WTECH 2023 DATA SCIENCE AND AI GROUP C SUBGROUP 1

SOLUTION TO PYTHON EXERCISE 1

QUESTION ONE A Print the First 10 natural numbers

In [1]:
```
####SOLUTION 1
####Using for loop
print("First 0 natural numbers")
for i in range (1, 11):
    print(i)
```

```
First 0 natural numbers
1
2
3
4
5
6
7
8
9
10
```

In [2]:
```
####ALTERNATIVE QUESTION 1
natnum = 10
for i in range(1, natnum+1):
    print(1, end = " ")
```

```
1 1 1 1 1 1 1 1 1 1
```

QUESTION 2 Calculate the sum of all numbers from 1 to a given number

In [3]:
```
n = int (input("Desired number"))
sum = 0


#loop from 1 to n
for num in range (1, n+1, 1):
    sum = sum + num
print ("sum of numbers", n, "the sum = ", sum)
```

```
Desired number20
sum of numbers 20 the sum =  210
```

QUESTION THREE Write a program to print a multiplication table of a given number

In [4]:
```
### QUESTION THREE A
 ### USING WHILE LOOP

num = int(input ("Enter desired number: "))
cnt = 1
# we are using while loop for iterating the multiplication 10 times
print ("The Multiplication Table of: ", num)
while cnt <= 12:
    num = num * 1
```

```
    print (num, 'x', '=', num * cnt)
    cnt += 1
```

```
Enter desired number: 67
The Multiplication Table of:  67
67 x = 67
67 x = 134
67 x = 201
67 x = 268
67 x = 335
67 x = 402
67 x = 469
67 x = 536
67 x = 603
67 x = 670
67 x = 737
67 x = 804
```

In [5]:

```
### QUESTION THREE B
### USING FOR LOOP
numfor = int(input ("Enter desired number: "))
# We are using "for loop" to iterate the multiplication 10 times
print ("Multiplication Table of: ", numfor)
for count in range(1, 11):
   print (numfor, 'x', count, '=', numfor * count)
```

```
Enter desired number: 13
Multiplication Table of:  13
13 x 1 = 13
13 x 2 = 26
13 x 3 = 39
13 x 4 = 52
13 x 5 = 65
13 x 6 = 78
13 x 7 = 91
13 x 8 = 104
13 x 9 = 117
13 x 10 = 130
```

In [6]:

```
#### question 3C using for loop

num = int(input('Desired number:'))

start = int(input('Start at:'))
end= int(input('End at:'))
print()
print('Multiplication table of', num)
for i in range(start, end + 1):
   print(num, 'x', i, '=', num*i)
```

```
Desired number:4
Start at:1
End at:8

Multiplication table of 4
4 x 1 = 4
4 x 2 = 8
4 x 3 = 12
4 x 4 = 16
4 x 5 = 20
4 x 6 = 24
4 x 7 = 28
4 x 8 = 32
```

QUESTION 4 Python Program to print Elements in a List

In [11]:
```
###QUESTION 4 Display numbers from a list using loop
# Python Program to print Elements in a List

num = list(input('Desired list:[ ]'))

print("Element in this List are : ")
for i in range(len(num)):
    print("Element at Position %s = %s" %(i, num[i]))
```

```
Desired list:[ ]123983726362737456
Element in this List are :
Element at Position 0 = 1
Element at Position 1 = 2
Element at Position 2 = 3
Element at Position 3 = 9
Element at Position 4 = 8
Element at Position 5 = 3
Element at Position 6 = 7
Element at Position 7 = 2
Element at Position 8 = 6
Element at Position 9 = 3
Element at Position 10 = 6
Element at Position 11 = 2
Element at Position 12 = 7
Element at Position 13 = 3
Element at Position 14 = 7
Element at Position 15 = 4
Element at Position 16 = 5
Element at Position 17 = 6
```

QUESTION 5:Count the total number of digits in a number

In [8]:
```
n=int(input("Enter number:"))
count=0
while(n>0):
    count=count+1
    n=n//10
print("The number of digits in the number are:",count)
```

```
Enter number:56
The number of digits in the number are: 2
```

In [9]:
```
##QUESTION 6
# Python program to display all the prime numbers within an interval
```

```
lower = int(input('Desired lower:'))
upper = int(input('Desired upper:'))

print("Prime numbers between", lower, "and", upper, "are:")

for num in range(lower, upper + 1):
   # all prime numbers are greater than 1
   if num > 1:
       for i in range(2, num):
           if (num % i) == 0:
               break
       else:
           print(num)
```

```
Desired lower:1
Desired upper:100
Prime numbers between 1 and 100 are:
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
```

In [ ]: