Lab3. Python Functions and Modules

Question 1. Create a function prime() that receives an integer and returns whether n is prime or not. Print all prime numbers from 1 to 100 by calling prime() function. For example,

prime(1)

prime(2)

.....

prime(100)

```
def prime(num):
    if num==2 or num==3:
        return True
    if num%2==0 or num<2:
        return False
    for n in range(3,int(num**0.5)+1,2):
        if num%n==0:
            return False
    return True
num=int(input("enter the number: "))
print(prime(num))
print("List of prime numbers from 1 to 100 :")
for n in range (1, 101):
    count = 0
    t = n//2
    for i in range(2, (t + 1)):
        if(n % i == 0):
            count = count + 1
            break

    if (count == 0 and n > 1):
        print(" %d" %n, end = '  ')
```

```
enter the number: 7
True
List of prime numbers from 1 to 100 :
 2   3   5   7   11   13   17   19   23   29   31   37   41   43   47   53   59   61   67   71   73   79   83   89   97
```

Question 2. Develop a simple arithmetic calculator for 4 operations. The program should continue calculation until user types ‘q’ to quit. A sample user interaction can be:

 Enter operator (q to quit): +

 Enter value 1: 10

 Enter value 2: 20

 Result = 30

Create 4 functions add(), subtract(), multiply() and divide() that receives two values and returns the result of the operation.

Now, perform the following operations by calling the corresponding functions. Validate your outputs. 1. 10+20, 2. 20-5, 3. 8*5, 4. 50/3

In [2]:
```
def add(a,b):
    result=a+b
    print('a=',a,'b=',b,'a+b=',result)
def mul(a,b):
    result=a*b
    print('a=',a,'b=',b,'a*b=',result)
def sub(a,b):
    result=a-b
    print('a=',a,'b=',b,'a-b=',result)
def div(a,b):
    result=a/b
    print('a=',a,'b=',b,'a/b=',result)
while True:
    opr=input("enter opr<# to quit>:")
    if(opr=="#"):
        break
    o1=int(input("enter the op1: "))
    o2=int(input("enter the op: 2"))
    if(opr=="+"):
        add(o1,o2)
    elif(opr=="-"):
        sub(o1,o2)
    elif(opr=="*"):
        mul(o1,o2)
    elif(opr=="/"):
        div(o1,o2)
```

```
enter opr<# to quit>:+
enter the op1: 10
enter the op: 220
a= 10 b= 20 a+b= 30
enter opr<# to quit>:-
enter the op1: 20
enter the op: 25
a= 20 b= 5 a-b= 15
enter opr<# to quit>:*
enter the op1: 8
enter the op: 25
a= 8 b= 5 a*b= 40
enter opr<# to quit>:/
enter the op1: 50
enter the op: 23
a= 50 b= 3 a/b= 16.666666666666668
enter opr<# to quit>:#
```

Question3. Create a function factorial() that takes an integer and returns its factorial value.

```
def fact(n):
    if n==0:
        return 1
    else:
        return n* fact(n-1)
n=int(input("enter the integer: "))
print(fact(n))
```

```
enter the integer: 3
6
```