

Dictionaries & Sets

Question 1

Define a function which can print a dictionary where the keys are numbers between 1 and 20 (both included) and the values are square of keys.

Hints:

Use dict[key]=value pattern to put entry into a dictionary.

Use ** operator to get power of a number.

Use range() for loops.

Question 2

Given a value 'n', build a dictionary with first 'n' terms in the sequence as keys and the list of their divisors as their values. For example, if 'n' is 8, then the expected output is:

```
{1 : [1], 3: [1,3], 6: [1,2,3,6], 10:[1,2,5,10], 15:[1,3,5,15], 21:[1,3,7,21],  
28:[1,2,4,7,14,28], 36:[1,2,3,4,6,8,9,12,18,36]}
```

Print the dictionary in ascending order of key. Use pprint function for printing dictionary in sorted order.

Syntax for pprint is

```
pprint(dictionary name)
```

Include the line "from pprint import pprint" in the top of your program

Input Format

First line contains the number of terms in the sequence, n

Output Format

A dictionary with the terms of 'index sum sequence' as key and their divisors as values. Print the dictionary in ascending order of key.

Question 3

Frequency Tables:

Keys are the objects for which we want to count the frequency, and the Values are the frequencies. Import Harry Potter Movies dataset from Kaggle (the **character.csv** dataset) and count the frequency of each house present in the dataset.

Hints:

- Create an empty dictionary that will contain the frequency table.
- Loop through the list of houses, and if the key for a house is already present in the frequency table, we add 1 to its value.
- Otherwise, create a key for the current house and map it to value 1 (it's one because we encounter this element for the first time).

Question 4

While John got ready for the office a shopping list was given by his son and daughter. While returning home John decides to buy the items from a shop. He decides to buy the items common in both the list, then the items listed only by his son and at last the items listed only by his daughter. Write a program to help him in achieving the task with sets operations.

Question 5

A marketing company has branch in a set of cities 'S'. The company sends three of their sales man to various cities in set 'S'. In the middle of the year, help the manager to find out the cities that are already visited by the sales men and the cities that are yet to be visited.

Question 6

A super market plan to conduct a surprise cum lucky winner contest in a different way. They decide to give a prize for two customers with maximum number of items in common in their shopping list. Write a program to

identify common items from the shopping list of two customers. Prepare the common items list as read only.