Basic Programming assignment 4

1.Write a Python Program to find the factorial of a number ?

In [2]:
```
def factorial(num):
    if (num < 1):
        return 1
    else:
        return num*factorial(num-1)
num = int(input('Enter a number: '))
value = factorial(num)
print(f'The Factorial of {num} is {value}')
```

```
Enter a number: 10
The Factorial of 10 is 3628800
```

2.Write a Python Program to display the multiplication table ?

In [3]:
```
def generateTable(base,entries):
    for x in range(1,entries+1):
        print(f'{base} X {x} = {base*x}')

num = int(input('Enter a number: '))
values = int(input('Enter no of entries: '))
generateTable(num,values)
```

```
Enter a number: 10
Enter no of entries: 10
10 X 1 = 10
10 X 2 = 20
10 X 3 = 30
10 X 4 = 40
10 X 5 = 50
10 X 6 = 60
10 X 7 = 70
10 X 8 = 80
10 X 9 = 90
10 X 10 = 100
```

3.Write a Python Program to print the fibonacci sequence ?

In [4]:
```
s_count = int(input('Enter the no of fibonacci sequences you want? '))
initial_list = [0,1]
if s_count < 0:
    print('Fibonacci Numbers are not available for Negative Numbers')
elif s_count <= 2 and s_count >= 0:
    print(initial_list)
else:
    for ins in range(s_count):
        if ins >= 2:
            initial_list.append(initial_list[ins-1]+initial_list[ins-2])
    print(f'The First {s_count} fibonacci series are: ',initial_list)
```

```
Enter the no of fibonacci sequences you want? 20
The First 20 fibonacci series are:  [0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, 1597, 25
84, 4181]
```

4.Write a Python Program to check Armstrong number ?

In [5]:
```
def checkArmstrongNumber():
    in_num = input('Enter a number: ')
    sum = 0
    for char in range(len(in_num)):
        sum = sum + pow(int(in_num[char]),3)
    if sum == int(in_num):
        print(f'{in_num} is a Armstrong Number')
    else:
        print(f'{in_num} is a Not Armstrong Number')

for x in range(2):
    checkArmstrongNumber()
```

```
Enter a number: 100
100 is a Not Armstrong Number
Enter a number: 153
153 is a Armstrong Number
```

5.Write a Python Program to Find Armstrong number in an interval ?

In [6]:
```
def checkArmstrongNumber(in_num, storage):
    sum = 0
    for char in range(len(in_num)):
        sum = sum + pow(int(in_num[char]),3)
    if sum == int(in_num):
        storage.append(int(in_num))

start_interval = int(input('Enter the Start of the Interval: '))
end_interval = int(input('Enter the End of the Interval: '))
list_of_armstrong = []

if start_interval > end_interval:
    print("Start Interval Cannot be Greater than End Interval")
else:
    for number in range(start_interval,end_interval+1):
        checkArmstrongNumber(str(number),list_of_armstrong)
    print(f'The Armstrong numbers between {start_interval} and {end_interval} are {list_of_armstrong}')
```

```
Enter the Start of the Interval: 1
Enter the End of the Interval: 1000
The Armstrong numbers between 1 and 1000 are [1, 153, 370, 371, 407]
```

6.Write a Python Program to sum of natural numbers ?

In [7]:
```
def sumOfNaturalNumbers(num):
    sum = num*((num+1)/2)
    print(f'Sum of {num} natural numbers is {sum}')

num = int(input('Enter a number: '))
sumOfNaturalNumbers(num)
```

```
Enter a number: 100
Sum of 100 natural numbers is 5050.0
```