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**Course Name: Open Source Technology Lab (OSTL)**

**Experiment No: 3a.**

**AIM:** Write a Python program to demonstrate use of dictionary in python:

1. A Python program to create a dictionary from keyboard and display the elements.

2. A Python program to convert the elements of two lists into key-value pairs of a dictionary.

3. A Python program to convert a string into key-value pairs and store them into a dictionary

**TOOLS USED**: Python 3.4.3, Terminal

**THEORY:**

**1. What is dictionary in Python?**

Python dictionary is an unordered collection of items. While other compound data types have only value as an element, a dictionary has a key: value pair.

Dictionaries are optimized to retrieve values when the key is known.

## How to create a dictionary?

Creating a dictionary is as simple as placing items inside curly braces {} separated by comma.

An item has a key and the corresponding value expressed as a pair, key: value.

While values can be of any data type and can repeat, keys must be of immutable type (string, number or tuple with immutable elements) and must be unique.

# empty dictionary

my\_dict = {}

# dictionary with integer keys

my\_dict = {1: 'apple', 2: 'ball'}

# dictionary with mixed keys

my\_dict = {'name': 'John', 1: [2, 4, 3]}

# using dict()

my\_dict = dict({1:'apple', 2:'ball'})

# from sequence having each item as a pair

my\_dict = dict([(1,'apple'), (2,'ball')])

**2. Explain and describe different methods in dictionary with example.**

Methods that are available with dictionary are tabulated below. Some of them have already been used in the above examples.

|  |  |  |
| --- | --- | --- |
| Method | Example | Description |
| clear() | d.clear() | Remove all items form the dictionary. |
| copy() | d1 = d.copy() | Return a shallow copy of the dictionary. |
| fromkeys() | d.fromkeys(seq [,v]) | Return a new dictionary with keys from seq and value equal to v (defaults to None). |
| get() | d.get(key[,d]) | Return the value of key. If key doesnot exit, return d (defaults to None). |
| items() | d.items() | Return a new view of the dictionary's items (key, value). |
| keys() | d.keys() | Return a new view of the dictionary's keys. |
| values() | d.values() | Return a new view of the dictionary's values. |
| update() | d.update(x) | Adds all elements from dictionary ‘x’ to ‘d’. |
| pop() | d.pop[(key[,d])](https://www.programiz.com/python-programming/methods/dictionary/pop) | Remove the item with key and return its value or d if key is not found. If d is not provided and key is not found, raises KeyError. |
| setdefault() | d. setdefault(key[,d]) | If key is in the dictionary, return its value. If not, insert key with a value of d and return d (defaults to None). |

# **3. How to display elements in dictionary using for loop.**

# You can loop through a dictionary by using a for loop.

When looping through a dictionary, the return value are the keys of the dictionary, but there are methods to return the values as well.

### **Example**

Print all key names in the dictionary, one by one:

for x in thisdict:  
  print(x)

### **Example**

Print all values in the dictionary, one by one:

for x in thisdict:  
  print(thisdict[x])

**Full example:-**

Code:-

def main():

stocks = {

'Apple': 146.48,

'Mango':44.11,

'Grapes':25.54

}

#print out all the keys

for c in stocks:

print(c)

#print key n values

for k, v in stocks.items():

print("Key : {0}, Value : {1}".format(k, v))

if \_\_name\_\_ == '\_\_main\_\_':

main()

**PROGRAM1:**

x={}

print("Enter how many elements u need in Dictionary: ")

n=int(input()) #n indicates no. of key-value pairs

for i in range(n):

print('Enter key: ',end='')

k=input() #key is string

print('Enter its value: ',end='')

v=int(input()) #value is integer

x.update({k:v}) #store the key-value pair in dictionary x

#display the dictionary

print(x)

**Output-**

Enter how many elements u need in Dictionary: 2

Enter key: Tausif

Enter its value: 12

Enter key: Parth

Enter its value: 06

Final Dictionary: {'Tausif': 12, 'Parth': 6}

**PROGRAM2:**

countries=['India','USA']

cities=['New Delhi','Washigthon']

z=zip(countries,cities)

d=dict(z)

#print(d)

print('{:10s} -- {:10s}'.format('COUNTRY','CAPITAL'))

for k in d:

print('{:10s} -- {:10s}'.format(k,d[k]))

**Output-**

COUNTRY -- CAPITAL

India -- New Delhi

USA -- Washigthon

**PROGRAM3:**

#converting string into dictionary

str="Apple=12,Banana=13,Mango=14,Grapes=15"

#break the string at ',' and then at '='

#store the pieces into a list lst

lst=[]

for x in str.split(','):

y=x.split('=')

lst.append(y)

#convert the list into dictionary 'd'

#but this 'd' will have both name and Rollno as strings

d=dict(lst)

#print(d)

#create a new dictionary 'd1' with name as string

#and age as integer

d1={}

for k,v in d.items():

d1[k]=int(v)

#print dictionary

print(d1)

**Output-**

{'Apple': 12, 'Banana': 13, 'Mango': 14, 'Grapes': 15}

**CONCLUSION:**

Thus we have studied and implement Dictionary and Dictionary methods.