# Assignment 4

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

**Answer:**

**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: 5  
The Factorial of 5 is 120

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

**Answer:**

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 ?

**Answer:**

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, 2584, 4181]

#### 4.Write a Python Program to check Armstrong number ?

**Answer:**

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 ?

**Answer:**

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: 10000  
The Armstrong numbers between 1 and 10000 are [1, 153, 370, 371, 407]

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

**Answer:**

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