1. **Write a program to Add, Subtract, Multiply, and Divide 2 numbers**

```
def add(x,y):
  return x + y
def subtract(x,y):
  return x - y
def multiply(x,y):
  return x * y
def divide(x,y):
  return x / y


val1 = input('Enter Value1: ')
val2 = input('Enter Value2: ')

sumVal = add(val1,val2)
subVal = subtract(val1,val2)
mulVal = multiply(val1,val2)
divVal = divide(val1,val2)

print(sumVal,subVal,mulVal,divVal)
```

2. Write a program to find the biggest of 3 numbers (Use If Condition)

```
def biggestOfThree(val1,val2,val3):
    if(val1>val2 and val1>val3):
        return val1
    elif(val2>val1 and val2>val3):
        return val2
    return val3

val1 = input('Enter Value1: ')
val2 = input('Enter Value2: ')
val3 = input('Enter Value3: ')

maximum = biggestOfThree(val1,val2,val3)
print(maximum)
```

3. Write a program to find given number is odd or Even

```
def oddOrEven(val):
    if(val%2==0):
      return 'Even'
    return 'Odd'

val = input('Enter Value: ')
print(oddOrEven(val))
```

4. Write a program to find the number is Prime or not.

```
def isPrime(num):
    i=2
    #checking i <= sqrt of num. Instead of taking sqrt we r squaring i
    while((i*i)<=num):
        if(num%i==0):
            return False
        i += 1
    return True

val = input('Enter Value: ')
print(isPrime(val))
```

5. Write a program to receive 5 command line arguments and print each argument separately.
Example: >> python test.py arg1 arg2 arg3 arg4 arg5
a) From the above statement your program should receive arguments and print them each of them.
b) Find the biggest of three numbers, where three numbers are passed as command line arguments.

a)

```
import sys
def printingCMDLineArguments():
    for i in range(1,len(sys.argv)):
        print(sys.argv[i])

printingCMDLineArguments()
```

b)

```
import sys
def maxOfThreeNo():
    if(sys.argv[1]>sys.argv[2] and sys.argv[1]>sys.argv[3]):
        return sys.argv[1]
    elif(sys.argv[2]>sys.argv[3]):
        return sys.argv[2]
    return sys.argv[3]

print(maxOfThreeNo())
```

6. Write a program to read string and print each character separately.
a) Slice the string using slice operator [:] slice the portion the strings to create a sub strings.
b) Repeat the string 100 times using repeat operator *
c) Read string 2 and concatenate with other string using + operator.

a & b)

```
def printEachChar(str1):
  for c in str1:
     print(c)

str1 = input('Enter the string')
printEachChar(str1)
#a
substr1 = str1[1:5]
#b
str2 = str1*100

print(substr1)
print(str2)
```

c)

```
str1 = input('Enter the string1')
str2 = input('Enter the string2')
str3 = str1+str2
print(str3)
```

7) Create a list with at least 10 elements having integer values in it;
Print all elements
Perform slicing operation
Perform repetition with * operator
Perform concatenation with other list.

```
def printElementsInList(list1):
  for i in list1:
     print(i)

list1 = [1,2,'abcd',5,7,'xyz',3.4,True,False,2.3,6.5,'a']
printElementsInList(list1)
#slicing
list2 = list1[3:7]
#repetition
list3 = list2*3
#concat two list
list4 = list1 + list3
print(list1)
print(list2)
print(list3)
print(list4)
```

8. Repeat program 7 with Tuples (Take example from Tutorial)

```
def printElementsInList(tuple1):
  for i in tuple1:
    print(i)

tuple1 = (1,2,'abcd',5,7,'xyz',3.4,True,False,2.3,6.5,'a')
printElementsInList(tuple1)
#slicing
tuple2 = tuple1[3:7]
#repetition
tuple3 = tuple2*3
#concat two list
tuple4 = tuple1 + tuple3
print(tuple1)
print(tuple2)
print(tuple3)
print(tuple4)
```

9) Write program to Add, Subtract, Multiply, Divide 2 Complex numbers.

```
def add(x,y):
  return x + y
def subtract(x,y):
  return x - y
def multiply(x,y):
  return x * y
def divide(x,y):
  return x / y


#val1 = 2+3j
val1 = complex(2,3)
# val2 = 1+2j
val2 = complex(1,2)


sumVal = add(val1,val2)
subVal = subtract(val1,val2)
mulVal = multiply(val1,val2)
divVal = divide(val1,val2)
```

```
print(sumVal,subVal,mulVal,divVal)
```

10. Using assignment operators, perform following operations
Addition, Substation, Multiplication, Division, Modulus, Exponent and Floor division operations

```
val1 = input("Enter value1")
val2 = input("Enter value2")

sumVal,subVal,mulVal,divVal,modVal,expoVal,floorDiv=val1,val1,val1,val1,val1,val1,val1
sumVal += val2
subVal -= val2
mulVal *= val2
divVal /= val2
modVal %= val2
expoVal **= val2
floorDiv //= val2
print(sumVal,subVal,mulVal,divVal,modVal,expoVal,floorDiv)
```

11. Read 2 numbers to variable a and b and perform all bitwise operations on that numbers.

```
val1 = input("Enter val1")
val2 = input("Enter val2")

result = val1 & val2
print(result)

result = val1 | val2
print(result)

result = val1 ^ val2
print(result)

result = ~val1
print(result)

result = val1 << 2
print(result)

result = val1 >> 2
print(result)
```

12. Read 10 numbers from user and find the average of all.
a) Use comparison operator to check how many numbers are less than average and print them
b) Check how many numbers are more than average.
c) How many are equal to average.

a,b,c)

```
def function1(list1,avg):
    lessThanAvg=0
    moreThanAvg=0
    equalToAvg=0
    for i in list1:
        if(i==avg):
            equalToAvg += 1
        elif(i<avg):
            lessThanAvg += 1
        else:
            moreThanAvg += 1
    print equalToAvg , " values equal to average"
    print moreThanAvg , " values more than average"
    print lessThanAvg , " values less than average"

print("Enter 10 values")
list1 = list()
for i in range(10):
    list1.append(input())
avg = sum(list1)/len(list1)
function1(list1,avg)
```

13. Write a program to find the biggest of 4 numbers.
a) Read 4 numbers from user using Input statement.
b) extend the above program to find the biggest of 5 numbers.
(PS: Use IF and IF & Else, If and ELIf, and Nested IF)

a)

```
def biggestOfFour(val1,val2,val3,val4):
    if(val1>val2 and val1>val3 and val1>val4):
        return val1
    elif(val2>val3 and val2>val4):
        return val2
    elif(val3>val4):
        return val3
    return val4

val1 = input('Enter Value1: ')
val2 = input('Enter Value2: ')
val3 = input('Enter Value3: ')
val4 = input('Enter Value4: ')

maximum = biggestOfFour(val1,val2,val3,val4)
print(maximum)
```

b)

```
def biggestOfFive(val1,val2,val3,val4,val5):
    if(val1>val2 and val1>val3 and val1>val4 and val1>val5):
        return val1
    elif(val2>val3 and val2>val4 and val2>val5):
        return val2
    elif(val3>val4 and val3>val5):
        return val3
    elif(val4>val5):
        return val4
```

```
    return val5


val1 = input('Enter Value1: ')
val2 = input('Enter Value2: ')
val3 = input('Enter Value3: ')
val4 = input('Enter Value4: ')
val5 = input('Enter Value5: ')


maximum = biggestOfFive(val1,val2,val3,val4,val5)
print(maximum)
```

14. Write a program to create two list A & B such that List A contains Employee Id, List B contain Employee name (minimum 10 entries in each list) & perform following operation
a) Print all names on to screen
b) Read the index from the user and print the corresponding name from both list.
c) Print the names from 4th position to 9th position
d) Print all names from 3rd position till end of the list
e) Repeat list elements by specified number of times (N- times, where N is entered by user)
f) Concatenate two lists and print the output.
g) Print element of list A and B side by side.(i.e. List-A First element, List-B First element)

```
#a
def printEmpName(EmpName):
    for i in EmpName:
        print(i)
def printEmpNo(EmpNo):
    for i in EmpNo:
        print(i)
def printBoth(Empno,EmpName):
    for i in range(len(EmpNo)):
        print EmpNo[i],EmpName[i]
```

```
EmpNo =[1,2,3,4,5,6,7,8,9,10,11]

EmpName =
["Santhosh","Khunaal","Naveen","Kavin","Senthil","Aravindhan","Sarathi","Siva","
Balaji","Abinesh","Narayanan"]


printEmpName(EmpName)

printEmpNo(EmpNo)

#b

index = input("Enter the index")

print "EmployeeNo=",EmpNo[index]," EmployeeName=",EmpName[index]

#c

print(EmpName[3:9])

#d

print(EmpName[2:])

#e

NoOfRepeat = input()

list1 = EmpNo*NoOfRepeat

print(list)

#f

list2 = [12,13,14,15]

list3 = list1 + list2

print(list3)

#g

printBoth(EmpNo,EmpName)
```

15. Create a list of 5 names and check given name exist in the List.

a) Use membership operator (IN) to check the presence of an element.

b) Perform above task without using membership operator.

c) Print the elements of the list in reverse direction.

```
NameList = ["Santhosh","Khunaal","Naveen","Kavin","Senthil","Aravindhan","Sarathi","Siva","Balaji","Abinesh","Narayanan"]

Name = input("Enter Name: ")

#a

isPresent = Name in NameList

print(isPresent)

#b

isPresent=False

for i in NameList:
    if i==Name:
        isPresent=True
        break

print(isPresent)

#c

print(NameList[::-1])
```

16. Write program to perform following:

i) Check whether given number is prime or not.

ii) Generate all the prime numbers between 1 to N where N is given number.

```
def isPrime(num):
    i=2
    #checking i <= sqrt of num. Instead of taking sqrt we r squaring i
    while((i*i)<=num):
        if(num%i==0):
            return False
        i += 1
    return True
```

```
def printPrime(N):
    for i in range(2,N+1):
        if(isPrime(i)):
            print(i)

val = input('Enter Value: ')
print(isPrime(val))
N = input('Enter the value of N ')
printPrime(N)
```

17. Write program to find the biggest and Smallest of N numbers.
PS: Use the functions to find biggest and smallest numbers.

```
list1 = [1,32,35,2,57,88,23,67,89,43,11,45,3,8,76,55,445,324,5,8,990,78]
#using functions
print(min(list1))
print(max(list1))

#using if statement
min=list[0]
max=list[0]
for i in list1:
    if i<min:
        min=i
    elif i>max:
        max=i
print(min)
print(max)
```

18. Using loop structures print numbers from 1 to 100. and using the same loop print numbers from 100 to 1 (reverse printing)

a) By using For loop

b) By using while loop

c) Let mystring ="Hello world"

print each character of mystring in to separate line using appropriate loop structure.

```
#a
for i in range(1,101):
    print i
for i in range(100,0,-1):
    print i


#b
i=1
while(i<101):
    print i
    i+=1
i=100
while(i>0):
    print i
    i-=1
#c
mystring = "Hello world"
for c in mystring:
    print c
```

19. Using loop structures print even numbers between 1 to 100.

a) By using For loop, use continue/ break/ pass statement to skip odd numbers.

i) Break the loop if the value is 50

ii) Use continue for the values 10,20,30,40,50

b) By using while loop, use continue/ break/ pass statement to skip odd numbers.

i) Break the loop if the value is 90

ii) Use continue for the values 60,70,80,90

```
#a
for i in range(2,101):
    if i%2==1:
        continue
    elif i==50:
        break
    elif(i in [10,20,30,40]):
        continue
    print i


#b
i=1
while(i<101):
    i+=1
    if i%2==1:
        continue
    elif i==90:
        break
    elif(i in [60,70,80]):
        continue
    print i
```

20. Write a program to generate a Fibonacci series of numbers.
Starting numbers are 0 and 1, new number in the series is generated by adding previous two numbers in the series.
Example : 0, 1, 1, 2, 3, 5, 8,13,21,.....
a) Number of elements printed in the series should be N numbers, Where N is any +ve integer.
b) Generate the series until the element in the series is less than Max number.

a)

```
def fibonacciSeries(N):
    a=0
```

```
    b=1
    if(N>=1):
        print 0
    if(N>=2):
        print 1
    for i in range(2,N):
        c=a+b
        a=b
        b=c
        print c
N = input()
fibonacciSeries(N)
```

b)

```
def fibonacciSeries(Max):
    a=0
    b=1
    if(Max>=1):
        print 0
    if(Max>=2):
        print 1
    while(a+b<Max):
        c=a+b
        a=b
        b=c
        print c

Max = input()
fibonacciSeries(Max)
```