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**Assignment on dictionary**

**Program 1**

Qs-Write the following programs:

Answer-The following programs have been written

**Program 2**

QS- Write a program to check whether an item is present or not.

n=int(input("Enter number of key value pairs "))

dict={}

for i in range(n):

    x=input("Enter key ")

    y=(input("Enter value "))

    dict[x]=y

y=input("Enter item to be found ")

fl=0

for x in dict:

    if x==y:

        fl=1

        print(f"{y} is found")

        break

if fl==0:

    print(f"{y} not found ")

**Output of Program 2**

Enter number of key value pairs 3

Enter key hello

Enter value world

Enter key hi

Enter value universe

Enter key eden

Enter value garden

Enter item to be found eden

eden is found

**Program 3**

QS- Write a program to print all the items of the dictionary using loop.

n=int(input("Enter number of key value pairs "))

dict={}

for i in range(n):

    x=input("Enter key ")

    y=(input("Enter value "))

    dict[x]=y

for x in dict:

    print(f"key is {x}, value is {dict[x]}")

**Output of Program 3**

Enter number of key value pairs 3

Enter key akash

Enter value pandey

Enter key rahul

Enter value seth

Enter key fbi

Enter value hack

key is akash, value is pandey

key is rahul , value is seth

key is fbi, value is hack

**Program 4**

QS- Write a program to map two lists (one containing color names and the other containing color

codes) into dictionary.

print("Enter colour names in a single line")

a=list(map(str,input().split()))

print("Enter color codes in a single line")

b=list(map(str,input().split()))

if(len(a)!=len(b)):

    print("Invalid ")

else:

    dict={}

    for i in range(len(a)):

        dict[a[i]]=b[i]

    print(dict)

**Output of Program 4**

Enter colour names in a single line

orange red brown

Enter color codes in a single line

225 568 789

{'orange': '225', 'red': '568', 'brown': '789'}

**Program 5**

QS- Write a program to get the maximum and minimum value in a dictionary.

try:

    n=int(input("Enter number of key value pairs "))

    dict={}

    for i in range(n):

        x=input("Enter key ")

        y=int(input("Enter value as integer "))

        dict[x]=y

    val=dict.values()

    maxi=max(val)

    mini=min(val)

    print(f"Max value is {maxi}")

    print(f"Min value is {mini}")

except:

    print("Wrong input")

**Output of Program 5**

Enter number of key value pairs 3

Enter key value1

Enter value as integer 8

Enter key value2

Enter value as integer 9

Enter key value3

Enter value as integer -2

Max value is 9

Min value is -2

**Program 6**

QS- Write a program to store student data in dictionary (name, class, subjects). Remove duplicate

entries.

student\_dict = {'roll 1':

                {'name': 'akash',

                 'class': '10',

                 'subjects': ['history', 'geography', "science"]

                 },

                'roll 2':

                {'name': 'raghav',

                 'class': '12',

                 'subjects': ['bengali', 'hindi', "english"]

                 },

                'roll 3':

                {'name': 'samay',

                    'class': '12',

                    'subjects': ['maths', 'physics', 'chemistry']

                 },

                'roll 4':

                {'name': 'gourav',

                    'class': '12',

                    'subjects': ['biology', 'computer', 'drawing']

                 },

                'roll 5':

                {'name': 'gourav',

                    'class': '12',

                    'subjects': ['biology', 'computer', 'drawing']

                 },

                }

*# roll 4 and roll 5 have same values so roll 5 is removed*

keys = []

values = []

for k, v in student\_dict.items():

    if v not in values:

        keys.append(k)

        values.append(v)

newdict = dict(zip(keys, values))

print(f"\tBefore removing duplicates,dictionary is {student\_dict}\t")

print()

print(f"\tAfter removing duplicates,dictionary is {newdict}\t")

**Output of Program 6**

Before removing duplicates,dictionary is {'roll 1': {'name': 'akash', 'class': '10', 'subjects': ['history', 'geography', 'science']}, 'roll 2': {'name': 'raghav', 'class': '12', 'subjects': ['bengali', 'hindi', 'english']}, 'roll 3': {'name': 'samay', 'class':

'12', 'subjects': ['maths', 'physics', 'chemistry']}, 'roll 4': {'name': 'gourav', 'class': '12', 'subjects': ['biology', 'computer', 'drawing']}, 'roll 5': {'name': 'gourav', 'class': '12', 'subjects': ['biology', 'computer', 'drawing']}}

After removing duplicates,dictionary is {'roll 1': {'name': 'akash', 'class': '10', 'subjects': ['history', 'geography', 'science']}, 'roll 2': {'name': 'raghav', 'class':

'12', 'subjects': ['bengali', 'hindi', 'english']}, 'roll 3': {'name': 'samay', 'class': '12', 'subjects': ['maths', 'physics', 'chemistry']}, 'roll 4': {'name': 'gourav', 'class': '12', 'subjects': ['biology', 'computer', 'drawing']}}

**Program 7**

QS- Write a Python program to multiply all the items in a dictionary.

try:

    n=int(input("Enter number of key value pairs "))

    dict={}

    for i in range(n):

        x=input("Enter key as string ")

        y=int(input("Enter value as integer "))

        dict[x]=y

    ans=1

    for x in dict:

        ans=ans\*dict[x]

    print(f"Product of values is {ans}")

except:

    print("Wrong input")

**Output of Program 7**

Enter number of key value pairs 3

Enter key as string value1

Enter value as integer 5

Enter key as string value2

Enter value as integer 6

Enter key as string value3

Enter value as integer 2

Product of values is 60

**Program 8**

QS- Write a Python program to sort a dictionary by key.

*# Creates a sorted dictionary (sorted by key)*

from collections import OrderedDict

dict={}

try:

    n=int(input("Enter number of key value pairs "))

    for i in range(n):

        x=input("Enter key as string ")

        y=int(input("Enter value as integer "))

        dict[x]=y

    dict1 = OrderedDict(sorted(dict.items()))

    print(f"Dictionary in items sorted way is {dict1}")

except:

    print("Wrong Input")

**Output of Program 8**

Enter number of key value pairs 2

Enter key as string basu

Enter value as integer 77

Enter key as string akash

Enter value as integer 74

**Program 9**

QS- Write a Python program which creates two dictionaries. One that stores conversion values

from meters to centimeters and the other that stores the reverse.

dict={}

newdict={}

n=int(input("Enter number of key value pairs "))

for i in range(n):

    x=float(input("Enter metres value "))

    y=int(x)\*100

    dict[x]=y

for x in dict:

    newdict[dict[x]]=x

print(f"Input-ed dict is {dict}")

print(f"New dict dict is {newdict}")

**Output of Program 9**

Enter number of key value pairs 3

Enter metres value 1

Enter metres value 2

Enter metres value 3

Input-ed dict is {1: 100, 2: 200, 3: 300}

New dict dict is {100: 1, 200: 2, 300: 3}

**Program 10**

QS- Write a Python program that creates a dictionary of cubes of odd numbers in the range 1-10

(in a single statement).

dict={i:i\*\*3 for i in range(1,11,1)}

print(dict)

**Output of Program 10**

{1: 1, 2: 8, 3: 27, 4: 64, 5: 125, 6: 216, 7: 343, 8: 512, 9: 729, 10: 1000}

**Program 11**

QS- Write a Python program that inverts a dictionary, i.e., it makes key of one dictionary value of

another and vice versa.

dict={}

n=int(input("Enter number of key value pairs "))

for i in range(n):

    x=input("Enter key ")

    y=input("Enter value ")

    dict[x]=y

newdict={}

for x in dict:

    newdict[dict[x]]=x

print(f"Input-ed dict is {dict}")

print(f"New dict dict is {newdict}")

**Output of Program 11**

Enter number of key value pairs 2

Enter key hello

Enter value world

Enter key hi universe

Enter value galaxy

Input-ed dict is {'hello': 'world', 'hi universe': 'galaxy '}

New dict dict is {'world': 'hello', 'galaxy ': 'hi universe'}

**Program 12**

QS- 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/ her score.

import sys

n=int(input("Enter number of students "))

dict={}

newdict={}

Sum=0

maxi= -2147483648

name=""

for i in range(n):

    x=input("Enter student name ")

    print(f"Enter marks of {x}")

    l=list(map(int,input().split()))

    Sum=sum(l)

    if(Sum>maxi):

        maxi=Sum

        name=x

    dict[x]=l

    newdict[x]=Sum

print(f"New Dictionary is {newdict}")

print(f"Topper is {name} ,highest total marks is {maxi}")

**Output of Program 12**

Enter marks of akash

80 90 40 100

Enter student name abhirup

Enter marks of abhirup

90 99 95 97

Enter student name abhishek

Enter marks of abhishek

70 60 54 99

New Dictionary is {'akash': 310, 'abhirup': 381, 'abhishek': 283}

Topper is abhirup ,highest total marks is 381

Questionnaires:

1. What are the advantages of dictionary over list?

Answer

1. 