Lab 05: Assignment

1. Consider two disjoint lists with each having 10 elements. Now, randomly generate the number and add it to the list alternatively. Stop the process when intersection of both the lists is a singleton set. The range of the values in the lists is [0,100]. Calculate the total number of distinct elements in both the lists.

2. There is an array of integers. There are also disjoint sets, and , each containing integers. You like all the integers in set and dislike all the integers in set . Your initial happiness is . For each integer in the array, if , you add to your happiness. If , you add to your happiness. Otherwise, your happiness does not change. Output your final happiness at the end.
   Note: Since and are sets, they have no repeated elements. However, the array might contain duplicate elements.

3. Students of DAIICT have subscriptions to English and Hindi magazines. Some students have subscribed to English only, some have subscribed to Hindi only, and some have subscribed to both magazines. You are given two sets of student roll numbers. One set has subscribed to the English magazines, and one set has subscribed to the Hindi magazines. Your task is to find the total number of students who have subscribed to either the English or the Hindi magazines but not both.

4. Given n tuples of n people details, formatted as **(name, phone number).** Now, it is assumed that each family is having only one phone number. Now identify the number of families with family size >4, 4, 3, 2, 1. Here, consider n>20.

5. Write a function **histogram()** to build a histogram that takes a string and builds a frequency listing of the characters contained in it.

6. Consider character list i.e. the list that contains only characters. Now this list can have same character multiple times and also contains small-cased and upper-cased alphabets. Identify the missing characters (if any) in this character list, so that, inclusion of those missing characters, will complete all the upper-cased alphabets in that given list. **Note:** This needs to be done without looping

7. Remove all the duplicate words in a given sentence.

8. Give a dictionary with value lists, sort the keys by summation of values in value list.

   Input : test_dict = {‘ABCD’ : [2,3,3], ‘PQRS’ : [1,1,3]}
   Output : {‘PQRS’: 5, ‘ABCD’: 8}

9. Prepare a list-dictionary i.e. a dictionary with its values given as a list. Now, extract the unique elements from the dictionary values.

10. Ask the user to enter n entries. Now start grouping the entered numbers based on its sum of the digits. Now find the group which is having the highest number of entries in it.

Note: Try to make the user-friendly and generalised programs