# Assignment 4 Solutions

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

In [1]:

**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 ?

In [2]:

**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 [3]:

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 ?

In [4]:

**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 [5]:

**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 ?

In [6]:

**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