Python Programming

RGM College of Engineering & Technology (Autonomous)

Department of Computer Science & Engineering

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DICTIONARY DATA TYPE - 4

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Learning Mantra

If you really strong in the basics, then remaining things will become so easy.

Agenda:

1. Important functions/methods of Dictionary

1. setdefault()
2. update()

2. Example Programs

3. Dictionary Comprehension

11. setdefault():

Syntax :

d.setdefault(k,v)

- If the key is already available then this function returns the corresponding value.
- If the key is not available then the specified key-value will be added as new item to the dictionary.

Eg:

```
d={100:"karthi",200:"saha",300:"sri"}
print(d.setdefault(400,"sourav"))
print(d)
print(d.setdefault(100,"sachin"))
print(d)
```

Output:

```
sourav
{100: 'karthi', 200: 'saha', 300: 'sri', 400: 'sourav'}
karthi
{100: 'karthi', 200: 'saha', 300: 'sri', 400: 'sourav'}
```

12. update():

Syntax :

d.update(x)

- All items present in the dictionary **x** will be added to dictionary **d**.

Eg:

```
d={100:"karthi",200:"saha",300:"sri"}
d1 ={'a':'apple', 'b':'banana'}
d.update(d1)
print(d)
```

Output:

```
{100: 'karthi', 200: 'saha', 300: 'sri', 'a': 'apple', 'b': 'banana'}
```

Eg:

```
d={100:"karthi",200:"saha",300:"sri"}
d1 ={'a':'apple', 'b':'banana'}
d2 = {777:'A', 888:'B'}
d.update(d1,d2)    # For update method. you need to pass single argument only.
print(d)
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-44-58a2bfd142f6> in <module>
      2 d1 ={'a':'apple', 'b':'banana'}
      3 d2 = {777:'A', 888:'B'}
----> 4 d.update(d1,d2)              # For update method. you need to pass si
ngle argument only.
      5 print(d)

TypeError: update expected at most 1 arguments, got 2
```

Eg:

```
d={100:"karthi",200:"saha",300:"sri"}

d1 ={'a':'apple', 'b':'banana'}

d2 = {777:'A', 888:'B'}

d.update([(777,'A')]) # For update method. you can pass list of tuple as an argument.

print(d)
```

Output:

```
{100: 'karthi', 200: 'saha', 300: 'sri', 777: 'A'}
```

Eg:

```
d={100:"karthi",200:"saha",300:"sri"}

d1 ={'a':'apple', 'b':'banana'}

d2 = {777:'A', 888:'B'}

d.update([(777,'A'),(888,'B'),(999,'C')]) # you can add any No.of list of tuple elements.

print(d)
```

Output:

```
{100: 'karthi', 200: 'saha', 300: 'sri', 777: 'A', 888: 'B', 999: 'C'}
```

Example Programs

Q 1. Write a program to take dictionary from the keyboard and print the sum of values.

```
d=eval(input("Enter dictionary:"))
s=sum(d.values())
print("Sum= ",s)
```

Output:

```
Enter dictionary:{'A':100,'B':200,'c':300}
Sum= 600
```

Eg:

```
d=eval(input("Enter dictionary:"))
s=sum(d.values())
print("Sum= ",s)
```

```
Enter dictionary:'A':100,'B':200,'c':300
Traceback (most recent call last):
  File "C:\Users\HP\Anaconda3\lib\site-packages\IPython\core\interactiveshel
l.py", line 3296, in run_code
    exec(code_obj, self.user_global_ns, self.user_ns)
  File "<ipython-input-4-7372dea074de>", line 1, in <module>
    d=eval(input("Enter dictionary:"))
  File "<string>", line 1
    'A':100,'B':200,'c':300
       ^
SyntaxError: invalid syntax
```

Eg:

```
l = [10,20,30,40]

s = sum(l)                    # sum() function works on list also

print('Sum is : ',s)
```

Output:

```
Sum is : 100
```

Eg:

```
l = (10,20,30,40)

s = sum(l) # sum() function works on tuple also

print('Sum is : ',s)
```

Output:

```
Sum is : 100
```

Eg:

```
l = {10,20,30,40}

s = sum(l)                    # sum() function works on set also

print('Sum is : ',s)
```

Output:

```
Sum is : 100
```

Note : sum() function can work on any sequence.

Q 2. Write a python program to find number of occurrences of each letter present in the given string.

```
word=input("Enter any word: ")
d={}
for x in word:
    d[x]=d.get(x,0)+1        # we are creating dictionary with the given word
for k,v in d.items():
    print(k,"occurred ",v," times")
```

```
Enter any word: mississippi
m occurred  1  times
i occurred  4  times
s occurred  4  times
p occurred  2  times
```

Eg:

```
word=input("Enter any word: ")
d={}
for x in word:
    d[x]=d.get(x,0)+1          # we are creating dictionary with the given word
for k,v in sorted(d.items()):
# To sort all the items of the dictionary in alphabetical order
    print(k,"occurred ",v," times")
```

```
Enter any word: mississippi
i occurred  4  times
m occurred  1  times
p occurred  2  times
s occurred  4  times
```

Q 3. Write a program to find number of occurrences of each vowel present in the given string.

```
word=input("Enter any word: ")
vowels={'a','e','i','o','u'}
d={}
for x in word:
    if x in vowels:
        d[x]=d.get(x,0)+1
for k,v in sorted(d.items()):
    print(k,"occurred ",v," times")
```

```
Enter any word: doganimaldoganimal
a occurred  4  times
i occurred  2  times
o occurred  2  times
```

Q 4. Write a program to accept student name and marks from the keyboard and creates a dictionary. Also display student marks by taking student name as input.

```
n=int(input("Enter the number of students: "))
d={}
for i in range(n):
    name=input("Enter Student Name: ")
    marks=input("Enter Student Marks: ")
    d[name]=marks # assigning values to the keys of the dictionary 'd'
while True:
    name=input("Enter Student Name to get Marks: ")
    marks=d.get(name,-1)
    if marks== -1:
        print("Student Not Found")
    else:
        print("The Marks of",name,"are",marks)
    option=input("Do you want to find another student marks[Yes|No]")
    if option=="No":
        break
print("Thanks for using our application")
```

```
Enter the number of students: 5
Enter Student Name: Sourav
Enter Student Marks: 90
Enter Student Name: Sachin
Enter Student Marks: 87
Enter Student Name: Rahul
Enter Student Marks: 86
Enter Student Name: Parthiv
Enter Student Marks: 56
Enter Student Name: Robin
Enter Student Marks: 66
Enter Student Name to get Marks: Sourav
The Marks of Sourav are 90
Do you want to find another student marks[Yes|No]Y
Enter Student Name to get Marks: Robin
The Marks of Robin are 66
Do you want to find another student marks[Yes|No]y
Enter Student Name to get Marks: karthi
Student Not Found
Do you want to find another student marks[Yes|No]No
Thanks for using our application
```

7. Dictionary Comprehension

- Comprehension concept applicable for dictionaries also.

Eg:

```
squares={x:x*x for x in range(1,6)}
print(squares)
doubles={x:2*x for x in range(1,6)}
print(doubles)
```

Output:

```
{1: 1, 2: 4, 3: 9, 4: 16, 5: 25}
{1: 2, 2: 4, 3: 6, 4: 8, 5: 10}
```

Any question?

If you try to practice programs yourself, then you will learn many things automatically

Spend few minutes and then enjoy the study

Thank You