Assignment 3 (Dictionary and Sets)

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

In [ ]:

```
#you can take the input as integers also this'
#will work for that also for eg:{1:2,3:4,4:3,2:1,0:0}

#y={'carl':40,'alan':2,'bob':1,'danny':3}

dictionary = {1:2,3:4,4:3,2:1,0:0}

print("Original dictionary is" , dictionary)

l=list(dictionary.items())   #convet the given dict. into list
                             #In Python Dictionary, items() method is used
 to return the list
                             #with all dictionary keys with values.

l.sort()                     #sort the list
print('Ascending order is',l)#this print the sorted list

l=list(dictionary.items())
l.sort(reverse=True)         #sort in reverse order
print('Descending order is',l)
```

```
Original dictionary is {1: 2, 3: 4, 4: 3, 2: 1, 0: 0}
Ascending order is [(0, 0), (1, 2), (2, 1), (3, 4), (4, 3)]
Descending order is [(4, 3), (3, 4), (2, 1), (1, 2), (0, 0)]
```

Q.2 Write a Python Program to add a key to a dictionary.

Sample Dictionary : {0: 10, 1: 20}

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

In [ ]:

```
sample_dictionary = { 0 : 10, 1:20}

sample_dictionary[2] = 30

print(sample_dictionary)
```

```
{0: 10, 1: 20, 2: 30}
```

Q.3 Write a program asks for City name and Temperature and builds a dictionary using that Later on you can input City name and it will tell you the Temperature of that City.

In [ ]:

```
# Empty dictionary
city = {}

# Taking input and building the dictionary
for x in range(4):
  user_input = input("Enter the city name and temperature : ").split(' ')
  city[user_input[0]] =  float(user_input[1]) # typecasting from string to
 floating point integer

# print the dictionary
print(city)

# Asking from city name from user and  it will tell you the Temperature of
 that City.
ip = input("Input the city name to get its temperature : ")
print(f"Temperature of {ip} is {city[ip]}")
```

```
Enter the city name and temperature : DELHI 30
Enter the city name and temperature : MUMBAI 40
Enter the city name and temperature : JAIPUR 40
Enter the city name and temperature : J&K -2
{'DELHI': 30.0, 'MUMBAI': 40.0, 'JAIPUR': 40.0, 'J&K': -2.0}
Input the city name to get its temperature : J&K
Temperature of J&K is -2.0
```

Q. 4 Write a Python program to convert list to list of dictionaries.

Sample lists: ["Black", "Red", "Maroon", "Yellow"], ["#000000", "#FF0000", "#800000", "#FFFF00"]

Expected Output: [{'color_name': 'Black', 'color_code': '#000000'}, {'color_name': 'Red', 'color_code': '#FF0000'}, {'color_name': 'Maroon', 'color_code': '#800000'}, {'color_name': 'Yellow', 'color_code': '#FFFF00'}]

In [ ]:

```
#Taking both list color name and color code
color_name = ["Black", "Red", "Maroon", "Yellow"]
color_code =  ["#000000", "#FF0000", "#800000", "#FFFF00"]

# using Comprehension we are joining wto list and creating a dictionary as
 a output
d = [{'color_name': name, 'color_code' : code} for name, code in zip(color_
name, color_code)]

# printing the output
print(d)
```

```
[{'color_name': 'Black', 'color_code': '#000000'}, {'color_nam
e': 'Red', 'color_code': '#FF0000'}, {'color_name': 'Maroon',
'color_code': '#800000'}, {'color_name': 'Yellow', 'color_cod
e': '#FFFF00'}]
```

Q. 5 We have following information on Employees and their Salary (Salary is in lakhs),

Employee Salary

1. John 14

2. Smith 13

3. Alice 32

4. Daneil 21

1. Using above create a dictionary of Employees and their Salary.

2. Write a program that asks user for three type of inputs,

a. print: if user enter print then it should print all Employees with their Salary in this format,

1. John ==>14

2. Smith ==>13

3. Alice ==>32

4. Daneil ==>21

b. add: if user input adds then it should further ask for an Employee name to add. If Employee

already exists in our dataset then it should print that it exists and do nothing. If it doesn't then it asks for Salary and add that new Employee/Salary in our dictionary and print it

c. remove: when user inputs remove it should ask for an Employee to remove. If an Employee exists in our dictionary then remove it and print a new dictionary using format shown above in (a). Else print that Employee doesn't exist!

d. query: on this again ask the user for which Employee he or she wants to query. When a user inputs that Employee it will print the Salary of that Employee.

In [85]:

```
dc_of_emp = {'John': 14, 'Smith' : 13, 'Alice' : 32, 'Daneil': 21}

user_input = input("Enter print, add, remove or query to get details of Emp
loyess with there Salary: ")
i = 1

if user_input == "print":
  #print(dc_of_emp)
  for keys, values in dc_of_emp.items():
    print(i,".", keys," ==>", dc_of_emp[keys])
    i = i+1

elif user_input == "add":

  emp = input("Enter the name of Employee to add: ")

  if emp in dc_of_emp.keys():
    print("Employee already exist")

  else:
    sal = int(input("Enter the Salary :"))
    dc_of_emp.update({emp:sal})
  #print(dc_of_emp)
elif user_input == "remove":

  emp = input("Enter the name of Employee to remove: ")

  if emp in dc_of_emp.keys():

    dc_of_emp.pop(emp, None)
    for keys, values in dc_of_emp.items():
      print(i,".", keys," ==>", dc_of_emp[keys])
      i = i+1

  else:
    print("Employee does not exist!")

elif user_input == "query":
  emp = input("Enter the name of Employee to query about : ")

  if emp in dc_of_emp.keys():
    print(f"Salary of {emp} is {dc_of_emp[emp]} Lakhs")
  else:
    print("Wrong Input")

else:
  print("No input found")
```

```
Enter print, add, remove or query to get details of Employess
with there Salary: print
1 . John  ==> 14
2 . Smith  ==> 13
3 . Alice  ==> 32
4 . Daneil  ==> 21
```

Q.1 What is the difference between a set and a frozenset? Create any set and try to use frozenset(setname).

Ans.

1. Set is mutable whereas frozen set is immutable.
2. Sets are used to store multiple items in a single variable. It is unordered and it gives unique values. A set is a collection that is both unordered and unindexed items. Whereas, after creation of frozen set we cannot change elements of set.

In [87]:

```
Set = frozenset([1, 2, 3, 4, 5])
print(type(Set))

for i in Set:
  print(i)

#Set.discard(5)# gives an error since we cannot change elements in a frozen
set
```

```
<class 'frozenset'>
1
2
3
4
5
```

Q.2 Find the elements in a given set that are not in another set

set1 = {10,20,30,40,50}

set2 = {40,50,60,70,80}

Difference between set1 and set2 is {10,20,30}

In [89]:

```
set1 = {10,20,30,40,50}
set2 = {40,50,60,70,80}

difference = set1-set2
print(difference)
```

Out[89]:

```
{10, 20, 30}
```