

Training and Placement Cell, LNCT University, Bhopal

Python CONTROL FLOW ASSIGNMENT 2

Submitted By

Sheetal Jain

Branch: MCA(AIML)

Section: A

Class Roll no.: 38

Submitted To:

T&P Cell, LNCTU

Q1. Write a program in Python to input 5 numbers from keyboard and find their sum and average.

Test Data

Input the 5 numbers: 1 2 3 4 5

Expected Output:

Input the 5 numbers:

1
2
3
4
5

The sum of 5 no is : 15

The Average is : 3

Program For Question 1:

```
In [3]: sum=0  
for i in range(0,5):
```

```

num=int(input(f"Enter input number {i+1} : "))
sum=sum+num
print("The sum of the entered number is : ",sum)
print("The average of the entered numbers is: ",sum/5)

```

```

Enter input number 1 : 25
Enter input number 2 : 45
Enter input number 3 : 65
Enter input number 4 : 74
Enter input number 5 : 78
The sum of the entered number is : 287
The average of the entered numbers is: 57.4

```

Q2. Write a program in Python to print the Floyd's Triangle.

Test Data

Input number of rows: 5

Expected Output:

```

Input number of rows: 5
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15

```

Program For Question 2:

```

In [7]: size=int(input("Enter the number of rows: "))
count=1
for i in range(0,size):
    for j in range(0,(i+1)):
        print(count,end=" ")
        count=count+1
    print()

```

```

Enter the number of rows: 5
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15

```

Q3. Write a program in Python to display the pattern like a diamond.

Test Data

Input number of rows (half of the diamond) : 7

Expected Output :

```
      *
     ***
    *****
   ********
  **********
 **********
 **********
 **********
```

Program For Question 3:

```
In [12]: size=int(input("Input number of rows (half of the diamond) : "))
for i in range(size):
    for j in range(size-(i+1)):
        print(" ",end="")
    for k in range(2*i+1):
        print("*",end="")
    print()
```

Input number of rows (half of the diamond) : 7

```
      *
     ***
    *****
   ********
  **********
 **********
 **********
 **********
```

Q4. Write a Python program that reads an integer and check whether it is negative, zero, or positive.

Test Data

Input a number: 7

Expected Output :

Number is positive

Program For Question 4:

```
In [14]: num=int(input("Enter a number : "))
if num>0:
    print("Number is Positive")
elif num<0:
    print("Number is Negative")
else:
    print("Number is Zero")
```

Enter a number : -78
Number is Negative

Q5. Write a Python program that reads a positive integer and count the number of digits the number has.

Test Data

Input an integer number: 125463

Expected Output:

Number of digits in the number: 6

Program For Question 5:

```
In [16]: num=int(input("Enter an integer number : "))
count=0
while num!=0:
    num=num//10
    count=count+1
print("Number of digits in the number : ", count)
```

Enter an integer number : 125463
Number of digits in the number : 6

Q6. Write a Python program that accepts three numbers and prints "All numbers are equal" if all three numbers are equal, "All numbers are different" if all three numbers are different and "Neither all are equal or different" otherwise

Test Data

Input first number: 2564

Input second number: 3526

Input third number: 2456

Expected Output:

All numbers are different

Program For Question 6:

```
In [23]: x,y,z=int(input("Enter first number : ")),int(input("Enter Second number : ")),int(input("Enter third number : "))
if x==y==z:
    print("All numbers are equal")
elif x!=y!=z:
    print("All numbers are different")
else:
    print("Neither all are equal or different")
```

Enter first number : 2564

Enter Second number : 3526

Enter third number : 2456

All numbers are different

Q7. Write a program that accepts three numbers from the user and prints "increasing" if the numbers are in increasing order, "decreasing" if the numbers are in decreasing order, and "Neither increasing nor decreasing order" otherwise.

Test Data

Input first number: 1524

Input second number: 2345

Input third number: 3321

Expected Output :

Increasing order

Program For Question 7:

```
In [24]: x,y,z=int(input("Enter first number : ")),int(input("Enter Second number : ")),int(input("Enter third number : "))
if x<y<z:
    print("Increasing Order")
elif x>y>z:
    print("Decreasing Order")
else:
    print("Neither increasing nor decreasing order")
```

Enter first number : 1524

Enter Second number : 2345

Enter third number : 3321

Increasing Order

Q8. Write a Python program to check given Number is Strong Number or not

Strong Number:

A number can be said as a strong number when the sum of the factorial of the individual digits is equal to the number.

For example, 145 is a strong number.

Enter Any Number: 145

Expected output:

This is strong number

29

Program For Question 8:

```
In [32]: sum=0;fact=1
num=int(input("Enter the number :"))
dummy=num
while dummy!=0:
    digit=dummy%10
    for i in range(digit,0,-1):
        fact=fact*i
    sum=sum+fact
    fact=1
    dummy=dummy//10
```

```
if sum==num:
    print(f"{num} is a strong number")
else:
    print(f"{num} is not a strong number")
```

Enter the number :145
145 is a strong number

Q9. Write a Python program to check given Number is Armstrong Number or not.

Armstrong number is a number that is equal to the sum of cubes of its digits. For example 0, 1, 153, 370, 371 and 407 are the Armstrong numbers.

$$153 = (1*1*1)+(5*5*5)+(3*3*3)$$

where:

$$(1*1*1)=1$$

$$(5*5*5)=125$$

$$(3*3*3)=27$$

So:

$$1+125+27=153$$

Enter Any Number: 153

Expected output:

This is Armstrong Number

Program For Question 9:

```
In [31]: sum=0;
num=int(input("Enter the number :"))
dummy=num
while dummy!=0:
    digit=dummy%10
    sum=sum+(digit**3)
    dummy=dummy//10
if sum==num:
    print(f"{num} is a Armstrong")
else:
    print(f"{num} is not a Armstrong")
```

Enter the number :153
153 is a Armstrong

Q10. Write a Python program to check given Number is Palindrome or Not

A **palindrome number** is a number that is same after reverse. For example 121, 34543, 343, 131, 48984 are the palindrome numbers.

Enter any Number: 1331

Expected output: This is Palindrome Number

Program For Question 10:

```
In [36]: ans=0;
num=int(input("Enter the number :"))
dummy=num
while dummy!=0:
    digit=dummy%10
    ans=ans*10+digit
    dummy=dummy//10
if ans==num:
    print(f"{num} is a Palindrom Number")
else:
    print(f"{num} is not a Palindrom Number")
```

Enter the number :125
125 is not a Palindrom Number

Q11. Write a Python program to print fibonacci series

Fibonacci Series in C: In case of fibonacci series, *next number is the sum of previous two numbers* for example 0, 1, 1, 2, 3, 5, 8, 13, 21 etc. The first two numbers of fibonacci series are 0 and 1.

Enter Number of Element: 15

Expected Output:

0 1 1 2 3 5 8 13 21 34 55 89 144 233 377

Program For Question 11:


```
In [38]: num = int(input("Enter Number of Element: "))
n1 = 0
n2 = 1
Sum = 0
if num>0:
    for i in range(0,num):
        print(n1, end = " ")
        Sum = n1 + n2
        n1 = n2
        n2 = Sum
else:
    print("Invalid Input")
```

Enter Number of Element: 15

0 1 1 2 3 5 8 13 21 34 55 89 144 233 377

Q12. Write a Python program to print reverse Number.

Enter Any Number: 123

Expected output: 321

Program For Question 12:

```
In [42]: ans=0;
num=int(input("Enter the number :"))
dummy=num
while dummy!=0:
    digit=dummy%10
    ans=ans*10+digit
    dummy=dummy//10
print(f"Reverse of the entered number is:{ans}")
```

Enter the number :123

Reverse of the entered number is:321

Q13. Write a Python program to find sum of all even numbers between 1 to n.

Enter Number: 5

Expected output

Sum of All Even Numbers From 1 to n : 6

Program For Question 13:

```
In [47]: num=int(input("Enter the value of n : "))
sum=0
for i in range(1,num+1):
    if (i)%2==0:
        sum=sum+i
print("Sum of all even numbers is : ",sum)
```

Enter the value of n : 5
Sum of all even numbers is : 6

Q14. Write a Python program to find first and last digit of a number.

Enter Any Number: 123

Expected output

First Digit of the number: 1

Last digit of the number: 3

Program For Question 14:

```
In [48]: A = num = int(input("Enter Any Number"))
count = 0
while A!=0:
    A = A//10
    count=count+1
print("First Digit of the Number:",num//(pow(10,count-1)))
print("First Digit of the Number:",num%10)
```

Enter Any Number123
First Digit of the Number: 1
First Digit of the Number: 3

Q15. Write a Python program to swap first and last digits of a number.

Enter Any Number: 486

After swap first and last digits: 684

Program For Question 15:

```
In [49]: A = num = int(input("Enter Any Number"))
count = -1
while A!=0:
    A = A//10
```

```

        count=count+1
first_digit=num//pow(10,count)
unit_digit=num%10
swap_first=(unit_digit * pow(10,count) + num%pow(10,count))//10
new_number=swap_first * 10 + first_digit
print("New number is : ",new_number )

```

Enter Any Number486
New number is : 684

Q16. Write a Python program to find all factors of a number.

Enter Any Number: 12

Factor of Number: 1,2,3,4,6,12

Program For Question 16:

```

In [53]: num=int(input("Enter the number of which factors you want to find : "))
for i in range(1,num//2+1):
    if num%i==0:
        print(i,end=",")
print(num)

```

Enter the number of which factors you want to find : 12
1,2,3,4,6,12

Q17. Write a Python program to find maximum between two numbers

Enter First Number: 10

Enter Second Number: 20

Maximum of two Numbers: 20

Program For Question 17:

```

In [54]: Num_1 = int(input("Enter First Number:"))
Num_2 = int(input("Enter Second Number:"))
if Num_1 > Num_2:
    print("Maximum of two numbers:",Num_1)
else:
    print("Maximum of two numbers:",Num_2)

```

Enter First Number:10
Enter Second Number:20
Maximum of two numbers: 20

Q18. Write a Python program to check whether a number is even or odd without using if else and ternary operator.

Enter Any Number : 48

Expected output: Even Number

Program For Question 18:

```
In [2]: num=int(input("Enter Any Number : "))
result=['Even Number','Odd Number']
print(result[num%2])
```

Enter Any Number : 25
Odd Number

Q19. Write a Python program to swap two Numbers without using arithmetic operations and without using third variable.

Enter A: 10

Enter B: 20

Before Swapping:

A= 10 B= 20

After Swapping:

A= 20 B= 10

Program For Question 19:

```
In [1]: a = int(input("Enter value of a:"))
b = int(input("Enter value of b:"))
print(f"Before Swapping:\n A = {a} B={b}")
a=a^b
b=a^b
a=a^b
print(f"After Swapping:\n A = {a} B={b}")
```

Enter value of a:10
Enter value of b:20
Before Swapping:
A = 10 B=20
After Swapping:
A = 20 B=10

Q20. Write a Python program to print Following Pattern

A
B C
D E F
G H I J
K L M N O

Program For Question 20:

```
In [4]: num=int(input("Enter the size of pattern : "))  
char=65  
for i in range(0,num):  
    for j in range(0,(i+1)):  
        print(chr(char),end=" ")  
        char=char+1  
    print()
```

Enter the size of pattern : 5
A
B C
D E F
G H I J
K L M N O