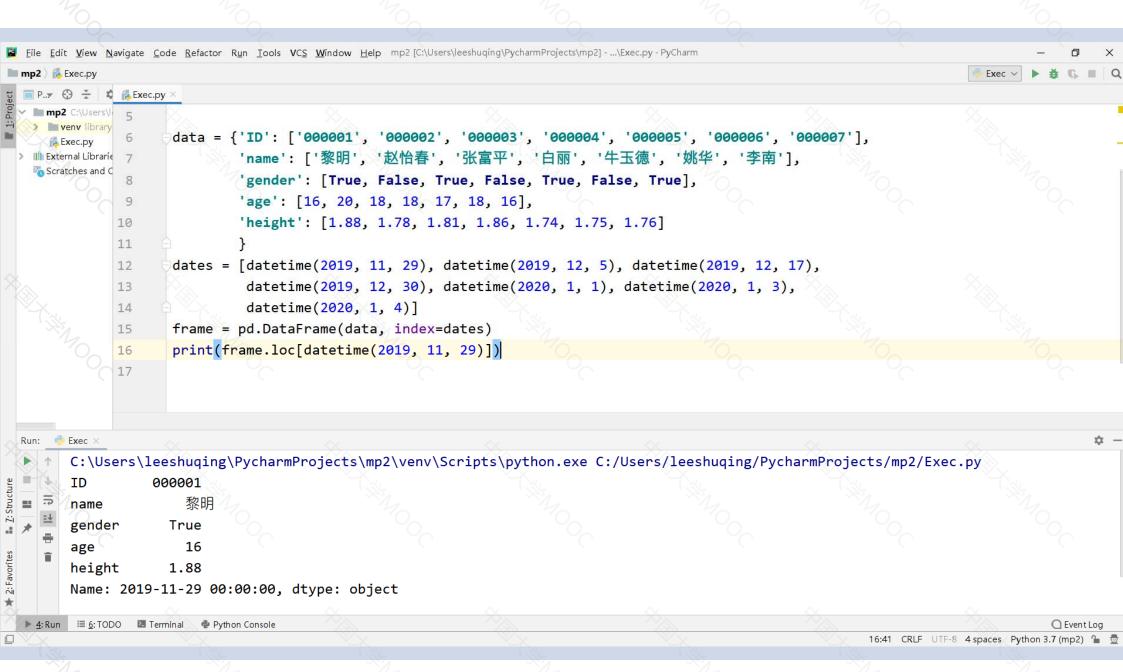
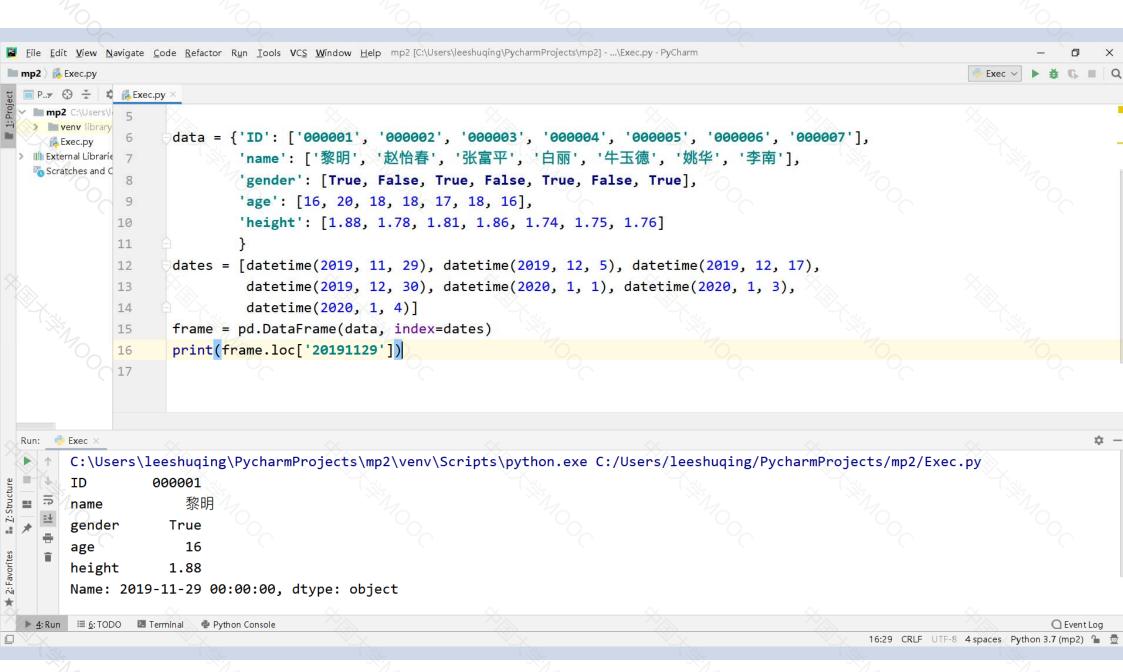
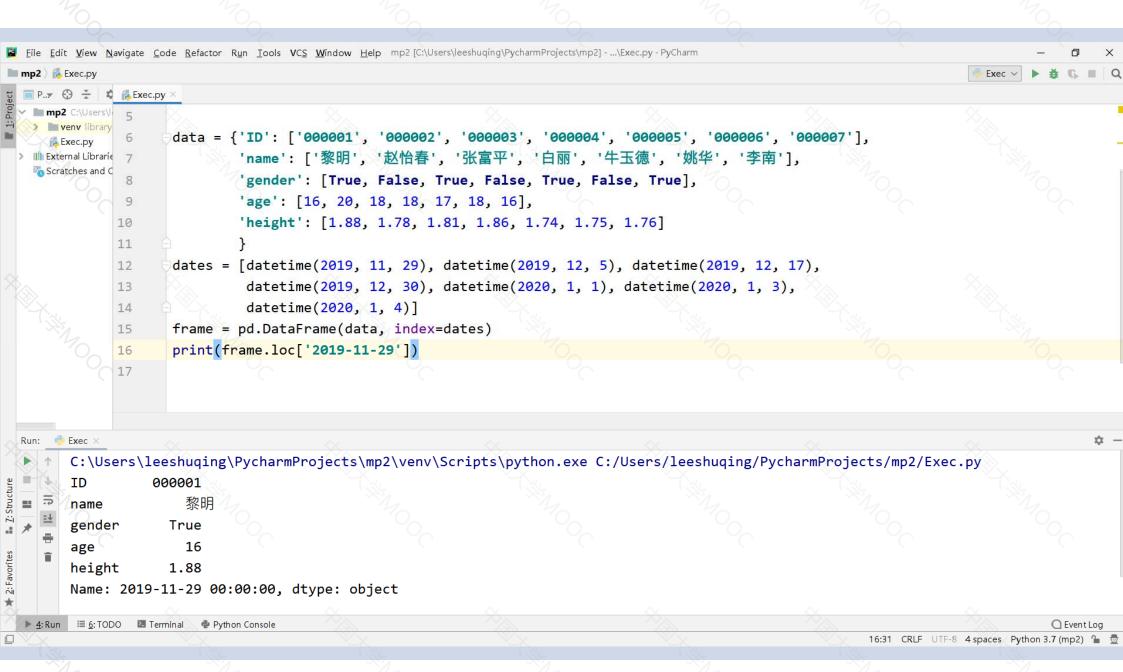
Python大数据分析

二、时间索引

```
🖺 File Edit View Navigate Code Refactor Run Jools VCS Window Help mp2 [C:\Users\leeshuqing\PycharmProjects\mp2] - ...\Exec.py - PyCharm
 P..y 🔾 😤 🛱 Exec.py
 mp2 C:\Users\l
                   from pandas import DataFrame
 > venv library
   Exec.py
                   from datetime import datetime
 External Librarie
 Scratches and C
                   data = {'ID': ['000001', '000002', '000003', '000004', '000005', '000006', '000007'],
                            'name': ['黎明', '赵怡春', '张富平', '白丽', '牛玉德', '姚华', '李南'],
                            'gender': [True, False, True, False, True, False, True],
             8
                            'age': [16, 20, 18, 18, 17, 18, 16],
             9
                            'height': [1.88, 1.78, 1.81, 1.86, 1.74, 1.75, 1.76]
            10
            11
                   dates = [datetime(2019, 11, 29), datetime(2019, 12, 5), datetime(2019, 12, 17),
            12
            13
                             datetime(2019, 12, 30), datetime(2020, 1, 1), datetime(2020, 1, 3),
                             datetime(2020, 1, 4)]
                   frame = pd.DataFrame(data, index=dates)
            15
                   print(frame)
            16
      Exec :
      C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py
                       ID name gender age height
                            黎明
      2019-11-29 000001
                                    True
                                            16
                                                   1.88
      2019-12-05 000002
                           赵怡春
                                                   1.78
                                    False
                                             20
                           张富平
      2019-12-17 000003
                                     True
                                             18
                                                   1.81
      2019-12-30 000004
                            H PP
                                   False
                                            18
                                                   1.86
                           牛玉德
                                                   1.74
      2020-01-01 000005
                                     True
                                            17
                            姚华
      2020-01-03 000006
                                   False
                                            18
                                                   1.75
              ■ Terminal
                                                                                                               15:40 CRLF UTF-8 4 spaces Python 3.7 (mp2) 🧣 💆
```



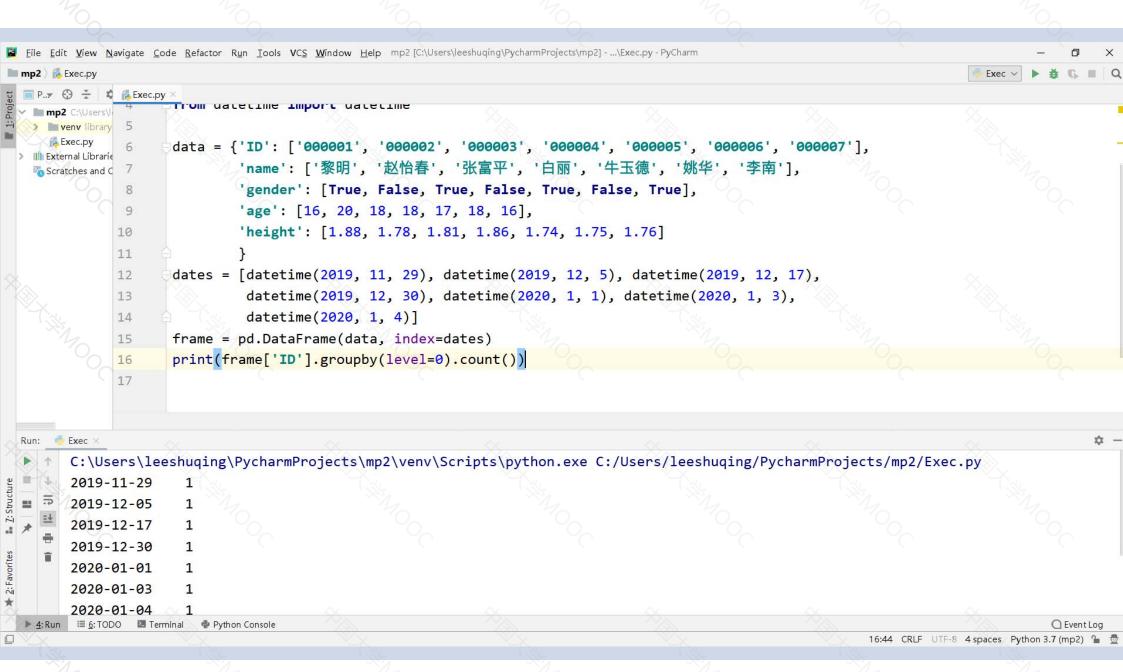


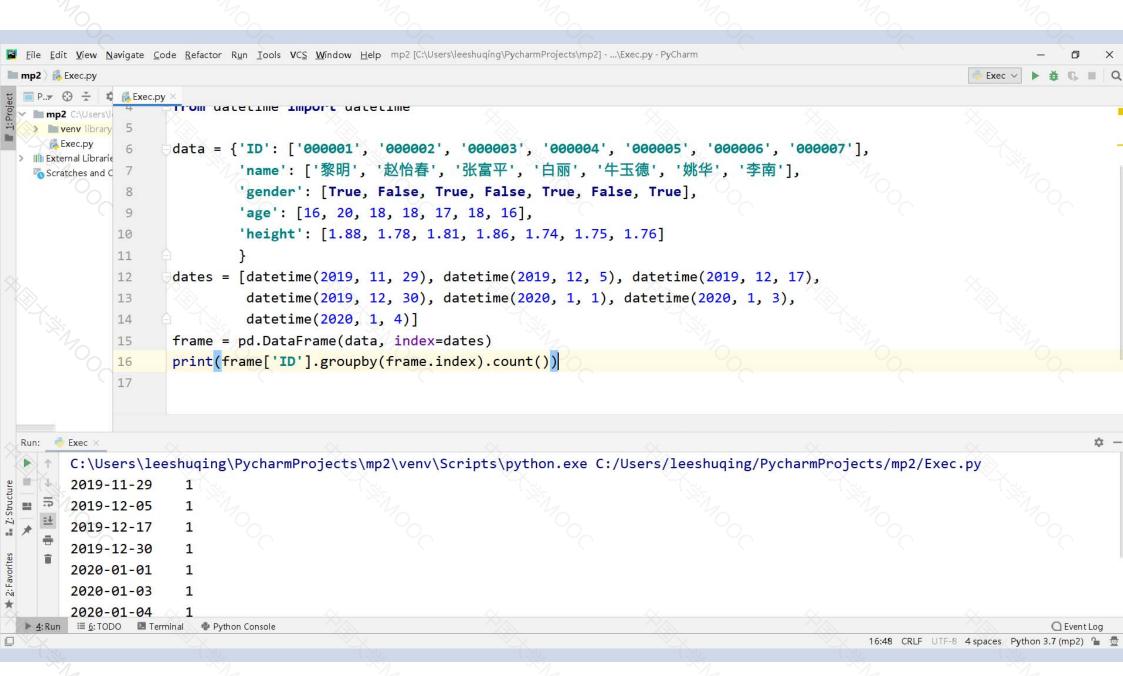


```
🖺 File Edit View Navigate Code Refactor Run Jools VCS Window Help mp2 [C:\Users\leeshuqing\PycharmProjects\mp2] - ...\Exec.py - PyCharm
mp2 C:\Users\l 5
 > wenv library
                   data = {'ID': ['000001', '000002', '000003', '000004', '000005', '000006', '000007'],
   Exec.py
                           'name': ['黎明', '赵怡春', '张富平', '白丽', '牛玉德', '姚华', '李南'],
External Librarie 7
 Scratches and C
                           'gender': [True, False, True, False, True, False, True],
                           'age': [16, 20, 18, 18, 17, 18, 16],
                           'height': [1.88, 1.78, 1.81, 1.86, 1.74, 1.75, 1.76]
            10
            11
                   dates = [datetime(2019, 11, 29), datetime(2019, 12, 5), datetime(2019, 12, 17),
            12
                            datetime(2019, 12, 30), datetime(2020, 1, 1), datetime(2020, 1, 3),
            13
                            datetime(2020, 1, 4)]
            14
                   frame = pd.DataFrame(data, index=dates)
            15
                   print(frame.loc['2019-12'])
      C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py
                      ID name gender age height
      2019-12-05 000002 赵怡春
                                  False
                                            20
                                                  1.78
                           张富平
                                                  1.81
      2019-12-17 000003
                                    True
                                           18
                            白丽
      2019-12-30 000004
                                  False
                                           18
                                                 1.86
      Process finished with exit code 0
      Python Console
                                                                                                                                   C Event Log
                                                                                                            16:28 CRLF UTF-8 4 spaces Python 3.7 (mp2) 🦫 💆
```

```
🖺 File Edit View Navigate Code Refactor Run Jools VCS Window Help mp2 [C:\Users\leeshuqing\PycharmProjects\mp2] - ...\Exec.py - PyCharm
mp2 C:\Users\l 5
> wenv library
                  data = {'ID': ['000001', '000002', '000003', '000004', '000005', '000006', '000007'],
   Exec.py
                           'name': ['黎明', '赵怡春', '张富平', '白丽', '牛玉德', '姚华', '李南'],
External Librarie 7
 Scratches and C
                           'gender': [True, False, True, False, True, False, True],
                           'age': [16, 20, 18, 18, 17, 18, 16],
            9
                           'height': [1.88, 1.78, 1.81, 1.86, 1.74, 1.75, 1.76]
           10
           11
                  dates = [datetime(2019, 11, 29), datetime(2019, 12, 5), datetime(2019, 12, 17),
           12
                           datetime(2019, 12, 30), datetime(2020, 1, 1), datetime(2020, 1, 3),
           13
                           datetime(2020, 1, 4)]
           14
                  frame = pd.DataFrame(data, index=dates)
           15
                  print(frame.loc['2019-12':'2020-1'])
     Exec >
     C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py
                      ID name gender age height
                          赵怡春
      2019-12-05 000002
                                   False
                                           20
                                                 1.78
      2019-12-17 000003
                          张富平
                                                 1.81
                                    True
                                           18
      2019-12-30 000004
                           白丽
                                  False
                                          18
                                                 1.86
      2020-01-01 000005
                          牛玉德
                                                1.74
                                    True
                                          17
      2020-01-03 000006
                           姚华
                                  False
                                                 1.75
                                          18
      2020-01-04 000007
                           李南
                                   True
                                          16
                                                 1.76
      C Event Log
                                                                                                           16:37 CRLF UTF-8 4 spaces Python 3.7 (mp2) 🦫 💆
```

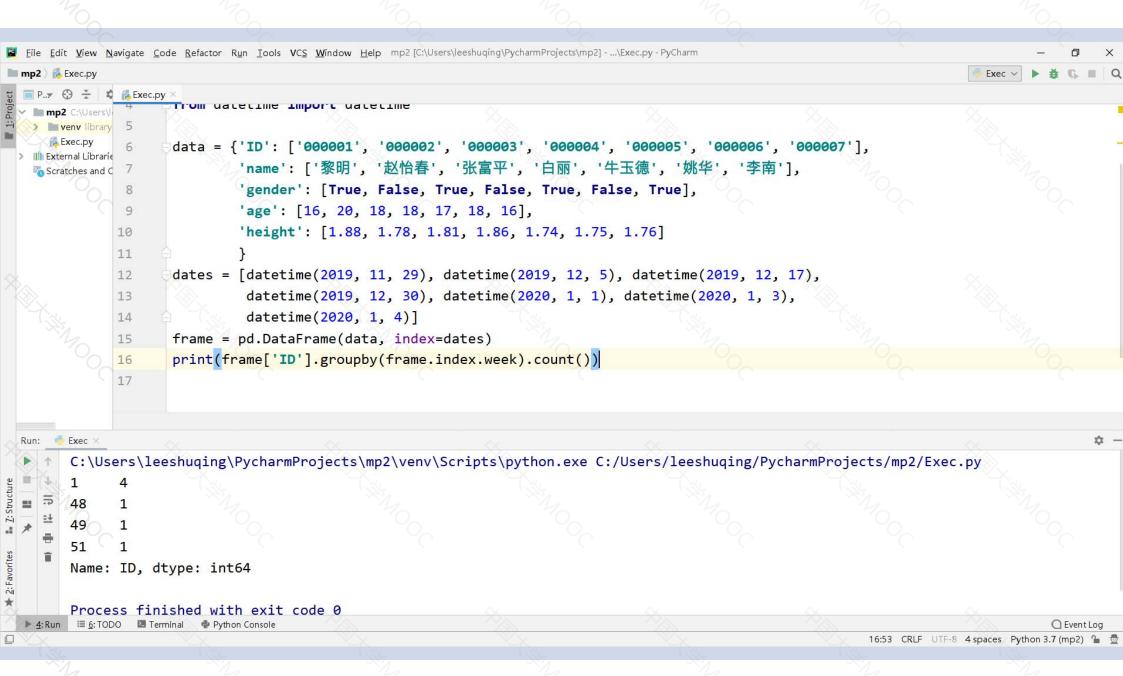
```
🖺 File Edit View Navigate Code Refactor Run Jools VCS Window Help mp2 [C:\Users\leeshuqing\PycharmProjects\mp2] - ...\Exec.py - PyCharm
mp2 C:\Users\l 5
> wenv library
                  data = {'ID': ['000001', '000002', '000003', '000004', '000005', '000006', '000007'],
   Exec.py
                           'name': ['黎明', '赵怡春', '张富平', '白丽', '牛玉德', '姚华', '李南'],
External Librarie 7
 Scratches and C
                           'gender': [True, False, True, False, True, False, True],
                           'age': [16, 20, 18, 18, 17, 18, 16],
            9
                           'height': [1.88, 1.78, 1.81, 1.86, 1.74, 1.75, 1.76]
           10
           11
                  dates = [datetime(2019, 11, 29), datetime(2019, 12, 5), datetime(2019, 12, 17),
           12
                           datetime(2019, 12, 30), datetime(2020, 1, 1), datetime(2020, 1, 3),
           13
                           datetime(2020, 1, 4)]
           14
                  frame = pd.DataFrame(data, index=dates)
           15
                  print(frame.truncate(before='2019-12-1'))
     Exec >
     C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py
                      ID name gender age height
                          赵怡春
      2019-12-05 000002
                                   False
                                           20
                                                 1.78
      2019-12-17 000003
                          张富平
                                                 1.81
                                    True
                                           18
                           白丽
      2019-12-30 000004
                                  False
                                          18
                                                 1.86
      2020-01-01 000005
                          牛玉德
                                                1.74
                                    True
                                          17
      2020-01-03 000006
                           姚华
                                  False
                                                 1.75
                                          18
      2020-01-04 000007
                           李南
                                   True
                                          16
                                                 1.76
      C Event Log
                                                                                                           16:42 CRLF UTF-8 4 spaces Python 3.7 (mp2) 🦫 💆
```





```
📱 Eile Edit View Navigate Code Refactor Run Iools VCS Window Help mp2 [C:\Users\leeshuqing\PycharmProjects\mp2] - ...\Exec.py - PyCharm
                    Trom datetime import datetime
 mp2 C:\Users\l
 > wenv library 5
   Exec.py
                    data = {'ID': ['000001', '000002', '000003', '000004', '000005', '000006', '000007'],
 External Librarie
                             'name': ['黎明', '赵怡春', '张富平', '白丽', '牛玉德', '姚华', '李南'],
 Scratches and C 7
                             'gender': [True, False, True, False, True, False, True],
                             'age': [16, 20, 18, 18, 17, 18, 16],
                             'height': [1.88, 1.78, 1.81, 1.86, 1.74, 1.75, 1.76]
            10
            11
                    dates = [datetime(2019, 11, 29), datetime(2019, 12, 5), datetime(2019, 12, 17),
            12
                             datetime(2019, 12, 30), datetime(2020, 1, 1), datetime(2020, 1, 3),
            13
                             datetime(2020, 1, 4)]
                    frame = pd.DataFrame(data, index=dates)
            15
                    print(frame['ID'].groupby(frame.index.year).count())
            17
      Exec >
      C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py
      2019
      2020
      Name: ID, dtype: int64
      Process finished with exit code 0
      I 6: TODO
               ■ Terminal
                       Python Console
                                                                                                                  16:53 CRLF UTF-8 4 spaces Python 3.7 (mp2) 🧣 💆
```

```
📱 File Edit View Navigate Code Refactor Run Jools VCS Window Help mp2 [C:\Users\leeshuqing\PycharmProjects\mp2] - ...\Exec.py - PyCharm
 P... 🗘 😤 🛱 Exec.py
                    Trom datetime import datetime
 mp2 C:\Users\l
 > env library 5
   Exec.py
                   data = {'ID': ['000001', '000002', '000003', '000004', '000005', '000006', '000007'],
 External Librarie
                            'name': ['黎明', '赵怡春', '张富平', '白丽', '牛玉德', '姚华', '李南'],
 Scratches and C 7
                            'gender': [True, False, True, False, True, False, True],
                            'age': [16, 20, 18, 18, 17, 18, 16],
                            'height': [1.88, 1.78, 1.81, 1.86, 1.74, 1.75, 1.76]
            10
            11
                   dates = [datetime(2019, 11, 29), datetime(2019, 12, 5), datetime(2019, 12, 17),
            12
                             datetime(2019, 12, 30), datetime(2020, 1, 1), datetime(2020, 1, 3),
            13
                             datetime(2020, 1, 4)]
                   frame = pd.DataFrame(data, index=dates)
            15
                   print(frame['ID'].groupby(frame.index.dt.year).count())
            17
      C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py
      Traceback (most recent call last):
        File "C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py", line 16, in <module>
          print(frame['ID'].groupby(frame.index.dt.year).count())
      AttributeError: 'DatetimeIndex' object has no attribute 'dt'
      Process finished with exit code 1
      I 6: TODO
              ■ Terminal
                       Python Console
                                                                                                                                         C Event Log
                                                                                                           13 chars 5:31 CRLF UTF-8 4 spaces Python 3.7 (mp2) 🦫 💆
```



一次不学多,下次再学