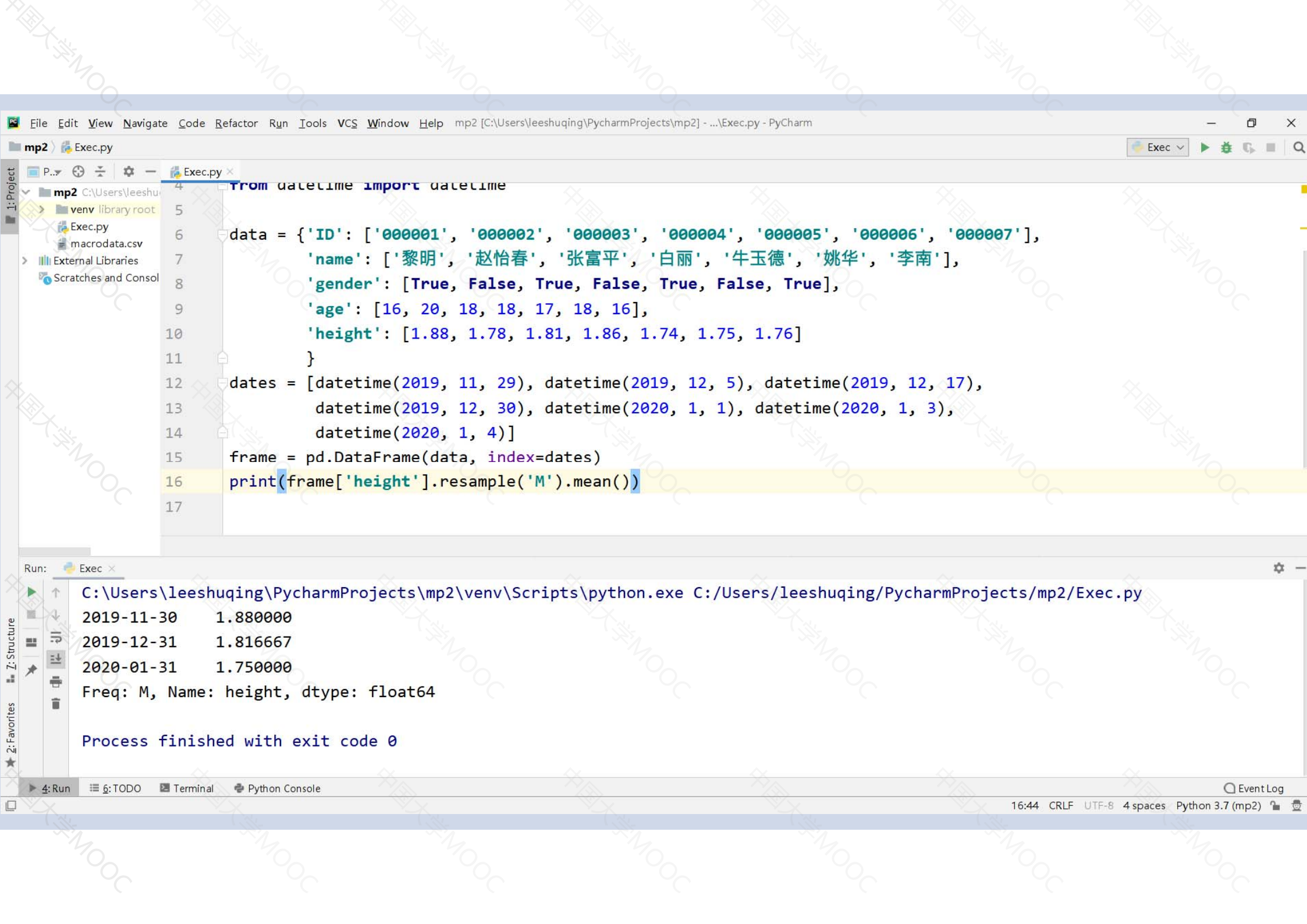
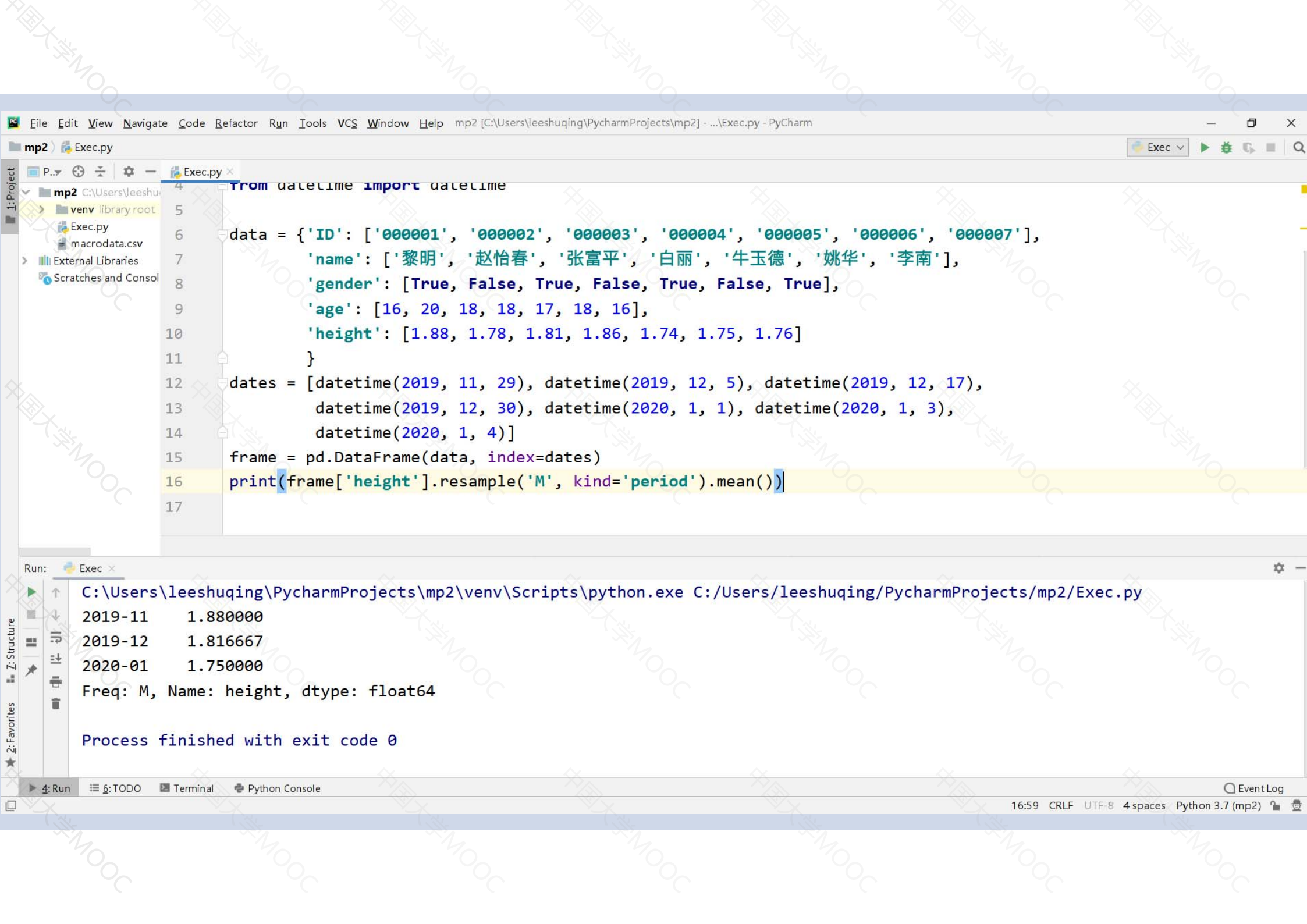


# Python大数据分析

## 五、时间采样





File Edit View Navigate Code Refactor Run Tools VCS Window Help mp2 [C:\Users\leeshuqing\PycharmProjects\mp2] - ...Exec.py - PyCharm

mp2 Exec.py

Exec

1: Project  
mp2 C:\Users\leeshuqing\PycharmProjects\mp2  
venv library root  
Exec.py  
macrodata.csv  
External Libraries  
Scratches and Console

```
4 from datetime import datetime
5
6 data = {'ID': ['000001', '000002', '000003', '000004', '000005', '000006', '000007'],
7         'name': ['黎明', '赵怡春', '张富平', '白丽', '牛玉德', '姚华', '李南'],
8         'gender': [True, False, True, False, True, False, True],
9         'age': [16, 20, 18, 18, 17, 18, 16],
10        'height': [1.88, 1.78, 1.81, 1.86, 1.74, 1.75, 1.76]}
11
12 dates = [datetime(2019, 11, 29), datetime(2019, 12, 5), datetime(2019, 12, 17),
13          datetime(2019, 12, 30), datetime(2020, 1, 1), datetime(2020, 1, 3),
14          datetime(2020, 1, 4)]
15 frame = pd.DataFrame(data, index=dates)
16 print(frame['height'].resample('M', kind='period').mean())
17
```

Run: Exec

C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py

2019-11 1.880000

2019-12 1.816667

2020-01 1.750000

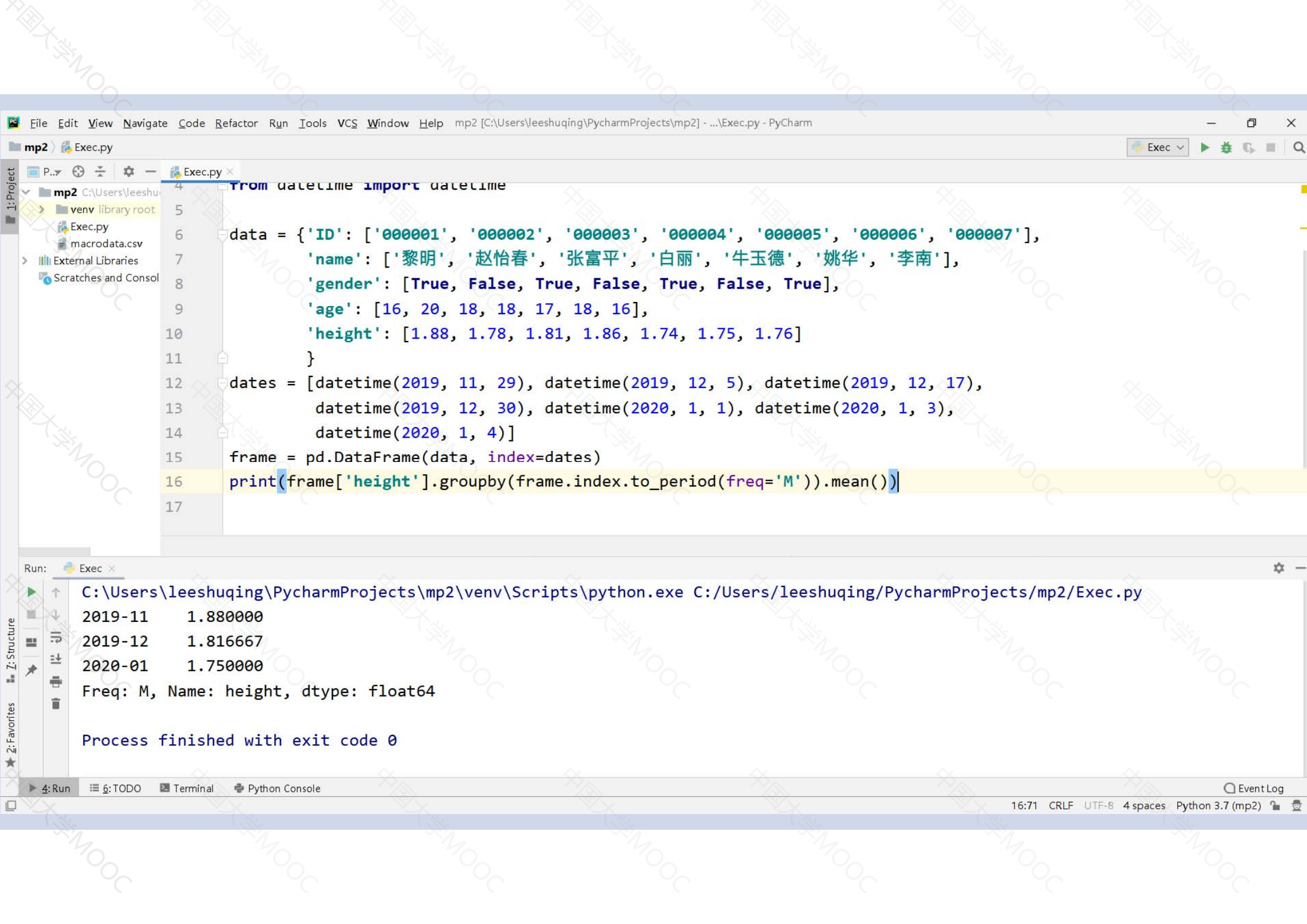
Freq: M, Name: height, dtype: float64

Process finished with exit code 0

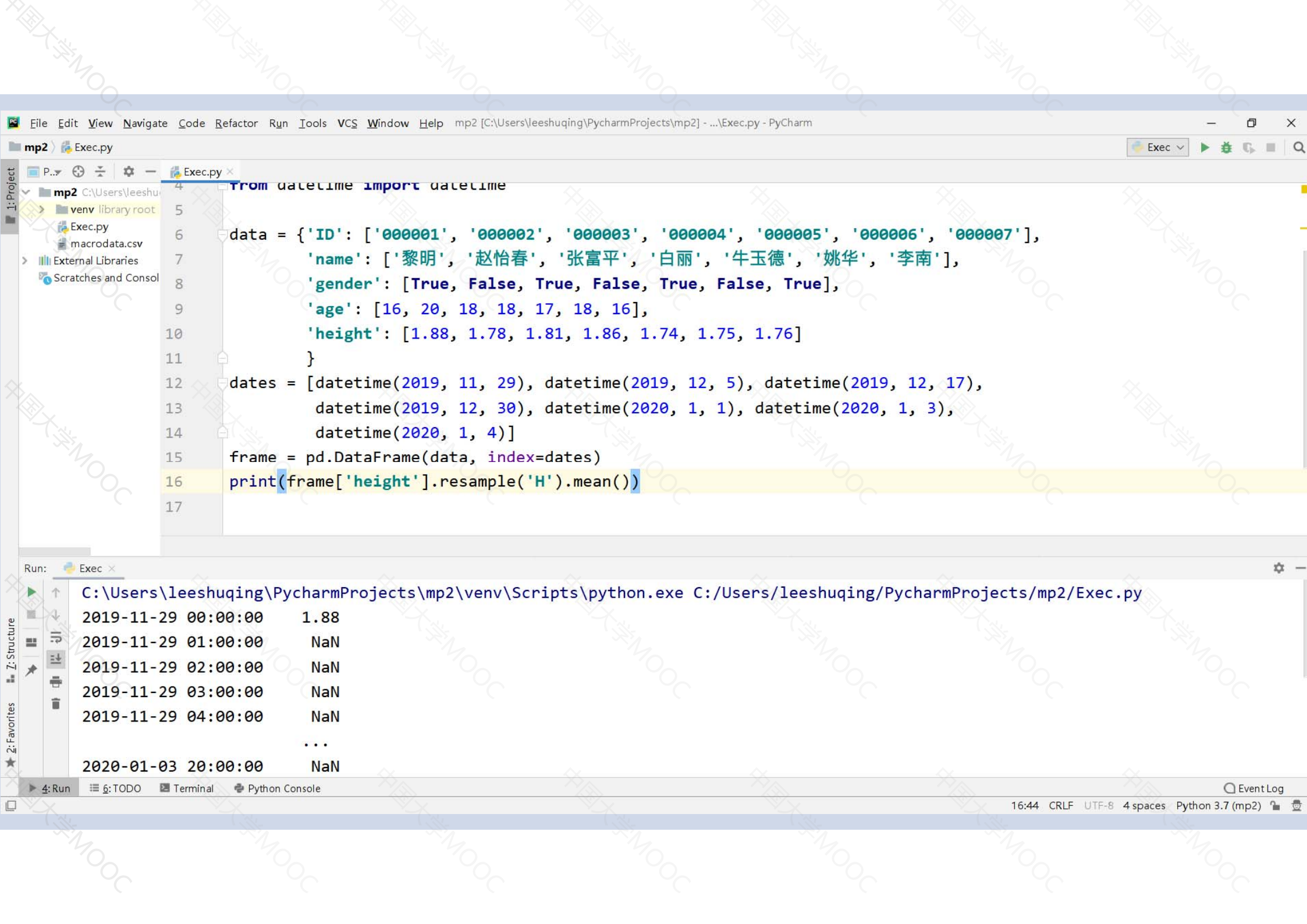
4: Run 6: TODO Terminal Python Console

Event Log

16:59 CRLF UTF-8 4 spaces Python 3.7 (mp2)



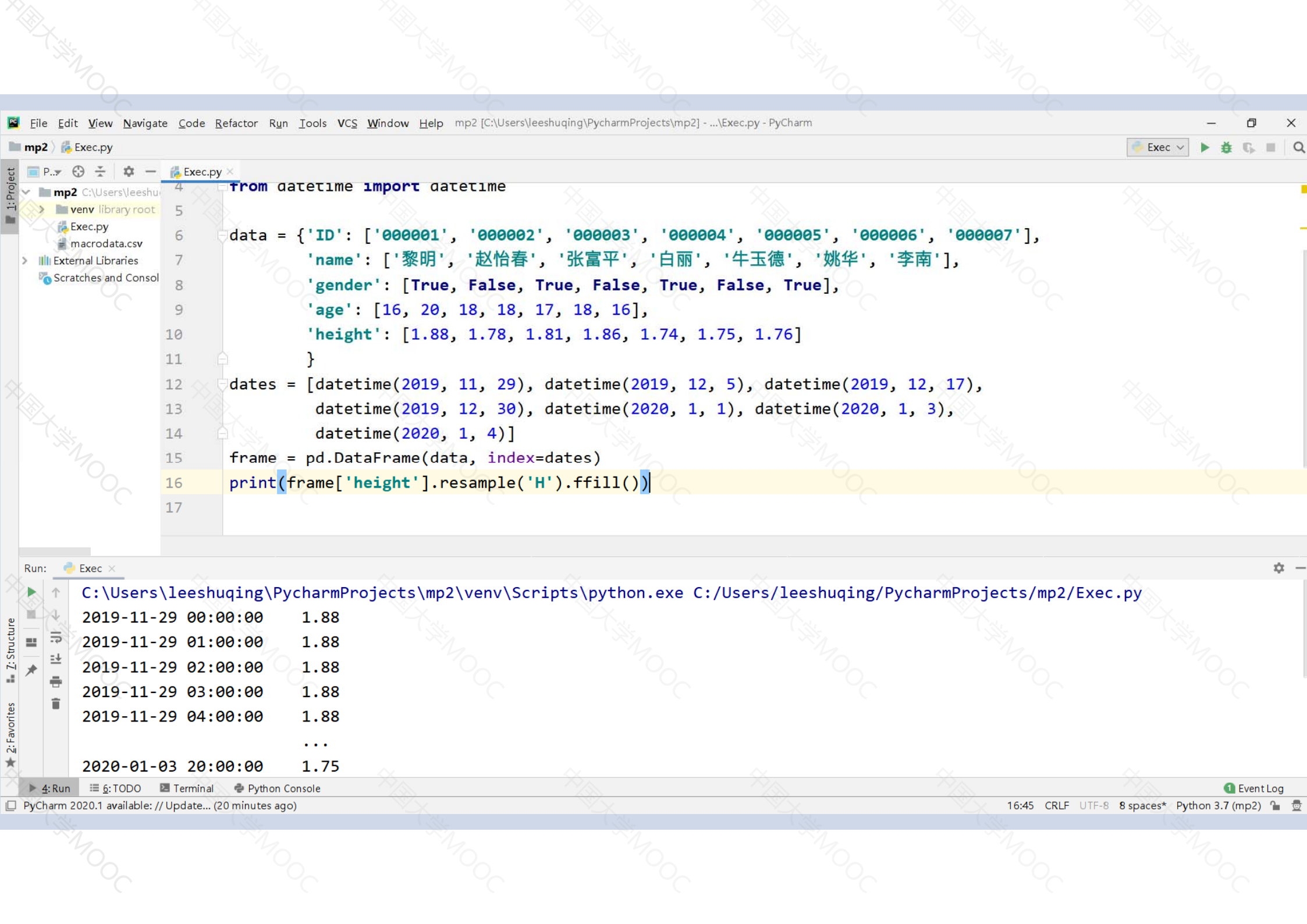




```
4 from datetime import datetime
5
6 data = {'ID': ['000001', '000002', '000003', '000004', '000005', '000006', '000007'],
7         'name': ['黎明', '赵怡春', '张富平', '白丽', '牛玉德', '姚华', '李南'],
8         'gender': [True, False, True, False, True, False, True],
9         'age': [16, 20, 18, 18, 17, 18, 16],
10        'height': [1.88, 1.78, 1.81, 1.86, 1.74, 1.75, 1.76]
11       }
12
13 dates = [datetime(2019, 11, 29), datetime(2019, 12, 5), datetime(2019, 12, 17),
14         datetime(2019, 12, 30), datetime(2020, 1, 1), datetime(2020, 1, 3),
15         datetime(2020, 1, 4)]
16
17 frame = pd.DataFrame(data, index=dates)
18
19 print(frame['height'].resample('H').mean())
```

C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py

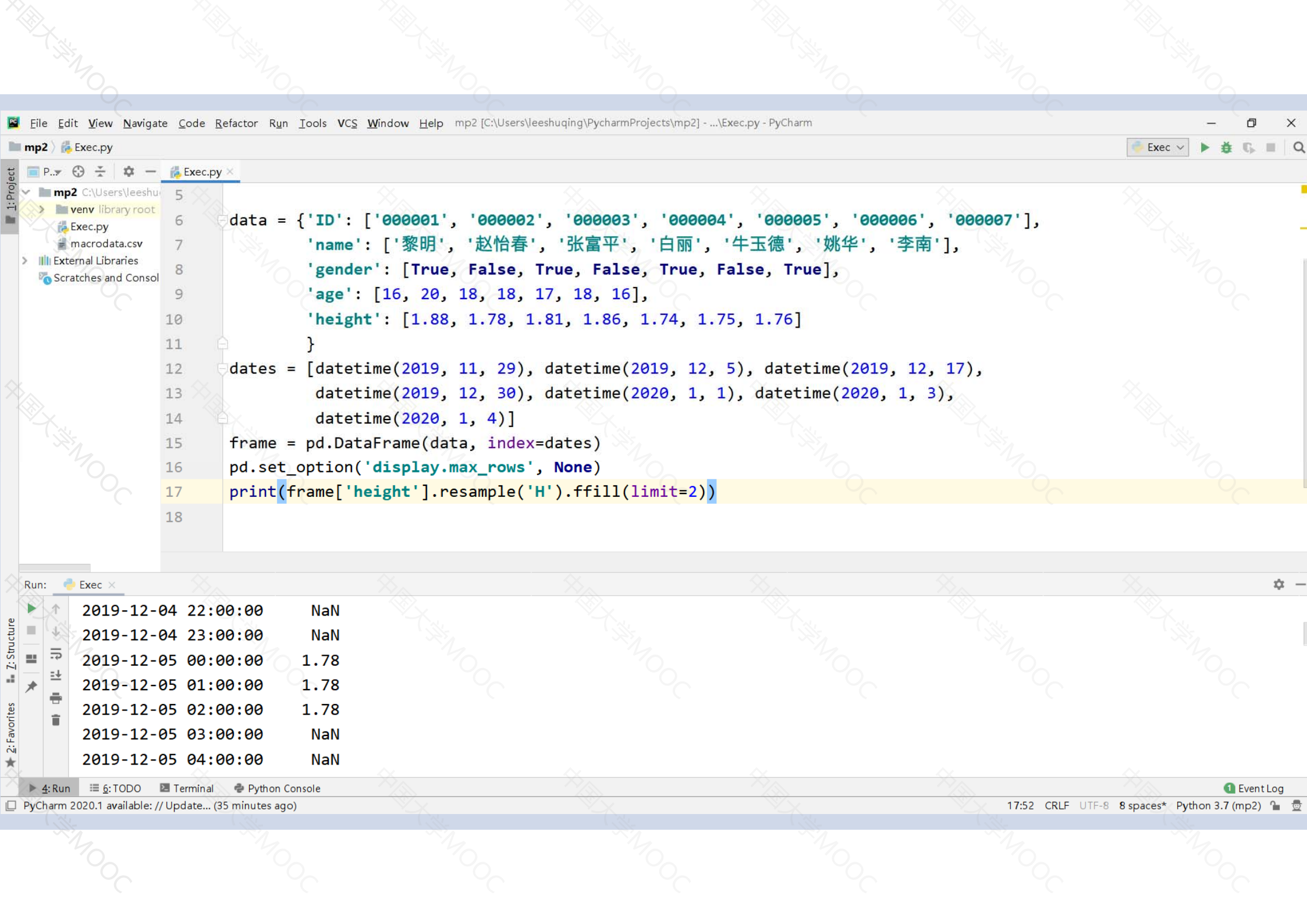
```
2019-11-29 00:00:00    1.88
2019-11-29 01:00:00    NaN
2019-11-29 02:00:00    NaN
2019-11-29 03:00:00    NaN
2019-11-29 04:00:00    NaN
...
2020-01-03 20:00:00    NaN
```



```
4 from datetime import datetime
5
6 data = {'ID': ['000001', '000002', '000003', '000004', '000005', '000006', '000007'],
7         'name': ['黎明', '赵怡春', '张富平', '白丽', '牛玉德', '姚华', '李南'],
8         'gender': [True, False, True, False, True, False, True],
9         'age': [16, 20, 18, 18, 17, 18, 16],
10        'height': [1.88, 1.78, 1.81, 1.86, 1.74, 1.75, 1.76]
11        }
12
13 dates = [datetime(2019, 11, 29), datetime(2019, 12, 5), datetime(2019, 12, 17),
14         datetime(2019, 12, 30), datetime(2020, 1, 1), datetime(2020, 1, 3),
15         datetime(2020, 1, 4)]
16
17 frame = pd.DataFrame(data, index=dates)
18
19 print(frame['height'].resample('H').ffill())
```

C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py

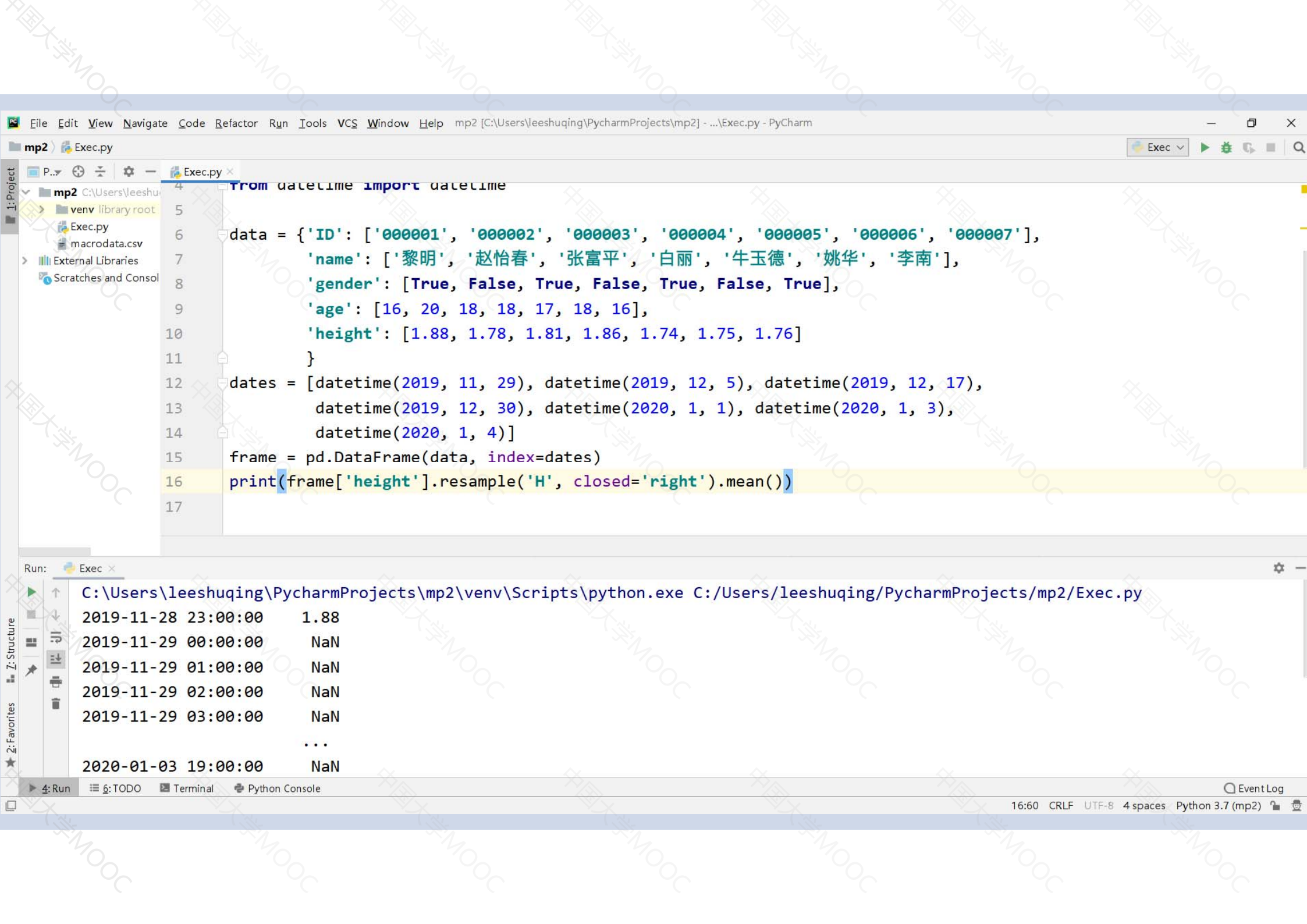
```
2019-11-29 00:00:00    1.88
2019-11-29 01:00:00    1.88
2019-11-29 02:00:00    1.88
2019-11-29 03:00:00    1.88
2019-11-29 04:00:00    1.88
...
2020-01-03 20:00:00    1.75
```



```
5 data = {'ID': ['000001', '000002', '000003', '000004', '000005', '000006', '000007'],
6         'name': ['黎明', '赵怡春', '张富平', '白丽', '牛玉德', '姚华', '李南'],
7         '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
12 dates = [datetime(2019, 11, 29), datetime(2019, 12, 5), datetime(2019, 12, 17),
13          datetime(2019, 12, 30), datetime(2020, 1, 1), datetime(2020, 1, 3),
14          datetime(2020, 1, 4)]
15 frame = pd.DataFrame(data, index=dates)
16 pd.set_option('display.max_rows', None)
17 print(frame['height'].resample('H').ffill(limit=2))
18
```

```
2019-12-04 22:00:00    NaN
2019-12-04 23:00:00    NaN
2019-12-05 00:00:00    1.78
2019-12-05 01:00:00    1.78
2019-12-05 02:00:00    1.78
2019-12-05 03:00:00    NaN
2019-12-05 04:00:00    NaN
```





```
4 from datetime import datetime
5
6 data = {'ID': ['000001', '000002', '000003', '000004', '000005', '000006', '000007'],
7         'name': ['黎明', '赵怡春', '张富平', '白丽', '牛玉德', '姚华', '李南'],
8         'gender': [True, False, True, False, True, False, True],
9         'age': [16, 20, 18, 18, 17, 18, 16],
10        'height': [1.88, 1.78, 1.81, 1.86, 1.74, 1.75, 1.76]
11        }
12
13 dates = [datetime(2019, 11, 29), datetime(2019, 12, 5), datetime(2019, 12, 17),
14         datetime(2019, 12, 30), datetime(2020, 1, 1), datetime(2020, 1, 3),
15         datetime(2020, 1, 4)]
16
17 frame = pd.DataFrame(data, index=dates)
18
19 print(frame['height'].resample('H', closed='right').mean())
```

Run: Exec

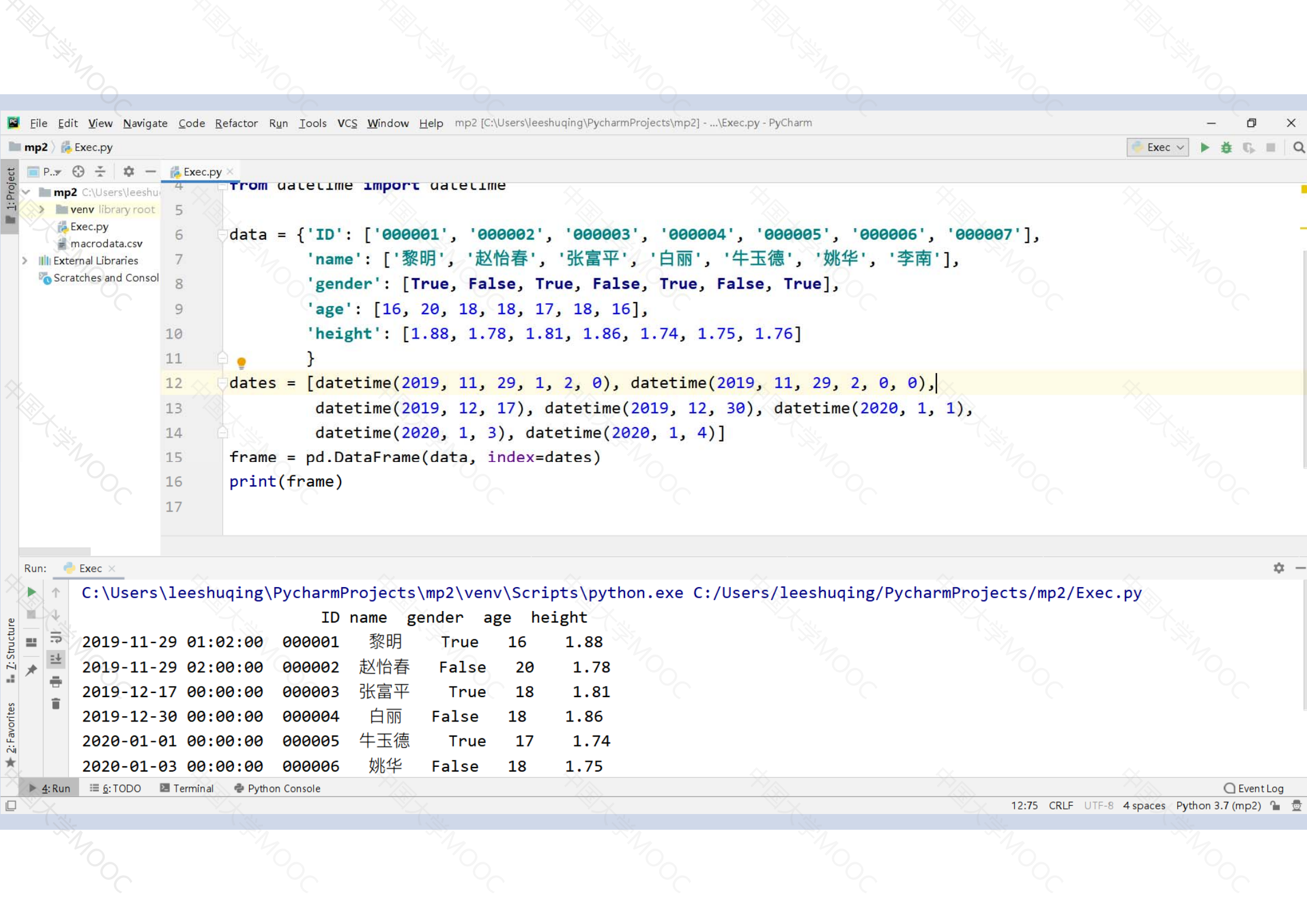
C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py

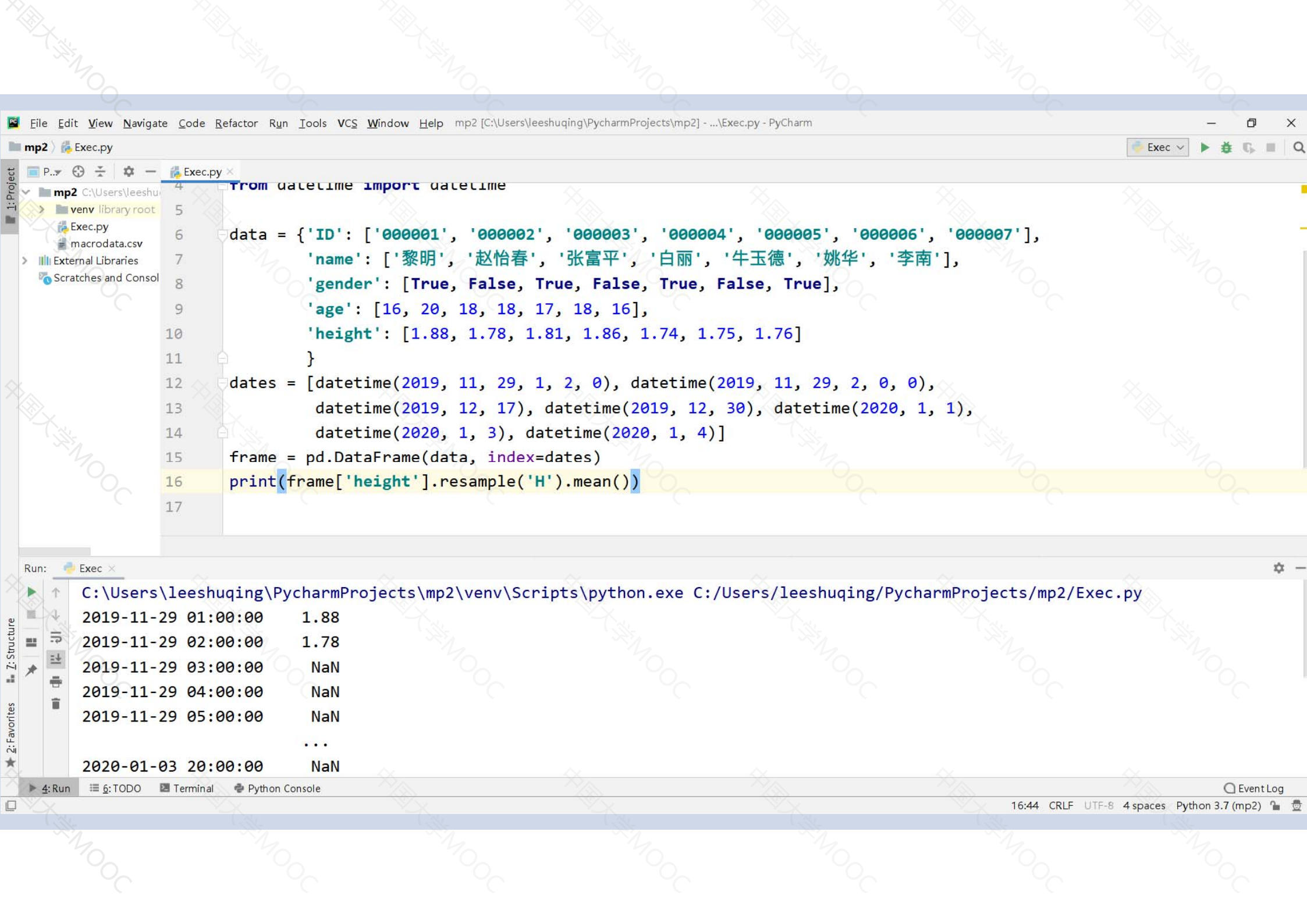
```
2019-11-28 23:00:00    1.88
2019-11-29 00:00:00    NaN
2019-11-29 01:00:00    NaN
2019-11-29 02:00:00    NaN
2019-11-29 03:00:00    NaN
...
2020-01-03 19:00:00    NaN
```

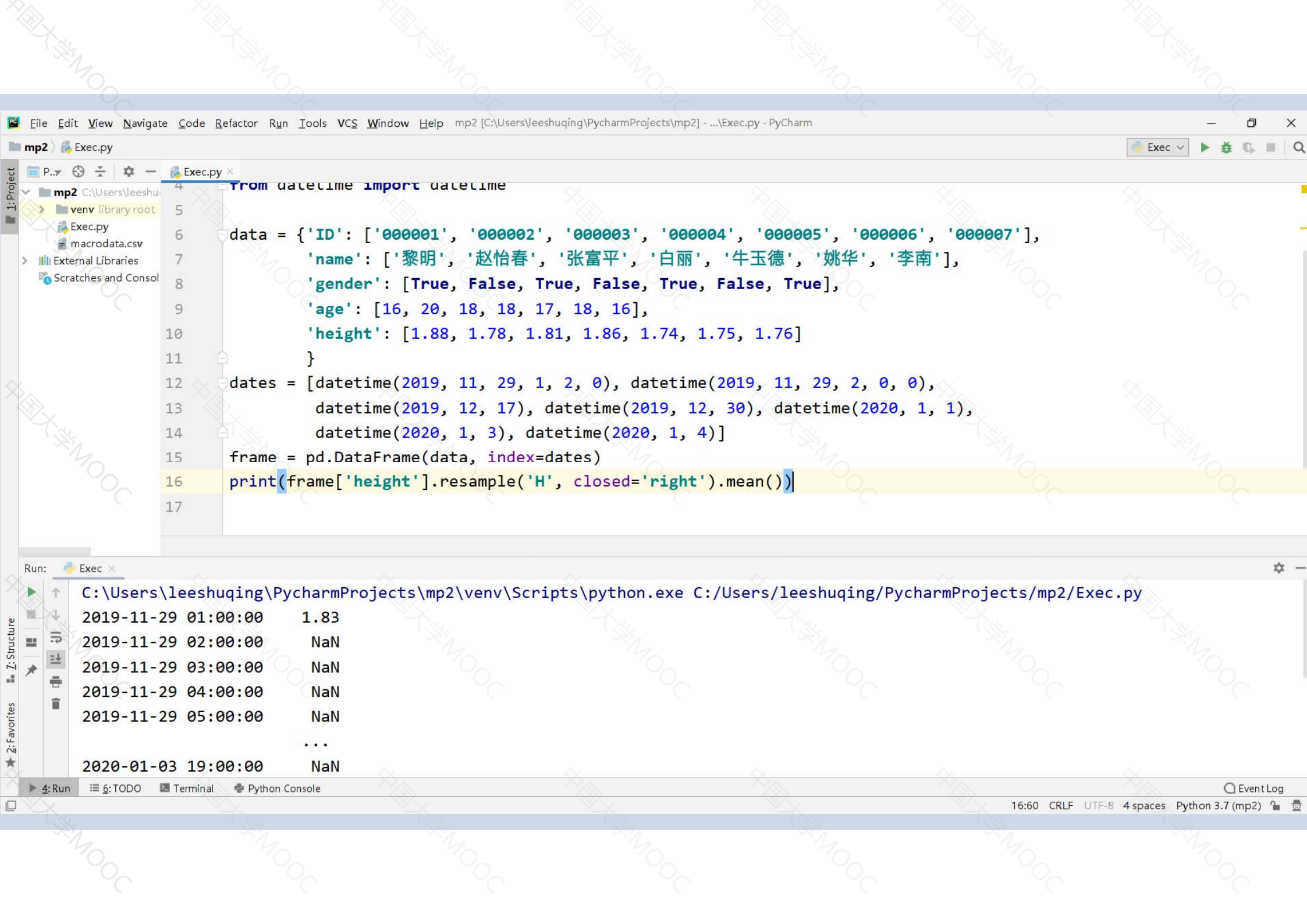
4: Run | TODO | Terminal | Python Console

16:60 CRLF UTF-8 4 spaces Python 3.7 (mp2) | Event Log

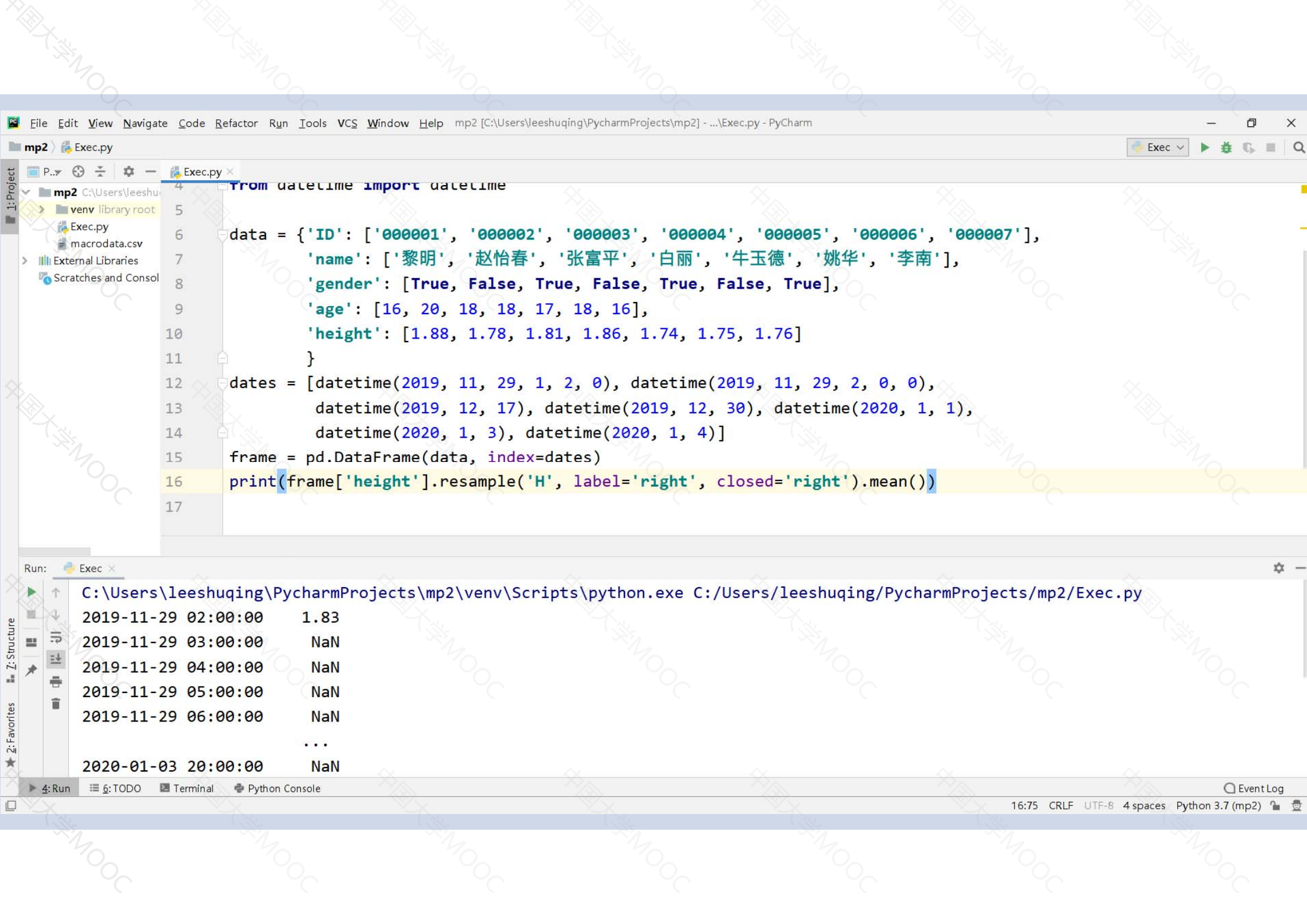


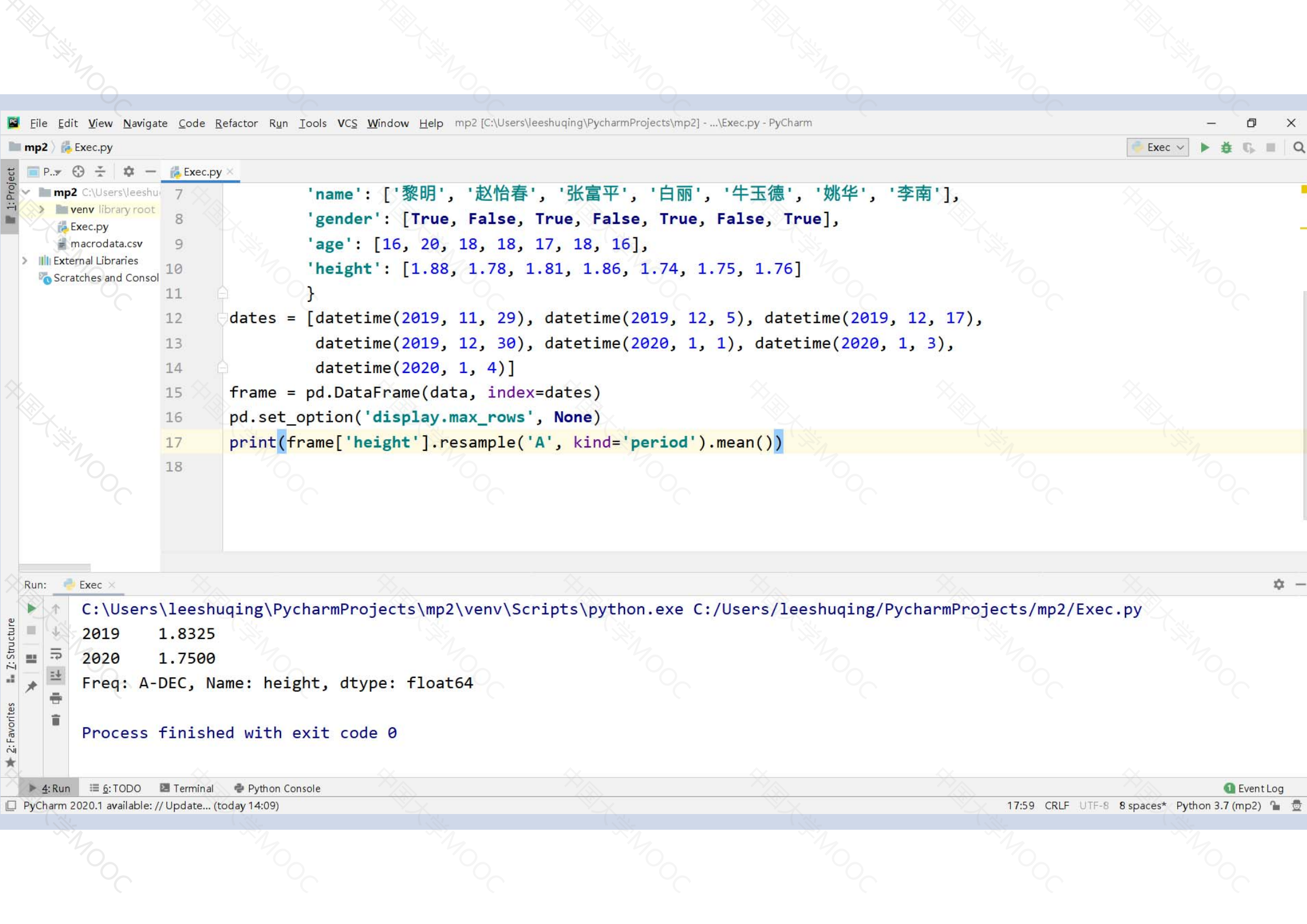












```
7      'name': ['黎明', '赵怡春', '张富平', '白丽', '牛玉德', '姚华', '李南'],
8      'gender': [True, False, True, False, True, False, True],
9      'age': [16, 20, 18, 18, 17, 18, 16],
10     'height': [1.88, 1.78, 1.81, 1.86, 1.74, 1.75, 1.76]
11     }
12     dates = [datetime(2019, 11, 29), datetime(2019, 12, 5), datetime(2019, 12, 17),
13             datetime(2019, 12, 30), datetime(2020, 1, 1), datetime(2020, 1, 3),
14             datetime(2020, 1, 4)]
15     frame = pd.DataFrame(data, index=dates)
16     pd.set_option('display.max_rows', None)
17     print(frame['height'].resample('A', kind='period').mean())
18
```

C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py

2019 1.8325

2020 1.7500

Freq: A-DEC, Name: height, dtype: float64

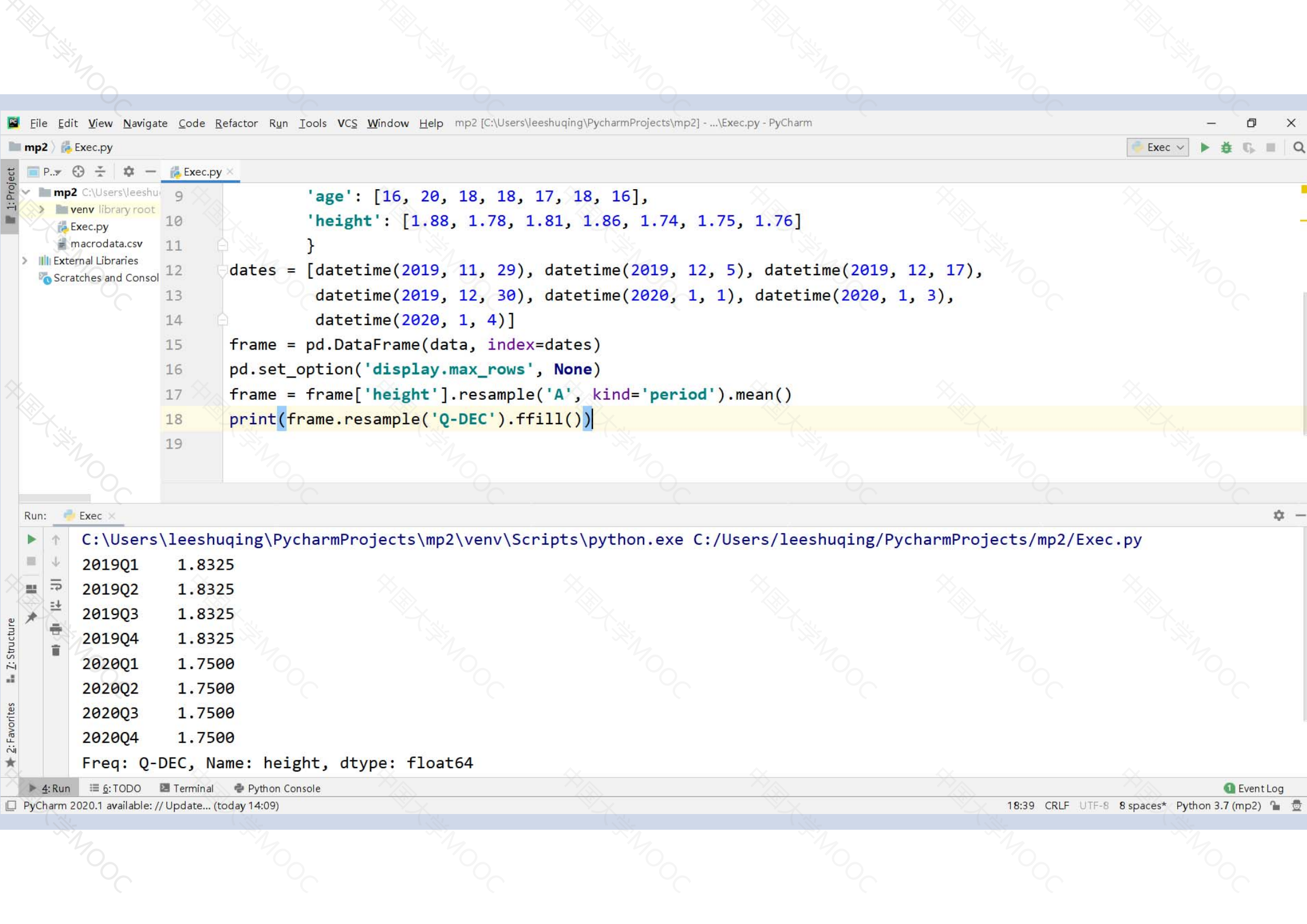
Process finished with exit code 0

4: Run 6: TODO Terminal Python Console

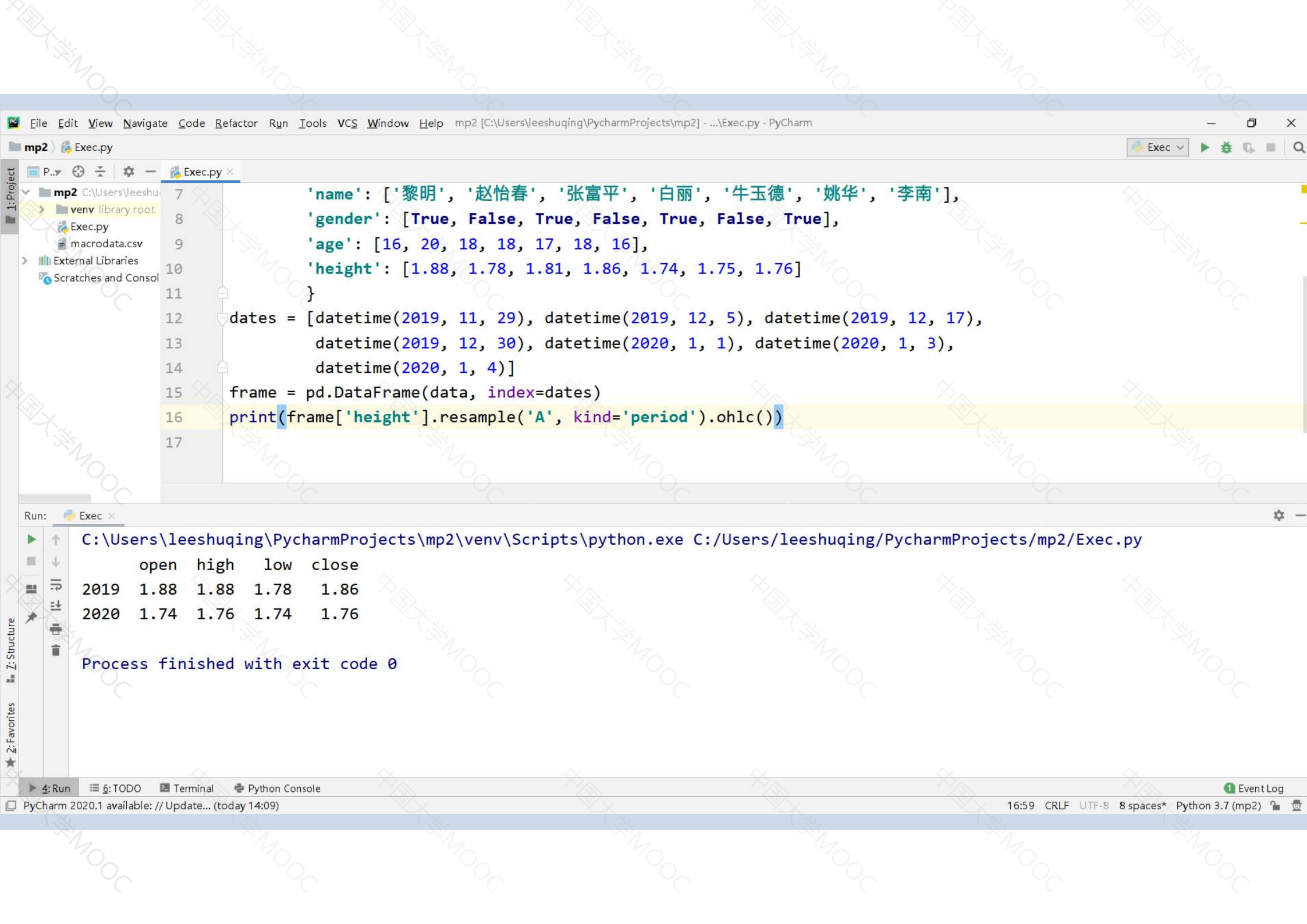
PyCharm 2020.1 available: // Update... (today 14:09)

Event Log

17:59 CRLF UTF-8 8 spaces\* Python 3.7 (mp2)







**一次不学多，下次再学**