Lab Exercise- Iteration and collection(List, tuple, set, Dictionary)

1. Write a Python program to find those numbers which are divisible by 7 and multiple of 5, between 1500 and 2700 (both included).
2. Write a Python program to convert temperatures to and from celsius, fahrenheit.

   C = (5/9) * (F - 32)

3. Write a Python program to guess a number between 1 to 9.

   Note : User is prompted to enter a guess. If the user guesses wrong then the prompt appears again until the guess is correct, on successful guess, user will get a "Well guessed!" message, and the program will exit.

4. Write a Python program to construct the following pattern, using a nested for loop.

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

5. Write a Python program that accepts a word from the user and reverse it.
6. Write a Python program to count the number of even and odd numbers from a series of numbers.
7. Write a Python program that prints all the numbers from 0 to 6 except 3 and 6.

8. Write a Python program to get the Fibonacci series between 0 to 50.

   Note : The Fibonacci Sequence is the series of numbers :
   0, 1, 1, 2, 3, 5, 8, 13, 21, ...
   Every next number is found by adding up the two numbers before it

9. Write a program to find the factorial of a number.
10. Write a Python program that accepts a string and calculate the number of digits and letters

List:

1. Write a Python program to sum all the items in a list.

2. Write a Python program to multiplies all the items in a list.

3. Write a Python program to get the largest number from a list.

4. Write a Python program to get the smallest number from a list.

5. Write a Python program to count the number of strings where the string length is 2 or more and the first and last character are same from a given list of strings.
Sample List : ['abc', 'xyz', 'aba', '1221']
Expected Result : 2

6. Write a Python program to check a list is empty or not.

7. Write a Python program to clone or copy a list.

8. Write a Python program to print a specified list after removing the 0th, 4th and 5th elements

9. Write a Python program to select an item randomly from a list.

Tuple:

Write a Python program to create a tuple.

2. Write a Python program to create a tuple with different data types.

3. Write a Python program to create a tuple with numbers and print one item.

4. Write a Python program to unpack a tuple in several variables.

5. Write a Python program to add an item in a tuple.

6. Write a Python program to convert a tuple to a string.

7. Write a Python program to get the 4th element and 4th element from last of a tuple.

8. Write a Python program to create the colon of a tuple.

Set:

1. Write a Python program to create a set.

2. Write a Python program to iteration over sets.

3. Write a Python program to add member(s) in a set.

4. Write a Python program to remove item(s) from set

5. Write a Python program to remove an item from a set if it is present in the set.

6. Write a Python program to create an intersection of sets.

Dictionary:

1. Write a Python script to sort (ascending and descending) a dictionary by value.

2. Write a Python script to add a key to a dictionary.

Sample Dictionary : {0: 10, 1: 20}
Expected Result : {0: 10, 1: 20, 2: 30}

3. Write a Python script to concatenate following dictionaries to create a new one.

Sample Dictionary :
dic1={1:10, 2:20}
dic2={3:30, 4:40}
dic3={5:50,6:60}
Expected Result : {1: 10, 2: 20, 3: 30, 4: 40, 5: 50, 6: 60}

4. Write a Python script to check if a given key already exists in a dictionary.

5. Write a Python program to iterate over dictionaries using for loops.

6. Write a Python script to generate and print a dictionary that contains a number (between 1 and n) in the form (x, x*x).

Sample Dictionary (n = 5) :
Expected Output : {1: 1, 2: 4, 3: 9, 4: 16, 5: 25}

7. Write a Python script to print a dictionary where the keys are numbers between 1 and 15 (both included) and the values are square of keys.
Sample Dictionary
{1: 1, 2: 4, 3: 9, 4: 16, 5: 25, 6: 36, 7: 49, 8: 64, 9: 81, 10: 100, 11: 121, 12: 144, 13: 169, 14: 196, 15: 225}

8. Write a Python script to merge two Python dictionaries.

9. Write a Python program to iterate over dictionaries using for loops.

10. Write a Python program to sum all the items in a dictionary.