# **Python if else, for loop, and range() Exercises**

# **This Python loop exercise include the following: –**

# **It contains 18 programs to solve using if-else statements and looping techniques.**

# **This exercise is nothing but an assignment to solve, where you can solve and practice different loop programs and challenges.**

### **Exercise 1: Print First 10 natural numbers using while loop**

x=1

while(x<11):

print(x)

x=x+1

**Expected output:**

1

2

3

4

5

6

7

8

9

10

### **Exercise 2: Print the following pattern**

Write a program to print the following number pattern using a loop

n=int(input())

i=1

for i in range(1,n+1):

for j in range(1,i+1):

print(j,end="")

print("").

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

### **Exercise 3: Calculate the sum of all numbers from 1 to a given number**

Write a program to accept a number from a user and calculate the sum of all numbers from 1 to a given number

For example, if the user entered **10** the output should be **55** (1+2+3+4+5+6+7+8+9+10)

**Expected Output**:

Enter number 10

Sum is: 55

Ans:

n=int(input())

sum=0

for num in range(0, n + 1, 1):

sum = sum + num

print( sum)

### **Exercise 4: Write a program to print multiplication table of a given number**

For example, num = 2 so the output should be

2

4

6

8

10

12

14

16

18

20

Ans:

for x in range(2,21,2):

print(x)

### **Exercise 5: Display numbers from a list using loop**

Write a program to display only those numbers from a [list](https://pynative.com/python-lists/) that satisfy the following conditions

* The number must be divisible by five
* If the number is greater than 150, then skip it and move to the next number
* If the number is greater than 500, then stop the loop

**Given**:

numbers = [12, 75, 150, 180, 145, 525, 50]

**Expected output:**

75

150

145

Ans :

numbers = [12, 75, 150, 180, 145, 525, 50]

for x in numbers:

if x > 500:

break

elif x > 150:

continue

elif x % 5 == 0:

print(x)

### **Exercise 6: Count the total number of digits in a number**

Write a program to count the total number of digits in a number using a while loop

For example, the number is **75869**, so the output should be **5**.

x=input()

while(x):

print(len(x))

    break

### **Exercise 7: Print the following pattern**

Write a program to use for loop to print the following reverse number pattern

5 4 3 2 1

4 3 2 1

3 2 1

2 1

1

Ans:

n = 5

k = 5

for i in range(0,n+1):

for j in range(k-i,0,-1):

print(j,end=' ')

print()

### **Exercise 8: Print list in reverse order using a loop**

**Given**:

list1 = [10, 20, 30, 40, 50]

**Expected output:**

50

40

30

20

10

Ans:

**list1 = [10, 20, 30, 40, 50]**

**newlist = reversed(list1)**

**for i in newlist:**

**print(i)**

### **Exercise 9: Display numbers from -10 to -1 using for loop**

for x in range(-10,0,+1):

print(x)

**Expected output:**

-10

-9

-8

-7

-6

-5

-4

-3

-2

-1

### **Exercise 10: Use else block to display a message “Done” after successful execution of for loop**

For example, the following loop will execute without any error.

**Given**:

for i in range(5):

print(i)

**Expected output:**

0

1

2

3

4

Done!

Ans:

for i in range(5):

print(i)

else:

print("Done!")

### **Exercise 11: Write a program to display all prime numbers within a range**

**Note**: A Prime Number is a number that cannot be made by multiplying other whole numbers. A prime number is a natural number greater than 1 that is not a product of two smaller natural numbers

**Examples**:

* 6 is not a prime mumber because it can be made by 2×3 = 6
* 37 is a prime number because no other whole numbers multiply together to make it.

**Given**:

# range

start = 25

end = 50

**Expected output:**

Prime numbers between 25 and 50 are:

29

31

37

41

43

47

Ans:

n=int(input('enter the value of n'))

flag=False

if n>0:

    for i in range(2,n):

        if(n%i==0):

            flag=True

            break

if flag:

    print("not prime")

else:

    print("prime no")

### **Exercise 12: Display Fibonacci series up to 10 terms**

The Fibonacci Sequence is a series of numbers. The next number is found by adding up the two numbers before it. The **first two numbers are 0 and 1**.

For example, 0, 1, 1, 2, 3, 5, 8, 13, 21. The next number in this series above is 13+21 = 34.

**Expected output:**

Fibonacci sequence:

0 1 1 2 3 5 8 13 21 34

Ans:

num1, num2 = 0, 1

**print**("Fibonacci sequence:")

**for** i **in** **range**(10):

**print**(num1, end=" ")

sum = num1 + num2

num1 = num2

num2 = sum

### **Exercise 13: Find the factorial of a given number**

Write a program to use the loop to find the factorial of a given number.

The factorial (symbol: !) means to multiply all whole numbers from the chosen number down to 1.

**For example**: calculate the factorial of 5

5! = 5 × 4 × 3 × 2 × 1 = 120

**Expected output:**

120

Ans:

a = 5

factorial = 1

**if** a < 0:

**print**("Factorial does not exist for negative numbers")

**elif** a == 0:

**print**("The factorial of 0 is 1")

**else**:

**for** i **in** **range**(1, a + 1)

factorial = factorial \* i

**print**("The factorial of", a, "is", factorial)

### **Exercise 14: Reverse a given integer number**

**Given**:

76542

**Expected output:**

24567

Ans:

a=int(input())

b=str(a)

length=len(b)

print(length[::-1])

### **Exercise 15: Use a loop to display elements from a given list present at odd index positions**

**Given:**

my\_list = [10, 20, 30, 40, 50, 60, 70, 80, 90, 100]

**Note**: list index always starts at 0

**Expected output:**

20 40 60 80 100

Ans:

mylist = [10, 20, 30, 40, 50, 60, 70, 80, 90, 100]

**for** i **in** mylist[1::2]:

**print**(i, end=" ")

### **Exercise 16: Calculate the cube of all numbers from 1 to a given number**

Write a program to rint the cube of all numbers from 1 to a given number

**Given**:

input\_number = 6

**Expected output:**

Current Number is : 1 and the cube is 1

Current Number is : 2 and the cube is 8

Current Number is : 3 and the cube is 27

Current Number is : 4 and the cube is 64

Current Number is : 5 and the cube is 125

Current Number is : 6 and the cube is 216

Ans:

n= 6

**for** i **in** **range**(1, n + 1):

**print**("Current Number is :", i, " and the cube is", (i \* i \* i))

### **Exercise 17: Find the sum of the series upto n terms**

Write a program to calculate the sum of series up to n term. For example, if n =5 the series will become 2 + 22 + 222 + 2222 + 22222 = 24690

**Given**:

# number of terms

n = 5

**Expected output:**

24690

Ans:

n = 5

start = 2

b = 0

# run loop n times

**for** i **in** **range**(0, n):

**print**(start, end="+")

b += start

start = start \* 10 + 2

**print**("\nSum of above series is:", b)

### **Exercise 18: Print the following pattern**

Write a program to print the following start pattern using the for loop

\*

\* \*

\* \* \*

\* \* \* \*

\* \* \* \* \*

\* \* \* \*

\* \* \*

\* \*

\*

Ans:

a= 5

**for** i **in** **range**(0, a):

**for** j **in** **range**(0, i + 1):

**print**("\*", end=' ')

**print**("\r")

**for** i **in** **range**(a, 0, -1):

**for** j **in** **range**(0, i - 1):

**print**("\*", end=' ')

**print**("\r")

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