**LAB 8**

1. For each of the following Python 3 statements, find the error and write the correct form.

|  |  |  |
| --- | --- | --- |
|  | Statement | Correct form |
| 1 | Print ('This is Python') | print(‘This is Python’) |
| 2 | print 'This is python’ | print(‘This is python’) |
| 3 | // This is a comment | # This is a comment |
| 4 | num(input("Enter a number")) | num = input(“Enter a number”) |
| 5 | num = input 'Enter a number' | num = input(‘Enter a number’) |
| 6 | # assign a value to x  x == 5 | # assign a value to x  X=5 |
| 7 | taxIn$ = 0.12 | taxInDollars = 0.12 |
| 8 | str1 = 'number '  str2 = 5  # str should be 'number 5'  str = str1 + str2 | str1 = ‘number’  str2 = ‘5’  str = str1 + str2 |
| 9 | myList = [2, 'cat', 20]  print (myList[3]) | myList = [2,’cat’, 20]  print(myList) #if we want to print the whole list |
| 10 | # assume x and y are given  if x > y  print(x) | # assume x and y are given  if x > y:  print(x) |
| 11 | # assume x and y are given  if x > y:  print(x) | # assume x and y are given  if x > y:  print(x) |
| 12 | # assume x and y are given while x > y {  # loop body  } | # assume x and y are given while x > y:  # loop body |

2. (Greetings) Write a Python program that receives the first name and last name of the user separately, and then prints a greeting to the user. For example: 'Hello John Smith!'

ANS:

firstName = input("Enter your first name: ")

lastName = input("Enter your last name: ")

print("Hello" + firstName + “ ” + lastName + "!")

3. (Simple Calculations) Write a Python program that reads two numbers and displays the sum and product (multiplication) of the numbers. Here is a sample run:

Enter an integer: 4

Enter an integer: 6

Sum is 10.

Product is 24.

ANS:

Num1 = int(input("Enter an integer: "))

Num2 = int(input("Enter an integer: "))

Sum = Num1 + Num2

print("Sum is", Sum)

Product = Num1\*Num2

print("Product is", Product))

4. (Temperature Conversion) Write a Python program that reads a Celsius degree from input, converts it to Fahrenheit, and displays the result. Use the Celsius to Fahrenheit conversion formula. Here is a sample run:

Enter Celsius degree: 25

Degree in Fahrenheit is 77.0

ANS:

Celsius = int(input("Enter Celsius degree: "))

Fahrenheit = (9/5\*Celsius) + 32

print("Degree in Fahrenheit is", Fahrenheit)

5.(Check Number) Write a Python program that prompts the user to enter a number, checks whether the number is positive, negative, or zero, and prints a message accordingly. You must use if / elif / else. Here is a sample run:

Enter a number: 4

4 is positive.

ANS:

number = int(input("Enter a number: "))

if number>0:

print(number,"is postive")

elif number<0:

print(number,"is negative")

else:

print(number, "is Zero")

6. (Check Temperature) Write a Python program that prompts the user to enter a value for temperature in Fahrenheit. If temperature is less than 30, the program displays 'too cold'; if it is greater than 100, it displays 'too hot'; otherwise, it displays 'just right'. You must use if / elif / else.

ANS: The python program is:

temp = float(input("Enter a value for temperature in Fahrenheit: “))

if temp<30:

print("too cold")

elif temp>100:

print("too hot")

else:

print("just right")

7. Write the following pseudocode in Python. What is the printout? Explain the function of the program in one sentence.

Set num to 10

WHILE (num is greater than 0)

Print num

Set num to num - 2

END WHILE

ANS: The program in python is:

num = 10

while(num>0):

print(num)

num -= 2

Printout is:

10

8

6

4

2

Function of the program is to display the even numbers from 10 to 2.

8. (Sum of Numbers) Write the following pseudocode in Python. If the sequence of input data is 1 2 3 4 5 6 7 8, what is the printout? Explain the function of the program in one sentence.

Set sum to 0

Set count to 1

WHILE (count <= 8)

Read number

Set sum to sum + number

Increment count

END WHILE

Write "Sum is " + sum

ANS: The program in python will look like as follows:

sum = 0

count = 1

while(count<=8):

num = int(input("Enter the number: "))

sum = sum + num

count +=1

print("Sum is", sum)

Printout: Sum is 36

Function of the program is to return the sum of the 8 numbers that user inputs.

9. (Sum of Numbers) Write the following pseudocode in Python. If the sequence of input data is 1 2 3 4 5 6 7 8 0, what is the printout? Explain the function of the program in one sentence.

Set sum to 0

Read number

WHILE (number is not 0)

Set sum to sum + number

Read number

END WHILE

Write "Sum is " + sum

ANS: The program in python will look like as follows:

sum = 0

number = int(input("Enter the number "))

while(number!=0):

sum = sum + number

number = int(input("Enter the number: "))

print("Sum is", sum)

PRINTOUT for the given sequence of inputs is : “Sum is 36” {“” are used just to highlight the output and are not included in the printout.}

The function of the program is to add the numbers entered by user until the user enters “0”. Then it will display that sum.

10. (Sum of Numbers) Write the following pseudocode in Python. If the sequence of input data is 1 2 -2 3 4 - 1 5 6 7 8, what is the printout? Explain the function of the program in one sentence.

Set sum to 0

Set count to 1

WHILE (count <= 8)

Read number

IF (number > 0)

Set sum to sum + number

Increment count

END IF

END WHILE

Write "Sum is " + sum

ANS: The program in python will look like as follows:

sum = 0

count =1

while(count<=8):

number = int(input("Enter the number: "))

if number>0:

sum = sum + number

count+=1

print("Sum is", sum)

PRINTOUT for the given sequence of inputs is : “Sum is 36” {“” are used just to highlight the output and are not included in the printout.}

Function of the program is to select the 8 positive input numbers and add them.

11. Write the following pseudocode in Python. If the sequence of input data is 2 3 4 6 7 5 0, what is the printout? Explain the function of the program in one sentence. What is a better name for m?

Read number

Set m to number

WHILE (number is not 0)

Read number

IF (number > m)

Set m to number

END IF

END WHILE

Print m

ANS: The program in python will look like as follows:

number = int(input("Enter a number: "))

m = number

while(number!=0):

number = int(input("Enter a number: "))

if (number>m):

m = number

print(m)

PRINTOUT is : “7” {“” are used just to highlight the output and are not included in the printout.}

Function of the program: The program checks for the largest number among the inputs and displays it.

The better name for m can be largestNumber.

12. The following Python program is given. Explain the purpose of the function in one sentence. What is the output for the given list?

# function definition

def doSomething(theList):

sum = 0

for v in theList:

sum = sum + v

return sum

# function call

lst = [1, 5, -4, 25, 30, 0, -10]

print(doSomething(lst))

Ans: Purpose of the function is to add all the elements(positive as well as negative) of the list and print it in the console.

For the given list(lst), the output is “47”.

13. The following Python program is given. Explain the purpose of the function in one sentence. What is the output for the given list?

# function definition

def doSomething(theList):

sum = 0

for v in theList:

if v > 0:

sum = sum + v

return sum

# function call

lst = [1, 5, -4, 25, 30, 0, -10]

print(doSomething(lst))

ANS: Purpose of the function is to add all the positive values or elements of the list and print it in the console.

Output for the given list is “61”.

14. The following Python program is given. Explain the purpose of the function in one sentence. What is the output for the given list?

# function definition

def doSomething(theList):

sumNegative = 0

sumPositive = 0

for v in theList:

if v < 0:

sumNegative = sumNegative + 1

elif v > 0:

sumPositive = sumPositive + 1

print(sumNegative)

print(sumPositive)

# function call

lst = [1, 5, -4, 25, 30, 0, -10]

doSomething(lst)

ANS: Purpose of the function is to count the number of positive and negative numbers and print that in the console.

Output for the given list is:

2 #sumNegative = number of negative values

4 #sumPositive = number of positive values