

# Assignment 4 Solutions

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

In [1]:

```
1 def factorial(num):
2     if (num < 1):
3         return 1
4     else:
5         return num*factorial(num-1)
6
```

In [2]:

```
1 num = int(input('Enter a number: '))
2 value = factorial(num)
3 print(f'The factorial of {num} is {value}')
```

Enter a number: 20

The factorial of 20 is 2432902008176640000

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

In [3]:

```
1 def generateTable(base,entries):
2     for x in range(1,entries+1):
3         print(f'{base} X {x} = {base*x}')
4
```

In [4]:

```
1 num = int(input('Enter a number: '))
2 values = int(input('Enter no of entrise: '))
3 generateTable(num,values)
```

Enter a number: 21

Enter no of entrise: 9

```
21 X 1 = 21
21 X 2 = 42
21 X 3 = 63
21 X 4 = 84
21 X 5 = 105
21 X 6 = 126
21 X 7 = 147
21 X 8 = 168
21 X 9 = 189
```

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

In [5]:

```
1 n_terms = int(input ("Enter the no of fibonacci sequences you want?? "))
2
3 # First two terms
4 n_1 = 0
5 n_2 = 1
6 count = 0
7
8 # Now, we will check if the number of terms is valid or not
9 if n_terms <= 0:
10     print ("Please enter a positive integer, the given number is not valid")
11 # if there is only one term, it will return n_1
12 elif n_terms == 1:
13     print ("The Fibonacci sequence of the numbers up to", n_terms, ": ")
14     print(n_1)
15 # Then we will generate Fibonacci sequence of number
16 else:
17     print ("The fibonacci sequence of the numbers is:")
18     while count < n_terms:
19         print(n_1)
20         nth = n_1 + n_2
21         # At last, we will update values
22         n_1 = n_2
23         n_2 = nth
24         count += 1
```

Enter the no of fibonacci sequences you want?? 12

The fibonacci sequence of the numbers is:

0  
1  
1  
2  
3  
5  
8  
13  
21  
34  
55  
89

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

In [7]:

```
1  ## finding for a single number
2  in_num = input('Enter a number: ')
3  power = len(str(num))
4
5  temp = num
6  add_sum = 0
7  while temp > 0:
8      k = temp % 10
9      add_sum += k ** power
10     temp = temp//10
11 if add_sum == num:
12     print('Number is a three-digit Armstrong Number')
13 else:
14     print('Number is not an Armstrong Number')
```

Enter a number: 456

Number is not an Armstrong Number

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

In [8]:

```
1  ## fining for a range of numbers
2  lower = int(input("Enter lower range: "))
3  upper = int(input("Enter upper range: "))
4
5  for num in range(lower, upper + 1):
6      sum = 0
7      temp = num
8      while temp > 0:
9          digit = temp % 10
10         sum += digit ** 3
11         temp //= 10
12         if num == sum:
13             print(num)
```

Enter lower range: 100

Enter upper range: 500

125

153

216

370

371

407

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

In [9]:

```
1 num = int(input("enter the number : "))
2 sum = 0
3 for i in range(0,num+1):
4     sum+=i
5 print("Sum of natural numbers upto {} is {}".format(num,sum))
```

enter the number : 42

Sum of natural numbers upto 42 is 903