Dictionary

- Dictionary is a mutable data type in python - A python dictionary is a collection of key and value pairs separated by colon(:) and enclosed in curly braces {}. -Keys must be unique in dictionary. -Duplicate values are allowed

In [1]:
```
mydict={}
mydict
```

Out[1]:
```
{}
```

In [2]:
```
mydict=dict()
mydict
```

Out[2]:
```
{}
```

In [3]:
```
mydict={1:'one',2:'two',3:'three',4:'four'} # dictionary with integr keys
mydict
```

Out[3]:
```
{1: 'one', 2: 'two', 3: 'three', 4: 'four'}
```

In [4]:
```
mydict=({1:'one',2:'two',3:'three',4:'four'})
mydict
```

Out[4]:
```
{1: 'one', 2: 'two', 3: 'three', 4: 'four'}
```

In [6]:
```
mydcit={'A':'ONE','B':'TWO','C':'THREE','D':'FOUR'} #dictionary with character keys
mydcit
```

Out[6]:
```
{'A': 'ONE', 'B': 'TWO', 'C': 'THREE', 'D': 'FOUR'}
```

In [7]:
```
mydict={1:'one',2:'two',3:'three',4:'four'} #dictionary with mixed keys
mydict
```

Out[7]:
```
{1: 'one', 2: 'two', 3: 'three', 4: 'four'}
```

In [8]:
```
mydict1={'a':2.7,'b':"Python",'c':True,'d':2+6j}
mydict1
```

Out[8]:
```
{'a': 2.7, 'b': 'Python', 'c': True, 'd': (2+6j)}
```

In [9]:
```
mydict.keys()
```

Out[9]:
```
dict_keys([1, 2, 3, 4])
```

In [10]:
```
mydict.values()
```

Out[10]:
```
dict_values(['one', 'two', 'three', 'four'])
```

In [11]:
```
mydict.items()
```

Out[11]:
```
dict_items([(1, 'one'), (2, 'two'), (3, 'three'), (4, 'four')])
```

In [13]:
```
mydict2={1:'one',2:'two','A':['venky','john','surya'],'B':('Bat','Ball','Wicket')}
mydict2
```

Out[13]:
```
{1: 'one',
 2: 'two',
 'A': ['venky', 'john', 'surya'],
 'B': ('Bat', 'Ball', 'Wicket')}
```

In [14]:
```
mydict3={'Name':'Venky', 'Age':'26','Qualification':'MCA'}
mydict3
```

Out[14]:
```
{'Name': 'Venky', 'Age': '26', 'Qualification': 'MCA'}
```

In [16]:
```
mydict3.keys()
```

Out[16]:
```
dict_keys(['Name', 'Age', 'Qualification'])
```

In [17]:
```
mydict3.values()
```

Out[17]:
```
dict_values(['Venky', '26', 'MCA'])
```

In [18]:
```
mydict.items()
```

Out[18]:
```
dict_items([(1, 'one'), (2, 'two'), (3, 'three'), (4, 'four')])
```

In [23]:
```
keys={'a','b','c','d'}
values=10
mydict3=dict.fromkeys(keys,values)
mydict3
```

Out[23]:
```
{'c': 10, 'a': 10, 'b': 10, 'd': 10}
```

In [24]:
```
keys={'a','b','c','d'}
value=[10,20,30]
mydict3=dict.fromkeys(keys,value)
mydict3
```

Out[24]:
```
{'c': [10, 20, 30], 'a': [10, 20, 30], 'b': [10, 20, 30], 'd': [10, 20, 30]}
```

In [25]:
```
value.append(40)
mydict3
```

Out[25]:
```
{'c': [10, 20, 30, 40],
 'a': [10, 20, 30, 40],
 'b': [10, 20, 30, 40],
 'd': [10, 20, 30, 40]}
```

Accessing items

In [27]:
```
mydict4={1:'one',2:'two',3:'three',4:'four'}
mydict4
```

Out[27]:
```
{1: 'one', 2: 'two', 3: 'three', 4: 'four'}
```

In [28]:
```
mydict4[1]  #access item using key
```

Out[28]:
```
'one'
```

In [32]:
```
mydict4[2]
```

Out[32]:
```
'two'
```

In [33]:
```
mydict3
```

Out[33]:
```
{'c': [10, 20, 30, 40],
 'a': [10, 20, 30, 40],
 'b': [10, 20, 30, 40],
 'd': [10, 20, 30, 40]}
```

In [34]:
```
mydict3['c']
```

Out[34]:
```
[10, 20, 30, 40]
```

In [36]:
```
mydict4.get(1)
```

Out[36]:
```
'one'
```

In [37]:
```
mydict4.get(2)
```

Out[37]:
```
'two'
```

In [38]:
```
mydict5={'Name':'Venky','ID':'R3154','DOB':1998,'Job':'Data Scientist'}
mydict5
```

Out[38]:
```
{'Name': 'Venky', 'ID': 'R3154', 'DOB': 1998, 'Job': 'Data Scientist'}
```

In [39]:
```
mydict5['Name']
```

Out[39]:
```
'Venky'
```

In [41]:
```
mydict5['ID']
```

Out[41]:
```
'R3154'
```

In [43]:
```
mydict5['Job']
```

Out[43]:
```
'Data Scientist'
```

Add, Remove & Change items

In [60]:
```
mydict6={'Name':'Venky','ID':24512, 'DOB':1998,'Address':'Warangal','Job':'Data Sci
mydict6
```

Out[60]:
```
{'Name': 'Venky',
 'ID': 24512,
 'DOB': 1998,
 'Address': 'Warangal',
 'Job': 'Data Scientist'}
```

In [61]:
```
mydict6['DOB']
```

Out[61]:
```
1998
```

In [62]:
```
mydict6['DOB']=2000  #Changing dictionary items
mydict6['Address']='Hyderabad'
mydict6
```

Out[62]:
```
{'Name': 'Venky',
 'ID': 24512,
 'DOB': 2000,
 'Address': 'Hyderabad',
 'Job': 'Data Scientist'}
```

In [63]:
```
dict1={'DOB':1995}
mydict6.update(dict1)
mydict6
```

Out[63]:
```
{'Name': 'Venky',
 'ID': 24512,
 'DOB': 1995,
 'Address': 'Hyderabad',
 'Job': 'Data Scientist'}
```

In [64]:
```
mydict6
```

Out[64]:
```
{'Name': 'Venky',
 'ID': 24512,
 'DOB': 1995,
 'Address': 'Hyderabad',
 'Job': 'Data Scientist'}
```

In [66]:
```
mydict6.pop('Job')
```

Out[66]:
```
'Data Scientist'
```

In [67]:
```
mydict6
```

Out[67]:
```
{'Name': 'Venky', 'ID': 24512, 'DOB': 1995, 'Address': 'Hyderabad'}
```

In [68]:
```
mydict6.popitem() #A random item is removed
```

Out[68]:
```
('Address', 'Hyderabad')
```

In [69]:
```
mydict6
```

Out[69]:
```
{'Name': 'Venky', 'ID': 24512, 'DOB': 1995}
```

```
In [70]: mydict1
```

```
Out[70]: {'a': 2.7, 'b': 'Python', 'c': True, 'd': (2+6j)}
```

```
In [71]: mydict1.clear()
```

```
In [73]: mydict1
```

```
Out[73]: {}
```

```
In [74]: del mydict1
```

```
In [75]: mydict1
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[75], line 1
----> 1 mydict1

NameError: name 'mydict1' is not defined
```

Copy dictionary

```
In [76]: mydict6
```

```
Out[76]: {'Name': 'Venky', 'ID': 24512, 'DOB': 1995}
```

```
In [78]: dict1={'Address':'Hyderabad'}
         mydict6.update(dict1)
         mydict6
```

```
Out[78]: {'Name': 'Venky', 'ID': 24512, 'DOB': 1995, 'Address': 'Hyderabad'}
```

```
In [79]: mydict1=mydict6
```

```
In [80]: mydict1
```

```
Out[80]: {'Name': 'Venky', 'ID': 24512, 'DOB': 1995, 'Address': 'Hyderabad'}
```

```
In [87]: mydict6
```

```
Out[87]: {'Name': 'Venky', 'ID': 24512, 'DOB': 1995, 'Address': 'Mumbai'}
```

```
In [88]: mydict1==mydict6
```

```
Out[88]: True
```

```
In [89]: id(mydict1), id(mydict6)
```

```
Out[89]: (1862822070336, 1862822070336)
```

In [90]:
```
mydict6['Address']='Mumbai'
mydict6
```

Out[90]:
```
{'Name': 'Venky', 'ID': 24512, 'DOB': 1995, 'Address': 'Mumbai'}
```

In [92]:
```
mydict1['Address']='Hyderabad'
mydict1
```

Out[92]:
```
{'Name': 'Venky', 'ID': 24512, 'DOB': 1995, 'Address': 'Hyderabad'}
```

In [93]:
```
mydict6
```

Out[93]:
```
{'Name': 'Venky', 'ID': 24512, 'DOB': 1995, 'Address': 'Hyderabad'}
```

Loop through a Dictionary

In [99]:
```
mydict1={'Name': 'Venky', 'ID': 24512, 'DOB': 1995, 'Address': 'Hyderabad', 'Job':'
mydict1
```

Out[99]:
```
{'Name': 'Venky',
 'ID': 24512,
 'DOB': 1995,
 'Address': 'Hyderabad',
 'Job': 'Data Scientist'}
```

In [100…
```
for i in mydict1:
    print(i)
```

```
Name
ID
DOB
Address
Job
```

In [101…
```
for i in mydict1:
    print(i, ':',mydict1[i])   #key and value pair
```

```
Name : Venky
ID : 24512
DOB : 1995
Address : Hyderabad
Job : Data Scientist
```

In [102…
```
for i in mydict1:
    print(mydict1[i])   #dictionary items
```

```
Venky
24512
1995
Hyderabad
Data Scientist
```

Dictionary Membership

In [108…
```
mydict7={'Name': 'Venky', 'ID': 'R3154', 'DOB': 1998, 'Job': 'Data Scientist'}
mydict7
```

Out[108…
```
{'Name': 'Venky', 'ID': 'R3154', 'DOB': 1998, 'Job': 'Data Scientist'}
```

In [109…
```
'Name' in mydict7
```

Out[109…
```
True
```

In [111…
```
'Venky' in mydict7
```

Out[111…
```
False
```

In [112…
```
'ID' in mydict7
```

Out[112…
```
True
```

In [113…
```
'Address' in mydict7
```

Out[113…
```
False
```

All/Any

The all() method returns: -True: If all keys of the dictionary are true -False: If any key of the dictionary is false

In [115…
```
mydict7={'Name': 'Venky', 'ID': 'R3154', 'DOB': 1998, 'Job': 'Data Scientist'}
mydict7
```

Out[115…
```
{'Name': 'Venky', 'ID': 'R3154', 'DOB': 1998, 'Job': 'Data Scientist'}
```

In [116…
```
all(mydict7) #WIll return false as one value is false(value0)
```

Out[116…
```
True
```

In [117…
```
any(mydict7)
```

Out[117…
```
True
```

In [118…
```
mydict8={'Name': 'Venky', 'ID': 'R3154', 'DOB': 1998, 'Job': 'Data Scientist','Bool
mydict8
```

Out[118…
```
{'Name': 'Venky',
 'ID': 'R3154',
 'DOB': 1998,
 'Job': 'Data Scientist',
 'Bool': False}
```

In [119…
```
all(mydict8)
```

Out[119…
```
True
```

In [120…
```
any(mydict8)
```

Out[120… True

In [ ]: