(Sets & Dictionary-Assignment)

1. a) Write a Python program to remove an item from a set if it is present in the set using the **discard( )** function. Also, check with the **remove( )** function separately.
   b) Besides, you should also check that if an element is not present in the set, in that case, what is the difference of output you are obtaining with applying **discard( )** and **remove( )** functions? Highlight the difference in the copy.
2. Write a Python program to find the sum, maximum, and minimum values in a set.
3. Write a Python program to create an **intersection**, **union**, **set difference**, **symmetric difference** of the two sets given below.
   setx = set(["green", "blue"])
   sety = set(["blue", "yellow"])
4. Write a Python program to demonstrate the operation of **issubset( )** and **issuperset( )** functions on the following sets given below. **Show at least 2 cases for each method.**

   setx = set(["apple", "mango"])

   sety = set(["mango", "orange"])

   setz = set(["mango"])

5. Write a Python program to print prime numbers and odd numbers using Set. The odd numbers set should be between 3 and 19. The prime numbers set should be between 2 and 19. Demonstrate the result of the **union**, **intersection**, **difference,** and **symmetric difference** on these sets.
6. Write a program to concatenate the following dictionaries to create a new one.
   Sample Dictionary:
   dict1={1:10, 2:20} dict2={3:30, 4:40} dict3={5:50, 6:60}
   Expected result: {1:10, 2:20, 3:30, 4:40, 5:50, 6:60}
7. Write a Python program that creates a dictionary of cubes of odd numbers in the range 1-10.
8. Write a Python program to rename a key ‘city’ to a ‘location’ in the following dictionary:
   sampleDict = {‘name’: ‘Kelly’, ‘age’:25, ‘salary’: 8000, ‘city’: ‘New York’}
9. Write a Python program that inverts a dictionary. That is, it makes keys of one dictionary value to values of another and vice versa.
   Dict: {'Roll_No': '16/001', 'Name': 'Arav', 'Course': 'BTech'}
   Inverted Dict: {'16/001': 'Roll_No', 'Arav': 'Name', 'BTech': 'Course'}
10. Write a Python program to take a Python dictionary, Change Brad’s salary to 8500.
    sampleDict = {'emp1': {'name': 'Jhon', 'salary': 7500}, 'emp2': {'name': 'Emma', 'salary': 8000}, 'emp3': {'name': 'Brad', 'salary': 6500}}
11. Write a Python program that has dictionary of names of students and a list of their marks in 4 subjects. Create another dictionary from this dictionary that has name of the students and their total marks. Find out the topper and his score.

    Input:

    Marks= {'Sourav': [97, 89, 94, 90], 'Sachin': [92, 91, 94, 87], 'Rahul': [67, 99, 88, 90]}

Output:

{'Sourav': 370, 'Sachin': 364, 'Rahul: 344}

Topper is: Sourav with marks = 370

Practice:

1. Write a Python program that creates two sets- squares and cubes of a range of numbers. Take the numbers for each case from 1-9.

a) Update squares set with all the numbers of cubes set using the **update( )** function.

b) Add 11^2 and 11^3 in the squares set using **add( )** function.

c) Demonstrate the use of the **pop( )** function on the squares set.

d) Remove 11^3 from the squares set using the **remove( )** function.

e) Demonstrate the use of the **clear( )** function on the squares set.

2. Write a Python program to get the key corresponding to the minimum value from the following dictionary

sampleDict = {'Physics': 82, 'Math': 65, 'history': 75}

3. Write a Python program that calculates fib(n) using a dictionary.
4. Write a program to prepare a dictionary where the keys are numbers between 1 and 15 (both included) and the values are squares of the keys.
5. Write a program to iterate over a dictionary using a for loop and print the keys alone, values alone, and both keys and values.