In [1]:
```
d2={"Division A" : 60,"Division B" : 70,"Division C" : 80}
d2
```

Out[1]:
```
{'Division A': 60, 'Division B': 70, 'Division C': 80}
```

In [2]:
```
d2.pop("Division B")
d2
```

Out[2]:
```
{'Division A': 60, 'Division C': 80}
```

In [3]:
```
d2.popitem()
```

Out[3]:
```
('Division C', 80)
```

In [4]:
```
d2
```

Out[4]:
```
{'Division A': 60}
```

In [5]:
```
d3={"DivA" :80, "DivB" :30}
d3
```

Out[5]:
```
{'DivA': 80, 'DivB': 30}
```

In [7]:
```
d2
```

Out[7]:
```
{'Division A': 60}
```

In [8]:
```
d3
```

Out[8]:
```
{'DivA': 80, 'DivB': 30}
```

In [11]:
```
d2.update(d3)
d2
```

Out[11]:
```
{'Division A': 60, 'DivA': 80, 'DivB': 30}
```

In [12]:
```
len(d2)
```

Out[12]:
```
3
```

In [13]:
```
d2["stdD"]=90
```

In [14]:
```
d2["class4th"]=67
```

In [15]:
```
d2
```

Out[15]:
```
{'Division A': 60, 'DivA': 80, 'DivB': 30, 'stdD': 90, 'class4th': 67}
```

In [16]:
```
max(d2)
```

Out[16]:
```
'stdD'
```

In [17]:
```
max(d2,key=d2.get)
```

Out[17]:
```
'stdD'
```

In [19]:
```
d2["DivB"]=140
d2
```

Out[19]:
```
{'Division A': 60, 'DivA': 80, 'DivB': 140, 'stdD': 90, 'class4th': 67}
```

In [22]:
```
def getMaxValue(d):
    return k[1]
```

In [23]:
```
max(d2,key=lambda k: k[1])
```

Out[23]:
```
'stdD'
```

In [24]:
```
d2
```

Out[24]:
```
{'Division A': 60, 'DivA': 80, 'DivB': 140, 'stdD': 90, 'class4th': 67}
```

In [26]:
```
d4=d2
d4
```

Out[26]:
```
{'Division A': 60, 'DivA': 80, 'DivB': 140, 'stdD': 90, 'class4th': 67}
```

In [27]:
```
d2.pop("DivB")
```

Out[27]:
```
140
```

In [28]:
```
d2
```

Out[28]:
```
{'Division A': 60, 'DivA': 80, 'stdD': 90, 'class4th': 67}
```

In [29]:
```
d4
```

Out[29]:
```
{'Division A': 60, 'DivA': 80, 'stdD': 90, 'class4th': 67}
```

In [31]:
```
dcpy=d2.copy()
dcpy
```

Out[31]:
```
{'Division A': 60, 'DivA': 80, 'stdD': 90, 'class4th': 67}
```

In [32]:
```
print(id(d2))
print(id(d4))
print(id(dcpy))
```

```
1357165526144
1357165526144
1357166533568
```

In [33]:
```
cities=["Pune","Pune","Mumbai","Nashik"]
empty={}
for key in cities:
    if key in empty:
        empty[key]+=1
    else:
        empty[key]=1
print(empty)
```

```
{'Pune': 2, 'Mumbai': 1, 'Nashik': 1}
```

In [34]:
```
# logic 2
empty={}
for key in cities:
    if key not in empty:
        empty[key]=cities.count(key)
print(empty)
```

```
{'Pune': 2, 'Mumbai': 1, 'Nashik': 1}
```

In [38]:
```
sortedkeys=sorted(empty,key=empty.get,reverse=True)
print(sortedkeys)
```

```
['Pune', 'Mumbai', 'Nashik']
```

In [36]:
```
empty
```

Out[36]:
```
{'Pune': 2, 'Mumbai': 1, 'Nashik': 1}
```

In [37]:
```
sorted(empty.items(),reverse=True)
```

Out[37]:
```
[('Pune', 2), ('Nashik', 1), ('Mumbai', 1)]
```

In [1]:
```
d1={'A':45,'B':78,'C':45}
d2={'N':30,'M':80,'V':20}
d3={'A':10,'M':80,'V':20}
d1
```

Out[1]:
```
{'A': 45, 'B': 78, 'C': 45}
```

In [2]:
```
sum=0
for v in d1.values():
    sum+=v
print(sum)
```

```
168
```

In [3]:
```
d4={'first':d1,'second':d2,'third':d3}
d4
```

Out[3]:
```
{'first': {'A': 45, 'B': 78, 'C': 45},
 'second': {'N': 45, 'M': 78, 'V': 45},
 'third': {'A': 45, 'M': 78, 'V': 45}}
```

In [4]:
```
d4:{'first':d1,'second':d2,'third':d3}
d4
print(d4.keys())
print(d4.values())
```

```
dict_keys(['first', 'second', 'third'])
dict_values([{'A': 45, 'B': 78, 'C': 45}, {'N': 45, 'M': 78, 'V': 45}, {'A': 45, 'M': 78, 'V': 45}])
```

In [10]:
```
maind={'d1':{'A':30,'B':60,'W':56},
       'd2':{'C':89,'D':70,'F':87},
       'd3':{'G':67,'H':80,'D':65}
      }
maind
```

Out[10]:
```
{'d1': {'A': 30, 'B': 60, 'W': 56},
 'd2': {'C': 89, 'D': 70, 'F': 87},
 'd3': {'G': 67, 'H': 80, 'D': 65}}
```

In [14]:
```
for k,vdic in maind.items():
    print(k,' has value')
    for k1,v1 in vdic.items():
        print(k1,'=',vdic[k1])
    print('_____________')
```

```
d1  has value
A = 30
B = 60
W = 56
_____________
d2  has value
C = 89
D = 70
F = 87
_____________
d3  has value
G = 67
H = 80
D = 65
_____________
```

In [16]:
```
for k,v in d4:
    print('From',k,)
    print('values:',d4[k])
    print('values: ',v)
    print('_____________')
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
~\AppData\Local\Temp/ipykernel_1456/3784444542.py in <module>
----> 1 for k,v in d4:
      2     print('From',k,)
      3     print('values:',d4[k])
      4     print('values: ',v)
      5     print('_____________')

ValueError: too many values to unpack (expected 2)
```

In [ ]:
```

```