Import libraries and read data

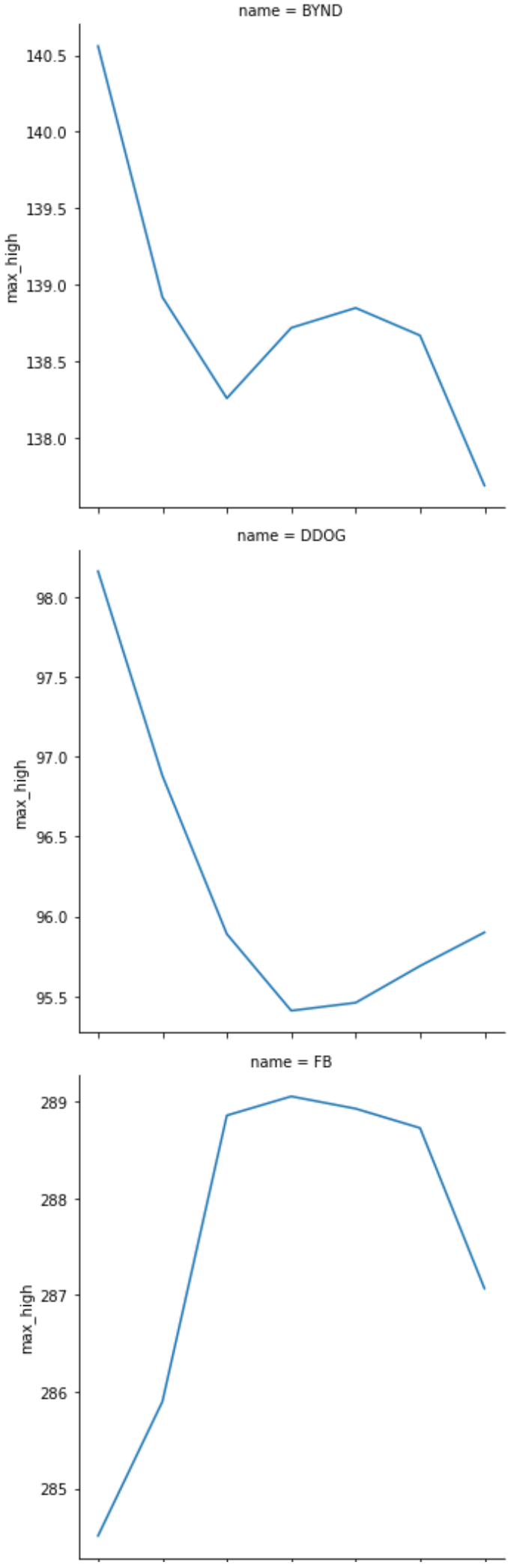
```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

df = pd.read_csv("results.csv")
df.head()
```

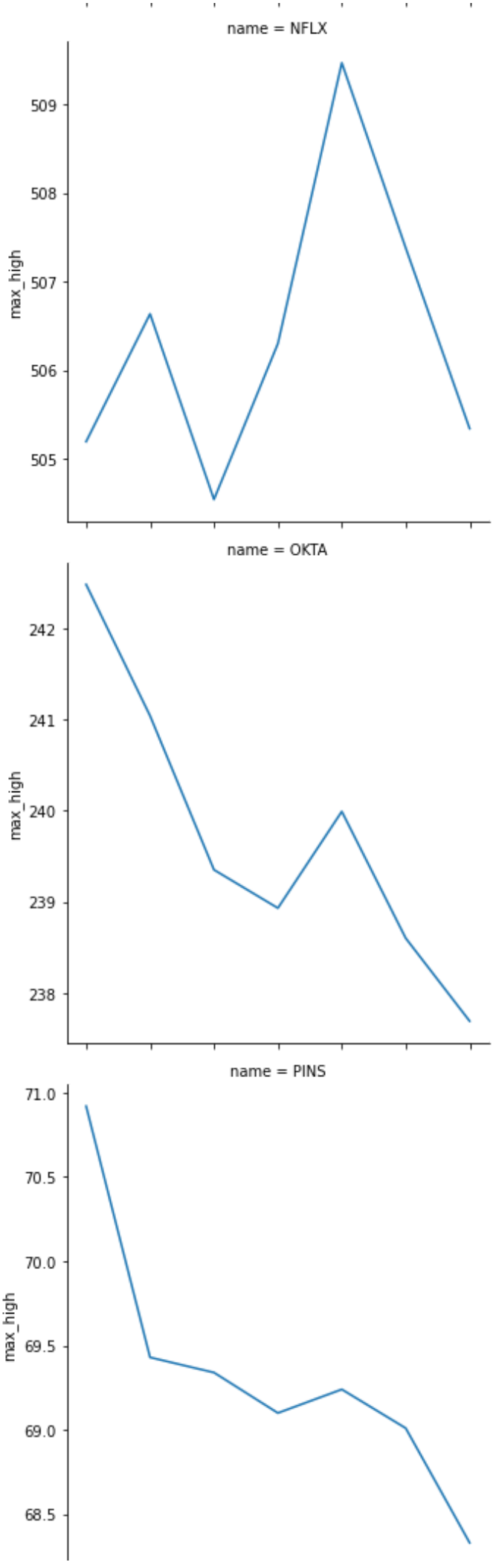
	name	hour	max_high
0	BYND	9	140.559998
1	BYND	10	138.919998
2	BYND	11	138.259995
3	BYND	12	138.720001
4	BYND	13	138.850006

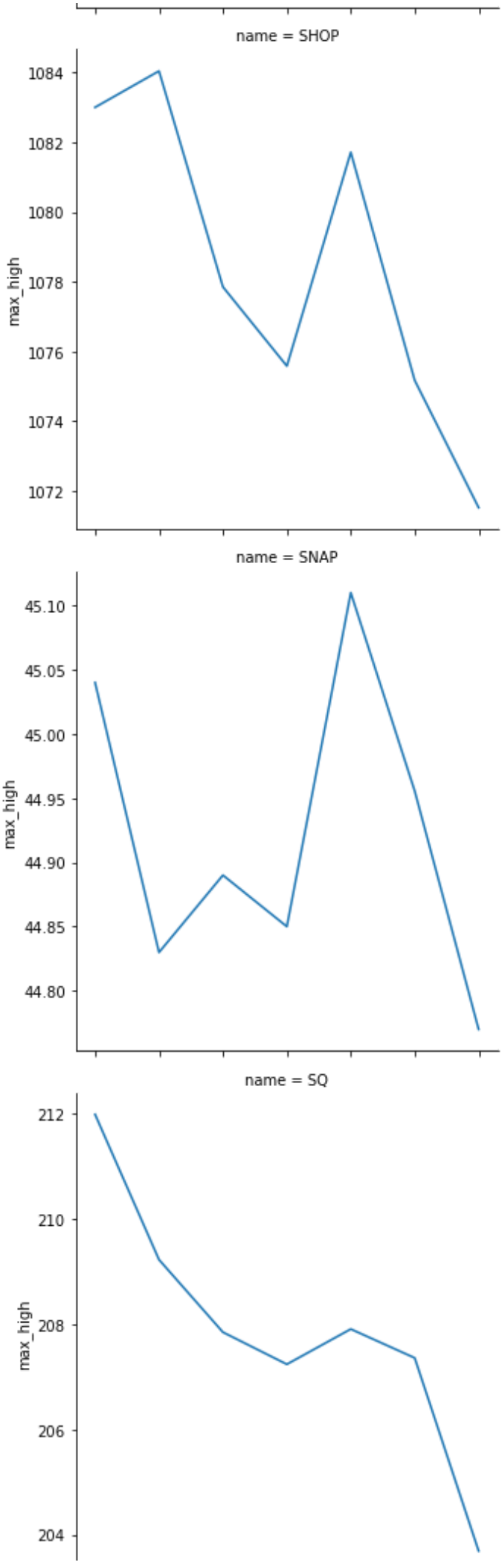
Visual 1: Timeplot of all stocks

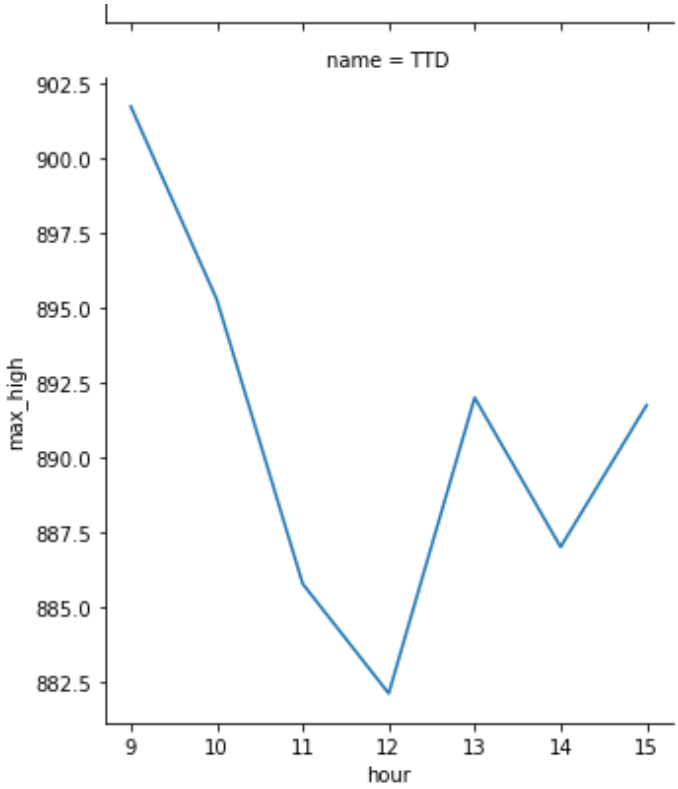
```
sns.relplot(x="hour",y="max_high",data=df,kind="line",row="name",
            facet_kws={'sharey': False, 'sharex': True})
```

```
<seaborn.axisgrid.FacetGrid at 0x2d6773cebb0>
```


name = BYND
max_high
140.5
140.0
139.5
139.0
138.5
138.0
name = DDOG
max_high
98.0
97.5
97.0
96.5
96.0
95.5
name = FB
max_high
289
288
287
286
285


name = NFLX
max_high
509
508
507
506
505
name = OKTA
max_high
242
241
240
239
238
name = PINS
max_high
71.0
70.5
70.0
69.5
69.0
68.5

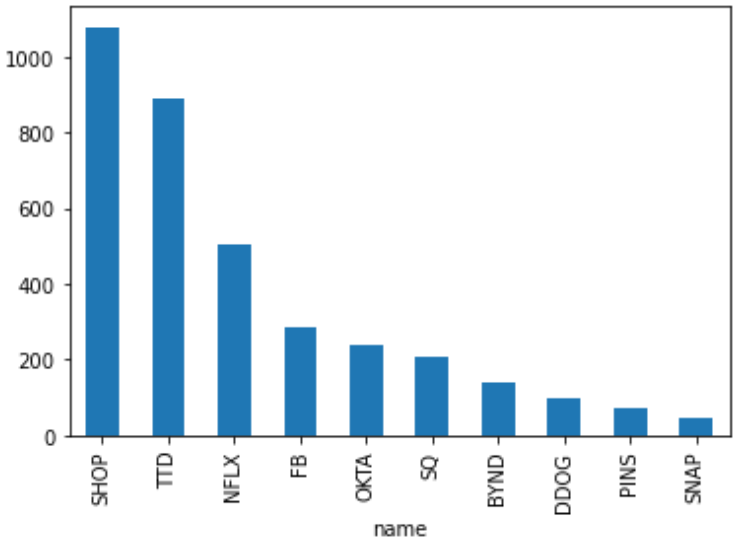

name = SHOP
max_high
1084
1082
1080
1078
1076
1074
1072
name = SNAP
max_high
45.10
45.05
45.00
44.95
44.90
44.85
44.80
name = SQ
max_high
212
210
208
206
204



Visual 2: which stock has the highest average max_high?

We can tell from the barchart that "SHOP" has the hightest average max_high.

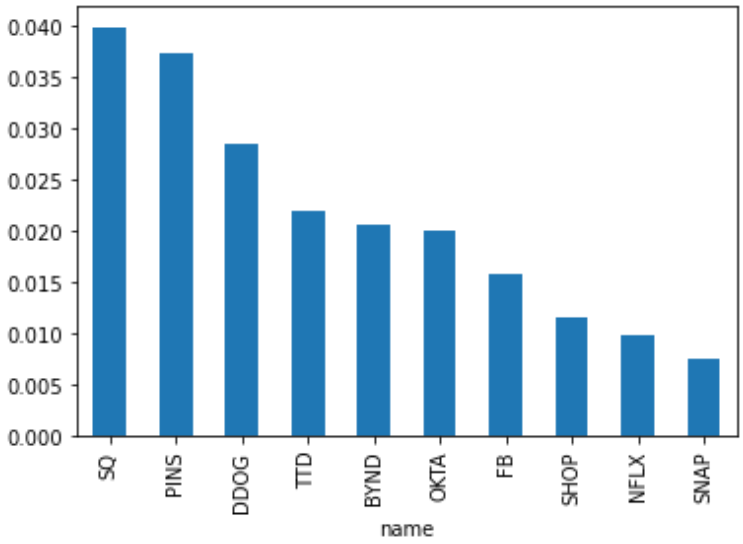
```
avg_max_high = df.groupby("name")["max_high"].mean().sort_values(ascending=False)

avg_max_high.plot(kind="bar")
plt.show()
```



Visual 3: which stock is the most volatile?

It suggested that "SQ" was the most volatile stock on Dec 1st. And "SNAP" was the least volatile.

```
maxi = df.groupby("name")["max_high"].max()
mini = df.groupby("name")["max_high"].min()
vol = ((maxi-mini)/avg_max_high).sort_values(ascending=False)

vol.plot(kind="bar")
plt.show()
```



Visual 4: stock price change

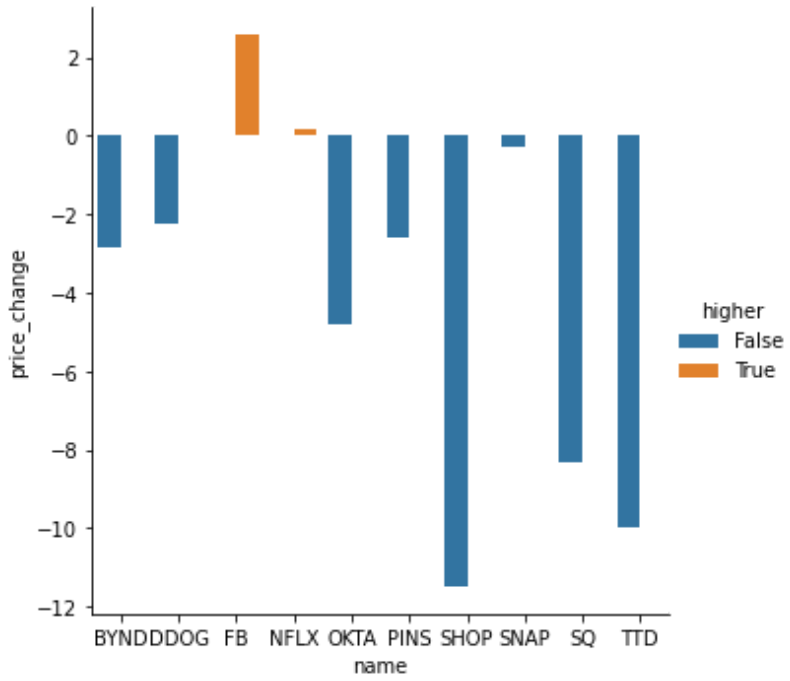
Which stock has higher close price than open price?

```
open_price = df[df["hour"]==9].set_index("name")
close_price = df[df["hour"]==15].set_index("name")
newdf = open_price.join(close_price, lsuffix='_open', rsuffix='_close')
newdf["price_change"] = newdf["max_high_close"]-newdf["max_high_open"]
newdf["higher"] = newdf["price_change"]>0
newdf
```

	hour_open	max_high_open	hour_close	max_high_close	price_change	higher
name						
BYND	9	140.559998	15	137.690002	-2.869995	False
DDOG	9	98.160004	15	95.900002	-2.260002	False
FB	9	284.510010	15	287.070007	2.559998	True
NFLX	9	505.193115	15	505.339996	0.146881	True
OKTA	9	242.479996	15	237.690002	-4.789993	False
PINS	9	70.919998	15	68.330002	-2.589996	False
SHOP	9	1082.999878	15	1071.520020	-11.479858	False
SNAP	9	45.040001	15	44.770000	-0.270000	False
SQ	9	211.992706	15	203.690002	-8.302704	False
TTD	9	901.724792	15	891.745972	-9.978821	False

```
sns.catplot(x="name",y="price_change",data=newdf.reset_index(),kind="bar",hue="higher")
```

```
<seaborn.axisgrid.FacetGrid at 0x2d6789daf40>
```



It shows that only "FB" and "NFLX" had higher close price than open price on Dec 1st.