

Dictionary Sequence in Python

What is a dictionary?

A **Dictionary** in Python is a built-in **data structure** that stores data in the form of **key-value pairs**.

It is:

- **Mutable** (can be changed after creation)
- **Unordered** (before Python 3.7)
- **Ordered** (from Python 3.7 onwards, insertion order is preserved)
- **Indexed by keys**, not by position

A dictionary is written using curly braces `{}`.

Syntax:

```
Dict={key1:value1, key2:value2, .....}
```

Example:

```
student = {"Name": "Kiran", "Age": 22, "Regno": 562, "Branch": "CSE"}  
print(student)
```

Output:

```
{'Name': 'Kiran', 'Age': 22, 'Regno': 562, 'Branch': 'CSE'}
```

Accessing the dictionary values

- The data can be accessed in the **list** and **tuple** by using the **indexing**.
- However, the values can be accessed in the **dictionary** by using the **keys** as **keys** are **unique** in the **dictionary**.

Example:

```
student = {"Name": "Kiran", "Age": 22, "Regno": 562, "Branch": "CSE"}
print("Name : ", student["Name"])
print("Age : ", student["Age"])
print("RegNo : ", student["Regno"])
print("Branch : ", student["Branch"])
```

Output:

```
Name : Kiran
Age : 22
RegNo : 562
Branch : CSE
```

Updating dictionary values

The dictionary is a mutable data type, and its values can be updated by using the specific keys.

Example:

```
student = {"Name": "Kiran", "Age": 22, "Regno": 562, "Branch": "CSE"}
print("printing student data .... ")
print(student)
student["Name"]="Kishore"
print("printing updated data .... ")
print(student)
```

Output:

```
printing student data ....
{'Name': 'Kiran', 'Age': 22, 'Regno': 562, 'Branch': 'CSE'}
printing updated data ....
{'Name': 'Kishore', 'Age': 22, 'Regno': 562, 'Branch': 'CSE'}
```

Deleting dictionary values

The items of the **dictionary** can be deleted by using the **del** keyword.

example:

```
student={"Name": "Kiran", "Age": 22, "Regno":562,"Branch":"CSE"}
print("printing student data .... ")
print(student)
student["Name"]="Kishore"
print("printing updated data .... ")
print(student)
```

Output:

```
printing student data ....
{'Name': 'Kiran', 'Age': 22, 'Regno': 562, 'Branch': 'CSE'}
printing updated data ....
{'Name': 'Kishore', 'Age': 22, 'Regno': 562, 'Branch': 'CSE'}
```

Accessing the dictionary values using loops

A dictionary can be iterated using the for loop. We can able to access only keys, only values and both keys & values.

print all the keys of a dictionary

Example:

```
student = {"Name": "Kiran", "Age": 22, "Regno":
562,"Branch":"CSE"}
print("Keys are :")
for x in student:
    print(x)
```

Output:

```
Keys are :
Name
Age
Regno
Branch
```

print all the values of a dictionary

Example:

```
print("values are :")
for x in student:
    print(student[x])
```

Output:

```
values are :
Kiran
22
562
CSE
```

print all the Keys & values of a dictionary

Example:

```
print("Key and values are :")  
for x,y in student.items():  
    print(x,y)
```

Output:

```
Key and values are :  
Name Kiran  
Age 22  
Regno 562  
Branch CSE
```

Dictionary Inbuilt Functions

Sr. No	Syntax	Definition	Example	Output
1	len(d)	Returns total key-value pairs	d={"a":1,"b":2} len(d)	2
2	d.copy()	Creates a copy of dictionary	d={"a":1} d2=d.copy()	{'a':1}
3	d.get(key)	Returns value of given key	d={"a":10} d.get("a")	10
4	d.keys()	Returns all keys	d={"a":1,"b":2} d.keys()	dict_keys(['a','b'])
5	d.items()	Returns key-value pairs	d={"a":1} d.items()	dict_items([('a',1)])
6	d.values()	Returns all values	d={"a":1,"b":2} d.values()	dict_values([1,2])
7	d.update(d2)	Adds or updates elements	d={"a":1} d.update({"b":2})	{'a':1,'b':2}
8	d.pop(key)	Removes key and returns value	d={"a":1} d.pop("a")	1
9	d.clear()	Removes all elements	d={"a":1} d.clear()	{}