMENT 30

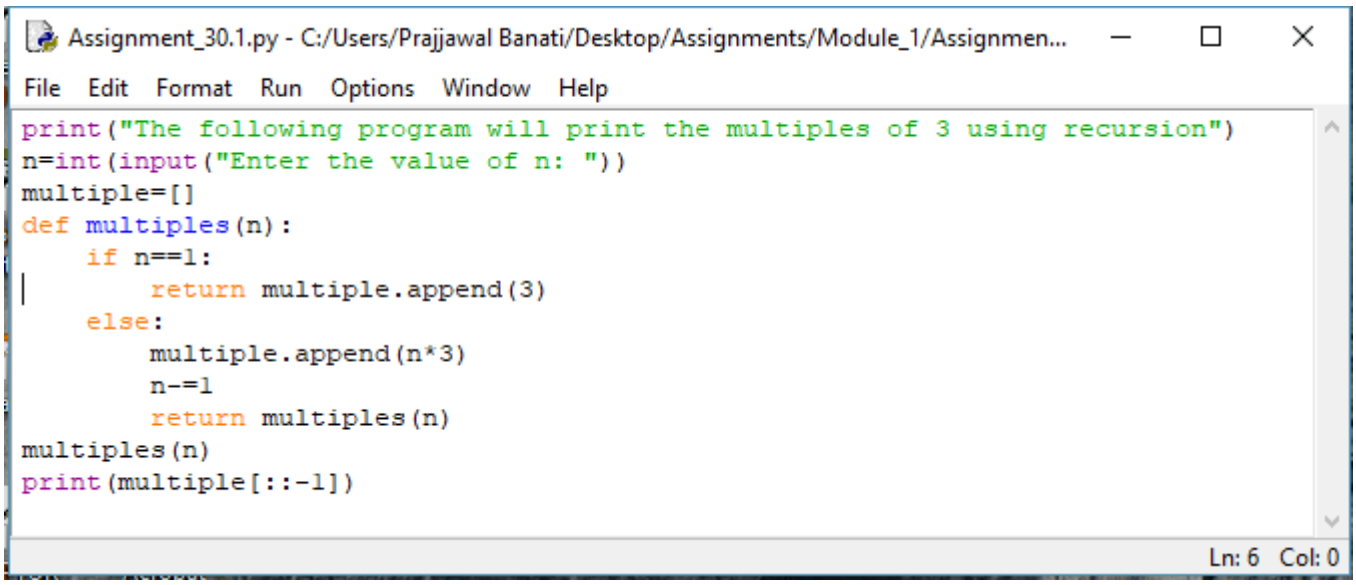
Write a Python program to implement the following (Use Recursion):

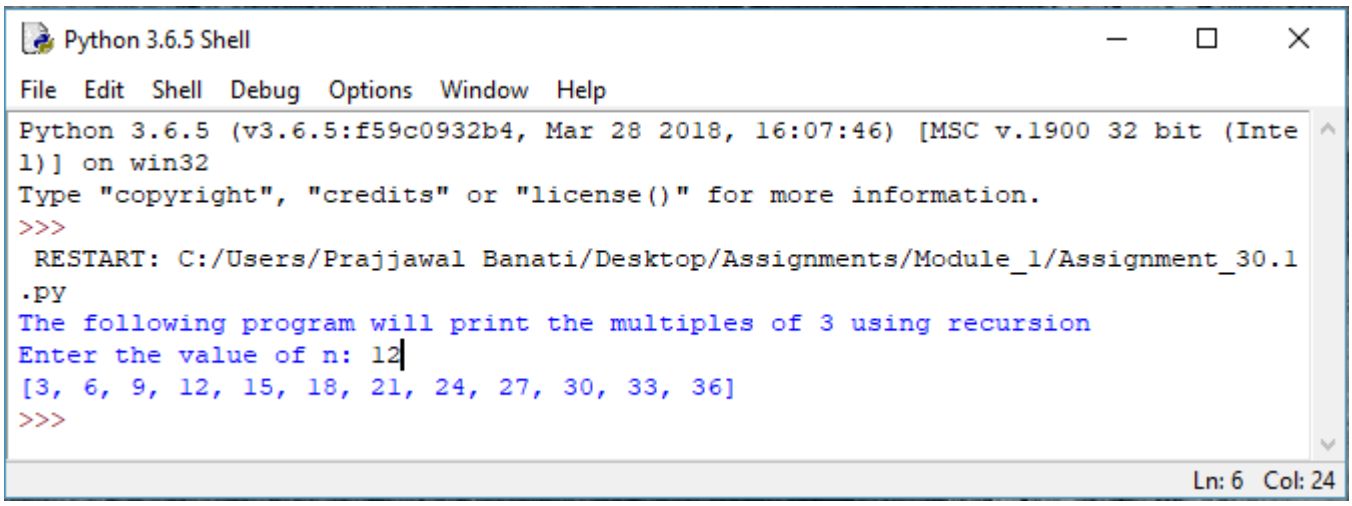
1) Print first 'n' multiples of 3, where 'n' is taken as an input from the user. The multiples should be printed from first to last

   Ans:

```
print("The following program will print the multiples of 3 using recursion")
n=int(input("Enter the value of n: "))
multiple=[]
```

```
def multiples(n):
    if n==1:
        return multiple.append(3)
    else:
        multiple.append(n*3)
        n-=1
        return multiples(n)
multiples(n)
print(multiple[::-1])
```



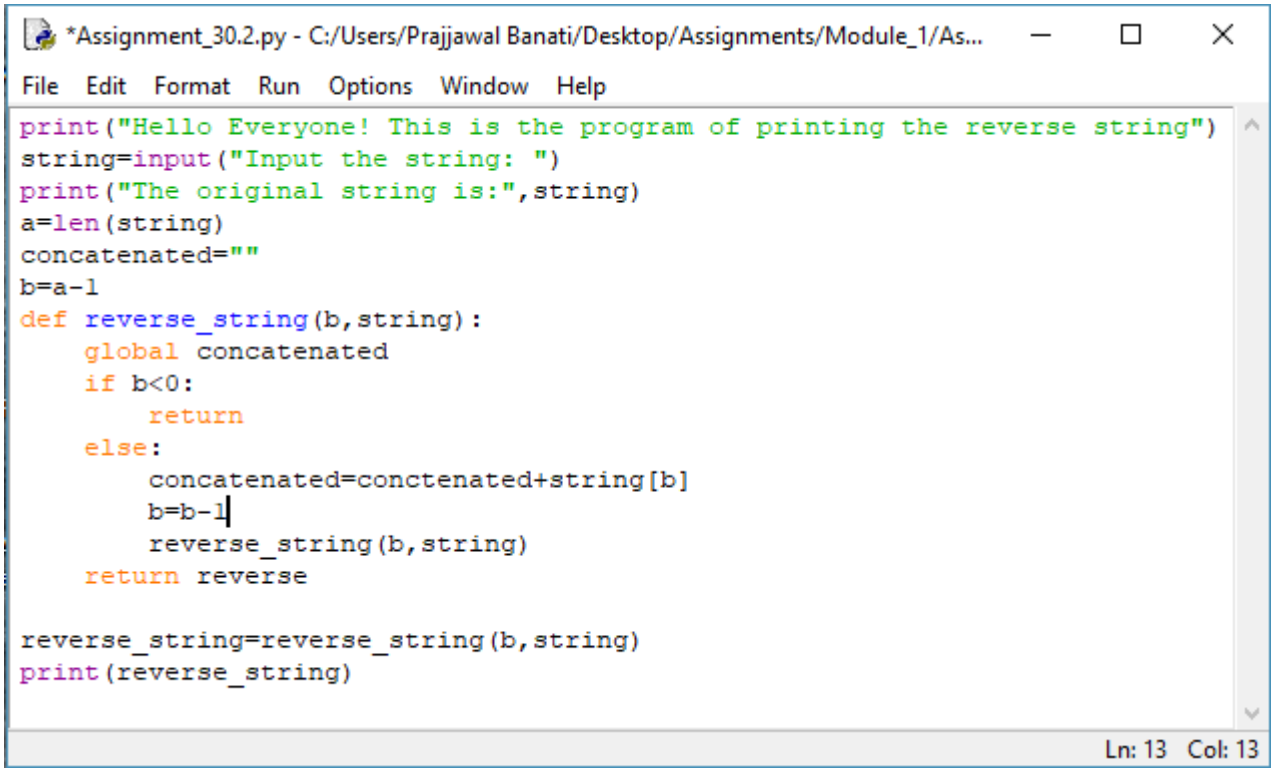


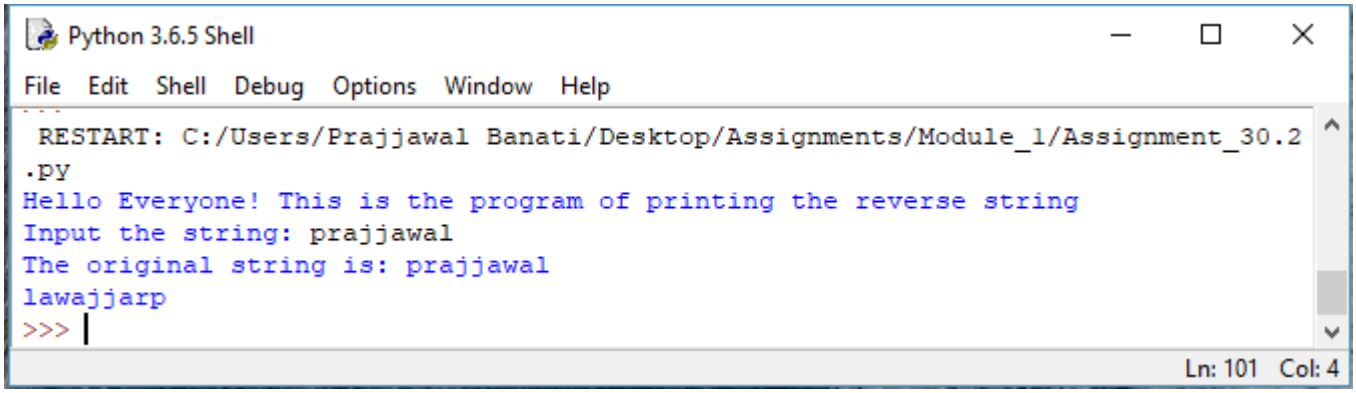
2) Reverse a string. Print the original and reversed string.

Ans:

```
print("Hello Everyone! This is the program of printing the reverse string")
string=input("Input the string: ")
print("The original string is:",string)
a=len(string)
concatenated=""
b=a-1
```

```
def reverse_string(b,string):
    global concatenated
    if b<0:
        return
    else:
        concatenated=concatenated+string[b]
        b=b-1
        reverse_string(b,string)
    return conatenated

reverse_string=reverse_string(b,string)
print(reverse_string)
```

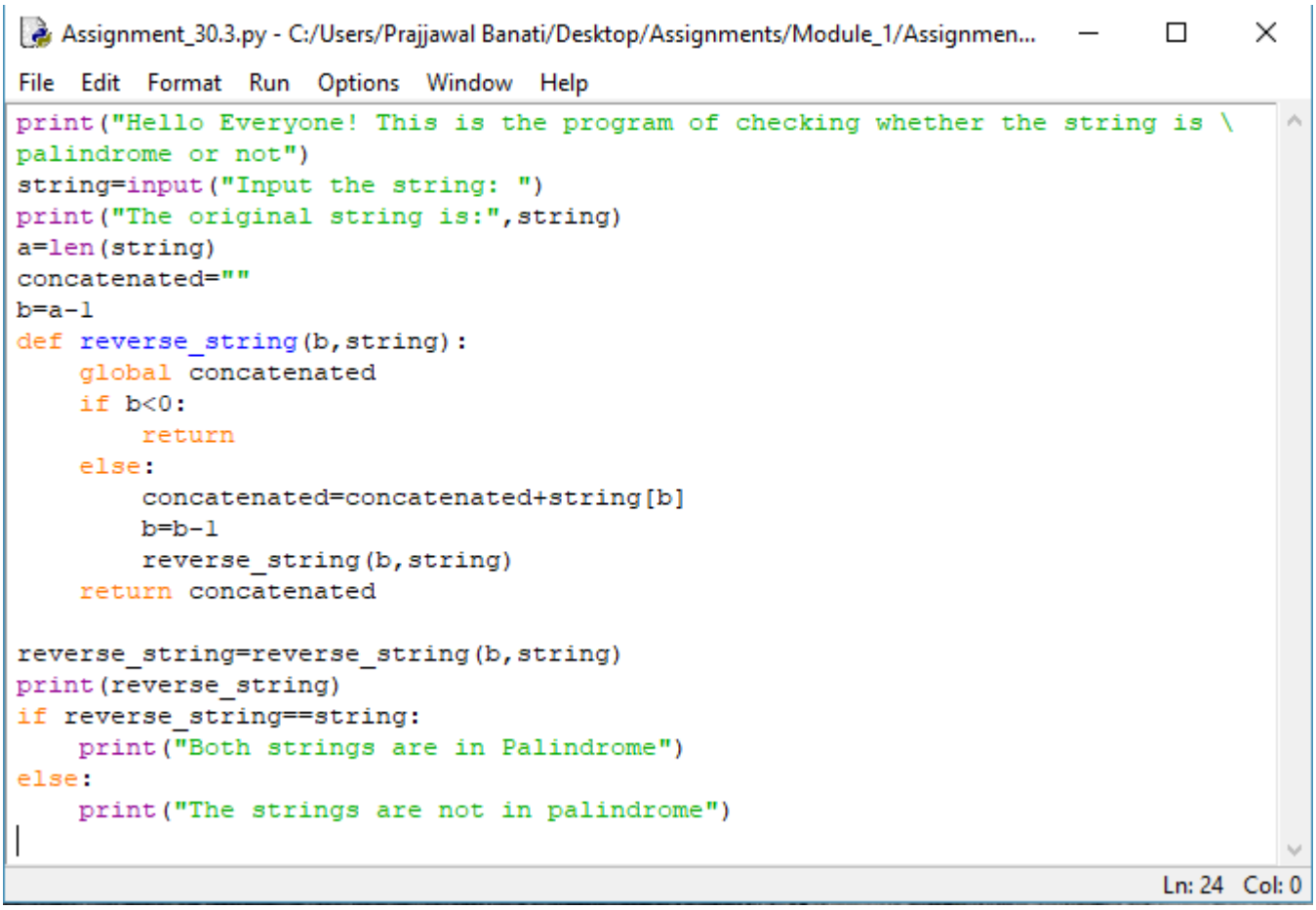


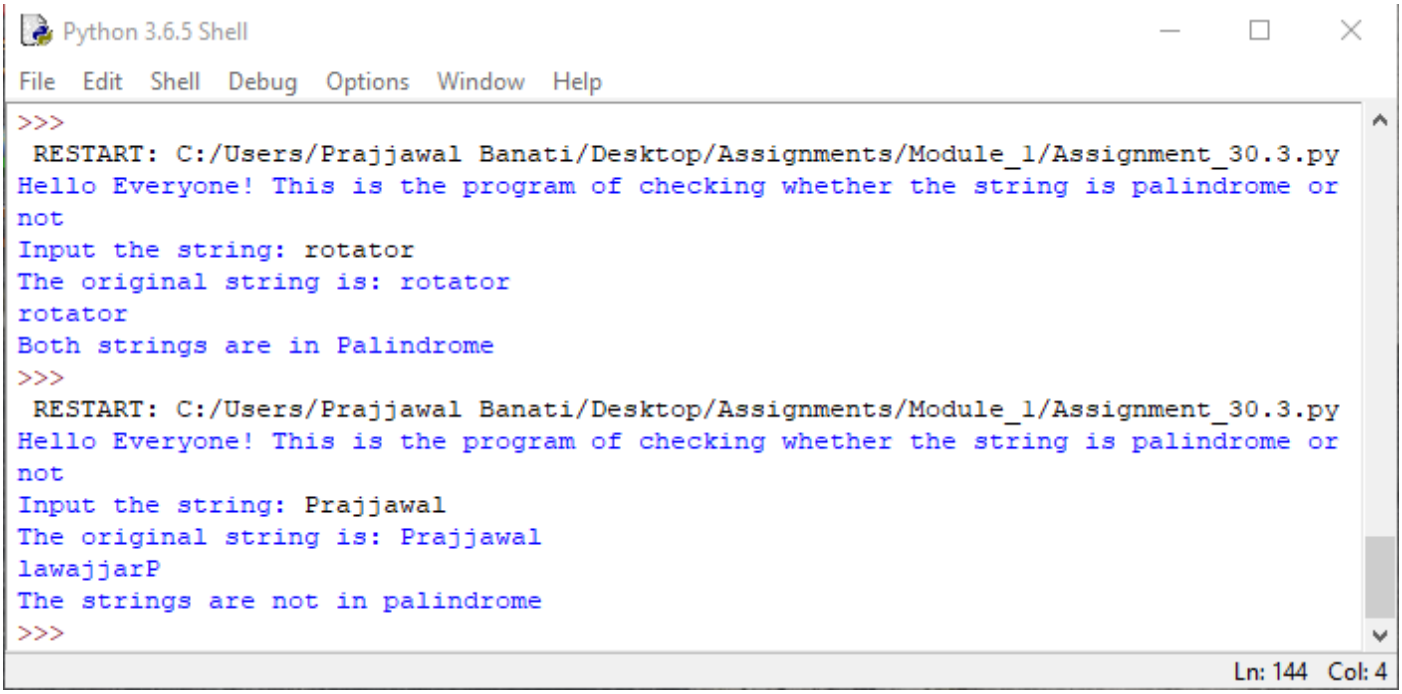


3) Check if the given string is palindrome. If yes, print "String is palindrome" otherwise print "String is not palindrome".

Ans:

```
print("Hello Everyone! This is the program of checking whether the string is \
palindrome or not")
string=input("Input the string: ")
print("The original string is:",string)
a=len(string)
concatenated=""
b=a-1
def reverse_string(b,string):
   global concatenated
   if b<0:
      return
   else:
      concatenated=concatenated+string[b]
      b=b-1
      reverse_string(b,string)
   return concatenated

reverse_string=reverse_string(b,string)
print(reverse_string)
if reverse_string==string:
   print("Both strings are in Palindrome")
else:
   print("The strings are not in palindrome")
```





ASSIGNMENT 31

1) Write a Python program to:
   1. read a file.
   2. add backslash (\) before every double quote in the file contents.
   3. write it to another file in the same folder.
   4. print the contents of both the files.

   For example:
   If the first file is 'TestFile1.txt' with text as:
   Jack said, "Hello Pune".
   The output of the file 'TestFile2.txt' should be:
   Jack said,\"Hello Pune\".

   Ans:

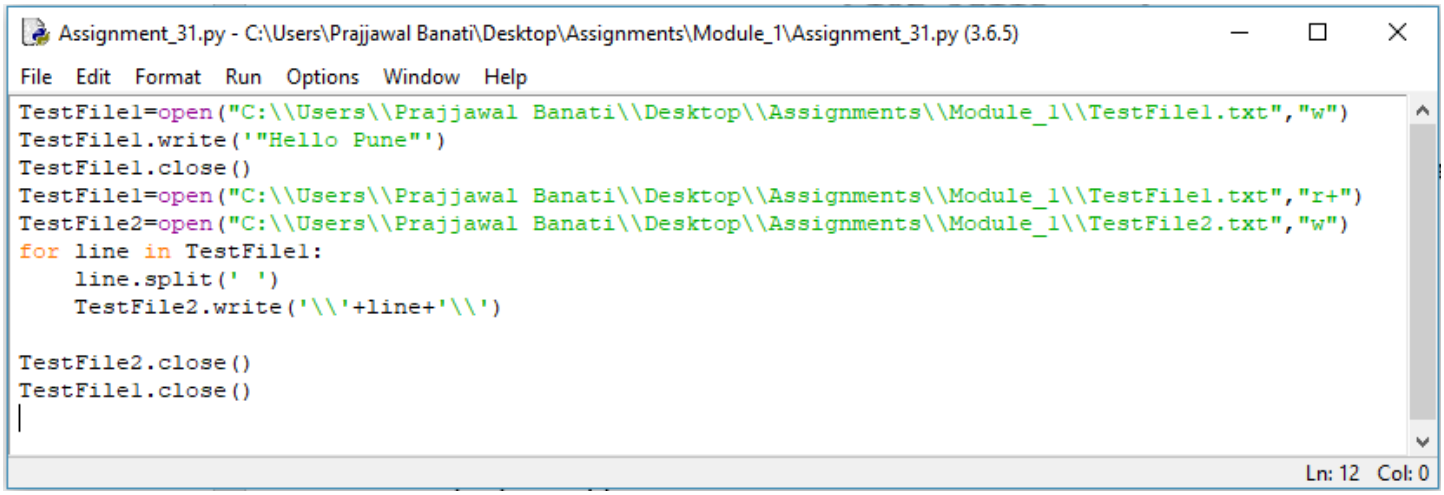
   1) **Making of the file testfile1.txt**

      ```
      TestFile1=open("C:\\Users\\Prajjawal
      Banati\\Desktop\\Assignments\\Module_1\\TestFile1.txt","w")
      TestFile1.write(“Hello Pune”)
      TestFile.close()
      ```

   2) **Copying to another file named as testfile2.txt**

      ```
      TestFile1=open("C:\\Users\\Prajjawal
      Banati\\Desktop\\Assignments\\Module_1\\TestFile1.txt","r+")
      TestFile2=open("C:\\Users\\Prajjawal
      Banati\\Desktop\\Assignments\\Module_1\\TestFile2.txt","w")
      ```

```
for line in TestFile1:
   line.split(' ')
   TestFile2.write('\\ '+line+' \\')

TestFile2.close()
TestFile1.close()
```



ASSIGNMENT 32

Consider a file 'courses.txt' in D Drive with the following details:

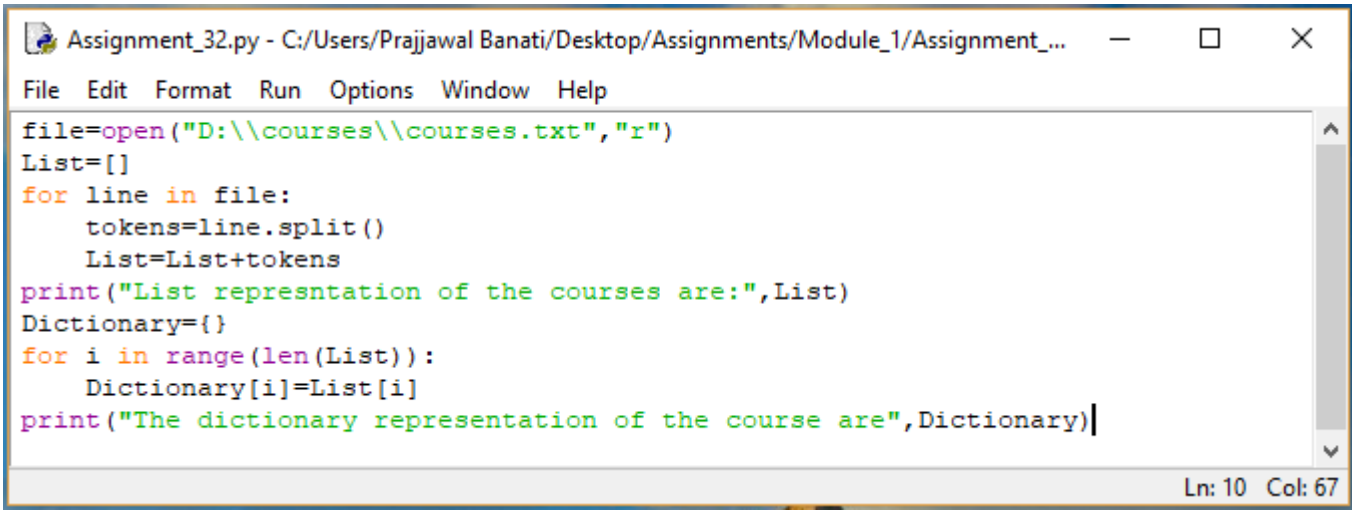
```
101 Rahul
102 Julie
103 Helena
104 Kally
```

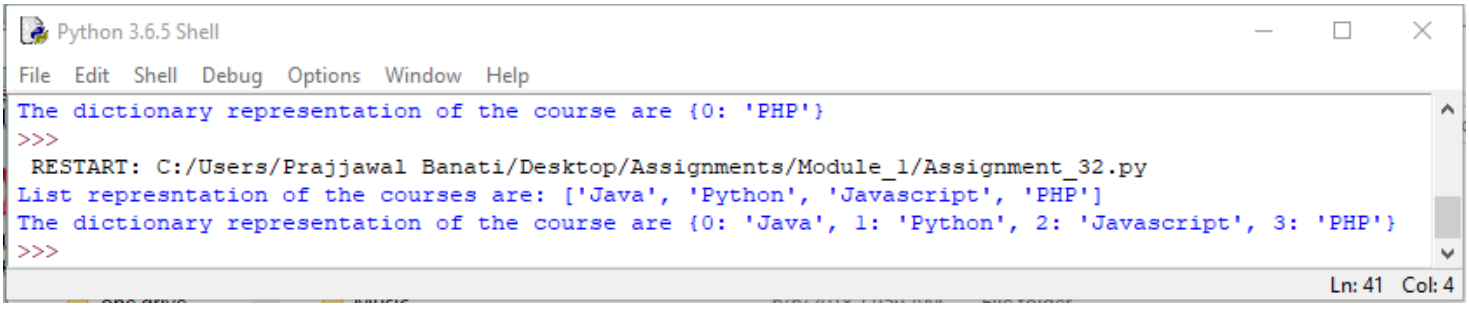
Write a program to read the file and store the courses in Python variables as a:

1) Dictionary (Sample - {0: 'Java', 1: 'Python', 2:'Javascript' 3: 'PHP'})
2) List (Sample - ['Java', 'Python', 'Javascript', 'PHP'])

Ans:

```
file=open("D:\\courses\\courses.txt","r")
List=[]
for line in file:
    tokens=line.split()
    List=List+tokens
print("List represntation of the courses are:",List)
Dictionary={}
for i in range(len(List)):
    Dictionary[i]=List[i]
print("The dictionary representation of the course are",Dictionary)
```





ASSIGNMENT 33

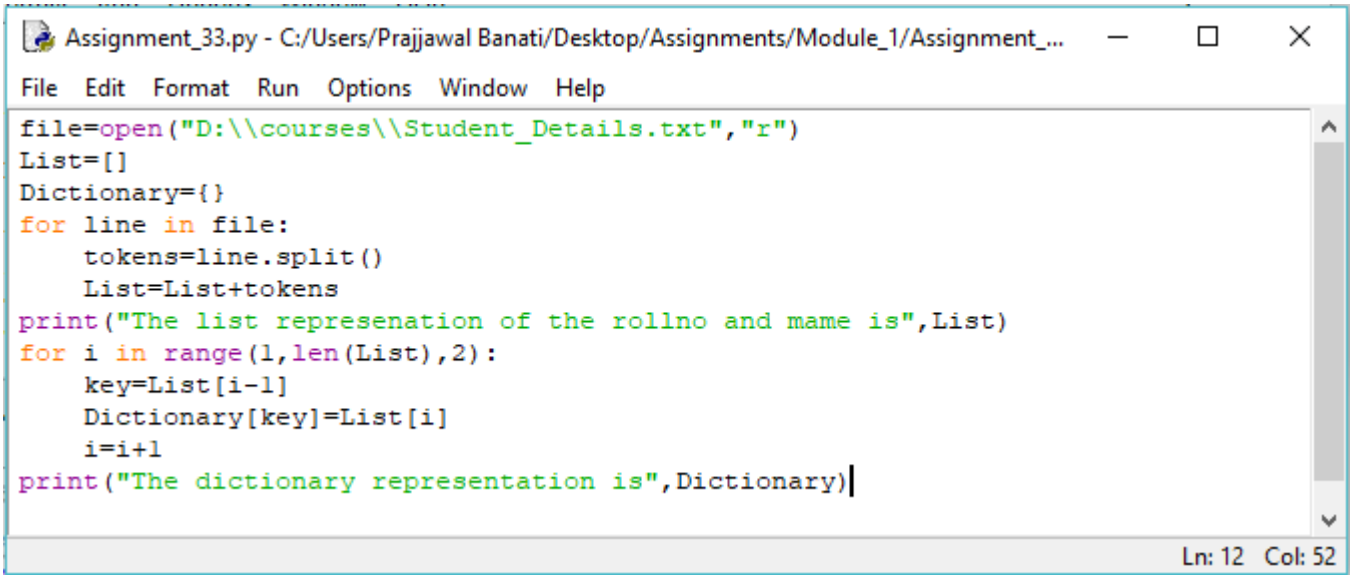
Consider a file 'student_details.txt' in D Drive with the details of students in ABC institute – student id and name:

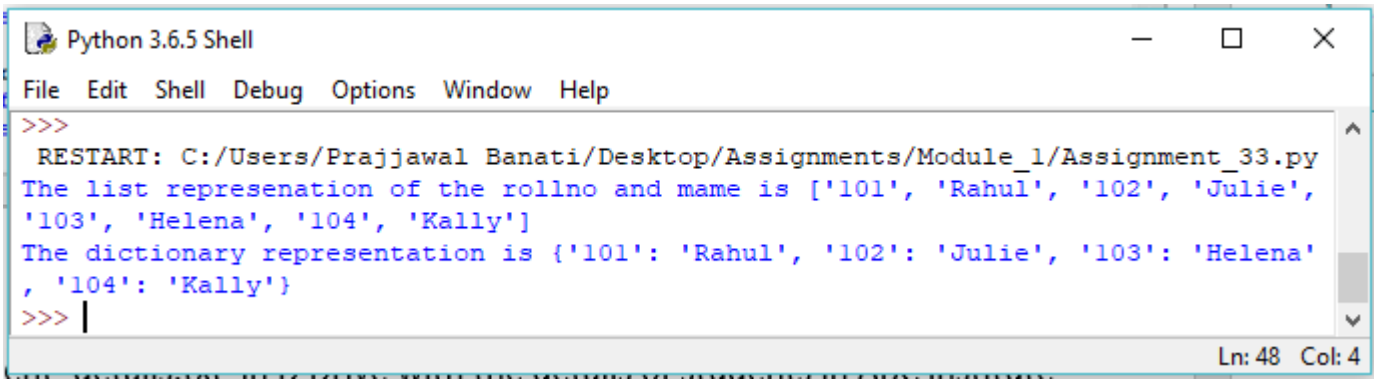
```
101 Rahul
102 Julie
103 Helena
104 Kally
```

Write a program to read the file and store the student records in Python variable as:
1) List of lists
2) List of dictionaries

Ans:

```
file=open("D:\\courses\\Student_Details.txt","r")
List=[]
Dictionary={}
for line in file:
   tokens=line.split()
   List=List+tokens
print("The list represenation of the rollno and mame is",List)
for i in range(1,len(List),2):
   key=List[i-1]
   Dictionary[key]=List[i]
   i=i+1
print("The dictionary representation is",Dictionary)
```





ASSIGNMENT 34

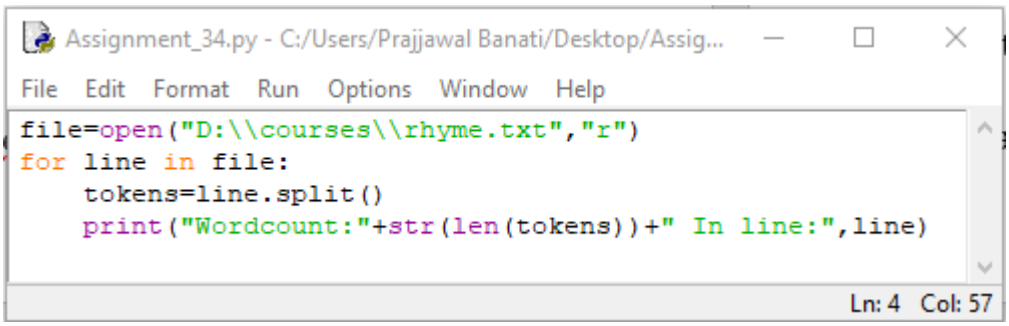
Consider a file 'rhyme.txt' in D Drive with following text:

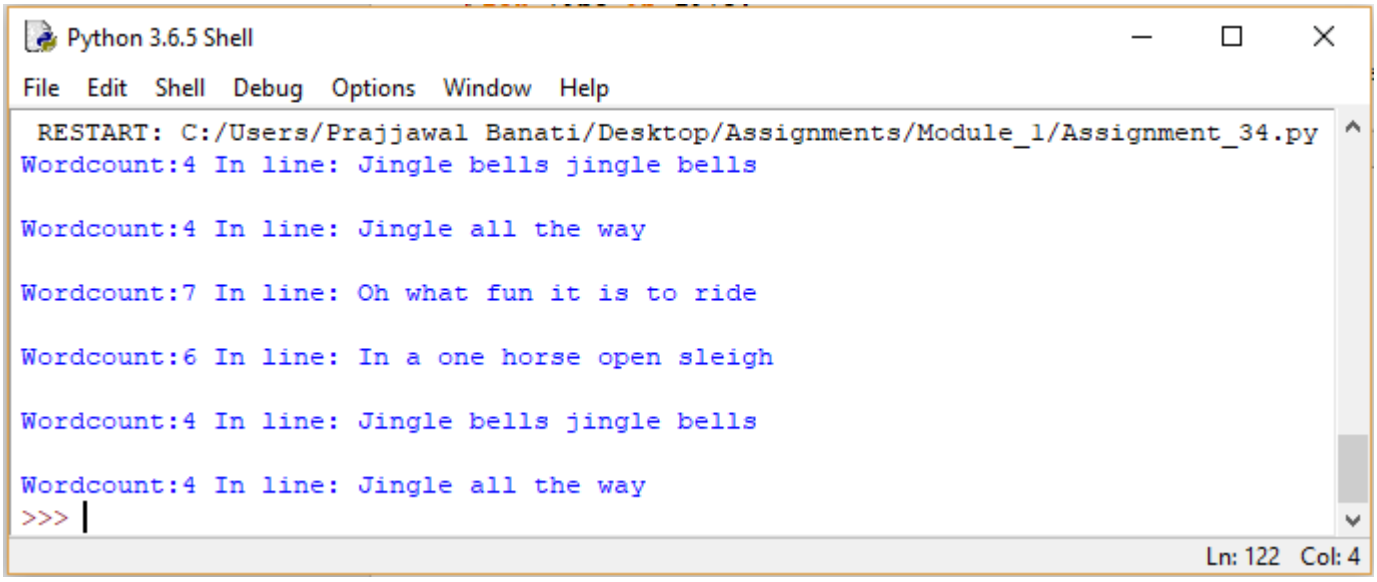
```
Jingle bells jingle bells
Jingle all the way
Oh what fun it is to ride
In a one horse open sleigh
Jingle bells jingle bells
Jingle all the way
```

Write a Python program to count the words in the file using a dictionary (use space as a delimiter). Find unique words and the count of their occurrences(ignoring case). Write the output in another file "words.txt" at the same location

Ans:

```
file=open("D:\\courses\\rhyme.txt","r")
for line in file:
    tokens=line.split()
    print("Wordcount:"+str(len(tokens))+" In line:",line)
```





ASSIGNMENT 35

Assume the following Python code:

```
mylist = [1,2,3,"4",5]

sum = 0

for i in mylist:

    sum = sum + i

print(sum)

print(mylist[5])
```

Rewrite the code to handle the exceptions raised. Print appropriate error messages wherever applicable.

Ans: It is relevant from the above program that the type is not casted, Also the index is out of range

SO INITIALLY THE PROGRAM WILL GIVE OUTPUT LIKE THIS:

Assignment_35.py - C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_35.py (3.6.5)

File Edit Format Run Options Window Help

```
try:
    myList=[1,2,3,"4",5]
    sum=0
    for i in myList:
        sum=sum+i
    print(sum)
    print(myList[5])
except SyntaxError:
    print("There is a syntax error in the following program")
except IndexError:
    print("The index is out of range")
except TypeError:
    print("There is a type error in the above program.\nPLEASE DO THE TYPECASTING")
```

Ln: 13 Col: 83

Python 3.6.5 Shell

File Edit Shell Debug Options Window Help

```
>>>
 RESTART: C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_35.py
There is a type error in the above program.
PLEASE DO THE TYPECASTING
>>>
```

Ln: 46 Col: 4

NOW LET US REWRITE AND FIX THE TYPE ERROR:

Assignment_35.py - C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_35.py (3.6.5)

File Edit Format Run Options Window Help

```
try:
    myList=["1","2","3","4","5"]
    sum=0
    for i in myList:
        sum=sum+int(i)
    print(sum)
    print(myList[5])

except SyntaxError:
    print("There is a syntax error in the following program")
except IndexError:
    print("The index is out of range")
except TypeError:
    print("There is a type error in the above program")
```

Ln: 15 Col: 0

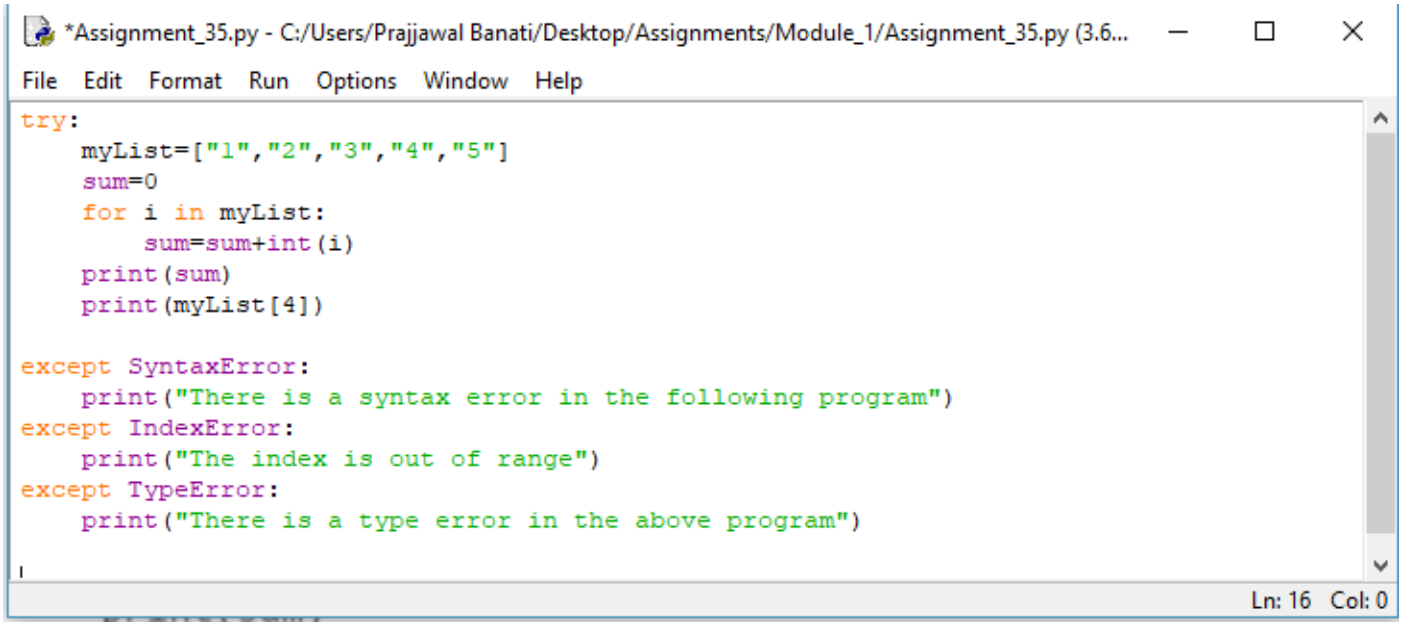
Python 3.6.5 Shell

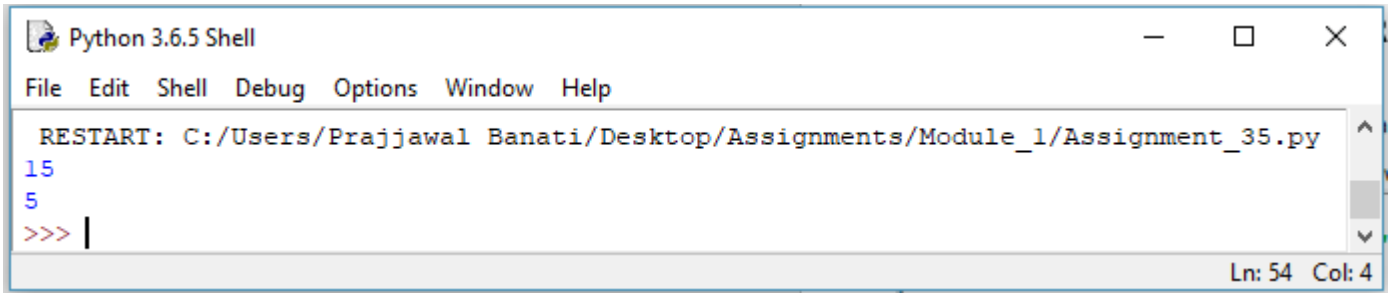
File Edit Shell Debug Options Window Help

```
 RESTART: C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_35.py
15
The index is out of range
>>>
```

Ln: 50 Col: 4

SO NOW LETS FIX THE INDEX ERROR:





SO NOW THE PROGRAM IS CORRECT

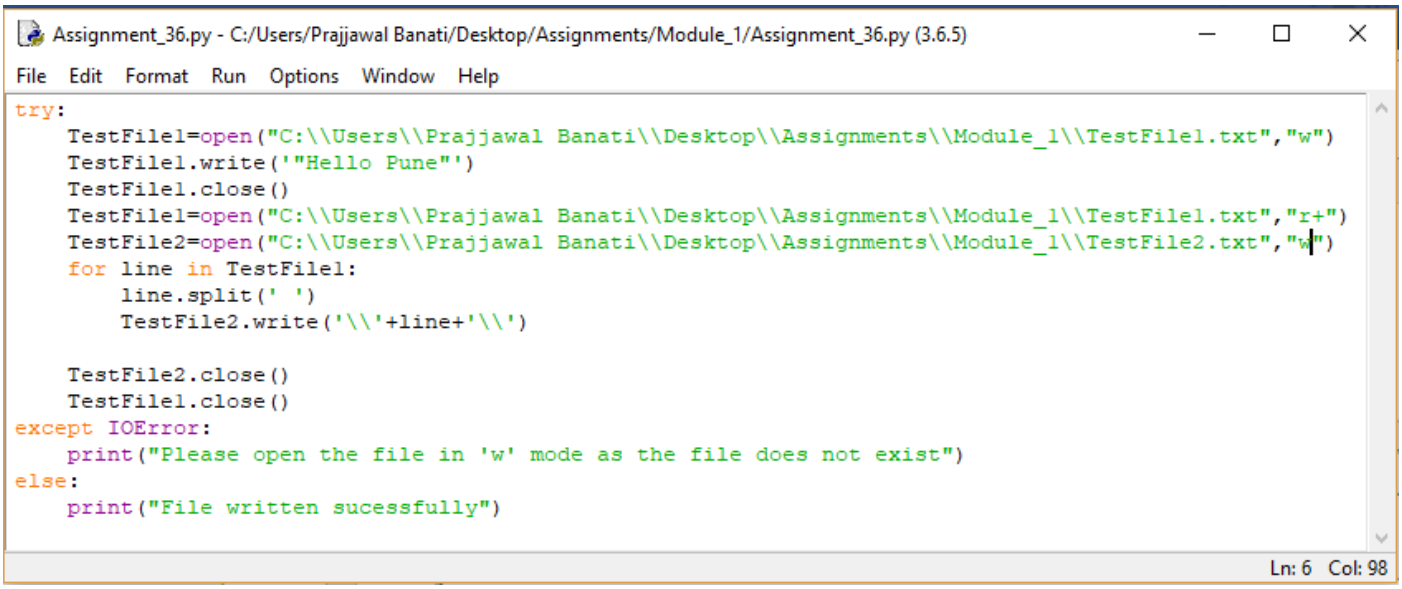
ASSIGNEMENT 36

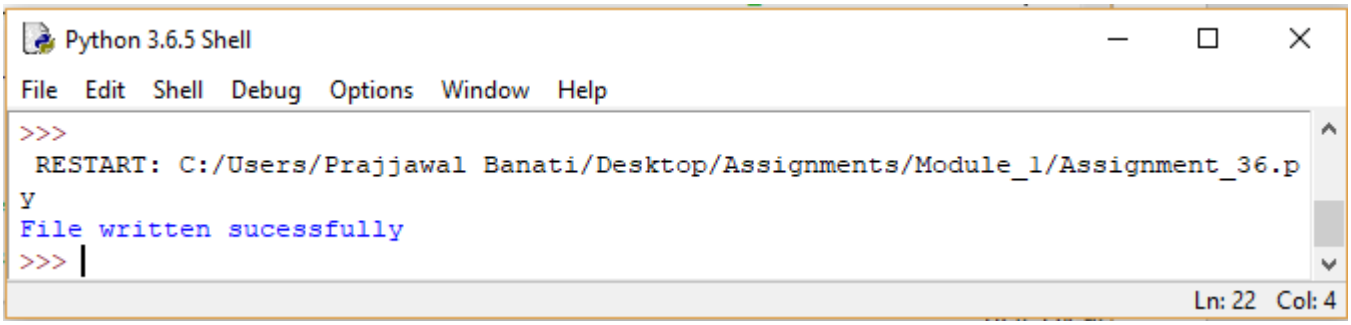
You have already created a Python program to implement the following in file handling section:
1. read a file.
2. add backslash (\) before every double quote in the file contents.
3. write it to another file in the same folder.
4. print the contents of both the files.
Modify your code to implement Exception handling. Print appropriate error messages wherever applicable.

Ans:

```
try:
   TestFile1=open("C:\\Users\\Prajjawal
Banati\\Desktop\\Assignments\\Module_1\\TestFile1.txt","w")
   TestFile1.write('"Hello Pune"')
   TestFile1.close()
```

```
   TestFile1=open("C:\\Users\\Prajjawal
Banati\\Desktop\\Assignments\\Module_1\\TestFile1.txt","r+")
   TestFile2=open("C:\\Users\\Prajjawal
Banati\\Desktop\\Assignments\\Module_1\\TestFile2.txt","w")
   for line in TestFile1:
      line.split(' ')
      TestFile2.write('\\'+line+'\\')

   TestFile2.close()
   TestFile1.close()
except IOError:
   print("Please open the file in 'w' mode as the file does not exist")
else:
   print("File written sucessfully")
```





ASSIGNMENT 37

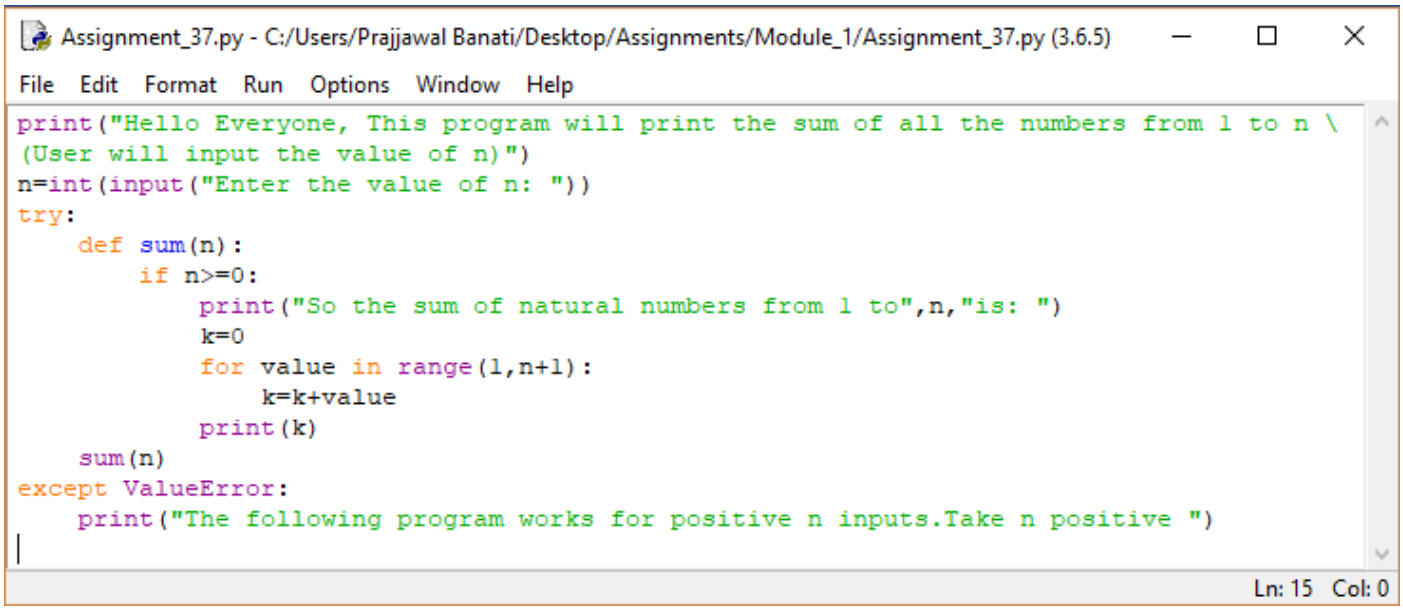
You have already executed the Python program given below in Functions section:

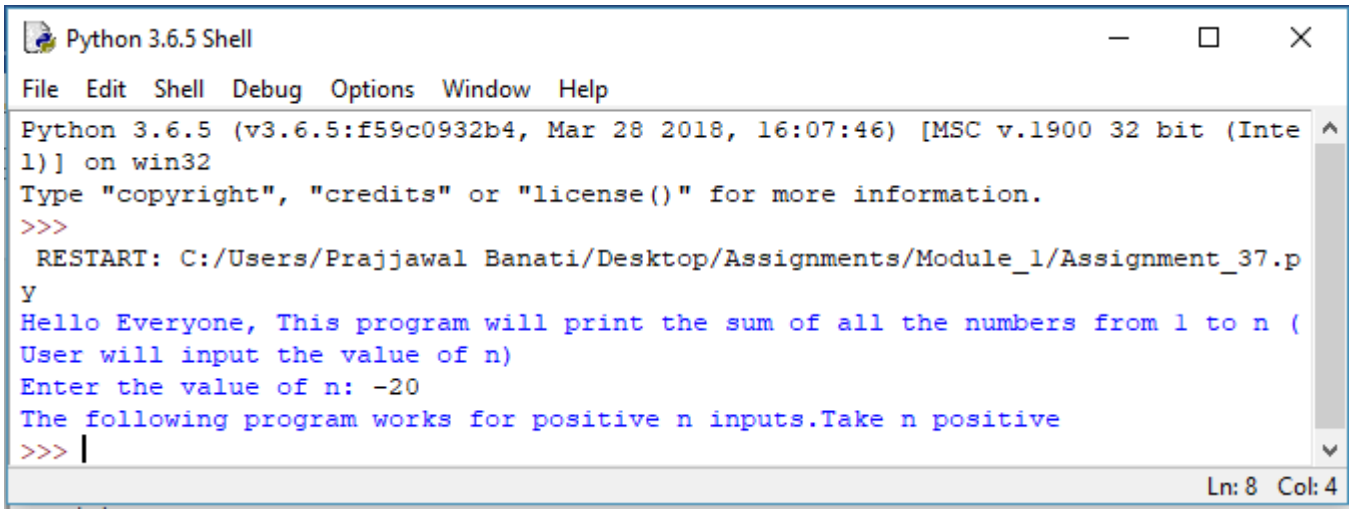
• Add natural numbers up to n where n is taken as an input from user.

Do appropriate exception handling in the code and observe the output by providing invalid input values.

Ans:

```
print("Hello Everyone, This program will print the sum of all the numbers from 1 to n \
(User will input the value of n)")
n=int(input("Enter the value of n: "))
try:
   def sum(n):
      if n>=0:
         print("So the sum of natural numbers from 1 to",n,"is: ")
         k=0
         for value in range(1,n+1):
            k=k+value
         print(k)
   sum(n)
except ValueError:
   print("The following program works for positive n inputs.Take n positive ")
```





ASSIGNMENT 38

At an airport, a traveler is allowed entry into the flight only if he clears the following checks:
1.Baggage Check
2.Immigration Check
3.Security Check

The logic for the check methods are given below:

check_baggage (baggage_weight)
•returns True if
baggage_weight is greater than or equal to 0 and less than or equal to 40. Otherwise returns False.

check_immigration (expiry_year)
•.returns True if expiry_year is greater than or equal to 2001 and less than or equal to 2025. Otherwise returns False.

check_security(noc_status)
•.returns True if noc_status is 'valid' or 'VALID', for all other values return False.

traveler()
•.Initialize the traveler Id and traveler name and invoke the functions check_baggage(), check_immigration() and check_security() by passing required arguments.

•.Refer the table below for values of arguments.
•.If all values of check_baggage(), check_immigration() and check_security() are true, display traveler_id and traveler_name display "Allow Traveler to fly!"

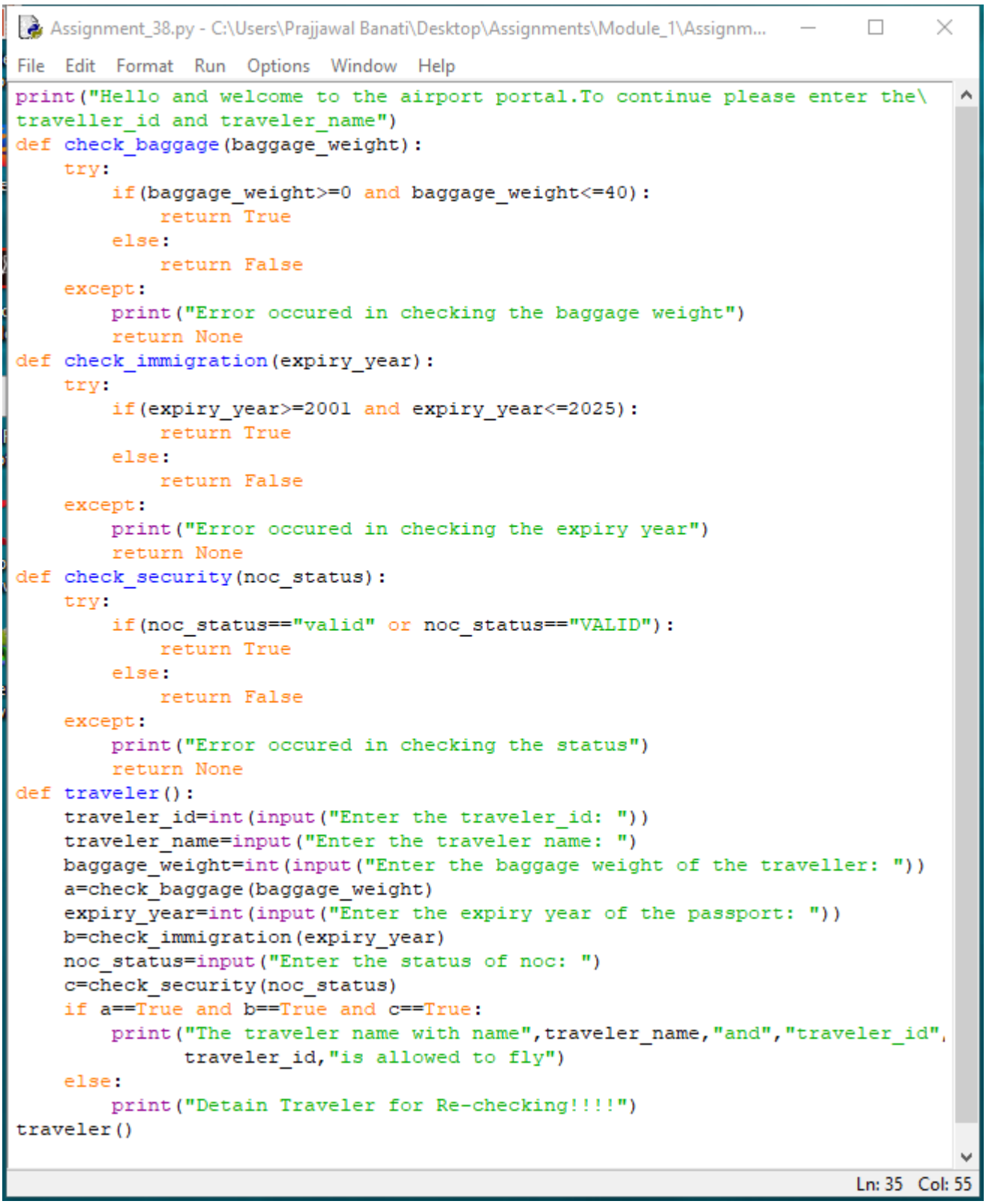
Variable	Value
traveler_id	1001
traveler_name	Jim
baggage_weight	35
expiry_year	2019
noc_status	VALID

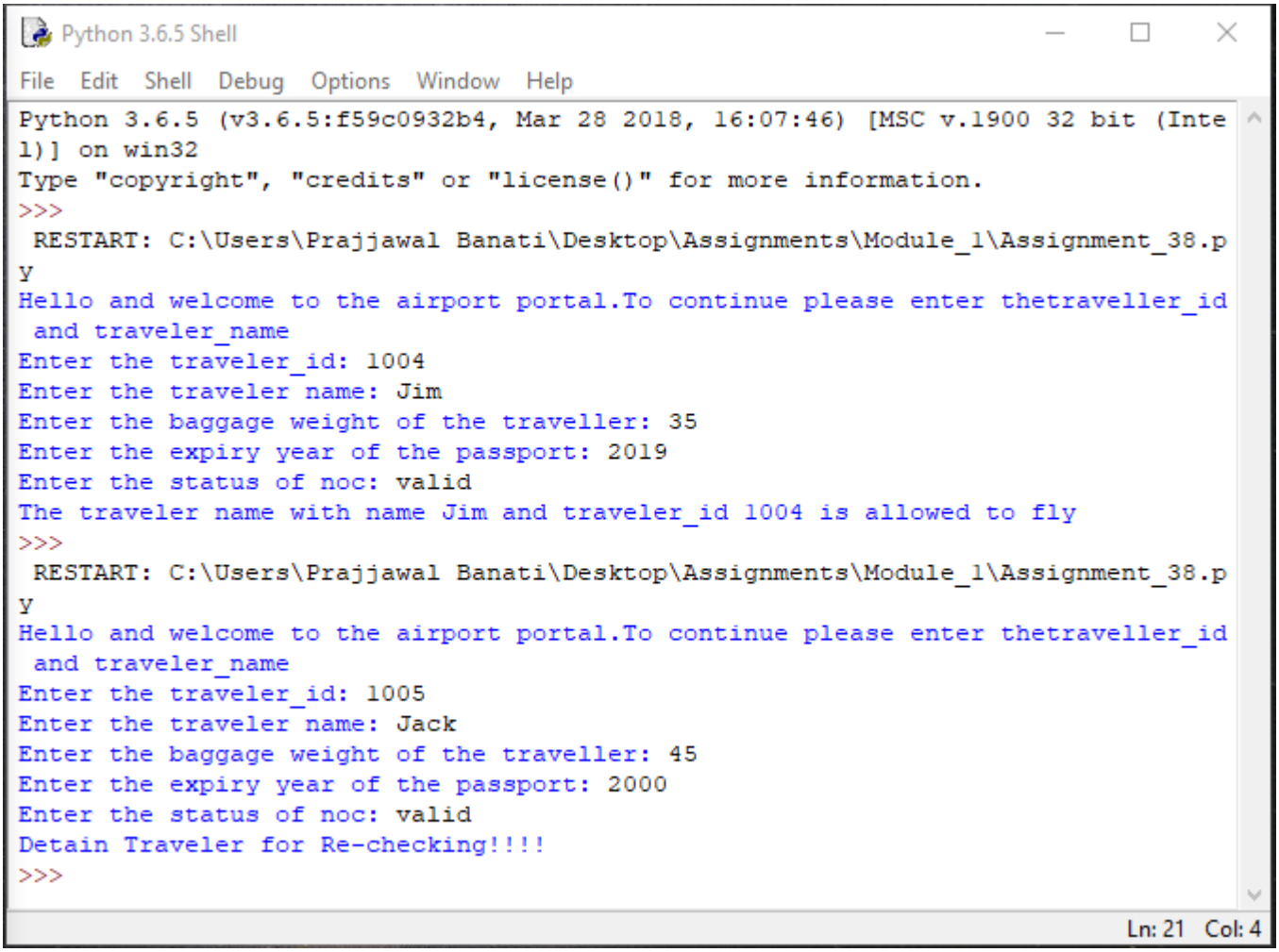
Otherwise,display traveler_id and traveler_name display "Detain Traveler for Re-checking!“ Invoke the traveler() function. Modify the values of different variables in traveler() function and observe the output.

Ans:

```
print("Hello and welcome to the airport portal.To continue please enter the\
traveller_id and traveler_name")
def check_baggage(baggage_weight):
    try:
        if(baggage_weight>=0 and baggage_weight<=40):
            return True
        else:
            return False
    except:
        print("Error occured in checking the baggage weight")
        return None
def check_immigration(expiry_year):
    try:
        if(expiry_year>=2001 and expiry_year<=2025):
            return True
        else:
            return False
    except:
        print("Error occured in checking the expiry year")
        return None
def check_security(noc_status):
    try:
        if(noc_status=="valid" or noc_status=="VALID"):
            return True
        else:
            return False
    except:
        print("Error occured in checking the status")
        return None
def traveler():
    traveler_id=int(input("Enter the traveler_id: "))
    traveler_name=input("Enter the traveler name: ")
    baggage_weight=int(input("Enter the baggage weight of the traveller: "))
    a=check_baggage(baggage_weight)
    expiry_year=int(input("Enter the expiry year of the passport: "))
    b=check_immigration(expiry_year)
    noc_status=input("Enter the status of noc: ")
    c=check_security(noc_status)
    if a==True and b==True and c==True:
        print("The traveler name with name",traveler_name,"and","traveler_id",
              traveler_id,"is allowed to fly")
    else:
        print("Detain Traveler for Re-checking!!!!")
```

traveler()


Assignment_38.py - C:\Users\Prajjawal Banati\Desktop\Assignments\Module_1\Assignm...
File Edit Format Run Options Window Help
print("Hello and welcome to the airport portal.To continue please enter the\
traveller_id and traveler_name")
def check_baggage(baggage_weight):
try:
if(baggage_weight>=0 and baggage_weight<=40):
return True
else:
return False
except:
print("Error occured in checking the baggage weight")
return None
def check_immigration(expiry_year):
try:
if(expiry_year>=2001 and expiry_year<=2025):
return True
else:
return False
except:
print("Error occured in checking the expiry year")
return None
def check_security(noc_status):
try:
if(noc_status=="valid" or noc_status=="VALID"):
return True
else:
return False
except:
print("Error occured in checking the status")
return None
def traveler():
traveler_id=int(input("Enter the traveler_id: "))
traveler_name=input("Enter the traveler name: ")
baggage_weight=int(input("Enter the baggage weight of the traveller: "))
a=check_baggage(baggage_weight)
expiry_year=int(input("Enter the expiry year of the passport: "))
b=check_immigration(expiry_year)
noc_status=input("Enter the status of noc: ")
c=check_security(noc_status)
if a==True and b==True and c==True:
print("The traveler name with name",traveler_name,"and","traveler_id",
traveler_id,"is allowed to fly")
else:
print("Detain Traveler for Re-checking!!!!")
traveler()
Ln: 35 Col: 55



ASSIGNMENT 39

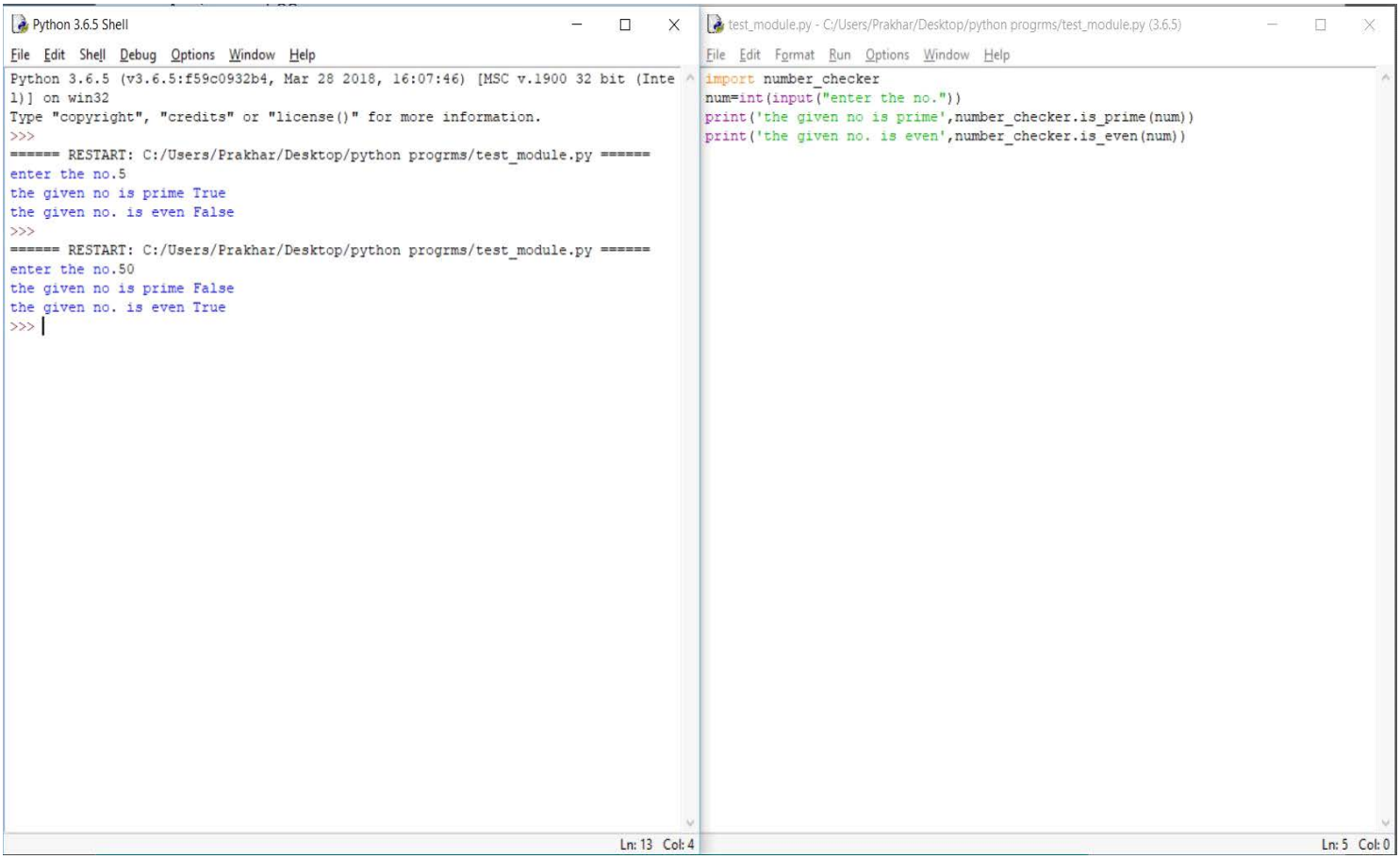
1) •Create a module "number_checker.py" which has following 2 functions:
   - •is_prime(num) : this function returns true if the input number is prime
   - •is_even(num): this function returns true if the input number is even

   •Create another Python module "test_module.py".
   •Invoke the functions "is_prime(num)" and "is_even(num)" in "test_module.py".
   •Observe the results.

   Ans:

```
#number_checker.py

def is_prime(num):
    k=0
    for i in range(2,num):
        if num%i==0:
            k=1
    if k==0:
        return True
    else:
```

```
        return False

def is_even(num):
    k=0
    if num%2==0:
        return True
    else:
        return False

#test_module

import number_checker
num=int(input("enter the no."))
print('the given no is prime',number_checker.is_prime(num))
print('the given no. is even',number_checker.is_even(num))
```

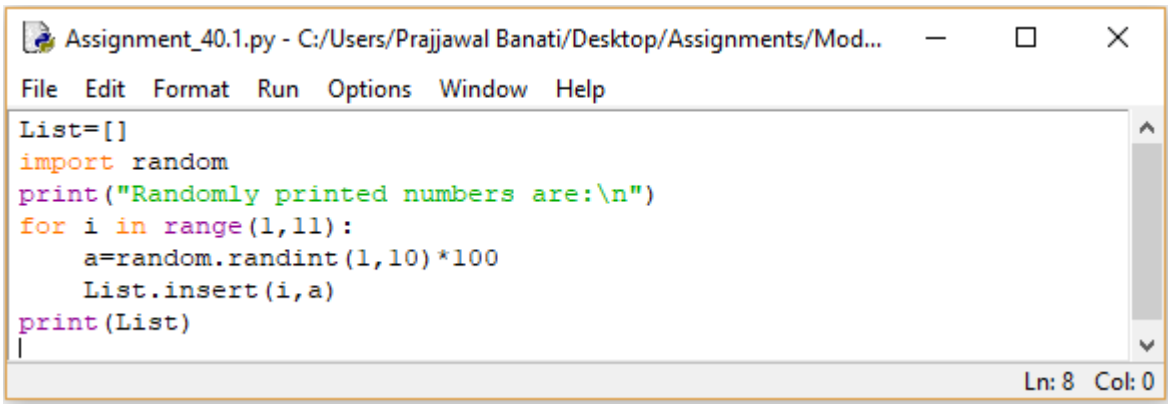


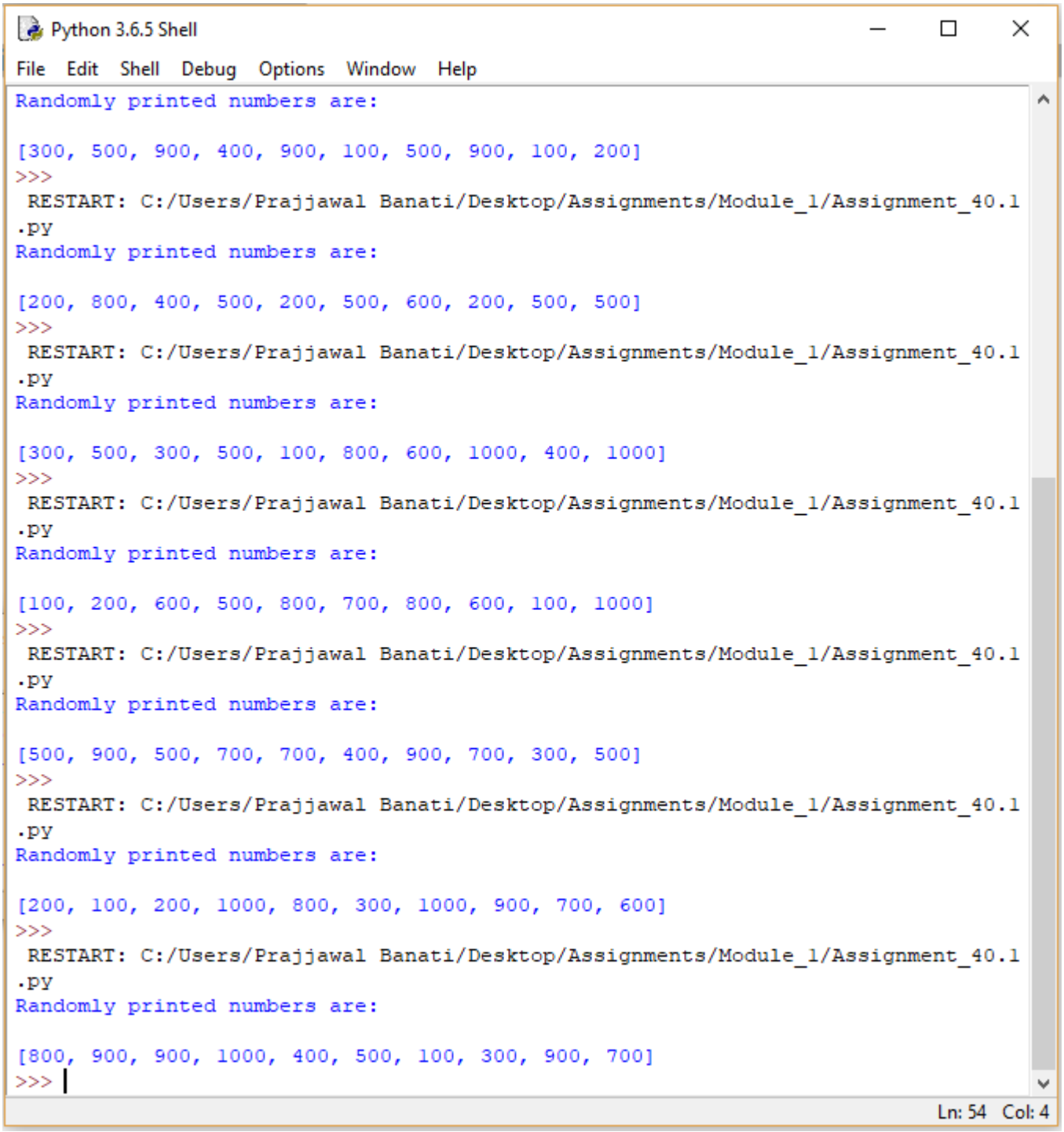
ASSIGNMENT 40

1) Write a Python program to randomly print any of the below numbers:
   100,200,300,400,500,600,700,800,900,1000
   Execute the program 10 times and verify if the number generated in every output is one out of the numbers given in the list above.

Ans:

```
List=[]
import random
print("Randomly printed numbers are:\n")
for i in range(1,11):
   a=random.randint(1,10)*100
   List.insert(i,a)
print(List)
```





2) Write a Python program to print a random odd numbers between 10 and 50.

Ans:

```
print("Hello Everyone! The following program will print random odd numbers\
 between 10 and 50")
import random
print(random.randint(5,24)*2+1)
```

Assignment_40.2.py - C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignmen...

File Edit Format Run Options Window Help

```
print("Hello Everyone! The following program will print random odd numbers\
 between 10 and 50")
import random
print(random.randint(5,24)*2+1)
```

Ln: 5 Col: 0

Python 3.6.5 Shell

File Edit Shell Debug Options Window Help

```
 RESTART: C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_40.2
.py
Hello Everyone! The following program will print random odd numbers between 10 a
nd 50
41
>>>
 RESTART: C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_40.2
.py
Hello Everyone! The following program will print random odd numbers between 10 a
nd 50
49
>>>
 RESTART: C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_40.2
.py
Hello Everyone! The following program will print random odd numbers between 10 a
nd 50
35
>>>
 RESTART: C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_40.2
.py
Hello Everyone! The following program will print random odd numbers between 10 a
nd 50
27
>>>
 RESTART: C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_40.2
.py
Hello Everyone! The following program will print random odd numbers between 10 a
nd 50
13
>>>
 RESTART: C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_40.2
.py
Hello Everyone! The following program will print random odd numbers between 10 a
nd 50
45
>>>
 RESTART: C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_40.2
.py
Hello Everyone! The following program will print random odd numbers between 10 a
nd 50
25
>>>
```

Ln: 82 Col: 4

ASSIGNMENT 41

Write a Python program for rolling a dice on clicking enter key. The program should run infinitely until user enters
'q'.

Ans:

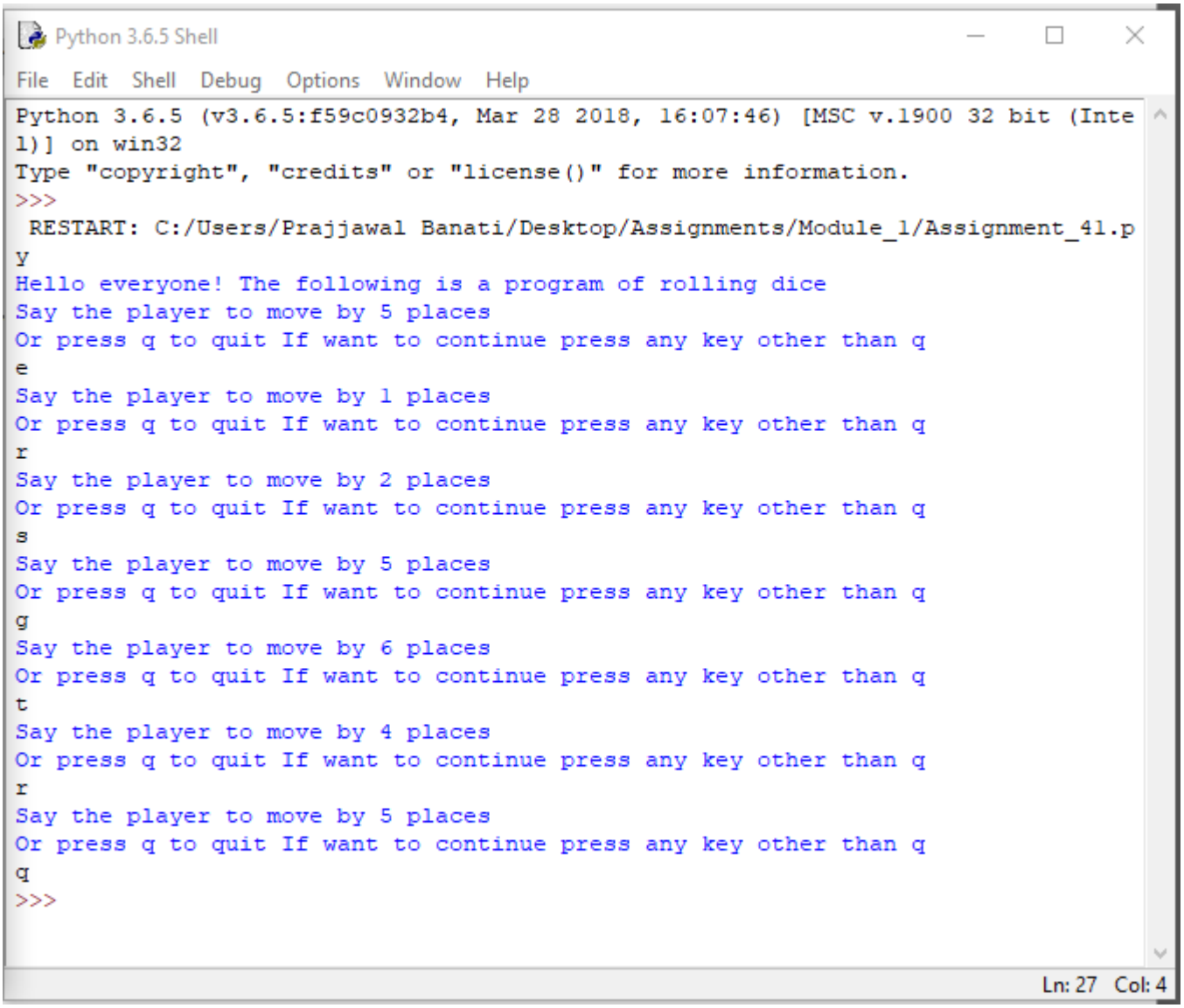
```
print("Hello everyone! The following is a program of rolling dice")
q=0
import random
while q!='q':
   num=random.randint(1,6)
   if num==1:
      print("Say the player to move by",num,"places")
      print('Or press q to quit If want to continue press any key other than q')
      q=input()
   if num==2:
      print("Say the player to move by",num,"places")
      print('Or press q to quit If want to continue press any key other than q')
      q=input()
   if num==3:
      print("Say the player to move by",num,"places")
      print('Or press q to quit If want to continue press any key other than q')
      q=input()
   if num==4:
      print("Say the player to move by",num,"places")
      print('Or press q to quit If want to continue press any key other than q')
      q=input()
   if num==5:
      print("Say the player to move by",num,"places")
      print('Or press q to quit If want to continue press any key other than q')
      q=input()
   if num==6:
      print("Say the player to move by",num,"places")
      print('Or press q to quit If want to continue press any key other than q')
      q=input()
```

Assignment_41.py - C:/Users/Prajjawal Banati/Desktop/Assignments/Module_1/Assignment_41.py ...

File Edit Format Run Options Window Help

```
print("Hello everyone! The following is a program of rolling dice")
q=0
import random
while q!='q':
    num=random.randint(1,6)
    if num==1:
        print("Say the player to move by",num,"places")
        print('Or press q to quit If want to continue press any key other than q')
        q=input()
    if num==2:
        print("Say the player to move by",num,"places")
        print('Or press q to quit If want to continue press any key other than q')
        q=input()
    if num==3:
        print("Say the player to move by",num,"places")
        print('Or press q to quit If want to continue press any key other than q')
        q=input()
    if num==4:
        print("Say the player to move by",num,"places")
        print('Or press q to quit If want to continue press any key other than q')
        q=input()
    if num==5:
        print("Say the player to move by",num,"places")
        print('Or press q to quit If want to continue press any key other than q')
        q=input()
    if num==6:
        print("Say the player to move by",num,"places")
        print('Or press q to quit If want to continue press any key other than q')
        q=input()
```

Ln: 28 Col: 80

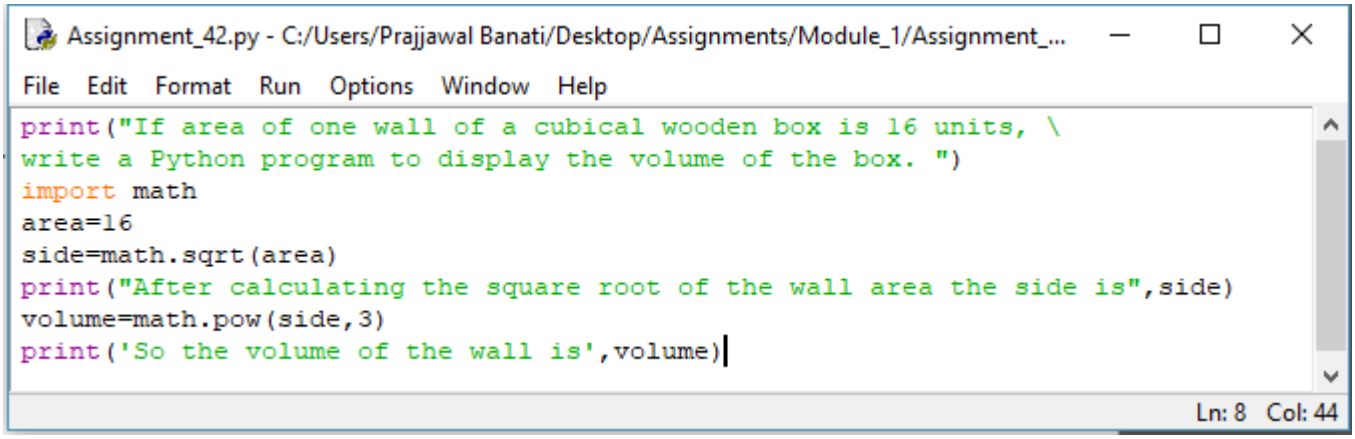


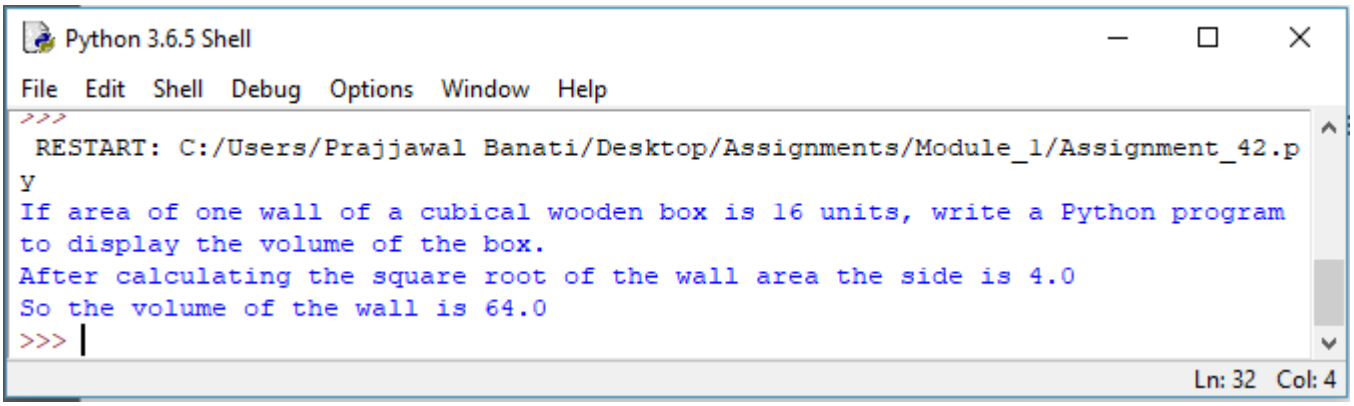
ASSIGNMENT 42

If area of one wall of a cubical wooden box is 16 units, write a Python program to display the volume of the box.
Note:
Area of a cube with side 'a' is 'a**2'.
Volume of the cube can be computed as 'a**3'.

Ans:

```
print("If area of one wall of a cubical wooden box is 16 units, \
write a Python program to display the volume of the box. ")
import math
area=16
side=math.sqrt(area)
print("After calculating the square root of the wall area the side is",side)
volume=math.pow(side,3)
print('So the volume of the wall is',volume)
```



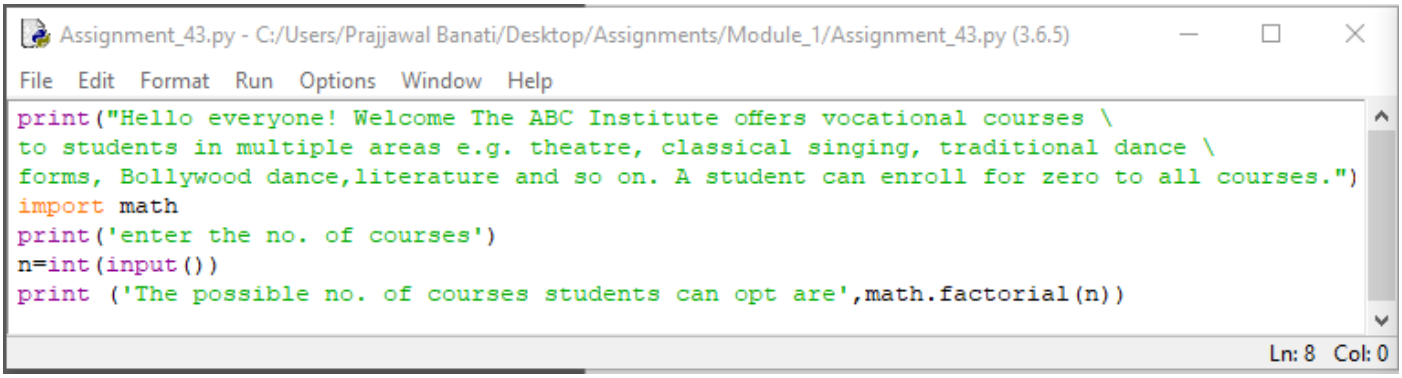


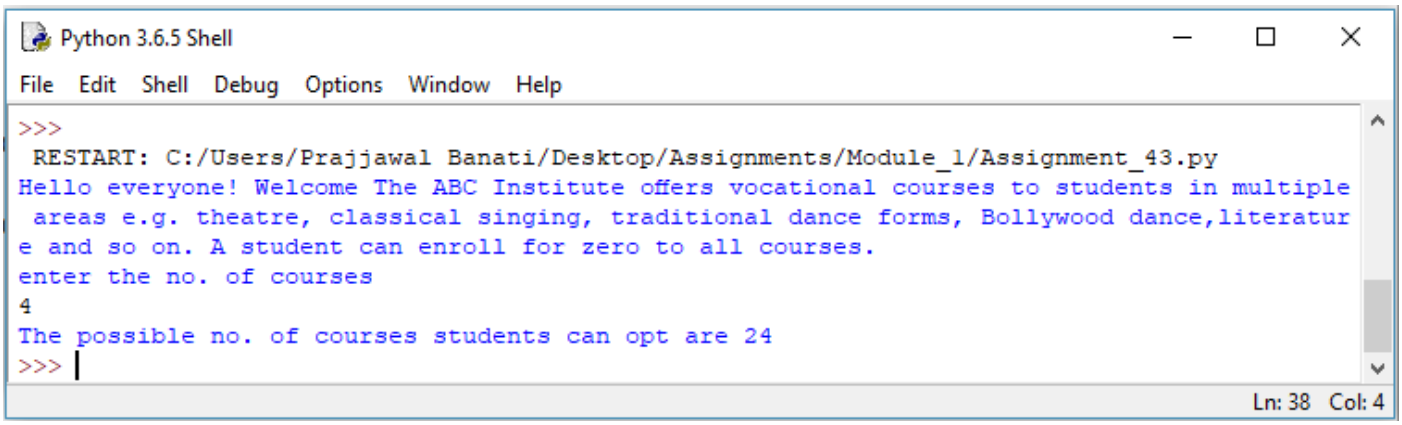
ASSIGNMENT 43

The ABC Institute offers vocational courses to students in multiple areas e.g. theatre, classical singing, traditional dance forms, Bollywood dance, literature and so on. A student can enroll for zero to all courses.
Write a Python function that takes the number of courses as an input and returns the total number of different course combinations, a student can opt for. (Make use of functions available in math module.

Ans:

```
print("Hello everyone! Welcome The ABC Institute offers vocational courses \
to students in multiple areas e.g. theatre, classical singing, traditional dance \
forms, Bollywood dance,literature and so on. A student can enroll for zero to all courses.")
import math
print('enter the no. of courses')
n=int(input())
print ('The possible no. of courses students can opt are',math.factorial(n))
```

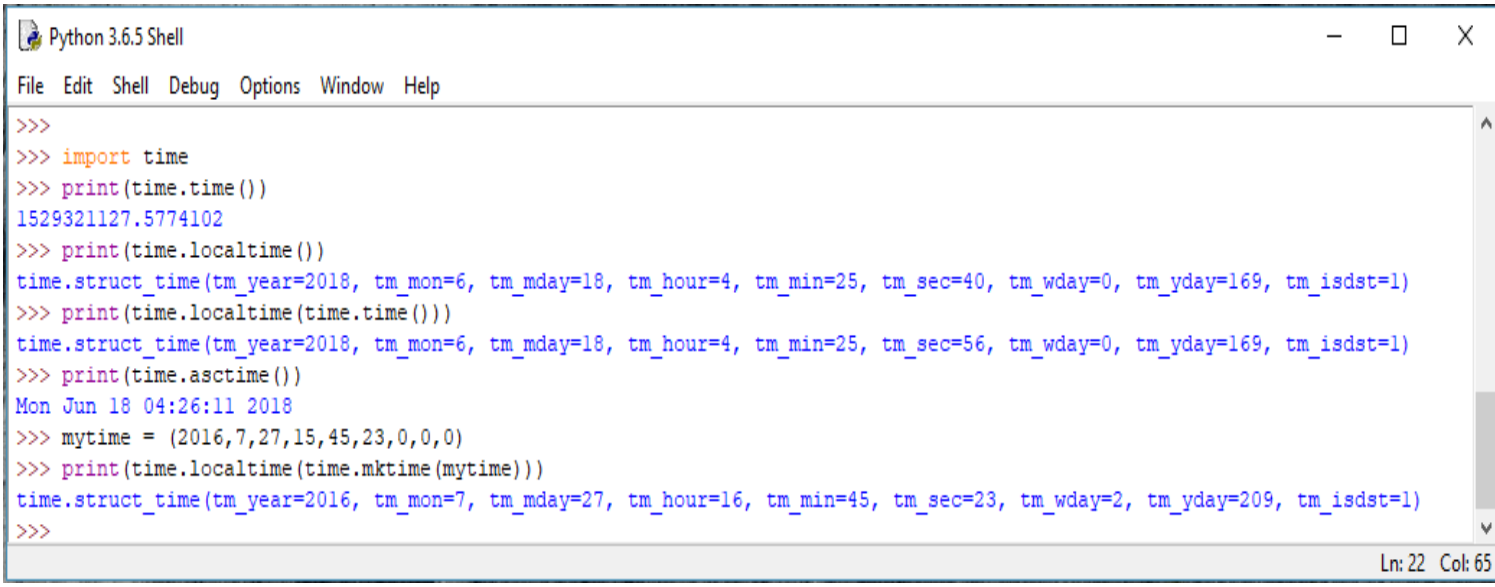




ASSIGNMENT 44

Execute the following code and observe the output.

1. import time
2. print(time.time())
3. print(time.localtime())
4. print(time.localtime(time.time()))
5. print(time.asctime())
6. mytime = (2016,7,27,15,45,23,0,0,0)
7. print(time.localtime(time.mktime(mytime)))

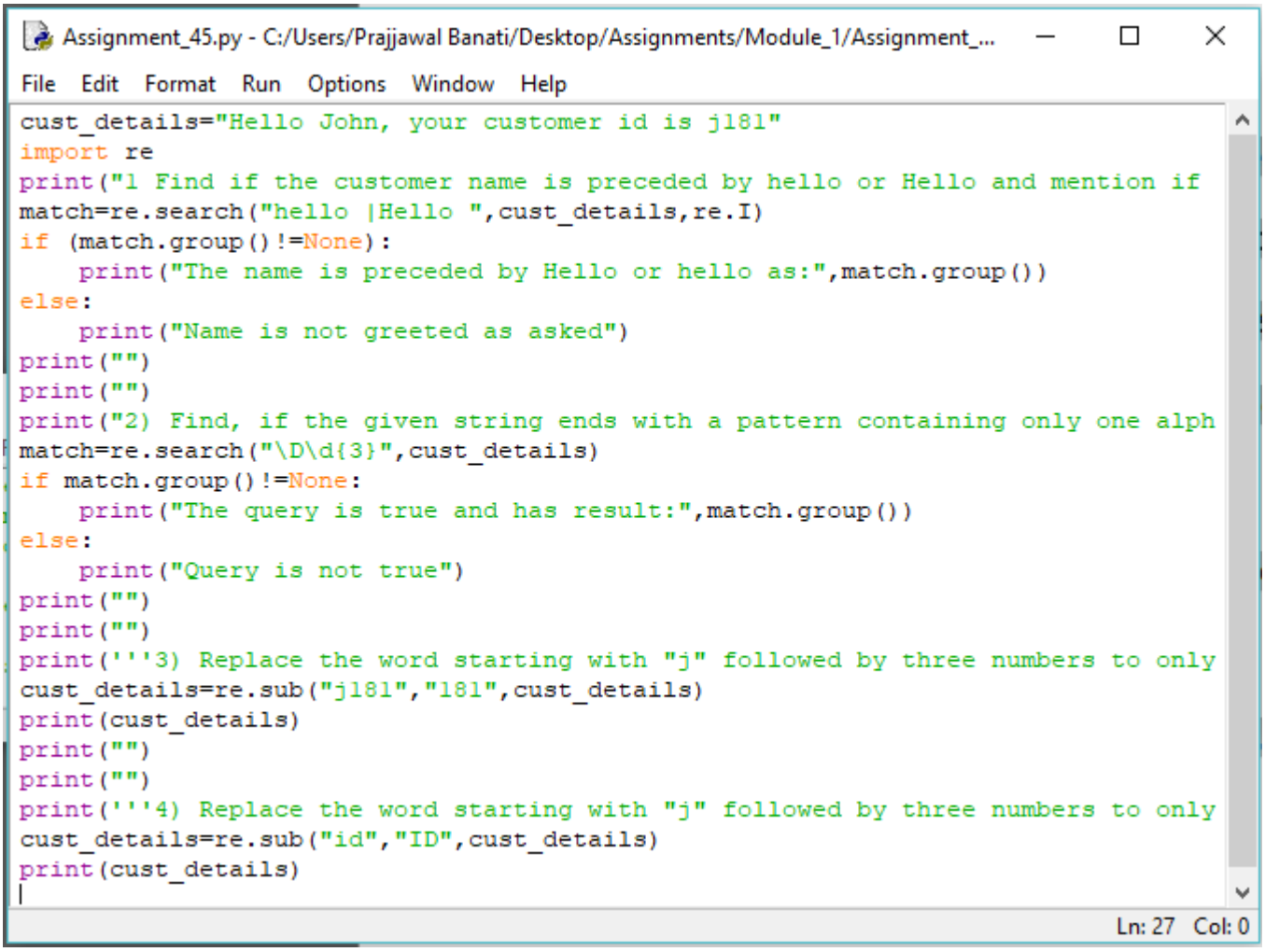


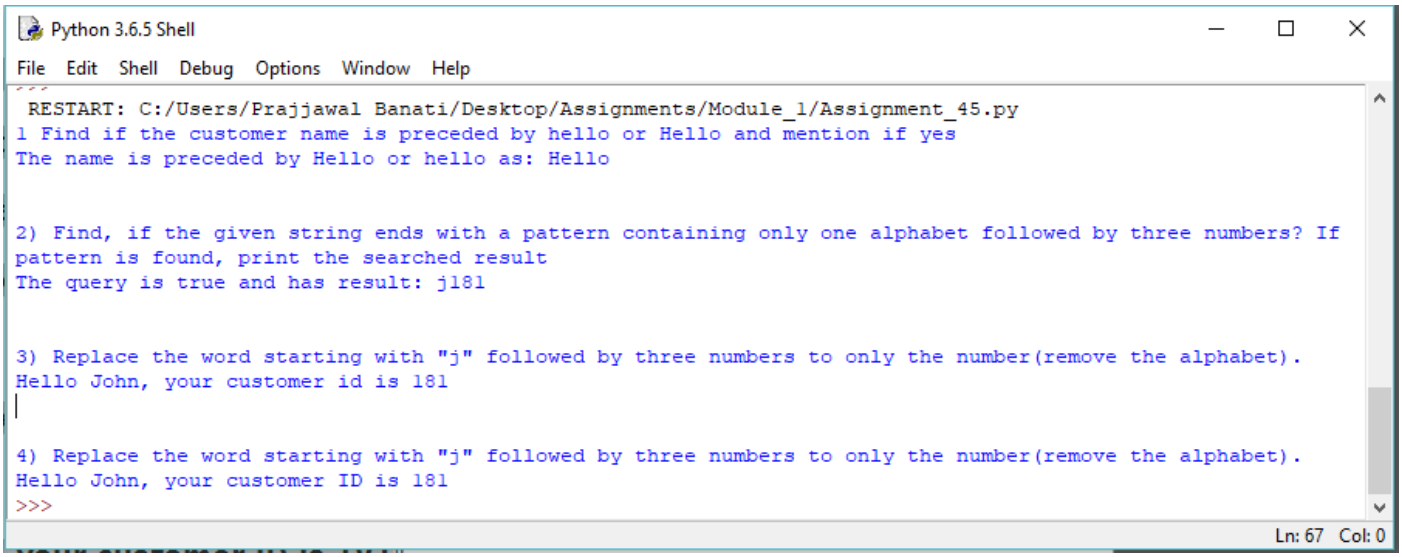
ASSIGNMENT 45

Consider a Python string:
cust_details = "Hello John, your customer id is j181"
1) Find, if the name of the customer is preceded by a pattern "Hello " or "hello " (Observe a space after the word)? If pattern is found, print the searched result.
2) Find, if the given string ends with a pattern containing only one alphabet followed by three numbers? If pattern is found, print the searched result.
3) Replace the word starting with "j" followed by three numbers to only the number(remove the alphabet).
4) Replace the word "id" with "ID".The output of the above code is "Hello John, your customer ID is 181

Ans:

```
cust_details="Hello John, your customer id is j181"
import re
print("1 Find if the customer name is preceded by hello or Hello and mention if yes")
match=re.search("hello |Hello ",cust_details,re.I)
if (match.group()!=None):
   print("The name is preceded by Hello or hello as:",match.group())
else:
   print("Name is not greeted as asked")
print("")
print("")
print("2) Find, if the given string ends with a pattern containing only one alphabet followed by three numbers? If pattern is found, print the searched result")
match=re.search("\D\d{3}",cust_details)
if match.group()!=None:
   print("The query is true and has result:",match.group())
else:
   print("Query is not true")
print("")
print("")
print('''3) Replace the word starting with "j" followed by three numbers to only the number(remove the alphabet).''')
cust_details=re.sub("j181","181",cust_details)
print(cust_details)
print("")
print("")
print('''4) Replace the word starting with "j" followed by three numbers to only the number(remove the alphabet).''')
cust_details=re.sub("id","ID",cust_details)
print(cust_details)
```





ASSIGNMENT 46

Consider a scenario of managing student details in ABC Training Institute. Write a Python program to implement the
business requirements mentioned below:
a)Accept student_id and validate whether it contains only digits.
b)If student _id is valid, accept student_name from the user and validate whether it contains only alphabets.

c)If student_name is valid, accept fees_amount paid by the student:

1.Decimal point is optional in fees_amount(can have maximum one decimal point)

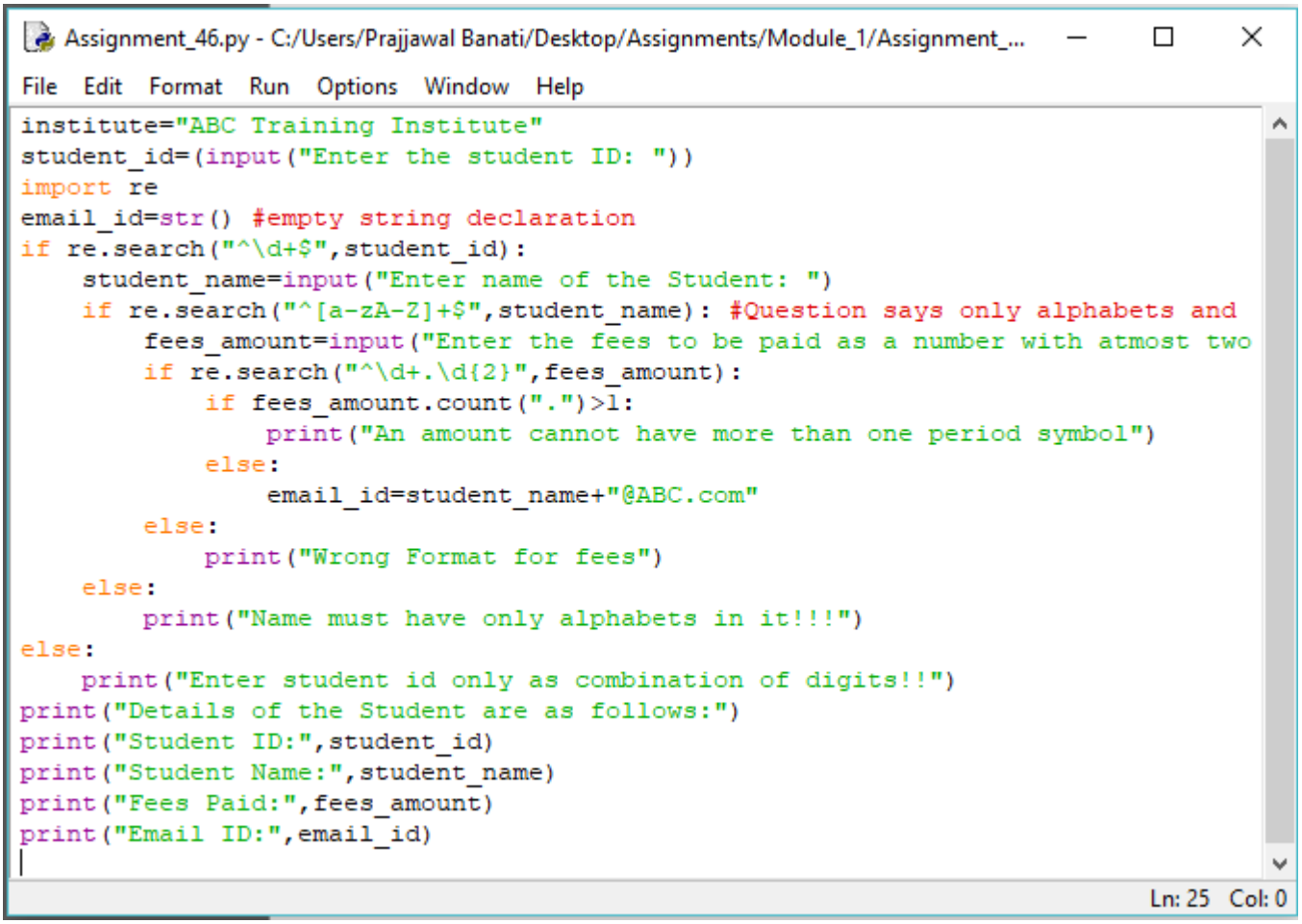
2.Only two digits are allowed after decimal point

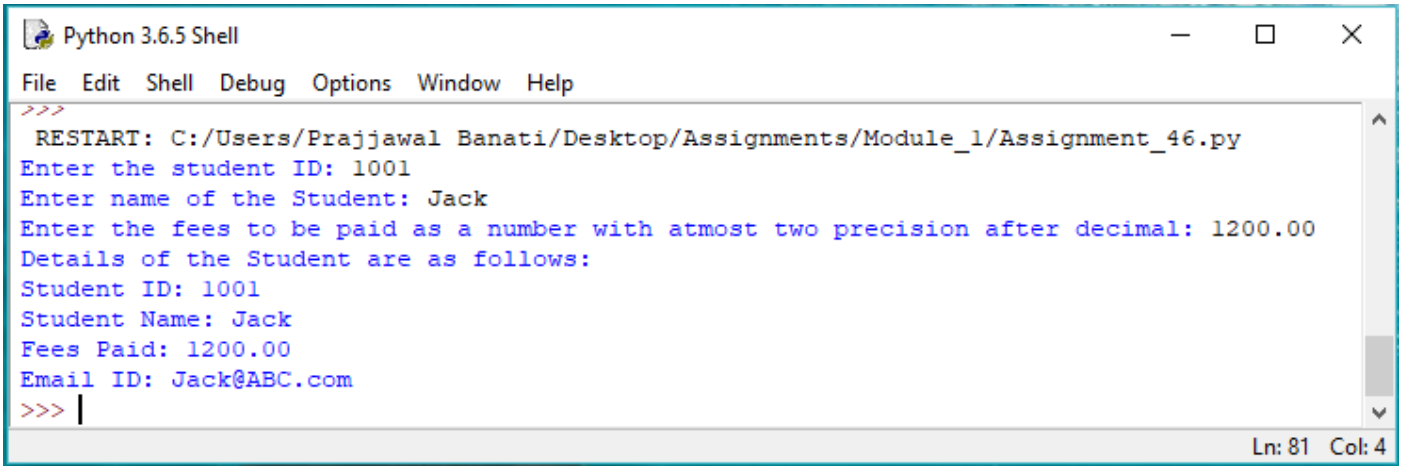
d)If invalid data is entered in any of the above steps, display appropriate error messages. Else, create an email_id for student as
student_name@ABC.com
. Assume there are no duplicate names.

e)Perform above validations using Regular Expressions and print details of the student: student_id, student_name, fees_amount, email_id

Ans:

```
institute="ABC Training Institute"
student_id=(input("Enter the student ID: "))
import re
email_id=str() #empty string declaration
if re.search("^\d+$",student_id):
   student_name=input("Enter name of the Student: ")
   if re.search("^[a-zA-Z]+$",student_name): #Question says only alphabets and thus space is not allowed in check so name can be only one word
      fees_amount=input("Enter the fees to be paid as a number with atmost two precision after decimal: ")
      if re.search("^\d+.\d{2}",fees_amount):
         if fees_amount.count(".")>1:
            print("An amount cannot have more than one period symbol")
         else:
            email_id=student_name+"@ABC.com"
      else:
         print("Wrong Format for fees")
   else:
      print("Name must have only alphabets in it!!!")
else:
   print("Enter student id only as combination of digits!!")
print("Details of the Student are as follows:")
print("Student ID:",student_id)
print("Student Name:",student_name)
print("Fees Paid:",fees_amount)
print("Email ID:",email_id)
```



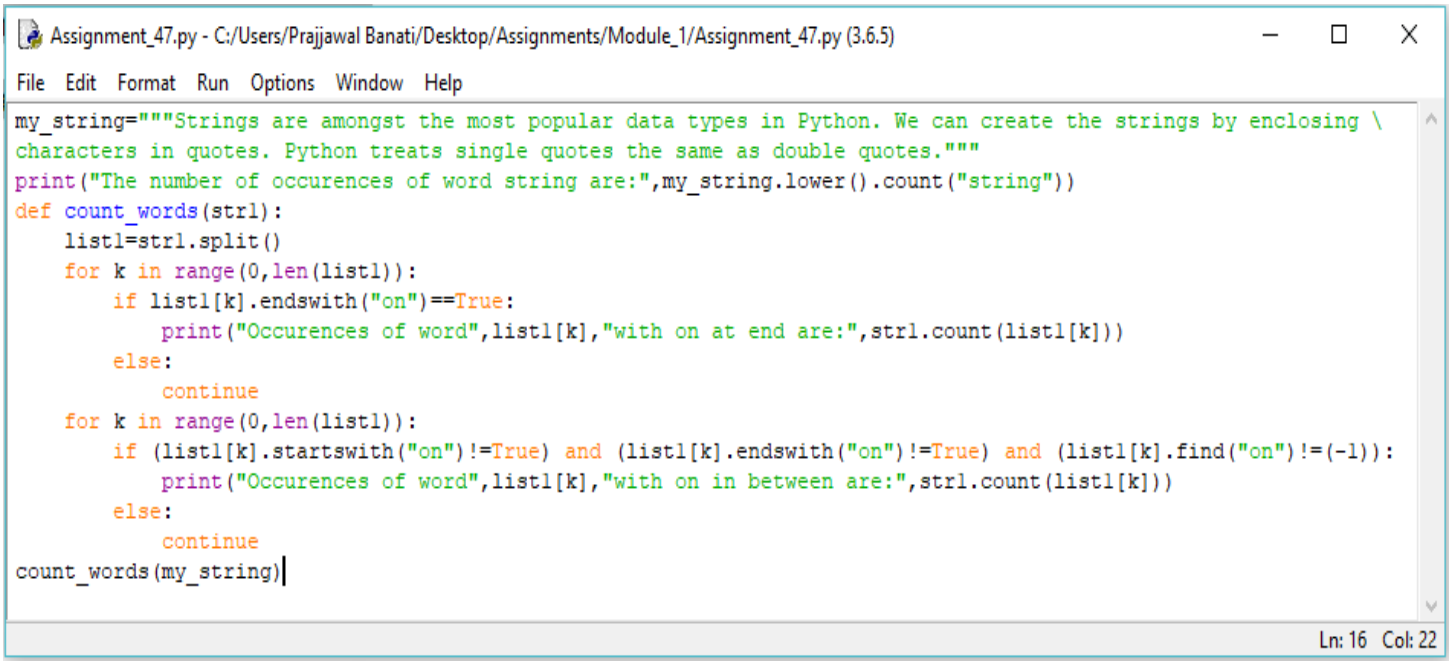


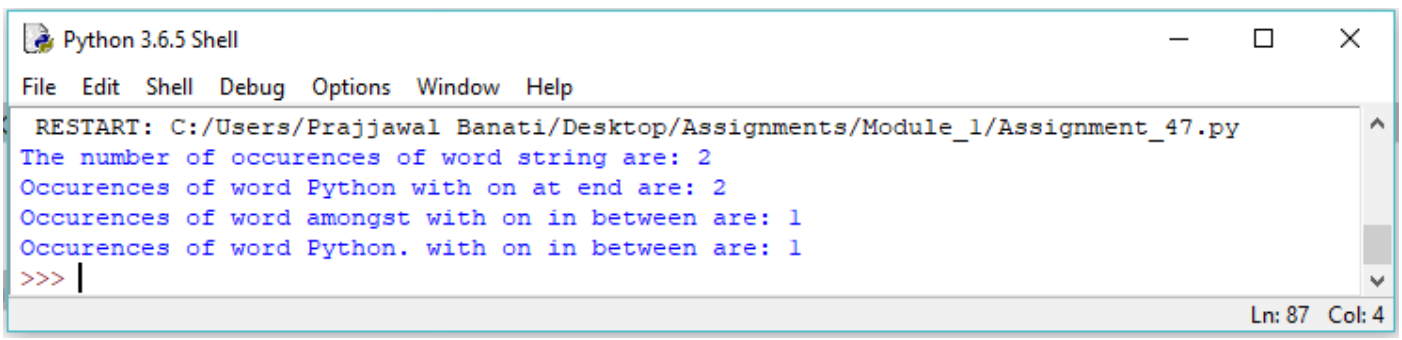
ASSIGNMENT 47

Consider a string:
my_string = “””Strings are amongst the most popular data types in Python. We can create the strings by enclosing
characters in quotes. Python treats single quotes the same as double quotes.”””
1) Write a Python program to count the number of occurrences of word "String" in the given string ignoring the
case.
2) Write a function "count_words" to print the count of occurrences of a word:
a) which end with "on". (e.g. Python)
b) which have "on" in between the first and last characters (e.g. amongst)

Ans:

```
my_string="""Strings are amongst the most popular data types in Python. We can create the strings by enclosing \
characters in quotes. Python treats single quotes the same as double quotes."""
print("The number of occurences of word string are:",my_string.lower().count("string"))
def count_words(str1):
    list1=str1.split()
    for k in range(0,len(list1)):
        if list1[k].endswith("on")==True:
            print("Occurences of word",list1[k],"with on at end are:",str1.count(list1[k]))
        else:
            continue
    for k in range(0,len(list1)):
        if (list1[k].startswith("on")!=True) and (list1[k].endswith("on")!=True) and (list1[k].find("on")!=(-1)):
            print("Occurences of word",list1[k],"with on in between are:",str1.count(list1[k]))
        else:
            continue
count_words(my_string)
```



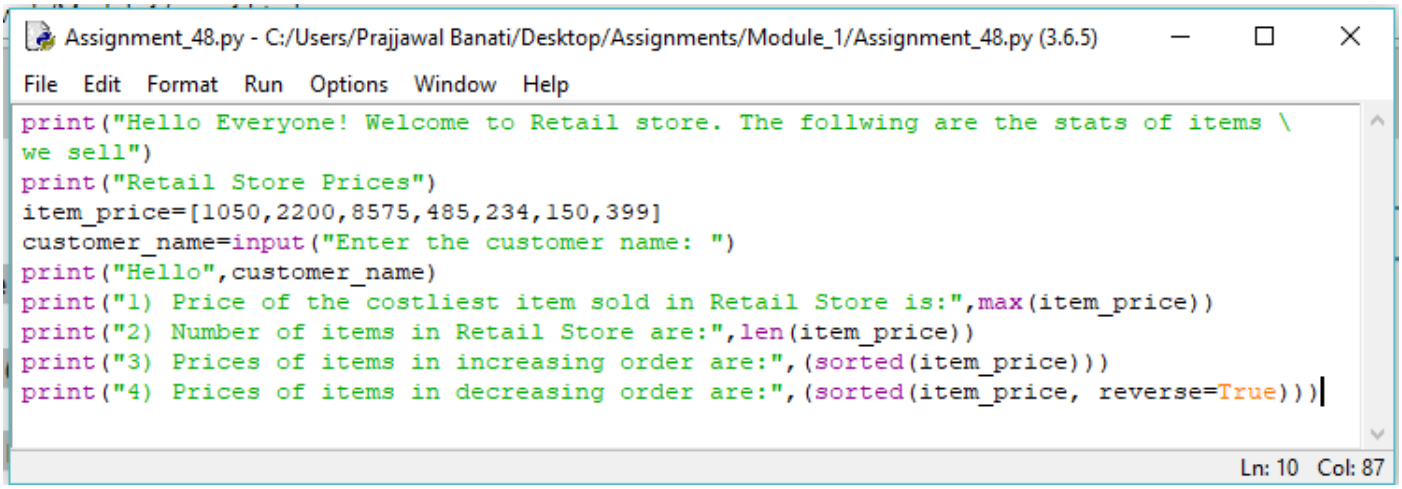


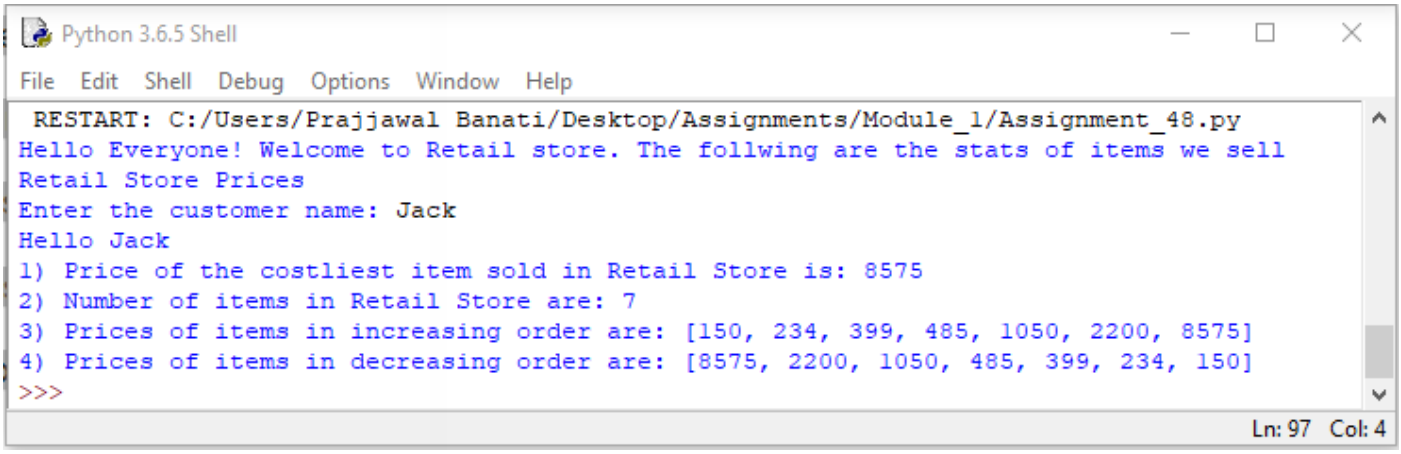
ASSIGNMENT 48

Consider the price list of various items in the Retail Store:
item_price = [1050, 2200, 8575, 485, 234, 150, 399]
Customer John wants to know the:
1. Price of costliest item sold in retail store
2. Number of items in the Retail store
3. Prices of items in increasing order
4. Prices of items in descending order
Implement the above mentioned business requirements using built-in List functions.

Ans:

```
print("Hello Everyone! Welcome to Retail store. The follwing are the stats of items \
we sell")
print("Retail Store Prices")
item_price=[1050,2200,8575,485,234,150,399]
customer_name=input("Enter the customer name: ")
print("Hello",customer_name)
print("1) Price of the costliest item sold in Retail Store is:",max(item_price))
print("2) Number of items in Retail Store are:",len(item_price))
print("3) Prices of items in increasing order are:",(sorted(item_price)))
print("4) Prices of items in decreasing order are:",(sorted(item_price, reverse=True)))
```





ASSIGNMENT 49

Built-in function in Python which accepts any data structure (list, string, tuple, dictionary and set) and returns a
sorted list.

Ans:

```
student_tuples=[('John','A',15),('Jane','B',12),('Dave','B',10)]
print(sorted(student_tuples,key=lambda student : student[2]))
print(sorted(student_tuples,key=lambda student : student[2],reverse=True))
```