Set Operation

Union

In [4]:
```
a = {1,2,3,4,5}
b = {4,5,6,7,8}
c = {8,9,10}
```

In [6]:
```
a | b
```

Out[6]: {1, 2, 3, 4, 5, 6, 7, 8}

In [8]:
```
b|c
```

Out[8]: {4, 5, 6, 7, 8, 9, 10}

In [10]:
```
a.union(b)
```

Out[10]: {1, 2, 3, 4, 5, 6, 7, 8}

In [14]:
```
a.union(b,c)
```

Out[14]: {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}

In [16]:
```
a.update(b,c)
```

In [18]:
```
a
```

Out[18]: {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}

Intersection

In [21]:
```
a = {1,2,3,4,5}
b = {4,5,6,7,8}
```

In [23]:
```
a & b
```

Out[23]: {4, 5}

In [25]:
```
a.intersection(b)
```

Out[25]: {4, 5}

In [27]:
```
a.intersection_update(b)
```

In [29]:
```
a
```

Out[29]: {4, 5}

Difference

In [32]:
```
a = {1,2,3,4,5}
b = {4,5,6,7,8}
```

In [34]:
```
a-b
```

Out[34]: {1, 2, 3}

In [36]:
```
b-a
```

Out[36]: {6, 7, 8}

In [38]:
```
a.difference(b)
```

Out[38]: {1, 2, 3}

In [40]:
```
b.difference(a)
```

Out[40]: {6, 7, 8}

In [42]:
```
a.difference_update(b)
```

In [45]:
```
a
```

Out[45]: {1, 2, 3}

In [47]:
```
b.difference_update(a)
```

In [49]:
```
b
```

Out[49]: {4, 5, 6, 7, 8}

In [51]:
```
a.discard(b)
```

In [53]:
```
a
```

Out[53]: {1, 2, 3}

Symmetric Difference

In [56]:
```
A = {11,12,13,14,15}
B = {14,15,16,17,18}
```

In [60]:
```
A^B
```

Out[60]: {11, 12, 13, 16, 17, 18}

In [62]:
```
A.symmetric_difference(B)
```

Out[62]: {11, 12, 13, 16, 17, 18}

In [64]:
```
B.symmetric_difference(A)
```

Out[64]: {11, 12, 13, 16, 17, 18}

In [66]:
```
A.symmetric_difference_update(B)
```

In [68]:
```
A
```

Out[68]: {11, 12, 13, 16, 17, 18}

Subset, Superset and Disjoint

In [71]:
```
A = {1,2,3,4,5,6,7,8,9}
B = {3,4,5,6,7,8}
C = {10,20,30,40}
```

In [73]:
```
A.issubset(B)
```

Out[73]: False

In [75]:
```
B.issubset(A)
```

Out[75]: True

In [77]:
```
A.issuperset(B)
```

Out[77]: True

In [79]:
```
B.issuperset(A)
```

Out[79]: False

In [81]:
```
A.issuperset(C)
```

Out[81]: False

In [83]:
```
C.isdisjoint(A)
```

Out[83]: True

In [85]:
```
C.isdisjoint(B)
```

Out[85]: True

In [87]:
```
A.isdisjoint(B)
```

Out[87]: False

In [89]:
```
A.isdisjoint(C)
```

Out[89]: True

In [91]:
```
B.isdisjoint(A)
```

Out[91]: False

Other Builtin functions

In [94]:
```
A
```

Out[94]: {1, 2, 3, 4, 5, 6, 7, 8, 9}

In [96]:
```
sum(A)
```

Out[96]: 45

In [98]:
```
max(A)
```

Out[98]: 9

In [100…
```
len(A)
```

Out[100… 9

In [102…
```
list(enumerate(A))
```

Out[102… [(0, 1), (1, 2), (2, 3), (3, 4), (4, 5), (5, 6), (6, 7), (7, 8), (8, 9)]

In [104…
```
D= sorted(A,reverse=True)
```

In [106…
```
D
```

Out[106… [9, 8, 7, 6, 5, 4, 3, 2, 1]

In [108…
```
sorted(D)
```

Out[108… [1, 2, 3, 4, 5, 6, 7, 8, 9]

In [ ]:
```

```

Dictionary

Create dictionary

In [1]:
```
mydict = dict()
mydict
```

Out[1]: {}

In [3]:
```
mydict = {}
mydict
```

Out[3]: {}

In [5]:
```
mydict = {1:'one', 2:'two', 3:'three', 4:'four'}
mydict
```

Out[5]:
```
{1: 'one', 2: 'two', 3: 'three', 4: 'four'}
```

In [7]:
```
mydict = dict({1:'one', 2:'two', 3:'three', 4:'four'})
mydict
```

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

In [9]:
```
mydict = {'A':'one', 'B':'two', 'C':'three', 'D':'four'}
mydict
```

Out[9]:
```
{'A': 'one', 'B': 'two', 'C': 'three', 'D': 'four'}
```

In [11]:
```
mydict = {1:'one', 'A':'two', 3:'three'}
mydict
```

Out[11]:
```
{1: 'one', 'A': 'two', 3: 'three'}
```

In [13]:
```
mydict.keys()
```

Out[13]:
```
dict_keys([1, 'A', 3])
```

In [15]:
```
mydict.values()
```

Out[15]:
```
dict_values(['one', 'two', 'three'])
```

In [17]:
```
mydict.items()
```

Out[17]:
```
dict_items([(1, 'one'), ('A', 'two'), (3, 'three')])
```

In [19]:
```
mydict = {1:'one', 2:'two', 3:'three', 'A':['rohit', 'peter', 'john']}
mydict
```

Out[19]:
```
{1: 'one', 2: 'two', 3: 'three', 'A': ['rohit', 'peter', 'john']}
```

In [1]:
```
mydict = {1:'one', 2:'two', 3:'three', 'A':['rohit', 'peter', 'john'], 'B':('Bat
mydict
```

Out[1]:
```
{1: 'one',
 2: 'two',
 3: 'three',
 'A': ['rohit', 'peter', 'john'],
 'B': ('Bat', 'Cat', 'Hat')}
```

In [5]:
```
mydict = {1:'one', 2:'two', 3:'three', 'A':{'Name':'rohit', 'Age' :24}, 'B':('Ba
mydict
```

Out[5]:
```
{1: 'one',
 2: 'two',
 3: 'three',
 'A': {'Name': 'rohit', 'Age': 24},
 'B': ('Bat', 'Cat', 'Hat')}
```

In [7]:
```
keys = {'a', 'b', 'c', 'd'}
mydict3 = dict.fromkeys(keys)
```

```
mydict3
```

Out[7]:
```
{'b': None, 'a': None, 'd': None, 'c': None}
```

In [11]:
```
keys = {'a', 'b', 'c', 'd'}
value = 20
mydict3 = dict.fromkeys(keys, value)
mydict3
```

Out[11]:
```
{'b': 20, 'a': 20, 'd': 20, 'c': 20}
```

In [19]:
```
keys = {'a', 'b', 'c', 'd'}
value = [7, 20, 2000]
mydict3 = dict.fromkeys(keys, value)
mydict3
```

Out[19]:
```
{'b': [7, 20, 2000],
 'a': [7, 20, 2000],
 'd': [7, 20, 2000],
 'c': [7, 20, 2000]}
```

In [21]:
```
value.append(55)
mydict3
```

Out[21]:
```
{'b': [7, 20, 2000, 55],
 'a': [7, 20, 2000, 55],
 'd': [7, 20, 2000, 55],
 'c': [7, 20, 2000, 55]}
```

Accessing Items

In [24]:
```
mydict = {1:'five', 2:'six', 3:'seven', 4:'eight'}
mydict
```

Out[24]:
```
{1: 'five', 2: 'six', 3: 'seven', 4: 'eight'}
```

In [26]:
```
mydict[1]
```

Out[26]:
```
'five'
```

In [28]:
```
mydict1 = {'Name':'Rohit' , 'ID': 4565 , 'DOB': 2000 , 'job': 'Data scientist'}
mydict1
```

Out[28]:
```
{'Name': 'Rohit', 'ID': 4565, 'DOB': 2000, 'job': 'Data scientist'}
```

In [30]:
```
mydict1['Name']
```

Out[30]:
```
'Rohit'
```

In [34]:
```
mydict1['job']
```

Out[34]:
```
'Data scientist'
```

In [36]:
```
mydict1['DOB']
```

Out[36]: 2000

Add, Remove & Change Items

In [39]:
```
mydict2 = {'Name':'Rohit' , 'ID':141820 , 'DOB':1997 , 'Address':'Sambajinagar'}
mydict2
```

Out[39]: {'Name': 'Rohit', 'ID': 141820, 'DOB': 1997, 'Address': 'Sambajinagar'}

In [45]:
```
mydict2['DOB'] = 1999
mydict2['Address'] = 'Hyderabad'
mydict2
```

Out[45]: {'Name': 'Rohit', 'ID': 141820, 'DOB': 1999, 'Address': 'Hyderabad'}

In [47]:
```
dict2 = {'DOB':1971}
mydict2.update(dict2)
mydict2
```

Out[47]: {'Name': 'Rohit', 'ID': 141820, 'DOB': 1971, 'Address': 'Hyderabad'}

In [49]:
```
mydict2['Job'] = 'Scientist'
mydict2
```

Out[49]:
```
{'Name': 'Rohit',
 'ID': 141820,
 'DOB': 1971,
 'Address': 'Hyderabad',
 'Job': 'Scientist'}
```

In [51]:
```
mydict2.pop('Job')
```

Out[51]: 'Scientist'

In [53]:
```
mydict2
```

Out[53]: {'Name': 'Rohit', 'ID': 141820, 'DOB': 1971, 'Address': 'Hyderabad'}

In [55]:
```
mydict2.popitem()
```

Out[55]: ('Address', 'Hyderabad')

In [57]:
```
mydict2
```

Out[57]: {'Name': 'Rohit', 'ID': 141820, 'DOB': 1971}

In [59]:
```
mydict2.clear()
```

In [61]:
```
mydict2
```

Out[61]: {}

In [63]:
```
del mydict2
```

In [65]:
```
mydict2
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[65], line 1
----> 1 mydict2

NameError: name 'mydict2' is not defined
```

Copy Dictionary

In [68]:
```
mydict = {'Name':'Rohit' , 'ID':141820 , 'DOB':1997 , 'Address':'Sambajinagar'}
mydict
```

Out[68]:
```
{'Name': 'Rohit', 'ID': 141820, 'DOB': 1997, 'Address': 'Sambajinagar'}
```

In [70]:
```
mydict1 = mydict
```

In [72]:
```
id(mydict), id(mydict1)
```

Out[72]:
```
(2582127025856, 2582127025856)
```

In [74]:
```
mydict2 = mydict.copy()
```

In [76]:
```
id(mydict2)
```

Out[76]:
```
2582126939776
```

In [78]:
```
mydict['Address'] = 'Vizag'
mydict
```

Out[78]:
```
{'Name': 'Rohit', 'ID': 141820, 'DOB': 1997, 'Address': 'Vizag'}
```

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

Out[80]:
```
{'Name': 'Rohit', 'ID': 141820, 'DOB': 1997, 'Address': 'Vizag'}
```

In [82]:
```
mydict2
```

Out[82]:
```
{'Name': 'Rohit', 'ID': 141820, 'DOB': 1997, 'Address': 'Sambajinagar'}
```

Loop through a Dictionary

In [90]:
```
mydict1 = {'Name':'Rohit' , 'ID':141820 , 'DOB':1997 , 'Address':'Sambajinagar'}
mydict1
```

Out[90]:
```
{'Name': 'Rohit', 'ID': 141820, 'DOB': 1997, 'Address': 'Sambajinagar'}
```

In [92]:
```
for i in mydict1:
    print(i, ':', mydict1[i])
```

```
Name : Rohit
ID : 141820
DOB : 1997
Address : Sambajinagar
```

In [94]:
```
mydict2 =  {'Name':'Rohit' , 'ID': 141820 , 'DOB': 2000 , 'Address' : 'Hyderabad
mydict2
```

Out[94]:
```
{'Name': 'Rohit',
 'ID': 141820,
 'DOB': 2000,
 'Address': 'Hyderabad',
 'Job': 'Doctor'}
```

In [98]:
```
for i in mydict2:
    print(i, ':', mydict2[i])
```

```
Name : Rohit
ID : 141820
DOB : 2000
Address : Hyderabad
Job : Doctor
```

In [104…
```
for i in mydict2:
    print(mydict2[i])
```

```
Rohit
141820
2000
Hyderabad
Doctor
```

Dictionary Memebership

In [107…
```
mydict4 = {'Name':'Rohit' , 'ID':202000 , 'DOB':2000 , 'Job':'Analyst'}
mydict4
```

Out[107…
```
{'Name': 'Rohit', 'ID': 202000, 'DOB': 2000, 'Job': 'Analyst'}
```

In [109…
```
'Name' in mydict4
```

Out[109…
```
True
```

In [111…
```
'Rohit' in mydict4
```

Out[111…
```
False
```

In [113…
```
'ID' in mydict4
```

Out[113…
```
True
```

All/Any

In [116…
```
mydict5 = {'Name':'Rohit' , 'ID':202000 , 'DOB':2000 , 'Job':'Analyst'}
mydict5
```

Out[116… {'Name': 'Rohit', 'ID': 202000, 'DOB': 2000, 'Job': 'Analyst'}

In [120…
```
all(mydict5)
```

Out[120… True

In [ ]: