**ASSIGNMENT 2**

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

Ans:

**Print “Fail”**

**Print ”Pass”**

**Is d>75 ?**

**d=(a+b+c)/3**

**INPUT a,b,c**

YES

NO

1. Calculate and print the factorial of a number

Ans:

NO

YES

**C=1**

**C=C\*a  
a=a-1**

**INPUT a**

**Is a>0 ?**

**DISPLAY C**

1. 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:

**PRINT “Isosceles Triangle”**

**PRINT “Equilateral Triangle”**

YES

YES

NO

NO

NO

**Is b=c ?**

YES

**Is a=b?**

**INPUT a,b,c**

**Is b=c ?**

**PRINT “Scalene Triangle”**

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:

**DISPLAY S.I.**

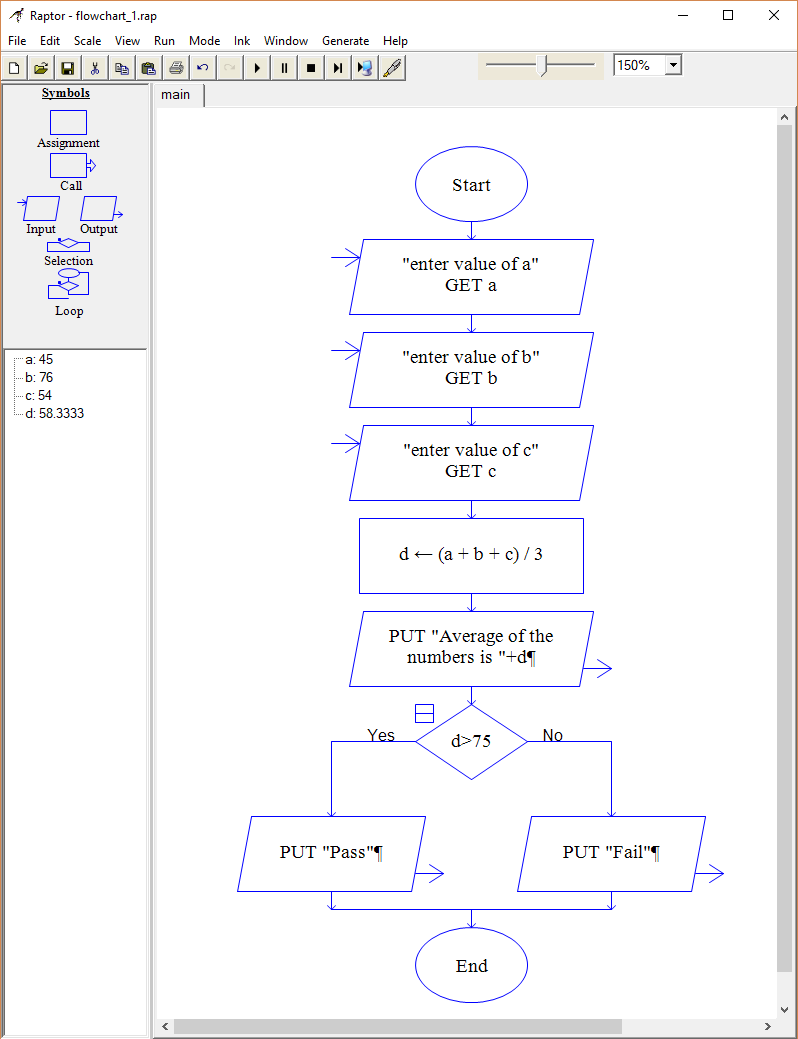
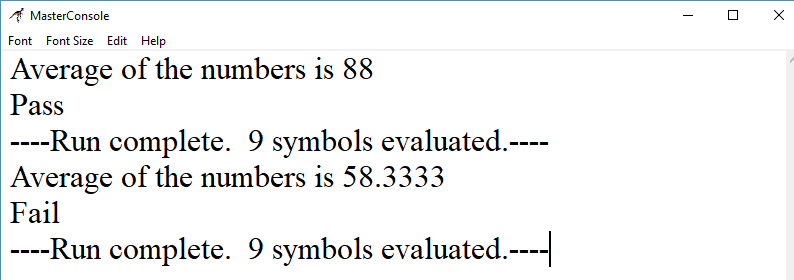
**S.I.=(P\*R\*T)/100**

**INPUT P,R,T**

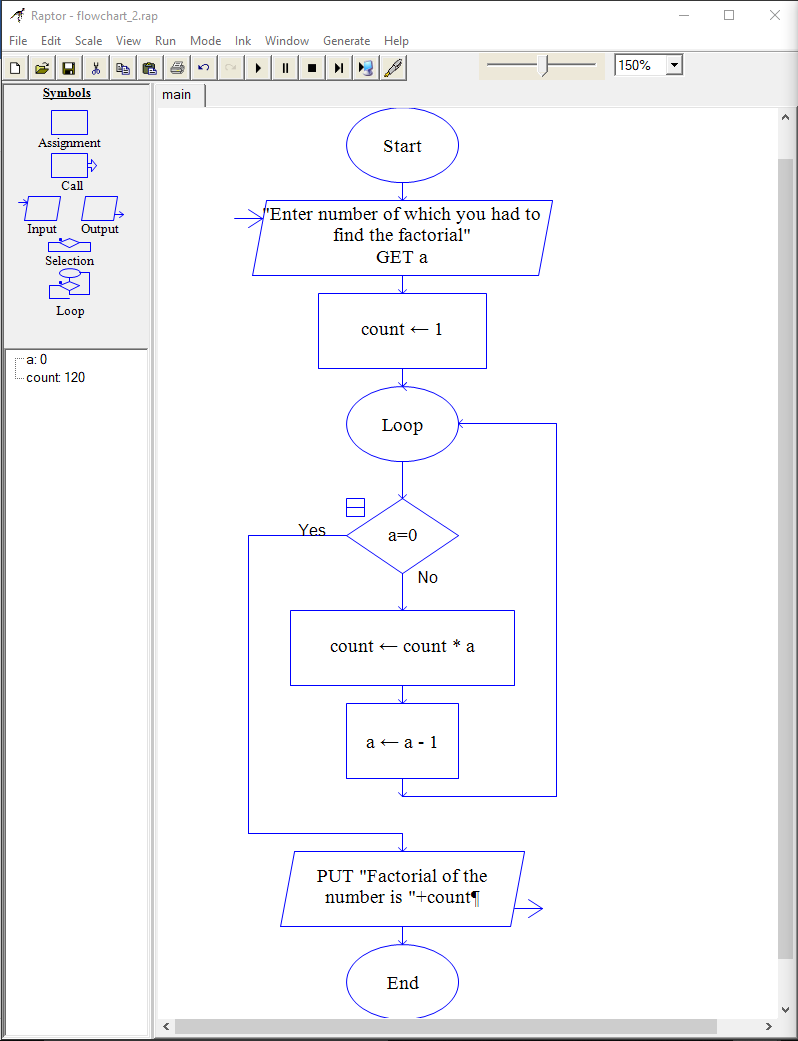
**ASSIGNMENT 3**

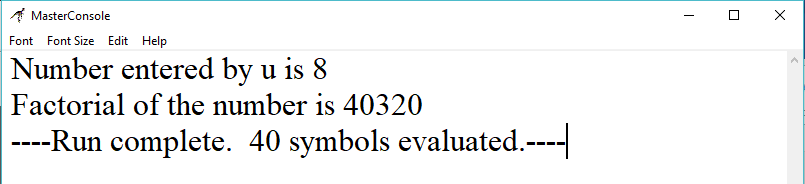
In previous section, you have created the ﬂowcharts for the following problems. Now, use Raptor tool to create and execute ﬂowcharts for these problems. Observe the output for diﬀerent set of inputs.

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

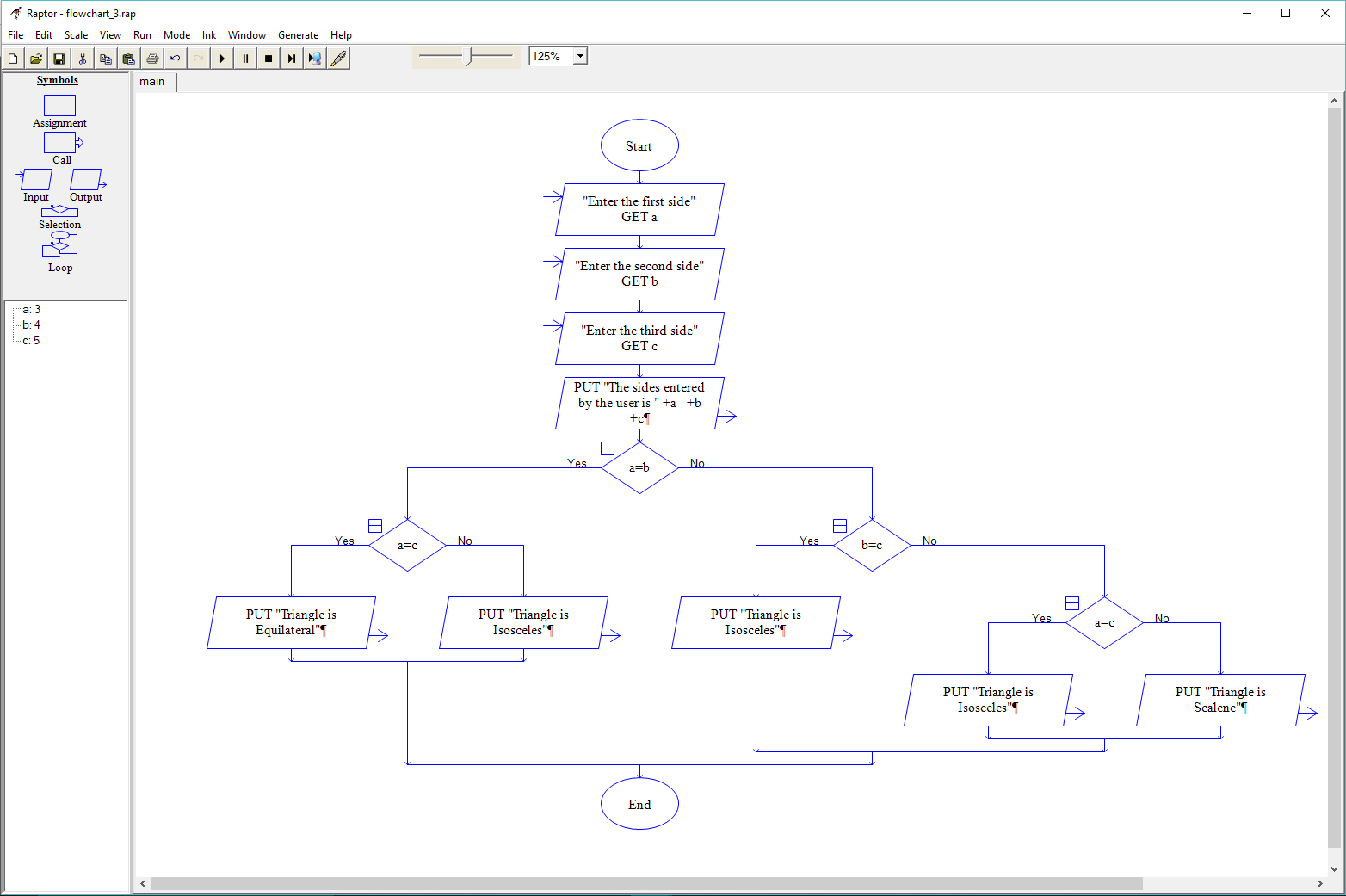
 

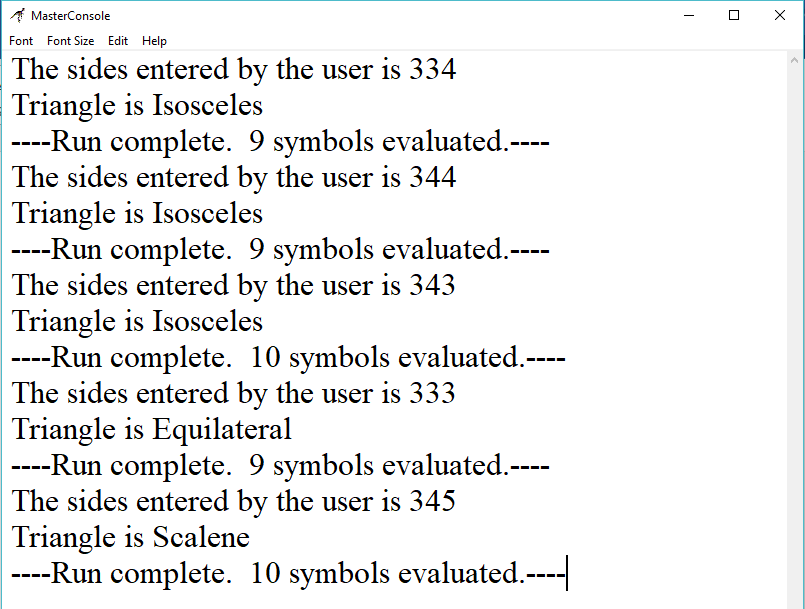
1. Calculate and print the factorial of a number



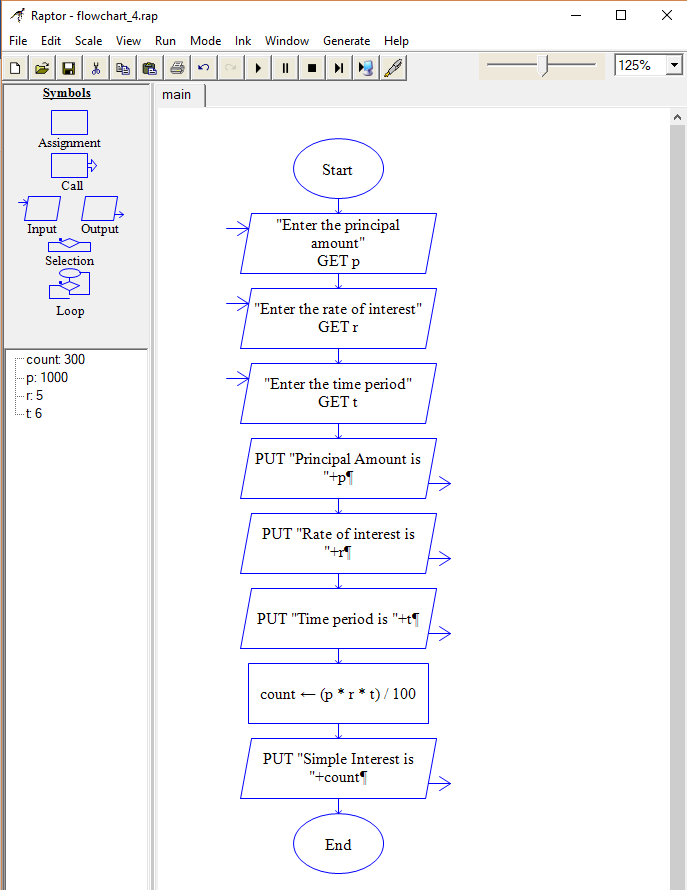


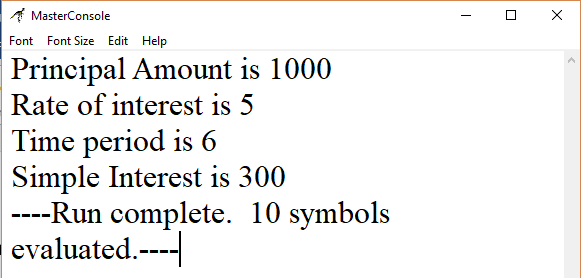
1. Accept the lengths of three sides of a triangle as input from the user. Based on the input, print if the given triangle is "Equilateral", "Isosceles" or "Scalene".





1. 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

1. 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

1. 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)

1. 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.”

1. Print(“Hello World”)

“It will print hello world after we press enter key”

1. 45-34

“It will give us difference of 45 and 34 after we press enter key.”

1. 8\*2

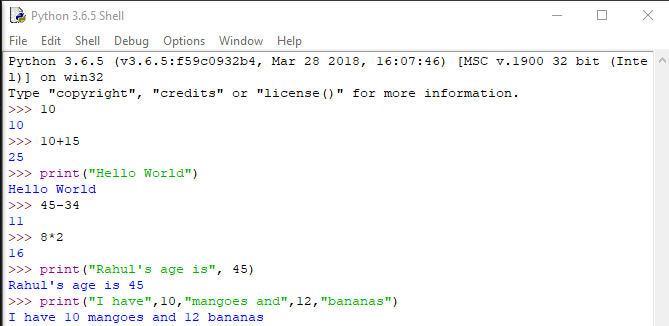
“It will display the products of 8 and 2 after we press enter key”

1. Print(“Rahul’s age is”,45)

It will give us the output as follows: “Rahul’s age is 45”

1. 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.

1. print(“Emoployee Number:”, emp\_number)

It will print the output as follows:

Employee Number: 1233

1. emp\_salary = 16745.50

It will assign value to “emp\_salary” variable.

1. emp\_name = “Jerry Squaris”

It will assign string value to the “emp\_name” variable.

1. print(“Employee Salary and Name:”,emp\_salary,emp\_number)

It will print the output as follows:

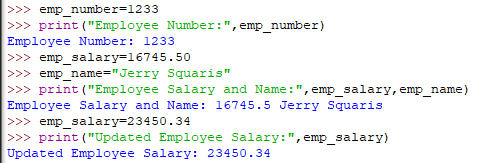
Employee Salary and Name: 16745.5 Jerry Squaris

1. emp\_salary = 23450.34

It will assign new value to same “emp\_salary” variable.

1. print(“Upadted Employee Salary:”,emp\_salary)

It will print the output as follows:  
“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.

1. type(customer\_id)

Give the datatype of the variable taken as an argument.

1. customer\_name="John"

Assign the value to a variable named as customer\_name.

1. type(customer\_name)

Give the datatype of the variable taken as an argument.

1. bill\_amount=675.45

Assign the value to a variable named as bill\_amount.

1. type(bill\_amount)

Give the datatype of the variable taken as an argument.

1. x=5.3+0.9j

Assign the value to a variable named as x

1. type(x)

Give the datatype of the variable taken as an argument.

1. print(customer\_id,customer\_name,bill\_amount)

It will give output as follows:

1. print(x.real)

“It will print the real part of the complex number”

1. print(x.imag+3)

“It will increase the imaginary part by 3 and print it”

1. Flag=True

“It will store boolean variable in the Flag”

1. Type(Flag)

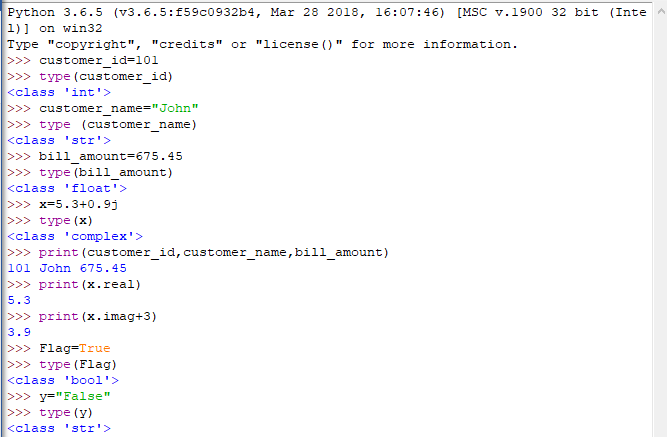
“It will give us the name of the datatype of the variable to which it belongs”

1. Y=”Flag”

“It will store the string variable in the variable named as y”.

1. Type(y)

“It will give us the name of the datatype to which it will belong”



**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

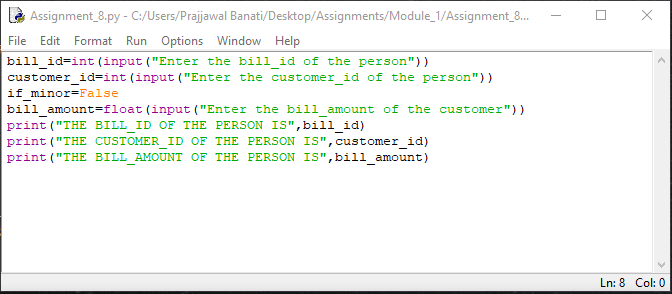
•customer\_id = 1001

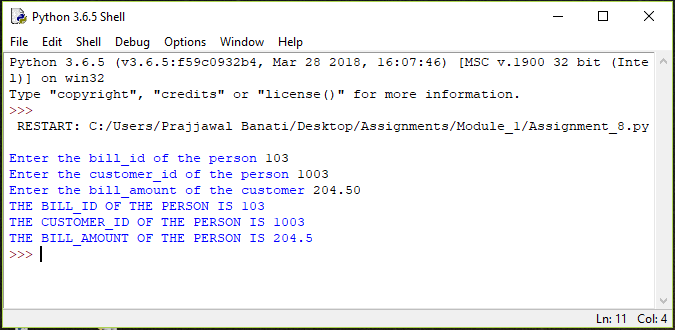
•customer\_name = "Rahul"

•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.

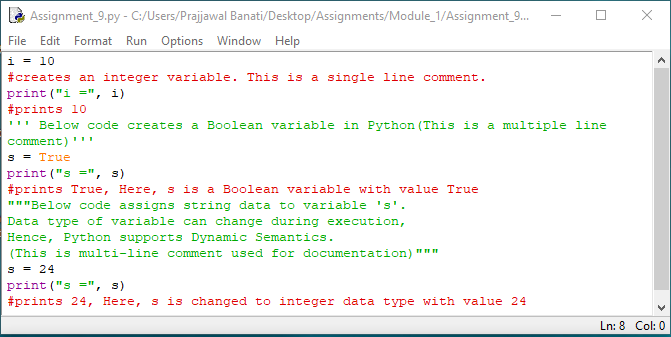
(This is multi-line comment used for documentation)

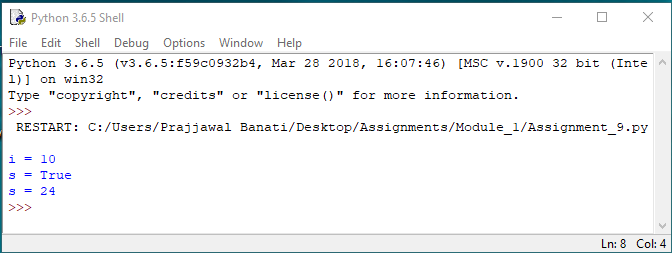
"""

s = 24

print("s =", s)

#prints 24, Here, s is changed to integer data type with value 24





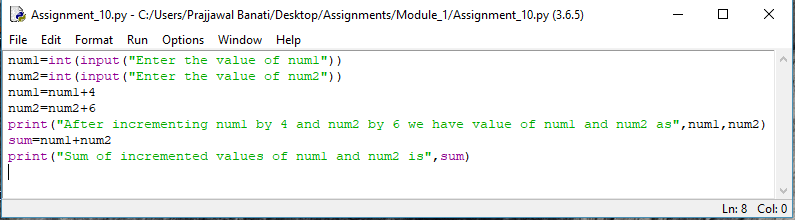
**ASSIGNEMENT 10**

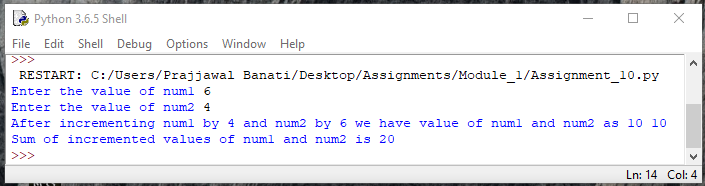
Write a Python program for the following requirements:

• Prompt the user to input two numbers num1 and num2

• Increment num1 by 4 and num2 by 6

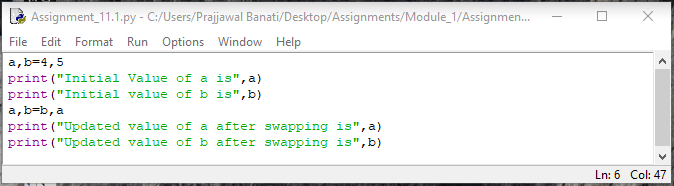
• Find and print the sum of new values of num1 and num2

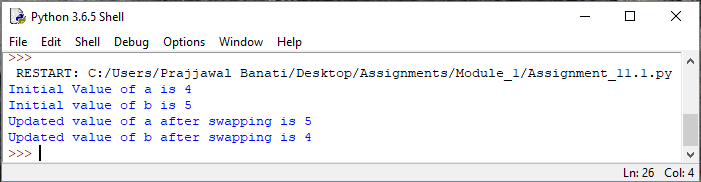




**ASSIGNMENT 11**

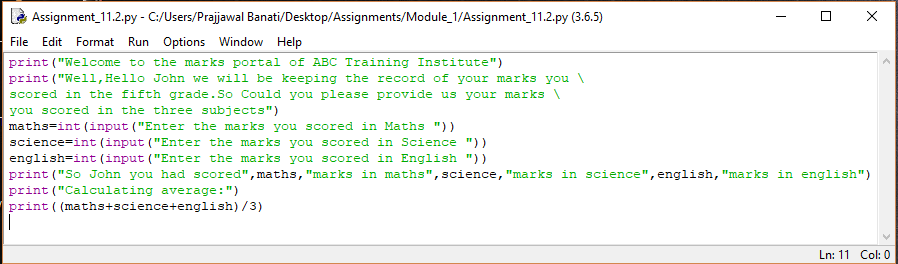
1. Consider two variables 'a' and 'b' in Python such that a = 4 and b = 5. Swap the values of 'a' and 'b' without using a temporary variable. Print the values of 'a' and 'b' before and after swapping

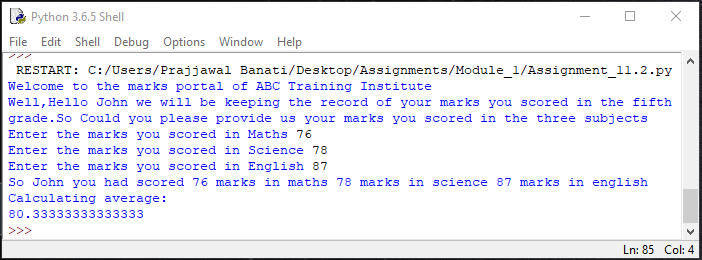




1. Consider the scenario of processing marks of a student in ABC Training Institute. John, the student of ﬁfth grade takes exams in three diﬀerent subjects. Create three variables to store the marks obtained by John in three

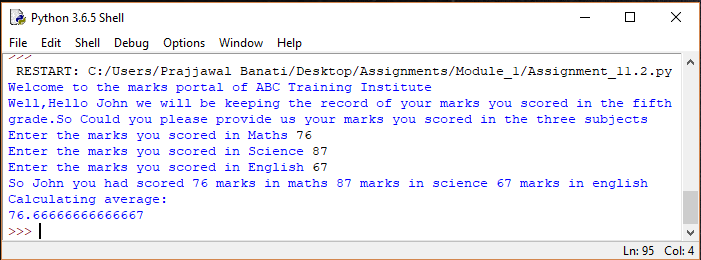
subjects. Find and display the average marks scored by John.



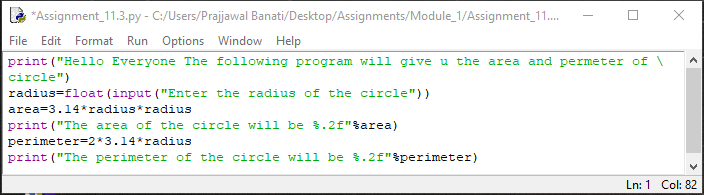


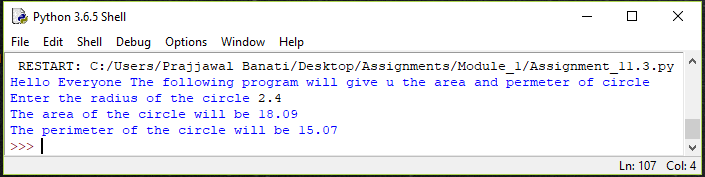
Now change the marks in one of the subjects and observe the output. Did the value of average change?

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



1. 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.





1. 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.

