set operations

union - All elements from both sets and no duplicates

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

In [4]:
```
A.union(B)
```

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

In [5]:
```
A | B | C
```

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

In [6]:
```
B|C
```

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

In [7]:
```
A.union(B,C)
```

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

In [8]:
```
B.union(A)
```

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

Intersection

In [9]:
```
A = {1,2,3,4,5}
B = {4,5,6,7,8}
```

In [10]:
```
A & B
```

Out[10]:
```
{4, 5}
```

In [11]:
```
A.intersection(B)
```

Out[11]:
```
{4, 5}
```

Difference

In [12]:
```
A = {1,2,3,4,5}
B = {4,5,6,7,8}
```

In [13]:
```
A - B
```

Out[13]:
```
{1, 2, 3}
```

In [14]:
```
A.difference(B)
```

Out[14]:
```
{1, 2, 3}
```

In [15]:
```
B - A
```

Out[15]:
```
{6, 7, 8}
```

In [16]:
```
B.difference_update(A)
```

In [17]:
```
B
```

Out[17]:
```
{6, 7, 8}
```

In [19]:
```
print(A)
print(B)
```

```
{1, 2, 3, 4, 5}
{6, 7, 8}
```

Symmetric Difference

In [20]:
```
A = {1,2,3,4,5}
B = {4,5,6,7,8}
```

In [21]:
```
A.symmetric_difference(B)
```

Out[21]: {1, 2, 3, 6, 7, 8}

In [22]:
```
B ^ A
```

Out[22]: {1, 2, 3, 6, 7, 8}

In [23]:
```
A.symmetric_difference_update(B)
```

In [25]:
```
A
```

Out[25]: {1, 2, 3, 6, 7, 8}

Subset,Superset,Disjoint

In [26]:
```
A = {1,2,3,4,5,6,7,8,9}
B = {3,4,5,6,7,8}
C = {10,20,30,40}
```

In [27]:
```
A.issuperset(B)
```

Out[27]: True

In [28]:
```
B.issuperset(A)
```

Out[28]: False

In [29]:
```
A.issubset(B)
```

Out[29]: False

In [30]:
```
B.issubset(A)
```

Out[30]: True

In [31]:
```
A.isdisjoint(B)
```

Out[31]: False

In [32]:
```
B.isdisjoint(A)
```

Out[32]: False

other builtin functions

In [33]:
```
A
```

Out[33]: {1, 2, 3, 4, 5, 6, 7, 8, 9}

In [34]:
```
sum(A)
```

Out[34]: 45

In [35]:
```
max(A)
```

Out[35]: 9

In [36]:
```
min(A)
```

Out[36]: 1

In [37]:
```
len(A)
```

Out[37]: 9

In [38]:
```
list(enumerate(A))
```

Out[38]:
```
[(0, 1), (1, 2), (2, 3), (3, 4), (4, 5), (5, 6), (6, 7), (7, 8), (8, 9)]
```

In [39]:
```
D= sorted(A,reverse=True)
```

In [40]:
```
D
```

Out[40]:
```
[9, 8, 7, 6, 5, 4, 3, 2, 1]
```

In [42]:
```
D.sort()
```

In [43]:
```
D
```

Out[43]:
```
[1, 2, 3, 4, 5, 6, 7, 8, 9]
```

Dictionary

In [44]:
```
mydict = {}
mydict
```

Out[44]:
```
{}
```

In [45]:
```
mydict = {1:'one' , 2:'two' , 3:'three'}
mydict
```

Out[45]:
```
{1: 'one', 2: 'two', 3: 'three'}
```

In [46]:
```
mydict = dict({1:'one' , 2:'two' , 3:'three'})
mydict
```

Out[46]:
```
{1: 'one', 2: 'two', 3: 'three'}
```

In [47]:
```
mydict = {'A':'one' , 'B':'two' , 'C':'three'}
mydict
```

Out[47]:
```
{'A': 'one', 'B': 'two', 'C': 'three'}
```

In [48]:
```
mydict = {1:'one' , 'A':'two' , 3:'three'}
mydict
```

Out[48]:
```
{1: 'one', 'A': 'two', 3: 'three'}
```

In [49]:
```
mydict.keys()
```

Out[49]:
```
dict_keys([1, 'A', 3])
```

In [50]:
```
mydict.values()
```

Out[50]:
```
dict_values(['one', 'two', 'three'])
```

In [51]:
```
mydict.values()
```

Out[51]:
```
dict_values(['one', 'two', 'three'])
```

In [52]:
```
mydict.items()
```

Out[52]:
```
dict_items([(1, 'one'), ('A', 'two'), (3, 'three')])
```

In [53]:
```
mydict = {1:'one' , 2:'two' , 'A':['asif' , 'john' , 'Maria']}
mydict
```

Out[53]:
```
{1: 'one', 2: 'two', 'A': ['asif', 'john', 'Maria']}
```

In [54]:
```
mydict = {1:'one' , 2:'two' , 'A':['asif' , 'john' , 'Maria'], 'B':('Bat' , 'cat', 'hat')}
mydict
```

Out[54]:
```
{1: 'one',
 2: 'two',
 'A': ['asif', 'john', 'Maria'],
 'B': ('Bat', 'cat', 'hat')}
```

In [59]:
```
keys = {'a','b','c','d'}
mydict3 = dict.fromkeys(keys)
mydict3
```

Out[59]:
```
{'a': None, 'c': None, 'b': None, 'd': None}
```

In [ ]:
```

```

In [60]:
```
keys = {'a','b','c','d'}
value = 10
mydict3 = dict.fromkeys(keys,value)
mydict3
```

Out[60]:
```
{'a': 10, 'c': 10, 'b': 10, 'd': 10}
```

In [61]:
```
keys = {'a','b','c','d'}
value = [10,20,30]
mydict3 = dict.fromkeys(keys,value)
mydict3
```

Out[61]:
```
{'a': [10, 20, 30], 'c': [10, 20, 30], 'b': [10, 20, 30], 'd': [10, 20, 30]}
```

In [62]:
```
value.append(40)
mydict3
```

Out[62]:
```
{'a': [10, 20, 30, 40],
 'c': [10, 20, 30, 40],
 'b': [10, 20, 30, 40],
 'd': [10, 20, 30, 40]}
```

In [63]:
```
mydict = {1:'one' , 2:'two' , 3:'three' , 4:'four'}
mydict
```

Out[63]:
```
{1: 'one', 2: 'two', 3: 'three', 4: 'four'}
```

In [64]:
```
mydict[1]
```

Out[64]:
```
'one'
```

In [65]:
```
mydict[3]
```

Out[65]:
```
'three'
```

In [66]:
```
mydict.get(1)
```

Out[66]:
```
'one'
```

In [67]:
```
mydict1 = {'Name':'Harsha' , 'ID': 60 , 'DOB': 2004 , 'job' :'Software developer'}
mydict1
```

Out[67]:
```
{'Name': 'Harsha', 'ID': 60, 'DOB': 2004, 'job': 'Software developer'}
```

In [69]:
```
mydict1['Name']
```

Out[69]:
```
'Harsha'
```

In [70]:
```
mydict1.get('job')
```

Out[70]:
```
'Software developer'
```

Add and Remove changes

In [71]:
```
mydict1
```

Out[71]:
```
{'Name': 'Harsha', 'ID': 60, 'DOB': 2004, 'job': 'Software developer'}
```

In [73]:
```
mydict1['DOB'] = "2004 mar 30"
mydict1['Address'] = 'ELCHURU'
mydict1
```

Out[73]:
```
{'Name': 'Harsha',
 'ID': 60,
 'DOB': '2004 mar 30',
 'job': 'Software developer',
 'Address': 'ELCHURU'}
```

In [76]:
```
dict1 = {'DOB' : "2004-03-30"}
mydict1.update(dict1)
mydict1
```

Out[76]:
```
{'Name': 'Harsha',
 'ID': 60,
 'DOB': '2004-03-30',
 'job': 'Software developer',
 'Address': 'ELCHURU'}
```

In [80]:
```
mydict1['job'] = 'Cloud Developer'
mydict1
```

Out[80]:
```
{'Name': 'Harsha',
 'ID': 60,
 'DOB': '2004-03-30',
 'Address': 'ELCHURU',
 'job': 'Cloud Developer'}
```

In [86]:
```
mydict1['job'] = "Cloud Developer"
mydict1
```

Out[86]:
```
{'Name': 'Harsha', 'ID': 60, 'DOB': '2004-03-30', 'job': 'Cloud Developer'}
```

In [87]:
```
mydict1.pop('job')
```

Out[87]:
```
'Cloud Developer'
```

In [88]:
```
mydict1
```

Out[88]:
```
{'Name': 'Harsha', 'ID': 60, 'DOB': '2004-03-30'}
```

In [89]:
```
mydict1.popitem()
```

Out[89]:
```
('DOB', '2004-03-30')
```

In [90]:
```
mydict1
```

Out[90]:
```
{'Name': 'Harsha', 'ID': 60}
```

In [91]:
```
del[mydict1['ID']]
mydict1
```

Out[91]:
```
{'Name': 'Harsha'}
```

In [92]:
```
mydict1.clear()
mydict1
```

Out[92]:
```
{}
```

Copy Dictionary

In [97]:
```
mydict =  {'Name':'Harsha' , 'ID': 60 , 'DOB': 2004 , 'Address' : 'ELCHURU'}
```

In [98]:
```
mydict
```

Out[98]:
```
{'Name': 'Harsha', 'ID': 60, 'DOB': 2004, 'Address': 'ELCHURU'}
```

In [99]:
```
mydict1 = mydict
```

In [100…
```
id(mydict), id(mydict1)
```

Out[100…
```
(1923877657408, 1923877657408)
```

In [101…
```
mydict2 = mydict.copy()
mydict2
```

Out[101…
```
{'Name': 'Harsha', 'ID': 60, 'DOB': 2004, 'Address': 'ELCHURU'}
```

In [102…
```
id(mydict2)
```

Out[102…
```
1923877827136
```

In [103…
```
mydict['Address'] = 'HYDERABAD'
```

In [104…
```
mydict
```

Out[104…
```
{'Name': 'Harsha', 'ID': 60, 'DOB': 2004, 'Address': 'HYDERABAD'}
```

In [105…
```
mydict1
```

Out[105…
```
{'Name': 'Harsha', 'ID': 60, 'DOB': 2004, 'Address': 'HYDERABAD'}
```

Loop through a Dictionary

In [106…
```
mydict1
```

Out[106…
```
{'Name': 'Harsha', 'ID': 60, 'DOB': 2004, 'Address': 'HYDERABAD'}
```

In [107…
```
mydict1['job'] = 'Software Developer'
```

In [108…
```
mydict1
```

Out[108…
```
{'Name': 'Harsha',
 'ID': 60,
 'DOB': 2004,
 'Address': 'HYDERABAD',
 'job': 'Software Developer'}
```

In [110…
```
for i in mydict1:
    print(i,':',mydict1[i])
```

```
Name : Harsha
ID : 60
DOB : 2004
Address : HYDERABAD
job : Software Developer
```

In [111…
```
for i in mydict1:
    print(mydict1[i])
```

```
Harsha
60
2004
HYDERABAD
Software Developer
```

Dictionary Membership

In [112…
```
mydict1
```

Out[112…
```
{'Name': 'Harsha',
 'ID': 60,
 'DOB': 2004,
 'Address': 'HYDERABAD',
 'job': 'Software Developer'}
```

In [113…
```
mydict
```

Out[113…
```
{'Name': 'Harsha',
 'ID': 60,
 'DOB': 2004,
 'Address': 'HYDERABAD',
 'job': 'Software Developer'}
```

In [114…
```
'Name' in mydict1
```

Out[114…
```
True
```

In [115…
```
'job' in mydict
```

Out[115…
```
True
```

In [116…
```
'Age' in mydict
```

Out[116…
```
False
```

In [ ]: