```
In [155...  d={}
            d
```

Out[155... {}

```
In [156...  type(d)
```

Out[156... dict

```
In [157...  d1={1:'one',2:'two',3:'three'}
            d1
```

Out[157... {1: 'one', 2: 'two', 3: 'three'}

```
In [158...  d1.keys()
```

Out[158... dict_keys([1, 2, 3])

```
In [159...  d1.values()
```

Out[159... dict_values(['one', 'two', 'three'])

```
In [160...  d1.items()
```

Out[160... dict_items([(1, 'one'), (2, 'two'), (3, 'three')])

```
In [161...  len(d1)
```

Out[161... 3

```
In [162...  d1={1:'one','A':'two','C':['three','four','five']}
            d1
```

Out[162... {1: 'one', 'A': 'two', 'C': ['three', 'four', 'five']}

```
In [163...  d1={1:'one','A':'two','C':['three','four','five'],'D':['six','seven','eight']}
            d1
```

Out[163... {1: 'one',
             'A': 'two',
             'C': ['three', 'four', 'five'],
             'D': ['six', 'seven', 'eight']}

```
In [164...  d1={1:'one','A':'two','C':{'three','four','five'},'D':('six','seven','eight')}
            d1
```

Out[164... {1: 'one',
             'A': 'two',
             'C': {'five', 'four', 'three'},
             'D': ('six', 'seven', 'eight')}
```

```
In [165…  keys={'a','b','c','d'}
          d2=dict.fromkeys(keys)
          d2
```

Out[165… {'d': None, 'a': None, 'c': None, 'b': None}

```
In [166…  keys={'a','b','c','d'}
          value=10
          d2=dict.fromkeys(keys,value)
          d2
```

Out[166… {'d': 10, 'a': 10, 'c': 10, 'b': 10}

```
In [167…  keys={'a','b','c','d'}
          value=[10,20,30]
          d2=dict.fromkeys(keys,value)
          d2
```

Out[167… {'d': [10, 20, 30], 'a': [10, 20, 30], 'c': [10, 20, 30], 'b': [10, 20, 30]}

```
In [168…  value.append(50)
          d2
```

Out[168… {'d': [10, 20, 30, 50],
           'a': [10, 20, 30, 50],
           'c': [10, 20, 30, 50],
           'b': [10, 20, 30, 50]}

```
In [169…  d1
```

Out[169… {1: 'one',
           'A': 'two',
           'C': {'five', 'four', 'three'},
           'D': ('six', 'seven', 'eight')}

```
In [170…  d1['A']
```

Out[170… 'two'

```
In [171…  d1['D']
```

Out[171… ('six', 'seven', 'eight')

```
In [172…  d1.get('C')
```

Out[172… {'five', 'four', 'three'}

```
In [173…  d1['E']='nine'
          d1['F']=10
          d1
```

```
Out[173…  {1: 'one',
           'A': 'two',
           'C': {'five', 'four', 'three'},
           'D': ('six', 'seven', 'eight'),
           'E': 'nine',
           'F': 10}
```

```
In [174…  d1['C']={4,5,6}
          d1
```

```
Out[174…  {1: 'one',
           'A': 'two',
           'C': {4, 5, 6},
           'D': ('six', 'seven', 'eight'),
           'E': 'nine',
           'F': 10}
```

```
In [175…  d1.pop('F')
          d1
```

```
Out[175…  {1: 'one',
           'A': 'two',
           'C': {4, 5, 6},
           'D': ('six', 'seven', 'eight'),
           'E': 'nine'}
```

```
In [176…  d1.popitem()
```

```
Out[176…  ('E', 'nine')
```

```
In [177…  d1
```

```
Out[177…  {1: 'one', 'A': 'two', 'C': {4, 5, 6}, 'D': ('six', 'seven', 'eight')}
```

```
In [178…  d1.clear()
          d1
```

```
Out[178…  {}
```

```
In [179…  del d1
          d1
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[179], line 2
      1 del d1
----> 2 d1

NameError: name 'd1' is not defined
```

```
In [ ]:  d2
```

```
Out[ ]: {'b': [10, 20, 30, 50],
         'c': [10, 20, 30, 50],
         'a': [10, 20, 30, 50],
         'd': [10, 20, 30, 50]}
```

```
In [ ]: d1=d2
```

```
In [ ]: d1
```

```
Out[ ]: {'b': [10, 20, 30, 50],
         'c': [10, 20, 30, 50],
         'a': [10, 20, 30, 50],
         'd': [10, 20, 30, 50]}
```

```
In [ ]: d2
```

```
Out[ ]: {'d': [10, 20, 30, 50],
         'a': [10, 20, 30, 50],
         'c': [10, 20, 30, 50],
         'b': [10, 20, 30, 50]}
```

```
In [ ]: d1=d2
        d1
```

```
Out[ ]: {'d': [10, 20, 30, 50],
         'a': [10, 20, 30, 50],
         'c': [10, 20, 30, 50],
         'b': [10, 20, 30, 50]}
```

```
In [ ]: id(d1)==id(d2)
```

```
Out[ ]: True
```

```
In [ ]: id(d1),id(d2)
```

```
Out[ ]: (2719496989696, 2719496989696)
```

```
In [ ]: d2
```

```
Out[ ]: {'d': [10, 20, 30, 50],
         'a': [10, 20, 30, 50],
         'c': [10, 20, 30, 50],
         'b': [10, 20, 30, 50]}
```

```
In [ ]: d3=d2.copy()
```

```
In [ ]: d3
```

```
Out[ ]: {'d': [10, 20, 30, 50],
         'a': [10, 20, 30, 50],
         'c': [10, 20, 30, 50],
         'b': [10, 20, 30, 50]}
```

```
In [ ]:  id(d3)==id(d2)
```

Out[ ]: False

```
In [ ]:  id(d3),id(d2)
```

Out[ ]: (2719496557120, 2719496989696)

```
In [ ]:  d3['c']='pyhton'
```

```
In [ ]:  d3
```

Out[ ]: {'d': [10, 20, 30, 50],
          'a': [10, 20, 30, 50],
          'c': 'pyhton',
          'b': [10, 20, 30, 50]}

```
In [ ]:  d4={1:'one',2:'two',3:'three',4:'four',5:'five'}
         d4
```

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

```
In [ ]:  d4
```

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

```
In [ ]:  for i in d4:
             print(d4[i])
```

one
two
three
four
five

```
In [ ]:  for i in d4:
             print(i,':',d4[i])
```

1 : one
2 : two
3 : three
4 : four
5 : five

```
In [ ]:  1 in d4
```

Out[ ]: True

```
In [ ]:  'four' in d4
```

Out[ ]: False

```
In [ ]: all(d4)

Out[ ]: True

In [ ]: any(d4)

Out[ ]: True
```