ASSIGNMENT-3

1. Python program to create a list of tuples from given list having number and its cube in each tuple
   Input: list = [1, 2, 3]
   Output: [(1, 1), (2, 8), (3, 27)]

2. Python program to sort a list of tuples by second Item
   Input : [('for', 24), ('Geeks', 8), ('Geeks', 30)]
   Output : [('Geeks', 8), ('for', 24), ('Geeks', 30)]

3. Python program Sort Tuples in Increasing Order by any key.
   Input : tuple = [(2, 5), (1, 2), (4, 4), (2, 3)]
           m = 0
   Output : [(1, 2), (2, 3), (2, 5), (4, 4)]
   Explanation: Sorted using the 0th index key.

4. Write a Python program to convert them into a dictionary in a way that item from list1 is the key and item from list2 is the value.
   Input : keys =['Ten', 'Twenty', 'Thirty']
           Values = [10,20,30]
   Output: {'Ten':10,'Twenty':20,'Thirty':30}

5. Write a python program to print or generate multiplication table of number 1 to 10 .
   Expected output:

```
MULTIPLICATION TABLE FOR 1


1    X    1 =    1
1    X    2 =    2
1    X    3 =    3
1    X    4 =    4
1    X    5 =    5
1    X    6 =    6
1    X    7 =    7
1    X    8 =    8
1    X    9 =    9
1    X    10 =   10


And so on till the table of 10.
```

6. Python program checks whether a given number by user is Triangular number or not.

   E.g. Triangular Numbers are those numbers which are obtained by continued summation

   of the natural numbers 1, 2, 3, 4, 5, ...

   Triangular Number Example: 15 is Triangular Number because it can be obtained

   by 1+2+3+4+5+6 i.e. 1+2+3+4+5+6=15

7. Create a Python function to Check Validity of Triangle Given Three Sides.
   If a, b and c are three sides of triangle then following conditions must be satisfied for a valid triangle.
   $a + b \le c$
   $b + c \le a$
   $c + a \le b$

8. Python program calculates sum of digit of a given number until number reduces to single digit.
   e.g. number= 987654321
   step 1 sum: 45 (9+8+7+6+5+4+3+2+1)
   step 2 sum: 9 (4+5)

9. Write a program to print the following start pattern using the loop, take n as input for printing n no. of lines.
   e.g. for n=5

```
*
* *
* * *
* * * *
* * * * *
```

10. Write a program to print the following number pattern using a loop.

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```