

# Dictionary

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## 1 dictionary

```
[24]: a={}      #empty
      print(a)

      #dict()
      d=dict([1,"hello"],[2,"world"])
      print(d)
      print(d[1])

      #multiple datatype
      di={1:(5,7),2:'ant',3:5.6}
      print(di)
```

```
{}
```

```
{1: 'hello', 2: 'world'}
```

```
hello
```

```
{1: (5, 7), 2: 'ant', 3: 5.6}
```

## 2 type()

```
[8]: d={1:"hello",2:"world"}
      print(type(d))
```

```
<class 'dict'>
```

## 3 Nested dict

```
[14]: dic={1:2,2:'python',3:{4:'hello',5:'world'}}
      print(dic)
      print(dic.keys())
```

```
{1: 2, 2: 'python', 3: {4: 'hello', 5: 'world'}}
```

```
dict_keys([1, 2, 3])
```

## 4 Single key with mixed values

```
[23]: d={1:2,1:(4,8),2:'py'}  
print(d)
```

```
{1: (4, 8), 2: 'py'}
```

## 5 Valid Dictionary

```
[33]: a={1:'hello',(1,2):'hello hi',3:[1,2,3]}  
print(a)  
print(len(a))
```

```
{1: 'hello', (1, 2): 'hello hi', 3: [1, 2, 3]}  
3
```

## 6 Invalid Dictionary

```
[32]: a={1:'hello',[1,2]:'hello hi'}  
print(a)
```

```
-----  
TypeError                                Traceback (most recent call last)  
Cell In[32], line 1  
----> 1 a={1:'hello',[1,2]:'hello hi'}  
      2 print(a)  
  
TypeError: unhashable type: 'list'
```

## 7 Accessing Items

```
[38]: d={'US':"Washington DC","Italy":'Rome',"England':"London","India":"New_  
      ↪Delhi","Australia":"Sydney"}  
print(d)  
print(d["Italy"])  
print(d["England"])
```

```
{'US': 'Washington DC', 'Italy': 'Rome', 'England': 'London', 'India': 'New  
Delhi', 'Australia': 'Sydney'}  
Rome  
London
```

## 8 Updating Items

```
[42]: d={'US':'Washington DC',"Italy":'Rome',"England':"London","India":"New_
      ↪Delhi","Australia":"Sydney"}
      d["Italy"]="YYY"
      print(d)
```

```
{'US': 'Washington DC', 'Italy': 'YYY', 'England': 'London', 'India': 'New
Delhi', 'Australia': 'Sydney'}
```

## 9 Adding Items

```
[45]: d={'US':'Washington DC',"Italy":'Rome',"England':"London","India":"New_
      ↪Delhi","Australia":"Sydney"}
      d['Japan']="Tokyo"
      print(d)
```

```
{'US': 'Washington DC', 'Italy': 'Rome', 'England': 'London', 'India': 'New
Delhi', 'Australia': 'Sydney', 'Japan': 'Tokyo'}
```

## 10 Deleting Items

```
[5]: d={'US':'Washington DC',"Italy":'Rome',"England':"London","India":"New_
      ↪Delhi","Australia":"Sydney"}
      del d["England"]
      print(d)
```

```
{'US': 'Washington DC', 'Italy': 'Rome', 'India': 'New Delhi', 'Australia':
'Sydney'}
```

## 11 clear()

```
[50]: d={1:"a",2:"bb",3:"ccc"}
      d.clear()
      print(d)
```

```
{}
```

## 12 pop()

```
[58]: d={'US':'Washington DC','Italy':'Rome','England':'London','India':'New Delhi',
        ↪'Australia':'Sydney'}
d.pop("India")
d.popitem()      #Last Element
print(d)
```

```
{'US': 'Washington DC', 'Italy': 'Rome', 'England': 'London'}
```

```
[57]: d={'US':'Washington DC','Italy':'Rome','England':'London','India':'New Delhi',
        ↪'Australia':'Sydney'}
d.pop("Germany")
```

```
-----
KeyError                                Traceback (most recent call last)
Cell In[57], line 2
      1 d={'US':'Washington DC','Italy':'Rome','England':'London','India':'New Delhi',
        ↪'Australia':'Sydney'}
----> 2 d.pop("Germany")

KeyError: 'Germany'
```

## 13 update()

```
[3]: d={'US':'Washington DC','Italy':'Rome','England':'London','India':'New Delhi',
        ↪'Australia':'Sydney'}
c={'Afghanistan':'Kabul'}
d.update(c)
print(d)
```

```
{'US': 'Washington DC', 'Italy': 'Rome', 'England': 'London', 'India': 'New Delhi',
 'Australia': 'Sydney', 'Afghanistan': 'Kabul'}
```

## 14 copy()

```
[65]: d={'US':'Washington DC','Italy':'Rome','England':'London','India':'New Delhi',
        ↪'Australia':'Sydney'}
c=d.copy()
print(c,d)
```

```
{'US': 'Washington DC', 'Italy': 'Rome', 'England': 'London', 'India': 'New
Delhi', 'Australia': 'Sydney'} {'US': 'Washington DC', 'Italy': 'Rome',
'England': 'London', 'India': 'New Delhi', 'Australia': 'Sydney'}
```

```
[70]: c={1:"a",2:"bb",3:"ccc"}
      e=c
      e.clear()
      print(e,c)
```

```
{ } { }
```

## 15 keys() & values()

```
[76]: d={'US':"Washington DC","Italy":'Rome',"England':"London',"India":'New
      ↪Delhi',"Australia":'Sydney'}
      print(d.keys())
      print(d.values())
```

```
dict_keys(['US', 'Italy', 'England', 'India', 'Australia'])
dict_values(['Washington DC', 'Rome', 'London', 'New Delhi', 'Sydney'])
```

## 16 fromkeys()

```
[82]: alph={'a','b','c'}
      num=1
      c=dict.fromkeys(alph,num)
      print(c)
```

```
{'c': 1, 'b': 1, 'a': 1}
```

```
[83]: alph={'a','b','c'}
      c=dict.fromkeys(alph)    #without values
      print(c)
```

```
{'c': None, 'b': None, 'a': None}
```

## 17 Sorting by the Values

```
[1]: a={5:4,1:6,6:3}
      b=sorted(a.values())
      print(b)
```

```
[3, 4, 6]
```

## 18 check if a key is already exist in dict or not

```
[6]: a={1:'a',2:'b',3:'c'}  
     if 6 in a:  
         print("present")  
     else:  
         print("Not Present")
```

Not Present

## 19 Merging 2 dicts

```
[9]: a={1:'a',2:'b'}  
     b={2:'c',3:'d'}  
     print(a|b)
```

{1: 'a', 2: 'c', 3: 'd'}

```
[ ]:
```