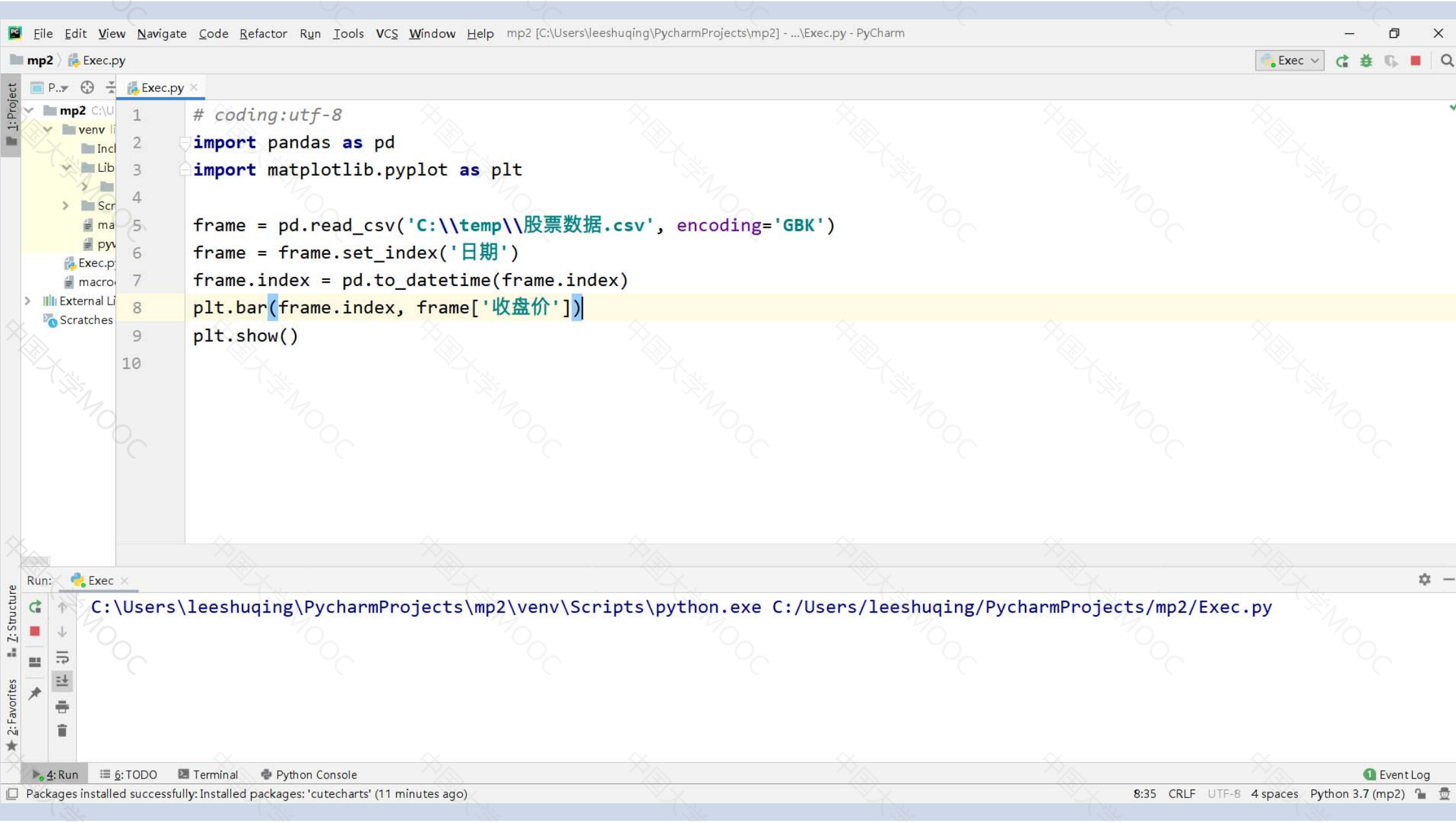
# Python大数据分析

## 三、柱状图绘制


File Edit View Navigate Code Refactor Run Tools VCS Window Help mp2 [C:\Users\leeshuqing\PycharmProjects\mp2] - ...\Exec.py - PyCharm
mp2 Exec.py
Exec
Exec.py
1 # coding:utf-8
2 import pandas as pd
3 import matplotlib.pyplot as plt
4
5 frame = pd.read_csv('C:\\temp\\股票数据.csv', encoding='GBK')
6 frame = frame.set_index('日期')
7 frame.index = pd.to_datetime(frame.index)
8 plt.bar(frame.index, frame['收盘价'])
9 plt.show()
10
Run: Exec
C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py
4: Run
6: TODO
Terminal
Python Console
Event Log
Packages installed successfully: Installed packages: 'cutecharts' (11 minutes ago)
8:35 CRLF UTF-8 4 spaces Python 3.7 (mp2)

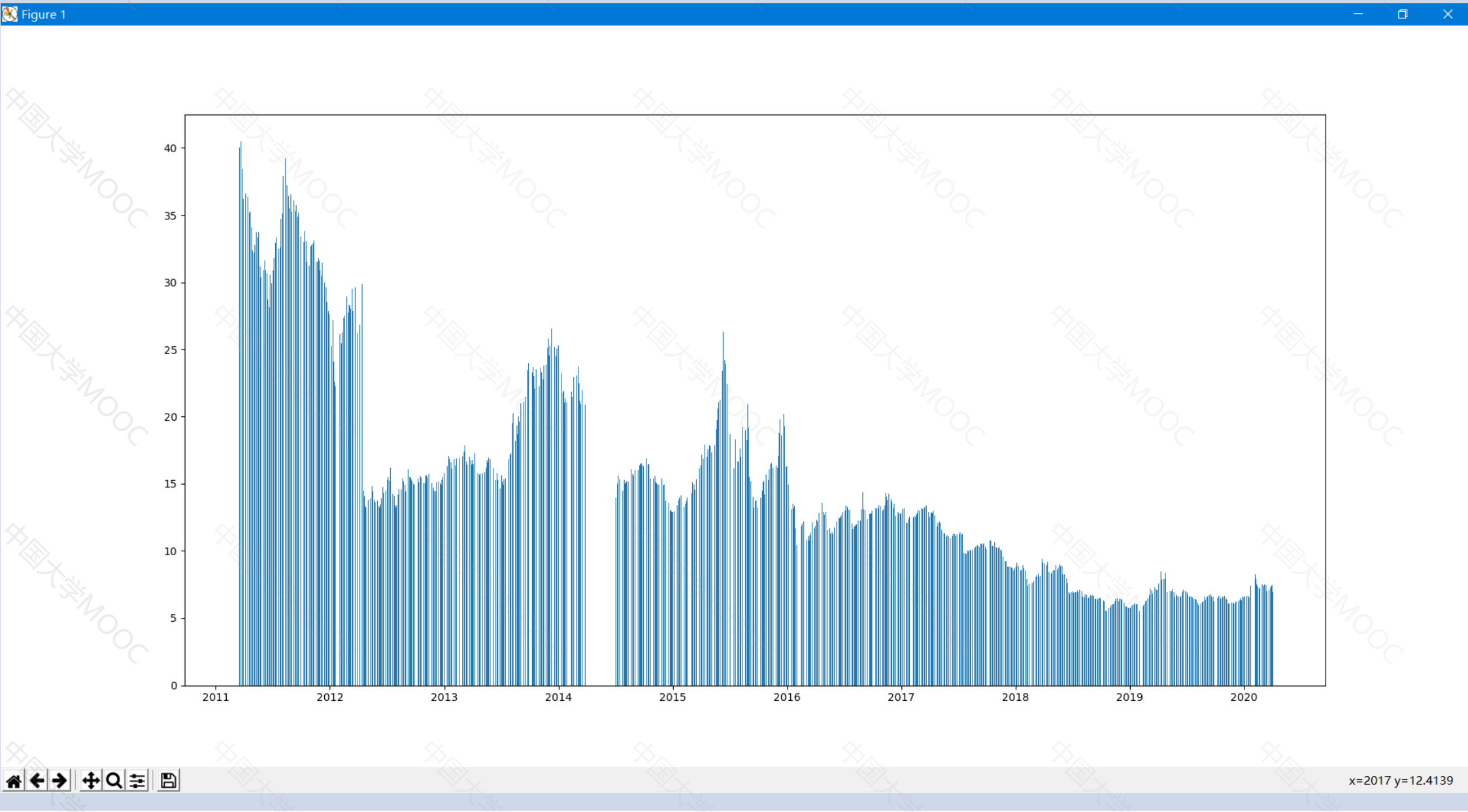
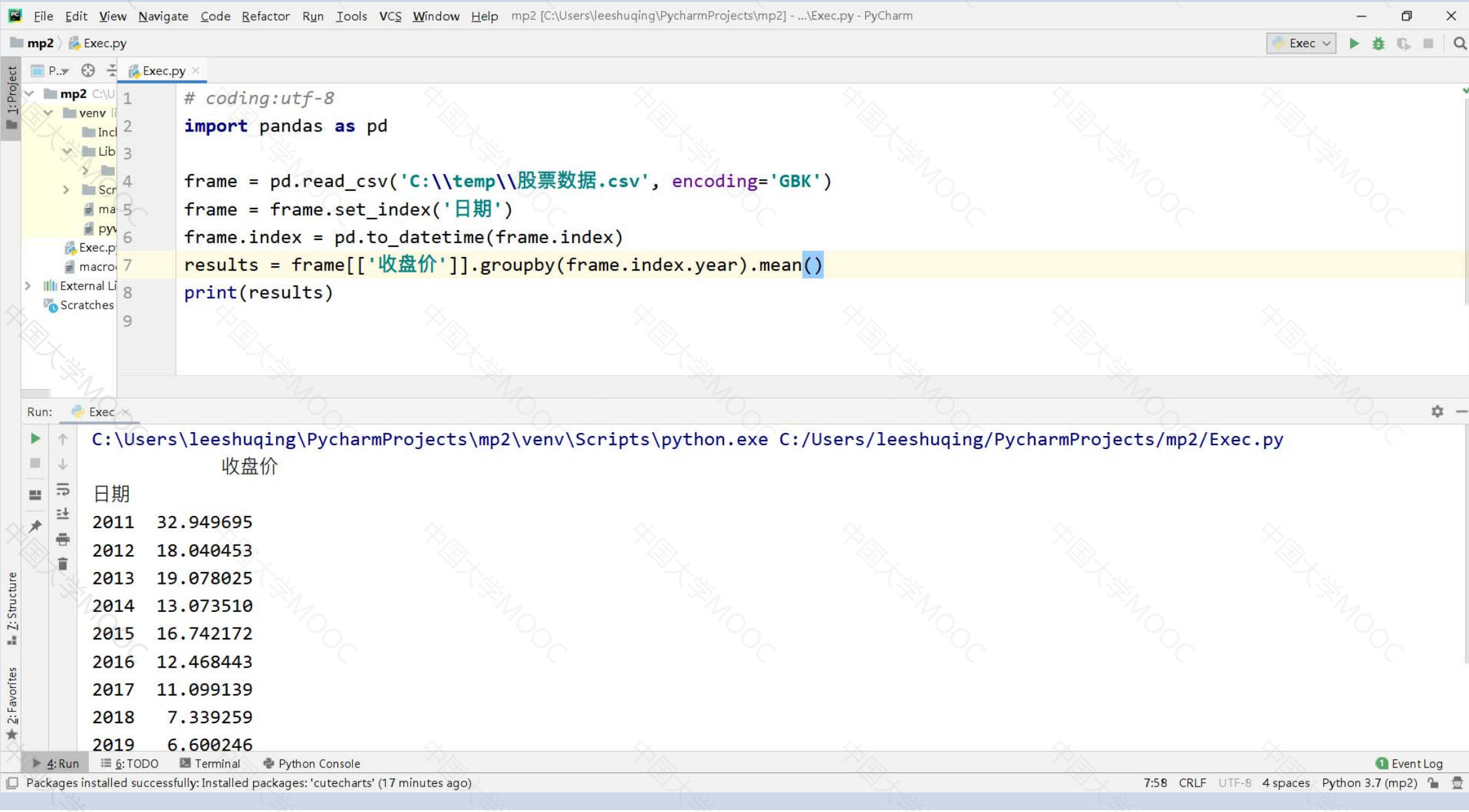


Figure 1
40
35
30
25
20
15
10
5
0
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
x=2017 y=12.4139


File Edit View Navigate Code Refactor Run Tools VCS Window Help mp2 [C:\Users\leeshuqing\PycharmProjects\mp2] - ...\Exec.py - PyCharm
mp2 Exec.py
Exec
Exec.py
1 # coding:utf-8
2 import pandas as pd
3
4 frame = pd.read_csv('C:\\temp\\股票数据.csv', encoding='GBK')
5 frame = frame.set_index('日期')
6 frame.index = pd.to_datetime(frame.index)
7 results = frame[['收盘价']].groupby(frame.index.year).mean()
8 print(results)
9
Run: Exec
C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py
收盘价
日期
2011 32.949695
2012 18.040453
2013 19.078025
2014 13.073510
2015 16.742172
2016 12.468443
2017 11.099139
2018 7.339259
2019 6.600246
4: Run
6: TODO
Terminal
Python Console
Event Log
Packages installed successfully: Installed packages: 'cutecharts' (17 minutes ago)
7:58 CRLF UTF-8 4 spaces Python 3.7 (mp2)

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

mp2 > Exec.py

Exec.py

```
1  # coding:utf-8
2  import pandas as pd
3  import matplotlib.pyplot as plt
4
5  frame = pd.read_csv('C:\\temp\\股票数据.csv', encoding='GBK')
6  frame = frame.set_index('日期')
7  frame.index = pd.to_datetime(frame.index)
8  results = frame[['收盘价']].groupby(frame.index.year).mean()
9  plt.bar(results.index, results['收盘价'])
10 plt.show()
```

Run: Exec

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

4: Run 6: TODO Terminal Python Console Event Log

Packages installed successfully: Installed packages: 'cutecharts' (20 minutes ago) 9:39 CRLF UTF-8 4 spaces Python 3.7 (mp2)

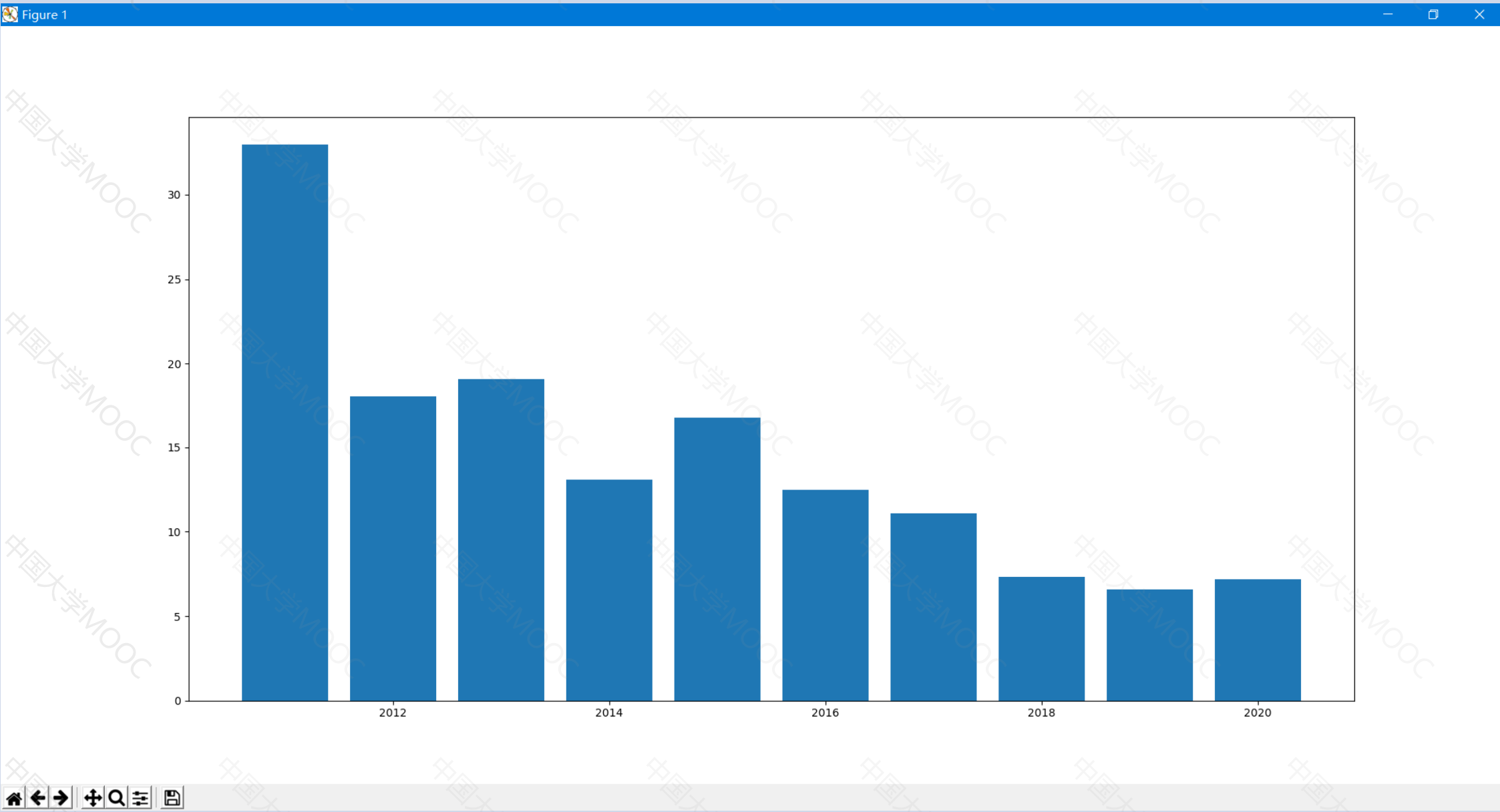


Figure 1
30
25
20
15
10
5
0
2012
2014
2016
2018
2020

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

mp2 > Exec.py

Exec.py

```
# coding:utf-8
import pandas as pd
import matplotlib.pyplot as plt

frame = pd.read_csv('C:\\temp\\股票数据.csv', encoding='GBK')
frame = frame.set_index('日期')
frame.index = pd.to_datetime(frame.index)
results = frame[['收盘价']].groupby(frame.index.year).mean()
plt.bar(results.index, results['收盘价'], 0.2, label="close", color="#87CEFA")
plt.legend()
plt.show()
```

Run: Exec

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

4: Run 6: TODO Terminal Python Console Event Log

Packages installed successfully: Installed packages: 'cutecharts' (22 minutes ago) 9:76 CRLF UTF-8 4 spaces Python 3.7 (mp2)

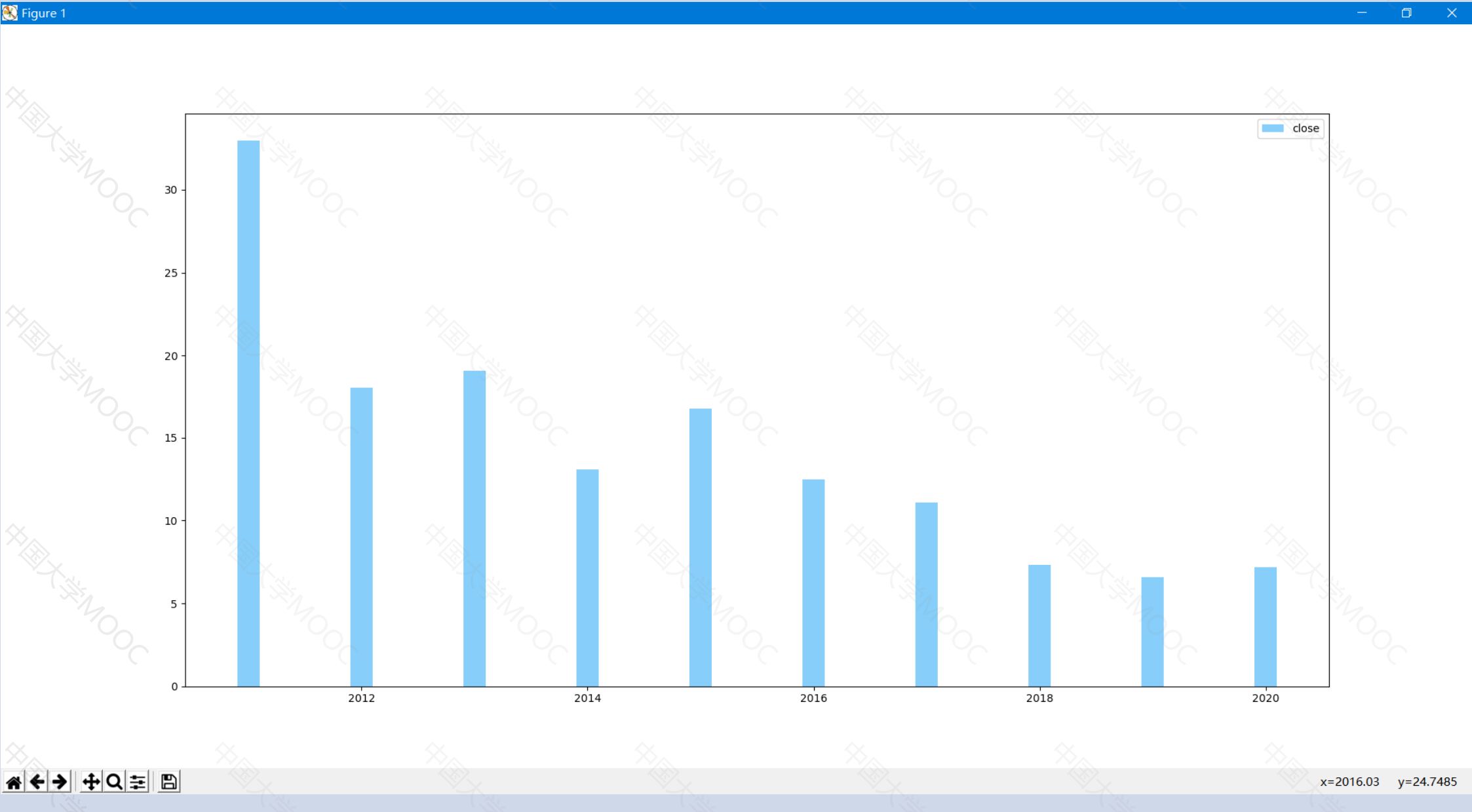
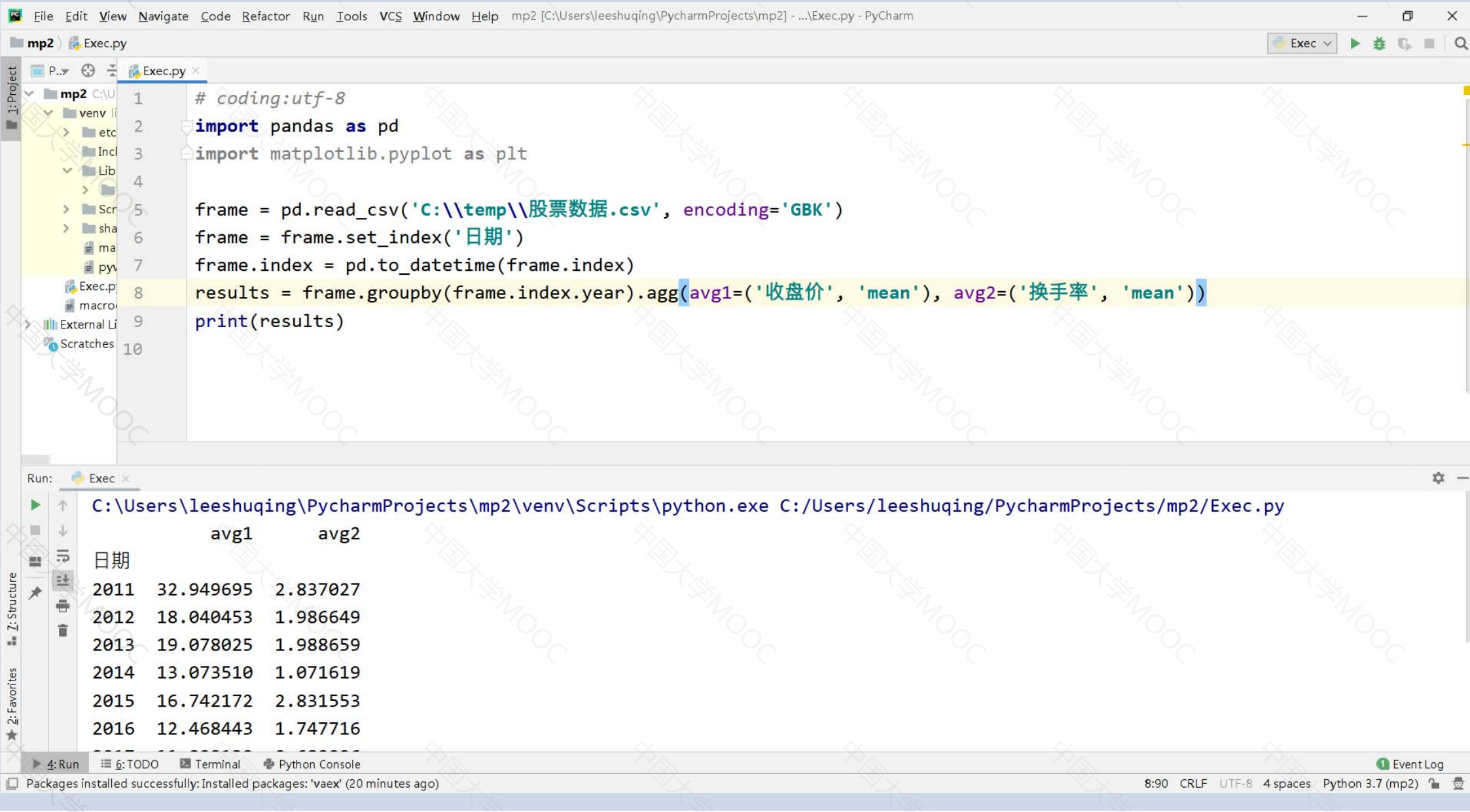
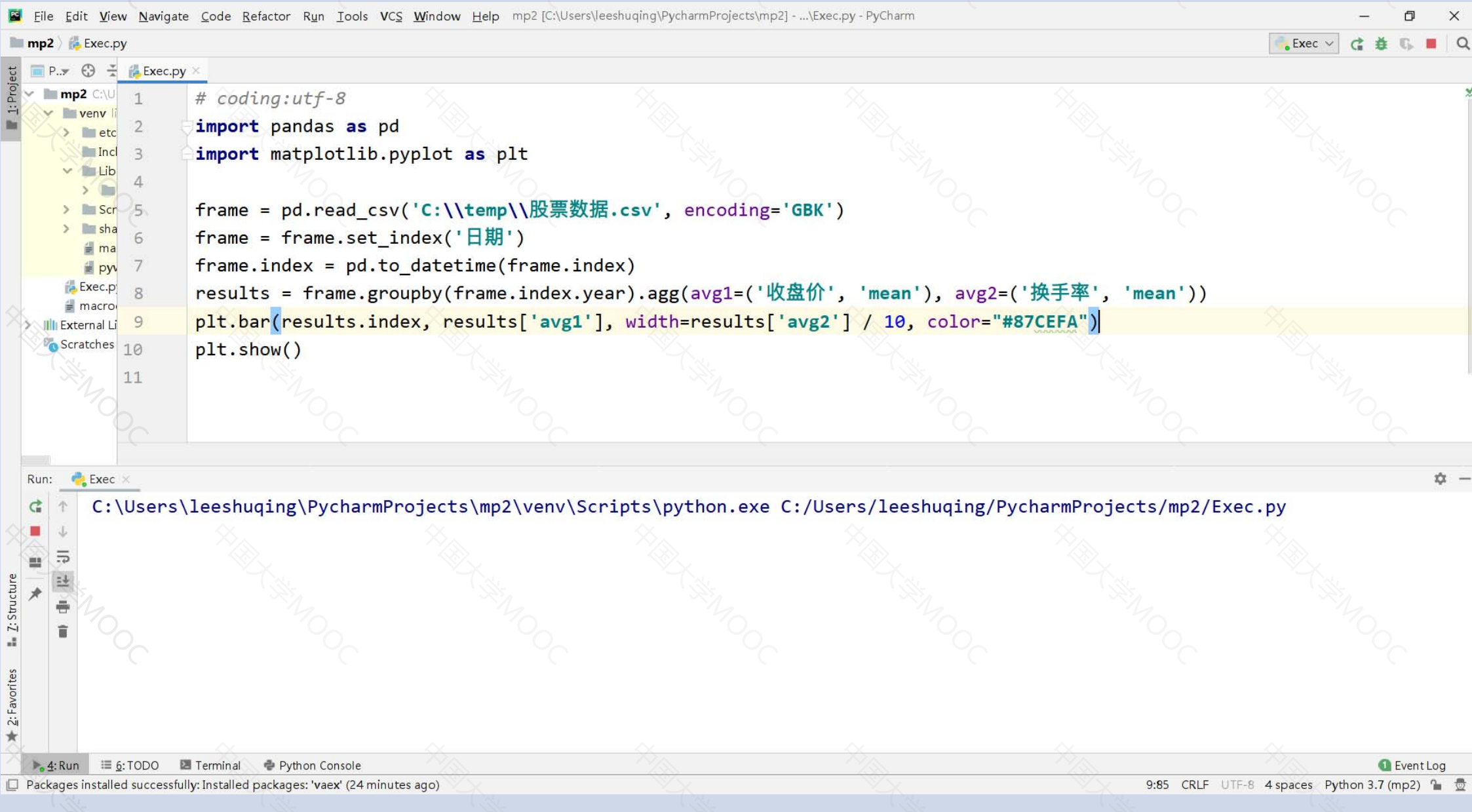


Figure 1
close
30
25
20
15
10
5
0
2012
2014
2016
2018
2020
x=2016.03
y=24.7485


File Edit View Navigate Code Refactor Run Tools VCS Window Help mp2 [C:\Users\leeshuqing\PycharmProjects\mp2] - ...\Exec.py - PyCharm
mp2 Exec.py
Exec
Exec.py
1 # coding:utf-8
2 import pandas as pd
3 import matplotlib.pyplot as plt
4
5 frame = pd.read_csv('C:\\temp\\股票数据.csv', encoding='GBK')
6 frame = frame.set_index('日期')
7 frame.index = pd.to_datetime(frame.index)
8 results = frame.groupby(frame.index.year).agg(avg1=('收盘价', 'mean'), avg2=('换手率', 'mean'))
9 print(results)
10
Run: Exec
C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py
avg1 avg2
日期
2011 32.949695 2.837027
2012 18.040453 1.986649
2013 19.078025 1.988659
2014 13.073510 1.071619
2015 16.742172 2.831553
2016 12.468443 1.747716
4: Run 6: TODO Terminal Python Console Event Log
Packages installed successfully: Installed packages: 'vaex' (20 minutes ago)
8:90 CRLF UTF-8 4 spaces Python 3.7 (mp2)


File Edit View Navigate Code Refactor Run Tools VCS Window Help mp2 [C:\Users\leeshuqing\PycharmProjects\mp2] - ...\Exec.py - PyCharm
mp2 Exec.py
Exec
Exec.py
1 # coding:utf-8
2 import pandas as pd
3 import matplotlib.pyplot as plt
4
5 frame = pd.read_csv('C:\\temp\\股票数据.csv', encoding='GBK')
6 frame = frame.set_index('日期')
7 frame.index = pd.to_datetime(frame.index)
8 results = frame.groupby(frame.index.year).agg(avg1=('收盘价', 'mean'), avg2=('换手率', 'mean'))
9 plt.bar(results.index, results['avg1'], width=results['avg2'] / 10, color="#87CEFA")
10 plt.show()
11
Run: Exec
C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py
4: Run
6: TODO
Terminal
Python Console
Event Log
Packages installed successfully: Installed packages: 'vaex' (24 minutes ago)
9:85 CRLF UTF-8 4 spaces Python 3.7 (mp2)

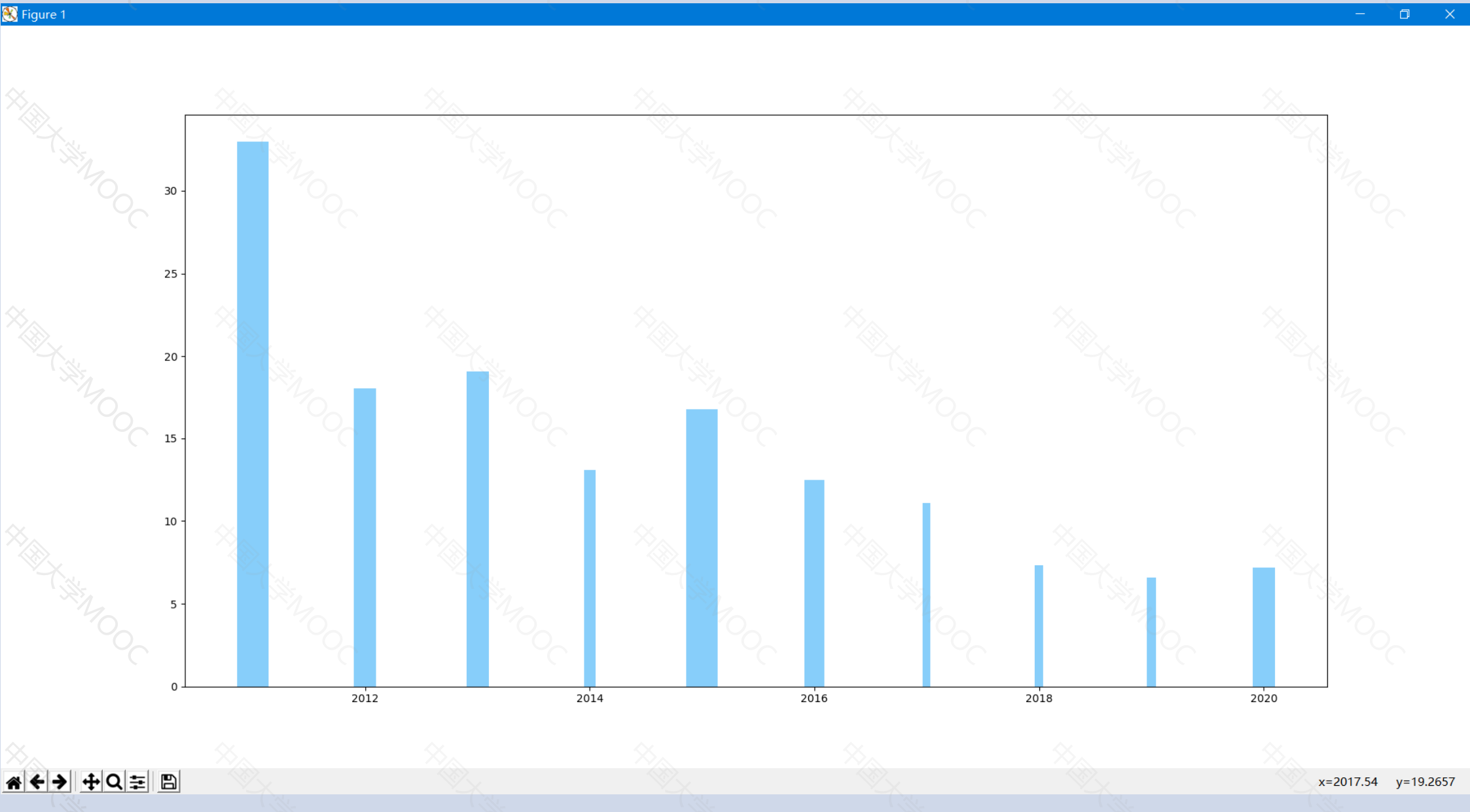
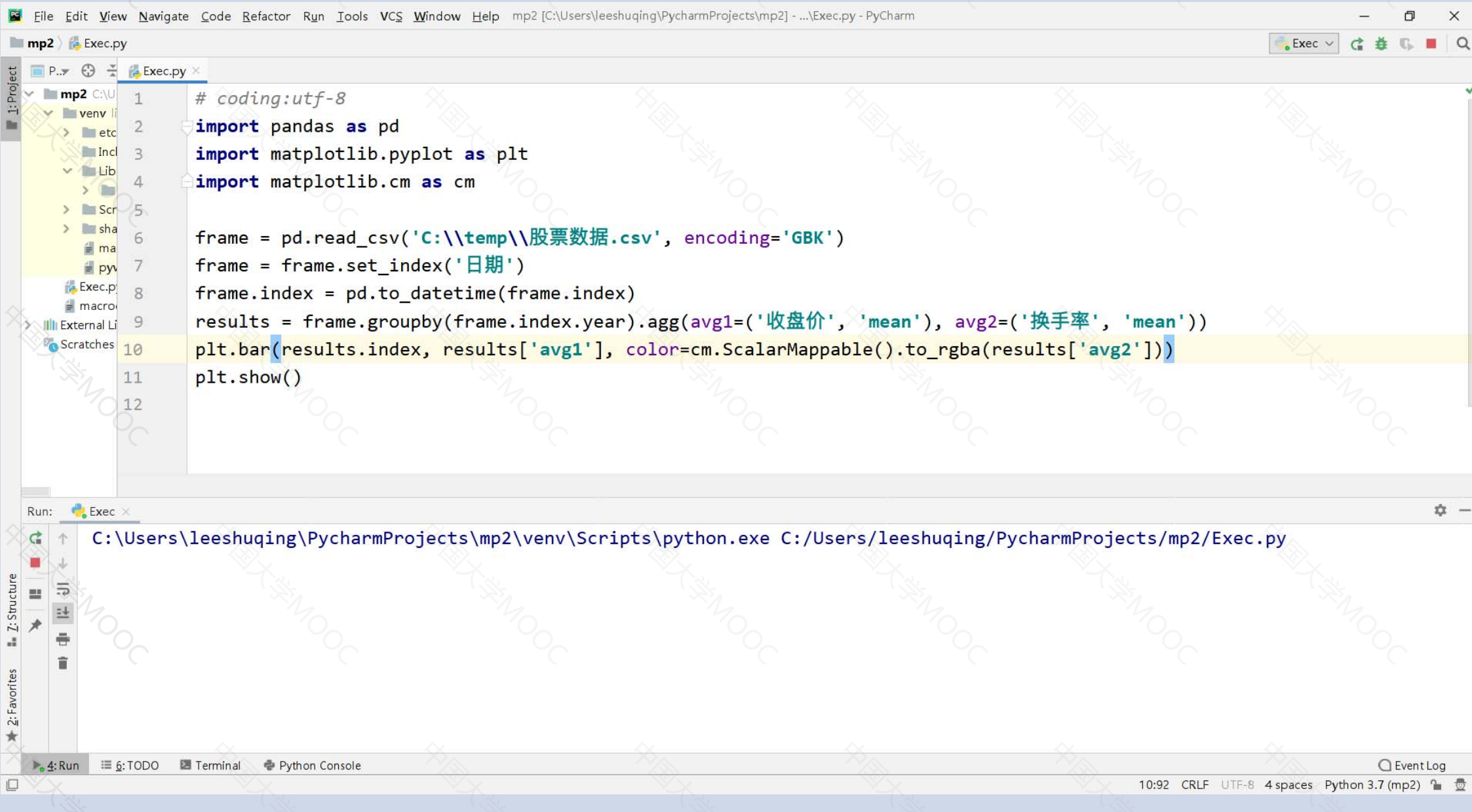


Figure 1
30
25
20
15
10
5
0
2012
2014
2016
2018
2020
x=2017.54
y=19.2657


File Edit View Navigate Code Refactor Run Tools VCS Window Help mp2 [C:\Users\leeshuqing\PycharmProjects\mp2] - ...\Exec.py - PyCharm
mp2 Exec.py
Exec
Exec.py
# coding:utf-8
import pandas as pd
import matplotlib.pyplot as plt
import matplotlib.cm as cm
frame = pd.read_csv('C:\\temp\\股票数据.csv', encoding='GBK')
frame = frame.set_index('日期')
frame.index = pd.to_datetime(frame.index)
results = frame.groupby(frame.index.year).agg(avg1=('收盘价', 'mean'), avg2=('换手率', 'mean'))
plt.bar(results.index, results['avg1'], color=cm.ScalarMappable().to_rgba(results['avg2']))
plt.show()
Run: Exec
C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py
4: Run
6: TODO
Terminal
Python Console
Event Log
10:92 CRLF UTF-8 4 spaces Python 3.7 (mp2)

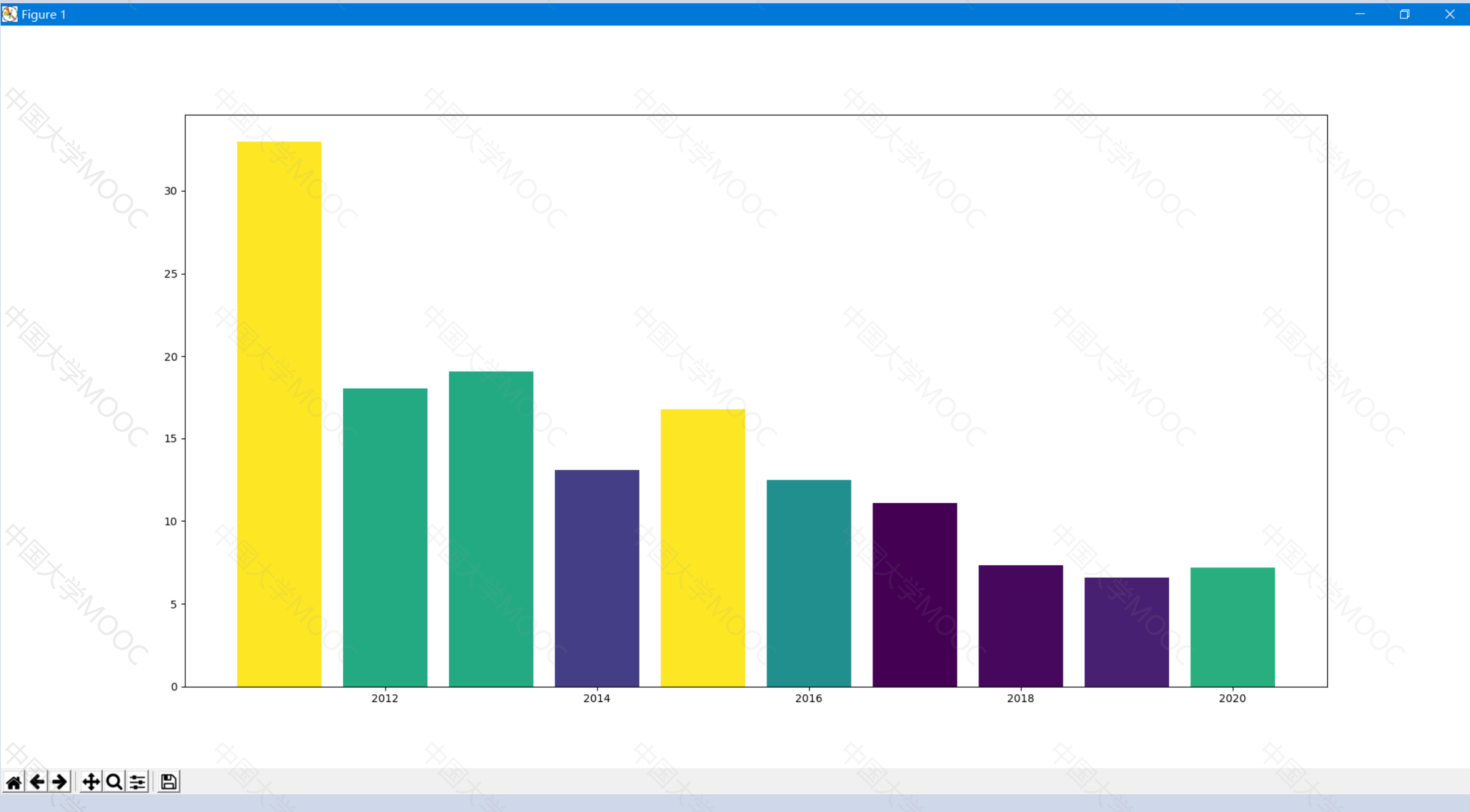
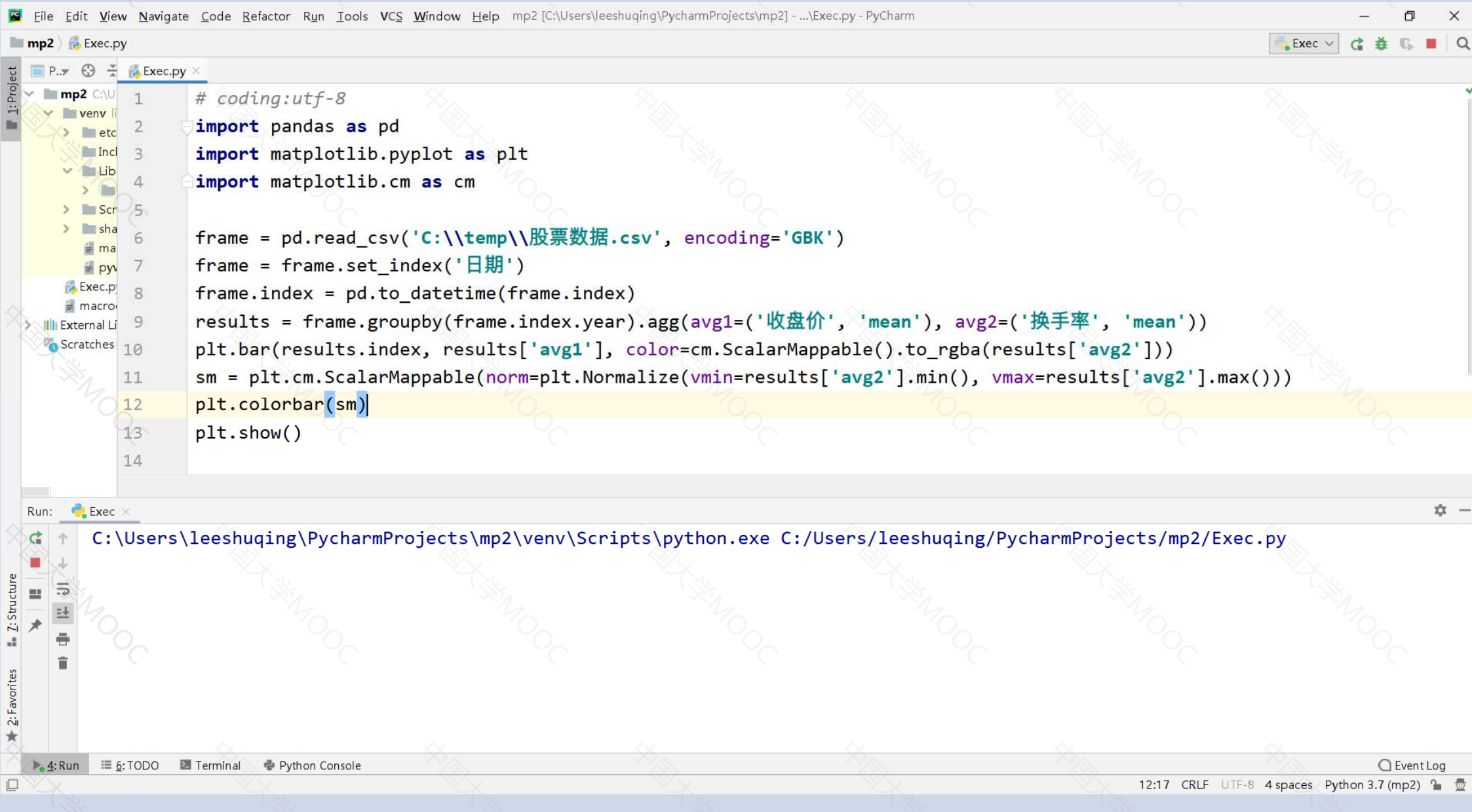


Figure 1
30
25
20
15
10
5
0
2012
2014
2016
2018
2020


File Edit View Navigate Code Refactor Run Tools VCS Window Help mp2 [C:\Users\leeshuqing\PycharmProjects\mp2] - ...\Exec.py - PyCharm
mp2 Exec.py
Exec
Exec.py
1: Project
mp2
venv
External Li
Scratches
# coding:utf-8
import pandas as pd
import matplotlib.pyplot as plt
import matplotlib.cm as cm
frame = pd.read_csv('C:\\temp\\股票数据.csv', encoding='GBK')
frame = frame.set_index('日期')
frame.index = pd.to_datetime(frame.index)
results = frame.groupby(frame.index.year).agg(avg1=('收盘价', 'mean'), avg2=('换手率', 'mean'))
plt.bar(results.index, results['avg1'], color=cm.ScalarMappable().to_rgba(results['avg2']))
sm = plt.cm.ScalarMappable(norm=plt.Normalize(vmin=results['avg2'].min(), vmax=results['avg2'].max()))
plt.colorbar(sm)
plt.show()
Run: Exec
C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py
7: Structure
2: Favorites
4: Run
6: TODO
Terminal
Python Console
Event Log
12:17 CRLF UTF-8 4 spaces Python 3.7 (mp2)

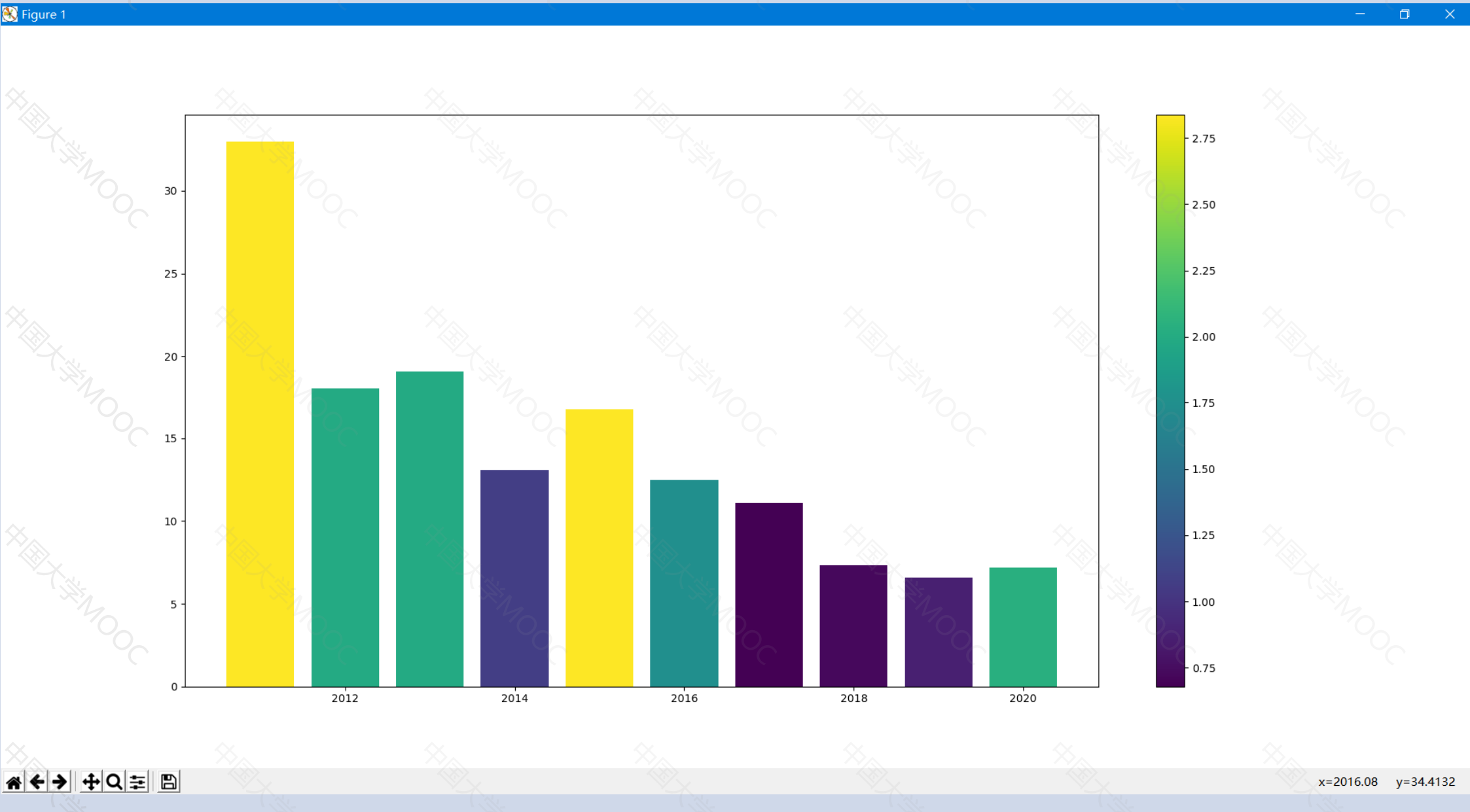


Figure 1
30
25
20
15
10
5
0
2012
2014
2016
2018
2020
2.75
2.50
2.25
2.00
1.75
1.50
1.25
1.00
0.75
x=2016.08
y=34.4132

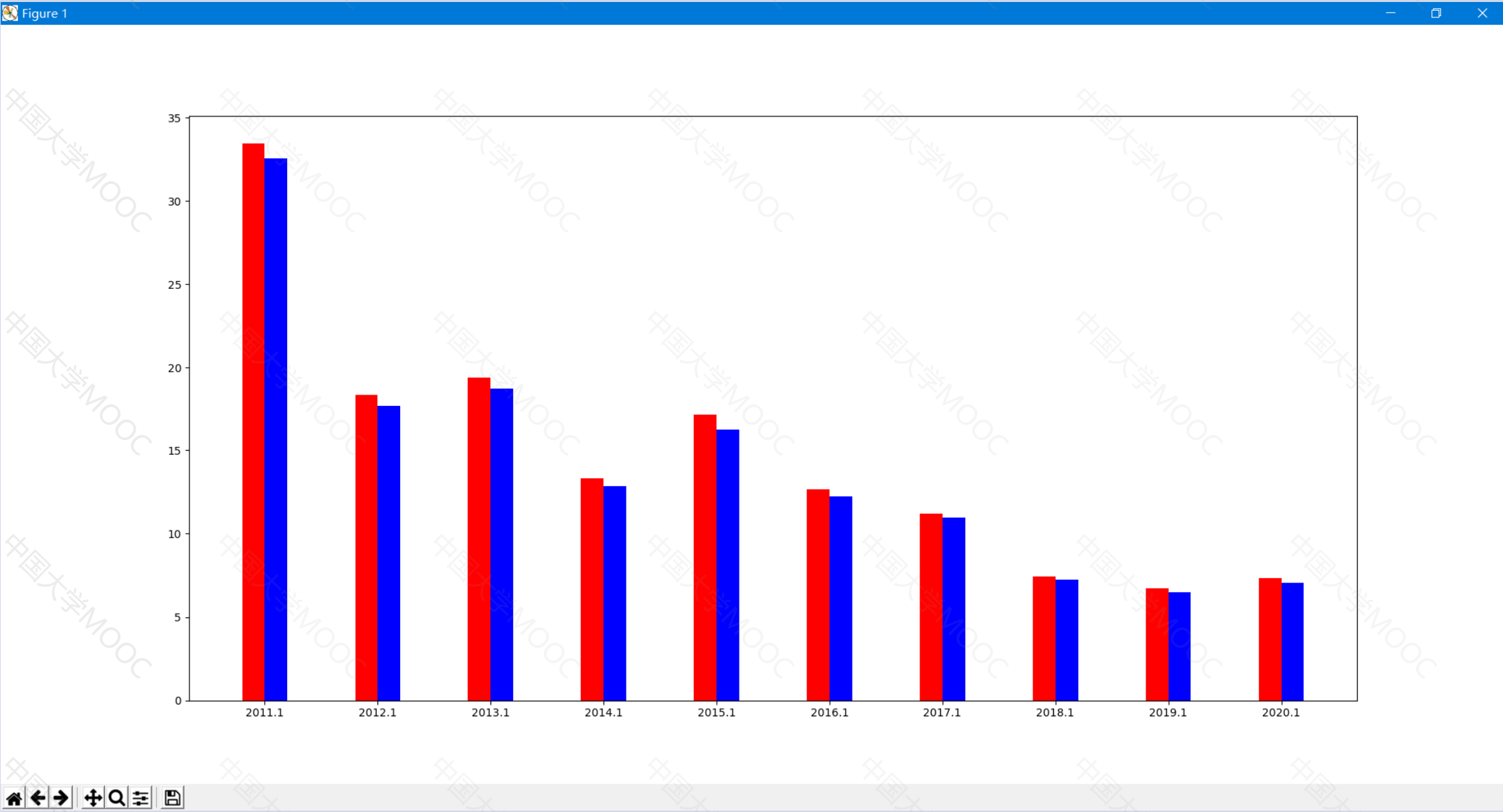
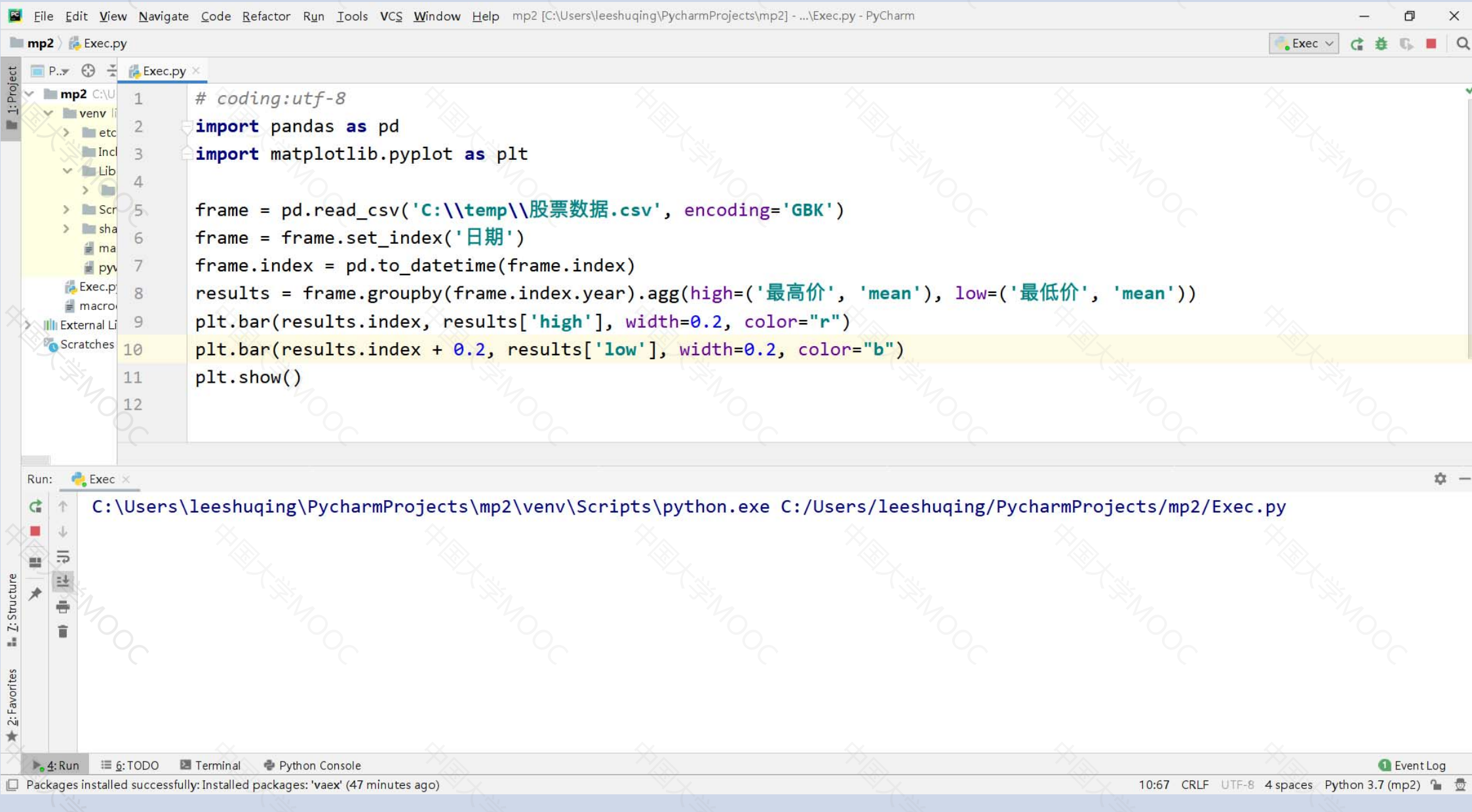


Figure 1
35
30
25
20
15
10
5
0
2011.1
2012.1
2013.1
2014.1
2015.1
2016.1
2017.1
2018.1
2019.1
2020.1


File Edit View Navigate Code Refactor Run Tools VCS Window Help mp2 [C:\Users\leeshuqing\PycharmProjects\mp2] - ...\Exec.py - PyCharm
mp2 Exec.py
Exec
Exec.py
1: Project
mp2
venv
External Li
Scratches
# coding:utf-8
import pandas as pd
import matplotlib.pyplot as plt
frame = pd.read_csv('C:\\temp\\股票数据.csv', encoding='GBK')
frame = frame.set_index('日期')
frame.index = pd.to_datetime(frame.index)
results = frame.groupby(frame.index.year).agg(high=('最高价', 'mean'), low=('最低价', 'mean'))
plt.bar(results.index, results['high'], width=0.2, color="r")
plt.bar(results.index + 0.2, results['low'], width=0.2, color="b")
plt.show()
Run: Exec
C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py
7: Structure
2: Favorites
4: Run
6: TODO
Terminal
Python Console
Event Log
Packages installed successfully: Installed packages: 'vaex' (47 minutes ago)
10:67 CRLF UTF-8 4 spaces Python 3.7 (mp2)

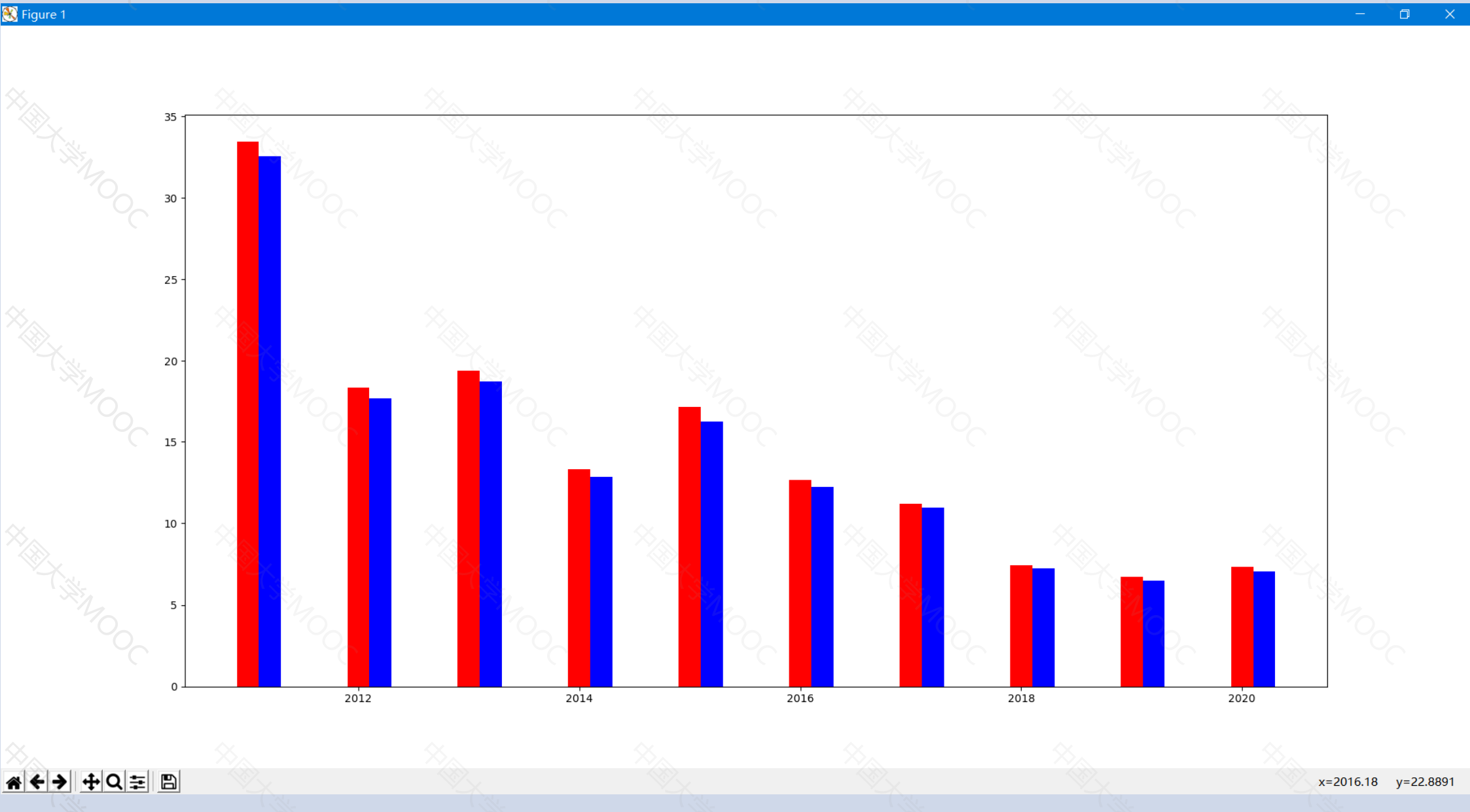
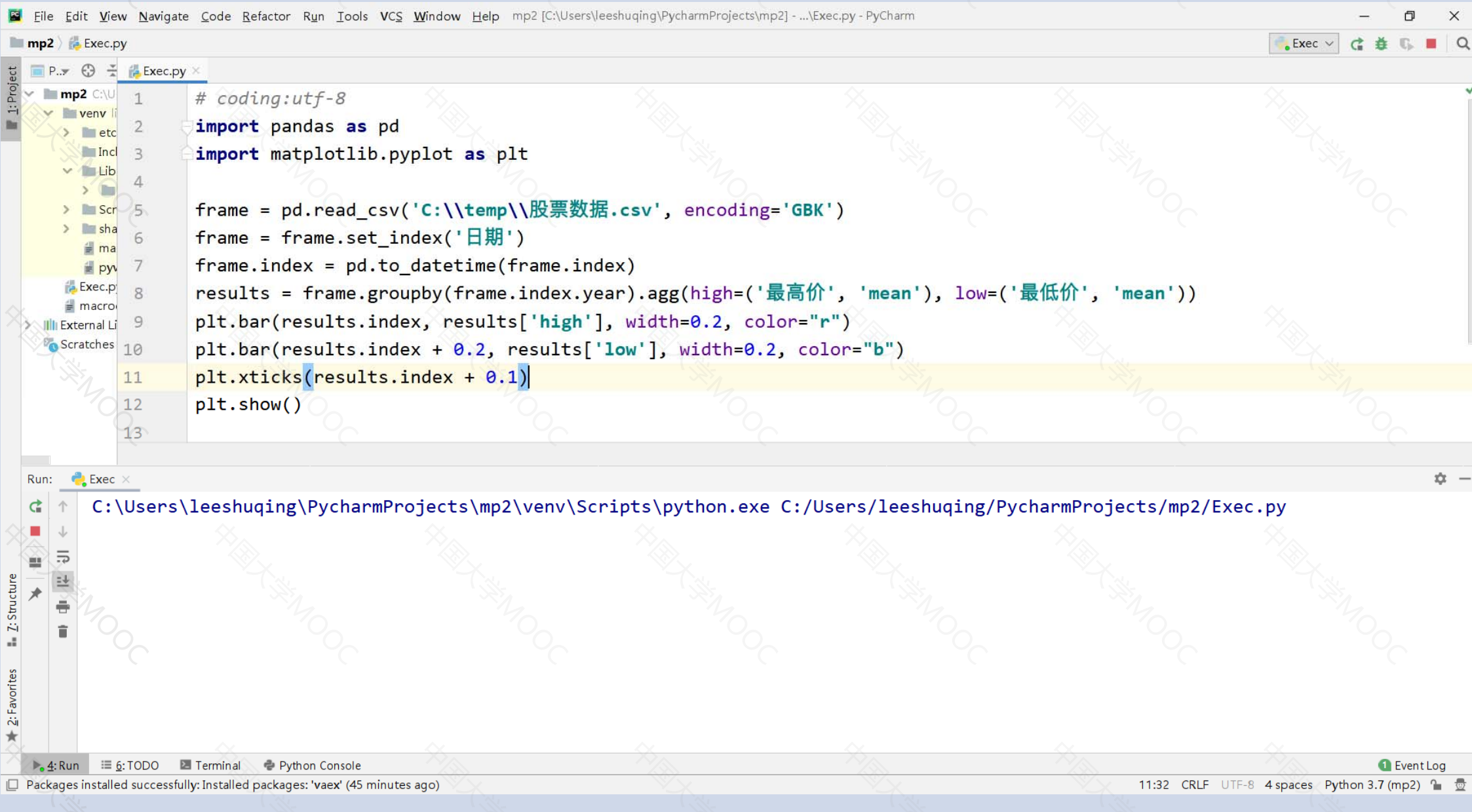


Figure 1
35
30
25
20
15
10
5
0
2012
2014
2016
2018
2020
x=2016.18
y=22.8891


File Edit View Navigate Code Refactor Run Tools VCS Window Help mp2 [C:\Users\leeshuqing\PycharmProjects\mp2] - ...\Exec.py - PyCharm
mp2 Exec.py
Exec
Exec.py
1 # coding:utf-8
2 import pandas as pd
3 import matplotlib.pyplot as plt
4
5 frame = pd.read_csv('C:\\temp\\股票数据.csv', encoding='GBK')
6 frame = frame.set_index('日期')
7 frame.index = pd.to_datetime(frame.index)
8 results = frame.groupby(frame.index.year).agg(high=('最高价', 'mean'), low=('最低价', 'mean'))
9 plt.bar(results.index, results['high'], width=0.2, color="r")
10 plt.bar(results.index + 0.2, results['low'], width=0.2, color="b")
11 plt.xticks(results.index + 0.1)
12 plt.show()
13
Run: Exec
C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py
4: Run
6: TODO
Terminal
Python Console
Event Log
Packages installed successfully: Installed packages: 'vaex' (45 minutes ago)
11:32 CRLF UTF-8 4 spaces Python 3.7 (mp2)

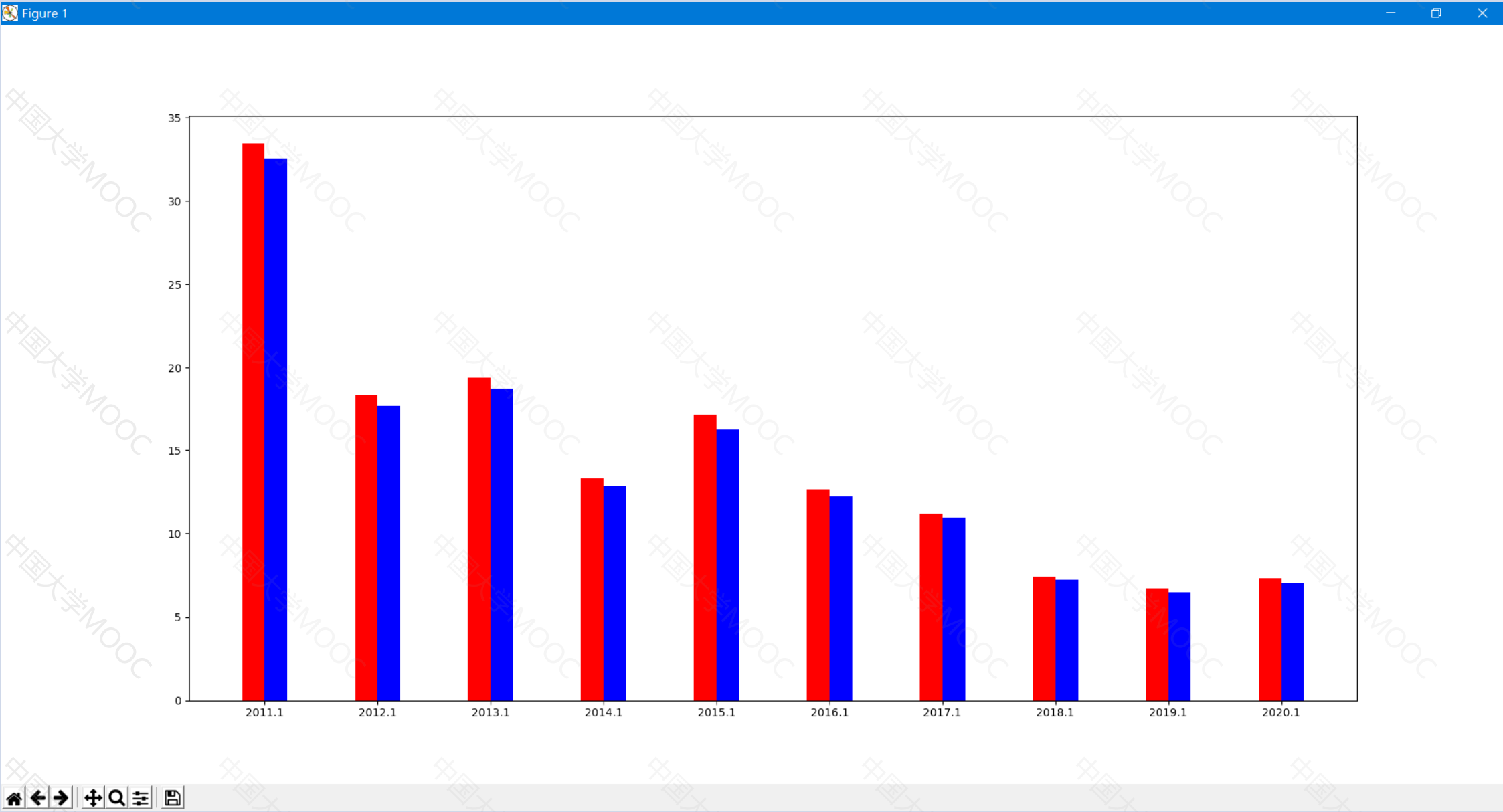
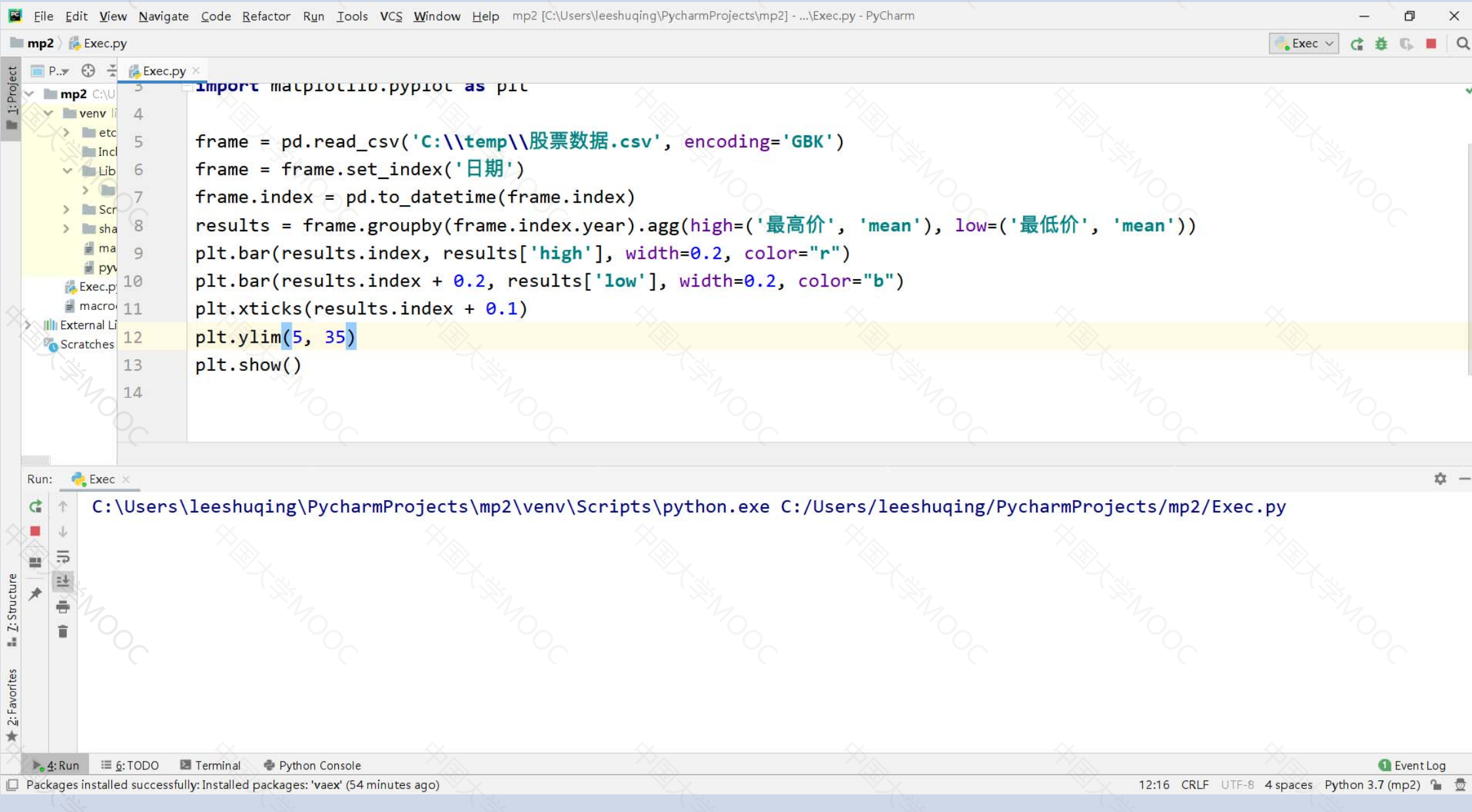


Figure 1
35
30
25
20
15
10
5
0
2011.1
2012.1
2013.1
2014.1
2015.1
2016.1
2017.1
2018.1
2019.1
2020.1


File Edit View Navigate Code Refactor Run Tools VCS Window Help mp2 [C:\Users\leeshuqing\PycharmProjects\mp2] - ...\Exec.py - PyCharm
mp2 Exec.py
Exec
Exec.py
import matplotlib.pyplot as plt
frame = pd.read_csv('C:\\temp\\股票数据.csv', encoding='GBK')
frame = frame.set_index('日期')
frame.index = pd.to_datetime(frame.index)
results = frame.groupby(frame.index.year).agg(high=('最高价', 'mean'), low=('最低价', 'mean'))
plt.bar(results.index, results['high'], width=0.2, color="r")
plt.bar(results.index + 0.2, results['low'], width=0.2, color="b")
plt.xticks(results.index + 0.1)
plt.ylim(5, 35)
plt.show()
Run: Exec
C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py
4: Run
6: TODO
Terminal
Python Console
Event Log
Packages installed successfully: Installed packages: 'vaex' (54 minutes ago)
12:16 CRLF UTF-8 4 spaces Python 3.7 (mp2)

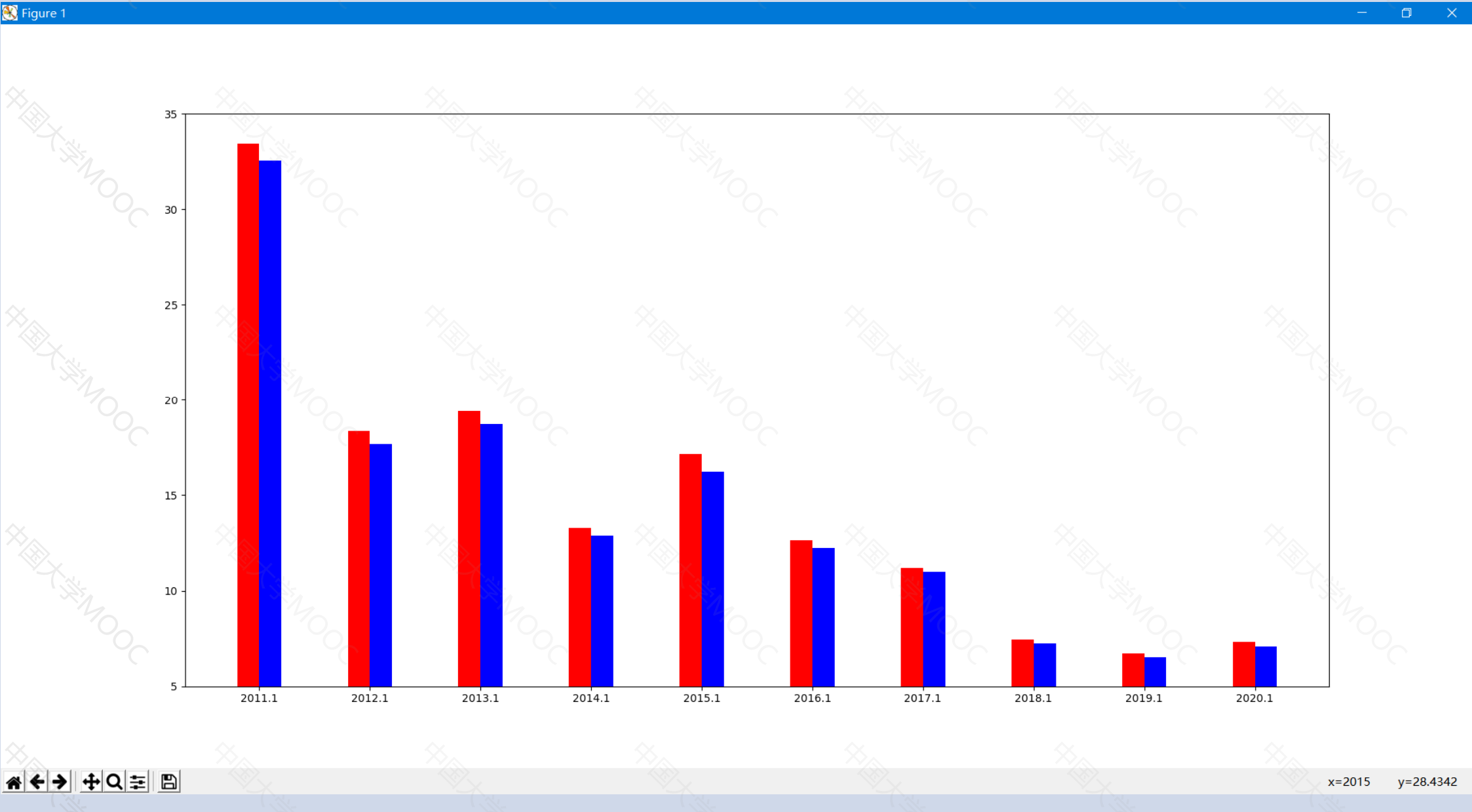
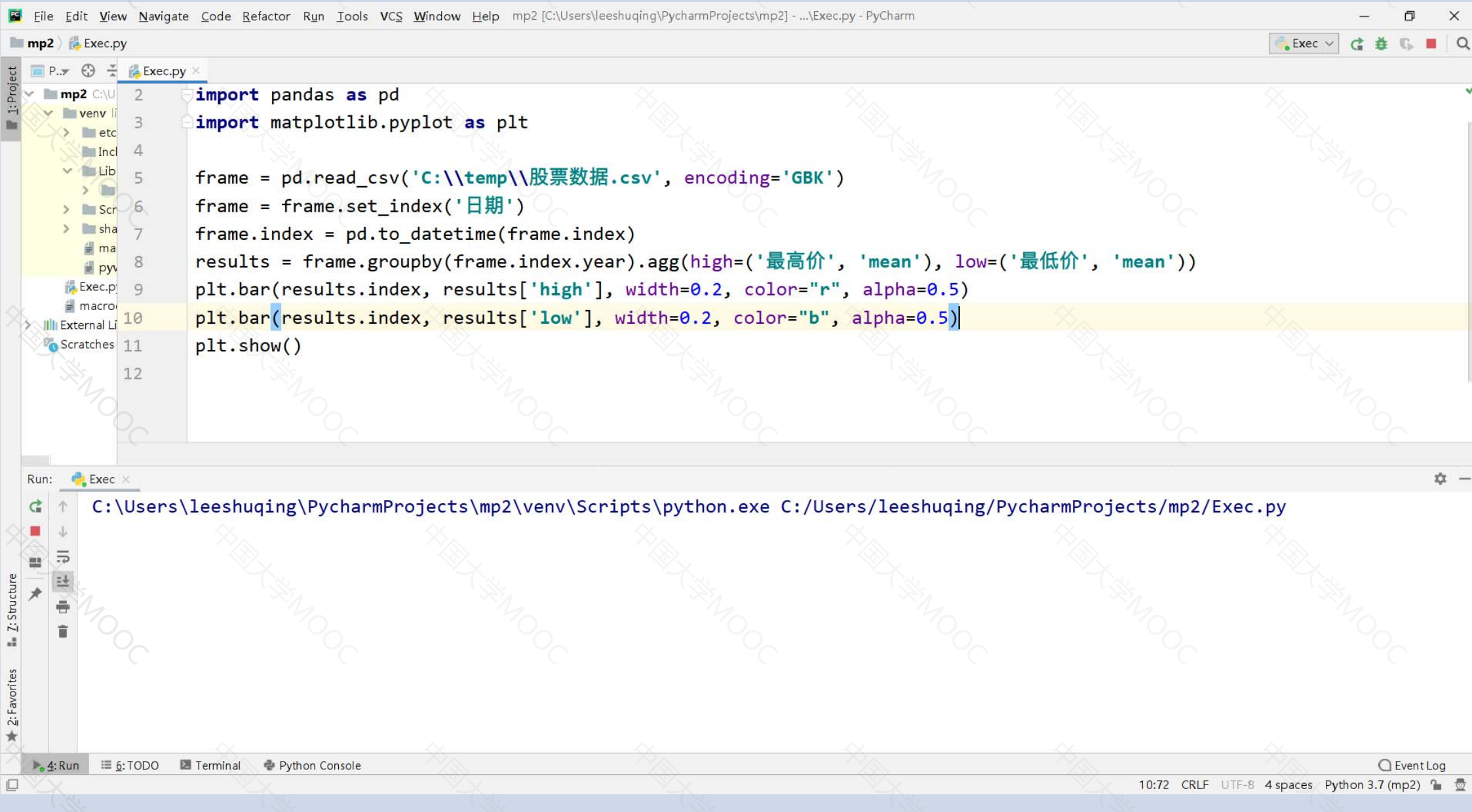


Figure 1
35
30
25
20
15
10
5
2011.1
2012.1
2013.1
2014.1
2015.1
2016.1
2017.1
2018.1
2019.1
2020.1
x=2015
y=28.4342


File Edit View Navigate Code Refactor Run Tools VCS Window Help mp2 [C:\Users\leeshuqing\PycharmProjects\mp2] - ...\Exec.py - PyCharm
mp2 Exec.py
Exec
Exec.py
import pandas as pd
import matplotlib.pyplot as plt
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frame = frame.set_index('日期')
frame.index = pd.to_datetime(frame.index)
results = frame.groupby(frame.index.year).agg(high=('最高价', 'mean'), low=('最低价', 'mean'))
plt.bar(results.index, results['high'], width=0.2, color="r", alpha=0.5)
plt.bar(results.index, results['low'], width=0.2, color="b", alpha=0.5)
plt.show()
Run: Exec
C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py
4: Run
6: TODO
Terminal
Python Console
Event Log
10:72 CRLF UTF-8 4 spaces Python 3.7 (mp2)

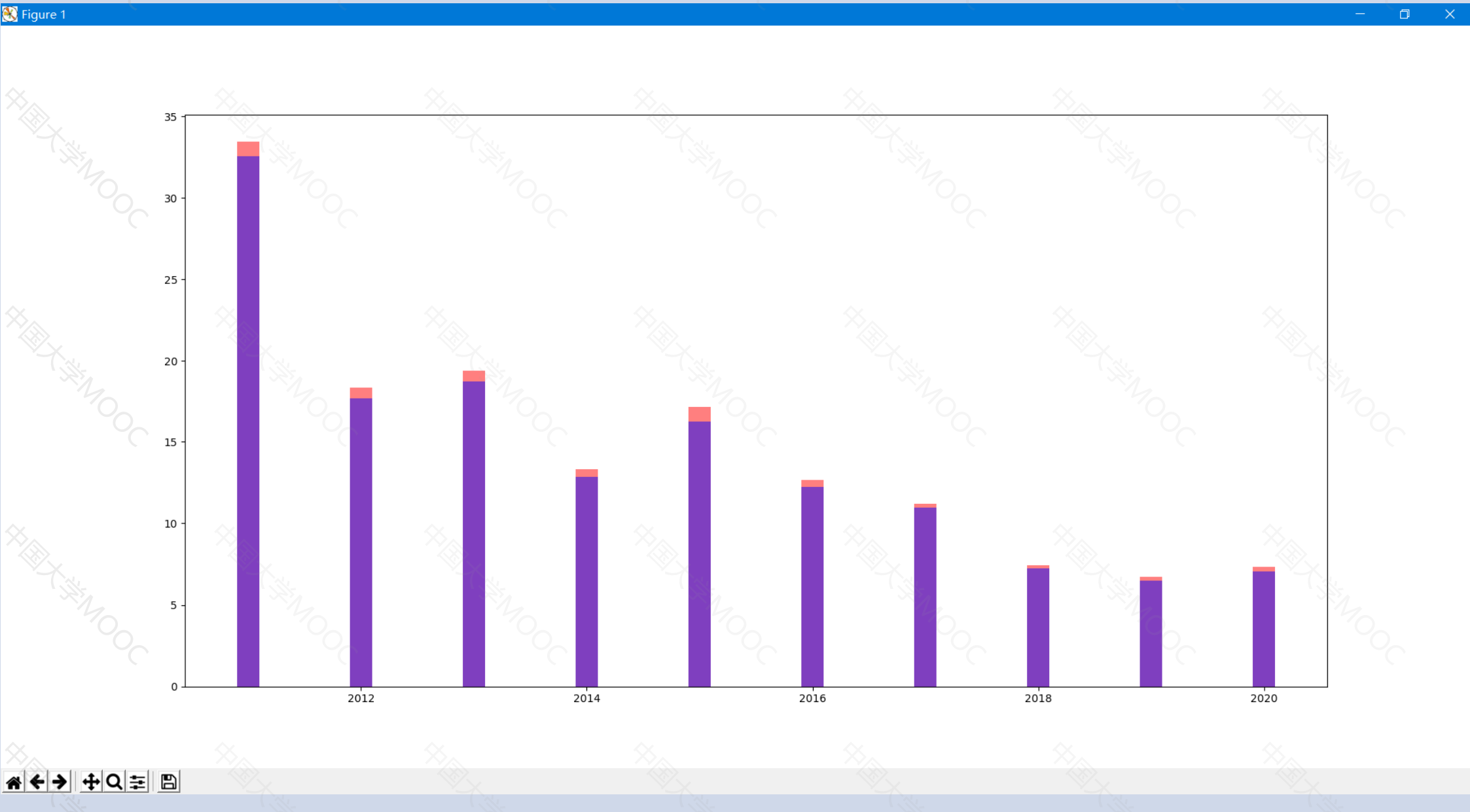
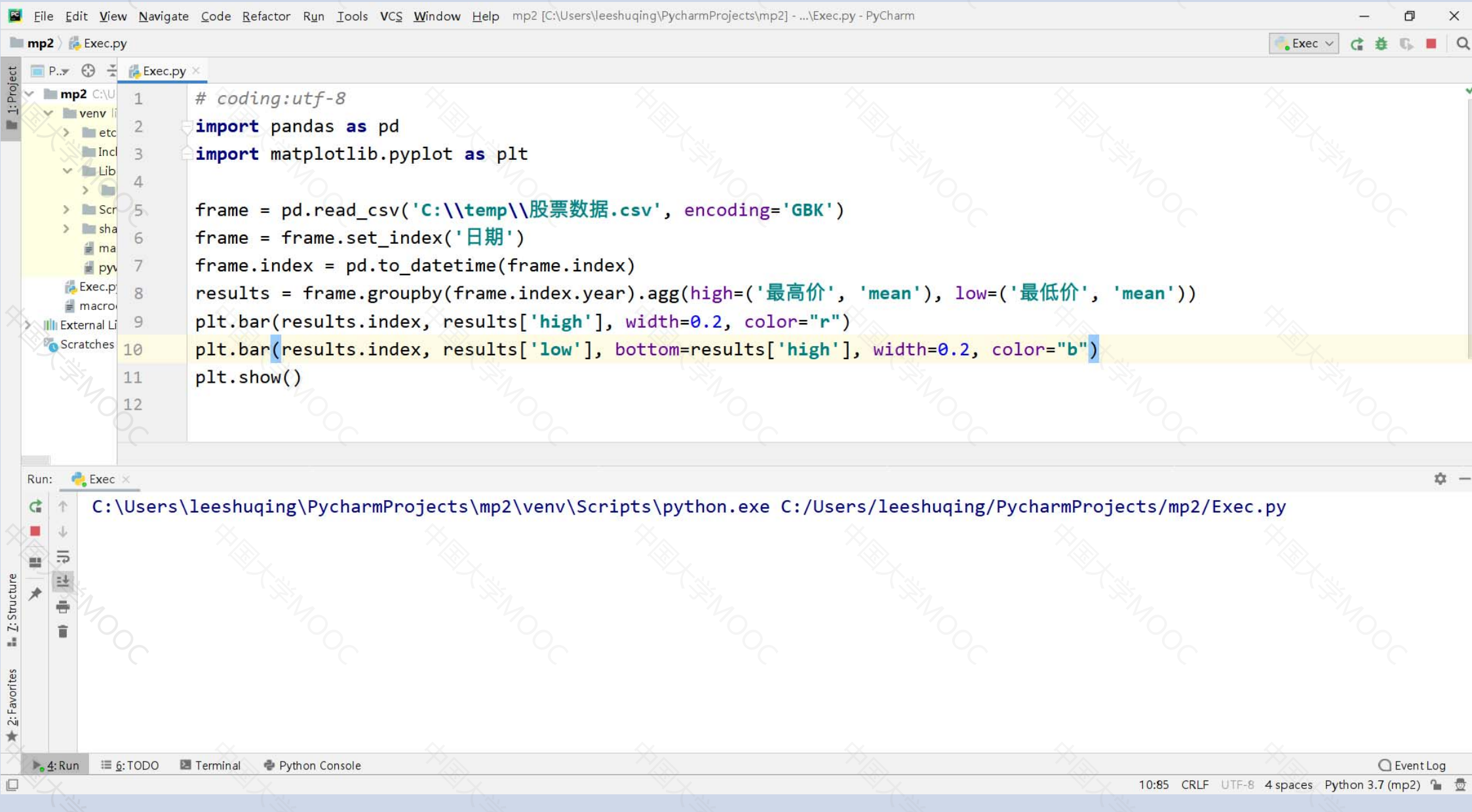


Figure 1
35
30
25
20
15
10
5
0
2012
2014
2016
2018
2020


File Edit View Navigate Code Refactor Run Tools VCS Window Help mp2 [C:\Users\leeshuqing\PycharmProjects\mp2] - ...\Exec.py - PyCharm
mp2 Exec.py
Exec
Exec.py
1: Project
mp2
venv
External Li
Scratches
# coding:utf-8
import pandas as pd
import matplotlib.pyplot as plt
frame = pd.read_csv('C:\\temp\\股票数据.csv', encoding='GBK')
frame = frame.set_index('日期')
frame.index = pd.to_datetime(frame.index)
results = frame.groupby(frame.index.year).agg(high=('最高价', 'mean'), low=('最低价', 'mean'))
plt.bar(results.index, results['high'], width=0.2, color="r")
plt.bar(results.index, results['low'], bottom=results['high'], width=0.2, color="b")
plt.show()
Run: Exec
C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py
7: Structure
2: Favorites
4: Run
6: TODO
Terminal
Python Console
Event Log
10:85 CRLF UTF-8 4 spaces Python 3.7 (mp2)

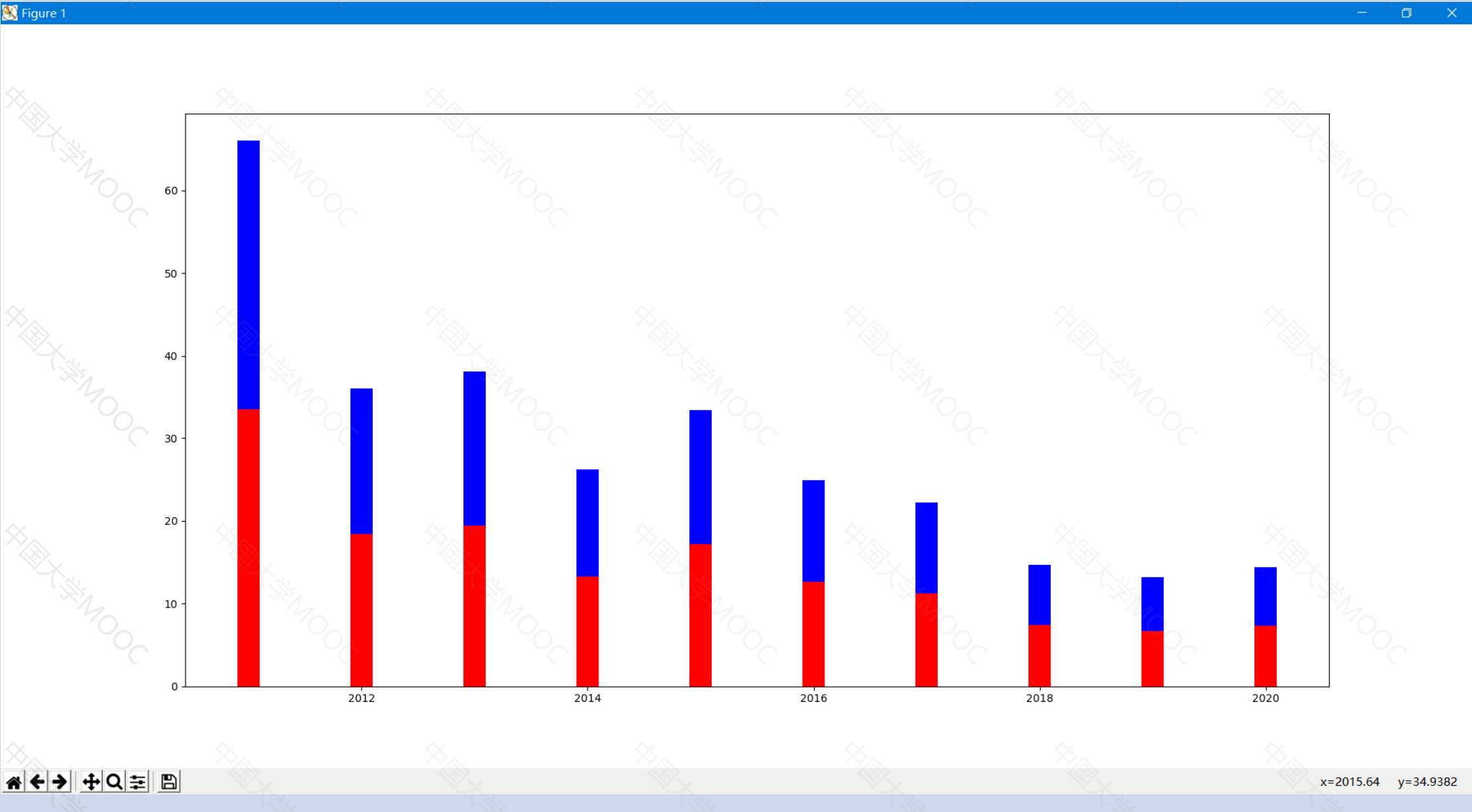
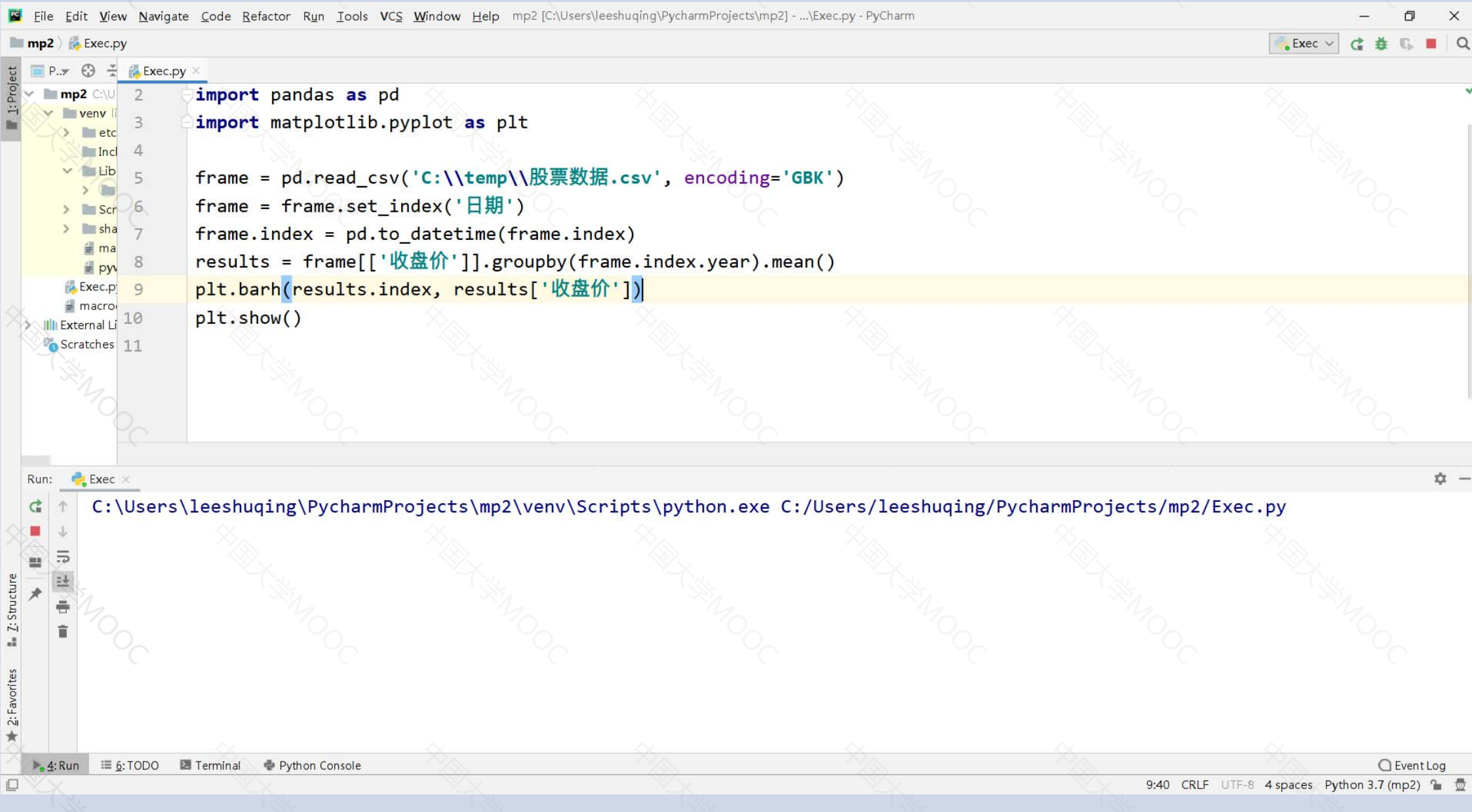


Figure 1
60
50
40
30
20
10
0
2012
2014
2016
2018
2020
x=2015.64
y=34.9382


File Edit View Navigate Code Refactor Run Tools VCS Window Help mp2 [C:\Users\leeshuqing\PycharmProjects\mp2] - ...\Exec.py - PyCharm
mp2 Exec.py
Exec
Exec.py
import pandas as pd
import matplotlib.pyplot as plt
frame = pd.read_csv('C:\\temp\\股票数据.csv', encoding='GBK')
frame = frame.set_index('日期')
frame.index = pd.to_datetime(frame.index)
results = frame[['收盘价']].groupby(frame.index.year).mean()
plt.barh(results.index, results['收盘价'])
plt.show()
Run: Exec
C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py
4: Run
6: TODO
Terminal
Python Console
Event Log
9:40 CRLF UTF-8 4 spaces Python 3.7 (mp2)

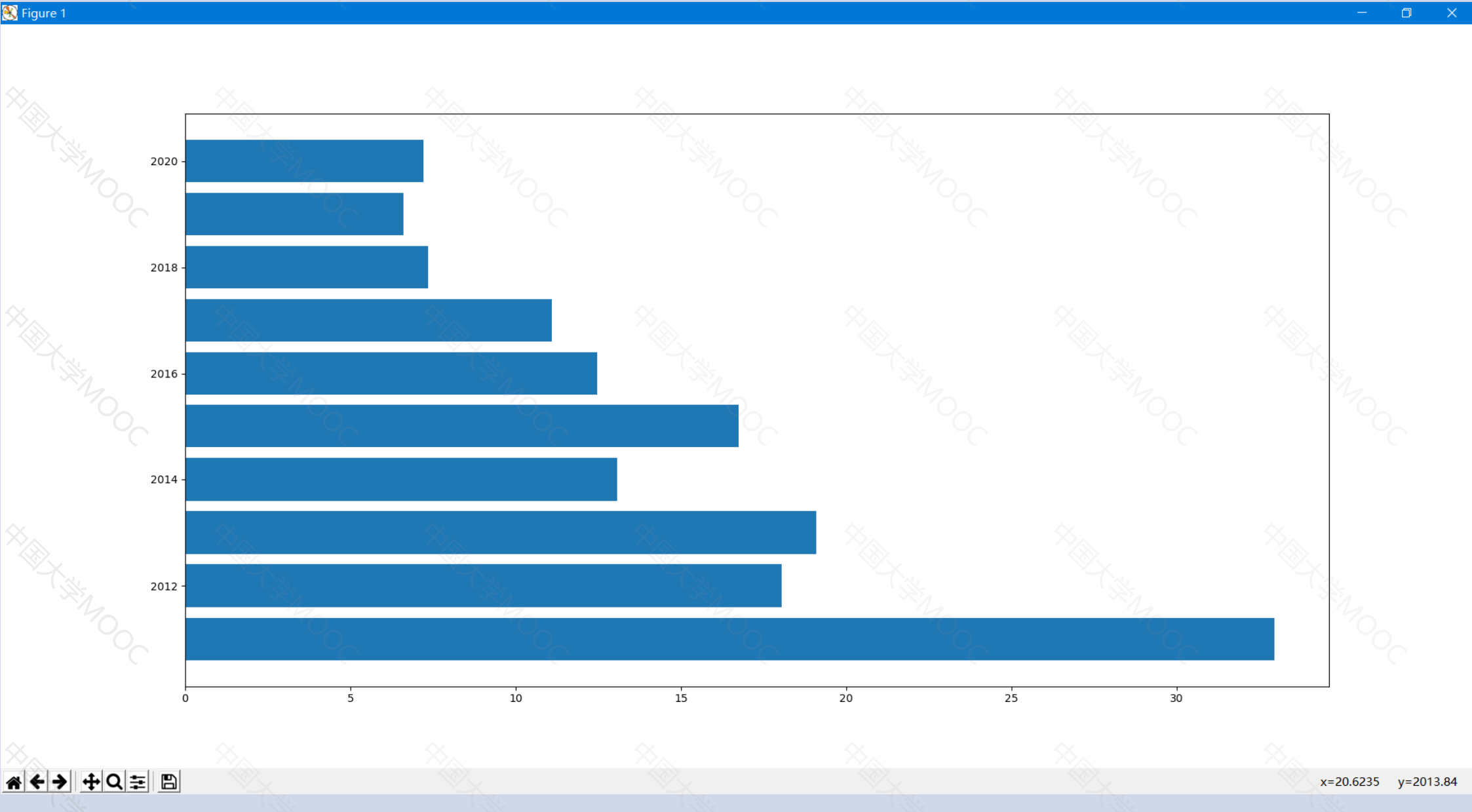
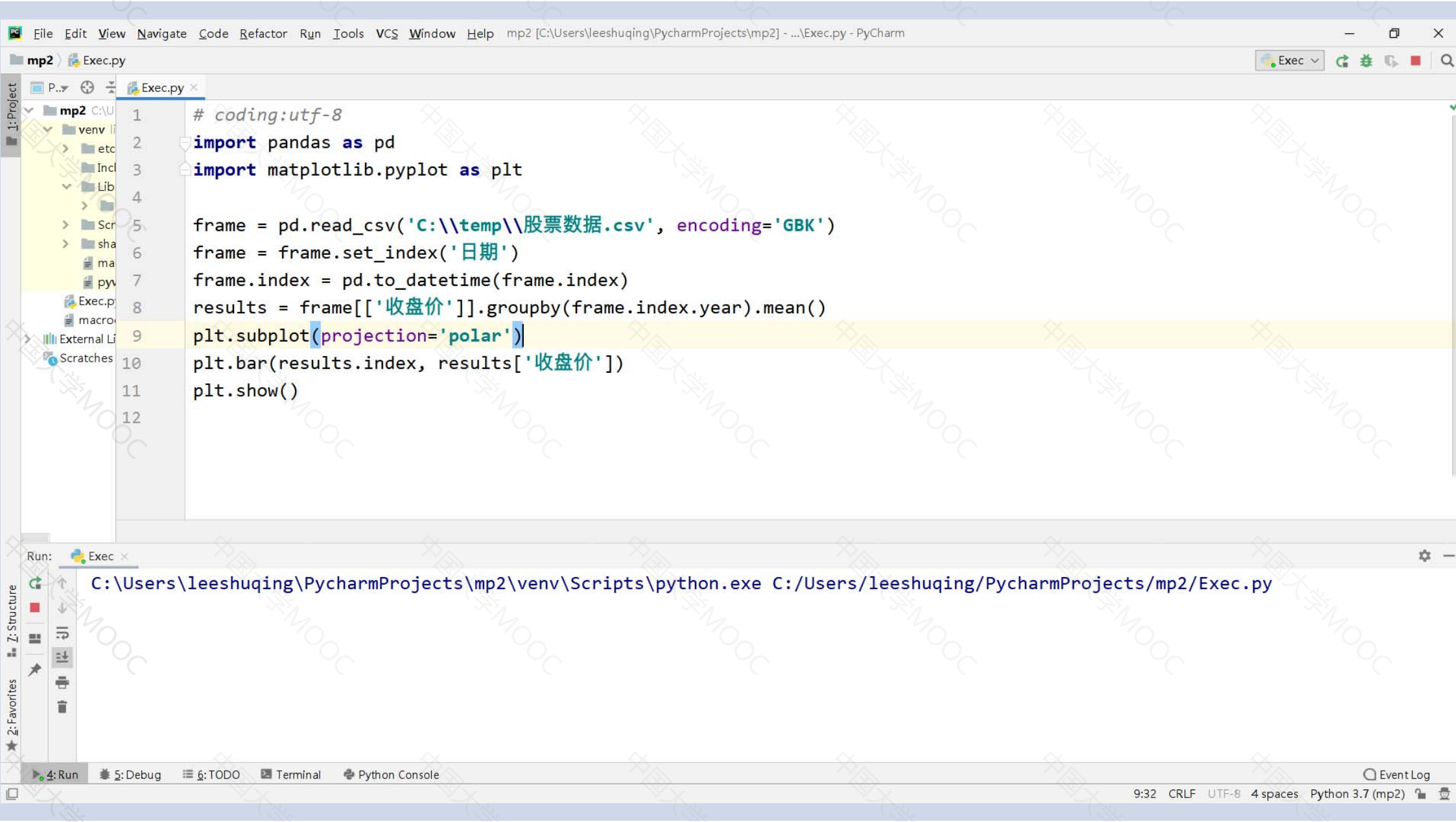


Figure 1
2020
2018
2016
2014
2012
0
5
10
15
20
25
30
x=20.6235
y=2013.84


File Edit View Navigate Code Refactor Run Tools VCS Window Help mp2 [C:\Users\leeshuqing\PycharmProjects\mp2] - ...\Exec.py - PyCharm
mp2 Exec.py
Exec
Exec.py
# coding:utf-8
import pandas as pd
import matplotlib.pyplot as plt
frame = pd.read_csv('C:\\temp\\股票数据.csv', encoding='GBK')
frame = frame.set_index('日期')
frame.index = pd.to_datetime(frame.index)
results = frame[['收盘价']].groupby(frame.index.year).mean()
plt.subplot(projection='polar')
plt.bar(results.index, results['收盘价'])
plt.show()
Run: Exec
C:\Users\leeshuqing\PycharmProjects\mp2\venv\Scripts\python.exe C:/Users/leeshuqing/PycharmProjects/mp2/Exec.py
4: Run
5: Debug
6: TODO
Terminal
Python Console
Event Log
9:32 CRLF UTF-8 4 spaces Python 3.7 (mp2)

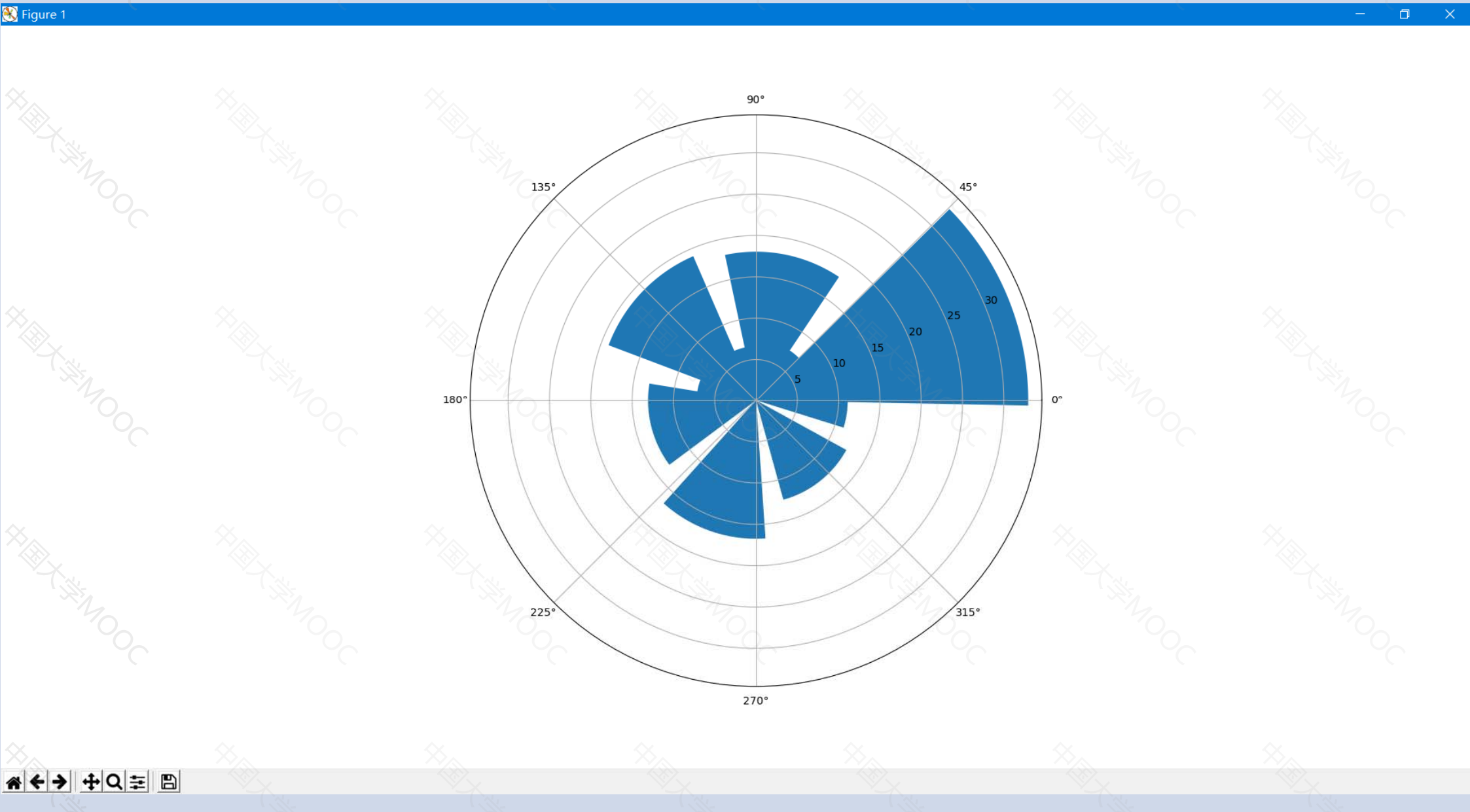


Figure 1
90°
135°
45°
180°
0°
225°
315°
270°
5
10
15
20
25
30

# 一次不学多，下次再学