Final Notebook Data1201

December 8, 2023

[1]:
```
import numpy as np
from datascience import *

import matplotlib.pyplot as plt
plt.style.use("ggplot")
%matplotlib inline
```

0.1 Question: How does the weather impact the riding activity for the day

Data:

[2]:
```
history = Table.read_table("Nice_ride_trip_history_2017_season.csv",␣
 ↪low_memory=False)
history
```

[2]:
```
Start date      | Start station                    | Start station number | End
date        | End station                       | End station number | Account
type | Total duration (Seconds)
11/5/2017 21:45 | Hennepin Ave & S Washington Ave  | 30184                |
11/5/2017 22:02 | Logan Park                       | 30104                | Member
| 1048
11/5/2017 21:45 | Broadway Street N & 4th Street E | 30122                |
11/5/2017 22:26 | Broadway Street N & 4th Street E | 30122                | Member
| 2513
11/5/2017 21:43 | Dale Street & Grand Ave.         | 30106                |
11/5/2017 22:13 | N Milton Street & Summit Ave     | 30101                | Member
| 1817
11/5/2017 21:41 | Weisman Art Museum               | 30183                |
11/5/2017 22:05 | 22nd Ave S & Franklin Ave        | 30014                | Casual
| 1399
11/5/2017 21:38 | South 2nd Street & 3rd Ave S     | 30030                |
11/5/2017 21:44 | 6th Ave SE & University Ave      | 30088                | Member
| 370
11/5/2017 21:34 | 15th Ave SE & 4th Street SE      | 30197                |
11/5/2017 21:39 | Oak Street Ramp                  | 30034                | Member
| 342
11/5/2017 21:33 | Hennepin Ave & S Washington Ave  | 30184                |
11/5/2017 21:43 | Washington & Cedar               | 30015                | Member
```

```
| 617
11/5/2017 21:30 | Bryant Ave N & West Broadway     | 30067               |
11/5/2017 21:52 | N Washington Ave & 9th Ave N     | 30065               | Member
| 1343
11/5/2017 21:27 | N Milton Street & Summit Ave     | 30101               |
11/5/2017 21:41 | Dale Street & Grand Ave.         | 30106               | Member
| 838
11/5/2017 21:16 | 7th Street & 4th Ave S           | 30051               |
11/5/2017 21:25 | West 15th Street & Willow        | 30093               | Casual
| 559
… (460708 rows omitted)
```

[3]:
```
history = history.select('Start date', 'Total duration (Seconds)')
history
```

[3]:
```
Start date      | Total duration (Seconds)
11/5/2017 21:45 | 1048
11/5/2017 21:45 | 2513
11/5/2017 21:43 | 1817
11/5/2017 21:41 | 1399
11/5/2017 21:38 | 370
11/5/2017 21:34 | 342
11/5/2017 21:33 | 617
11/5/2017 21:30 | 1343
11/5/2017 21:27 | 838
11/5/2017 21:16 | 559
… (460708 rows omitted)
```

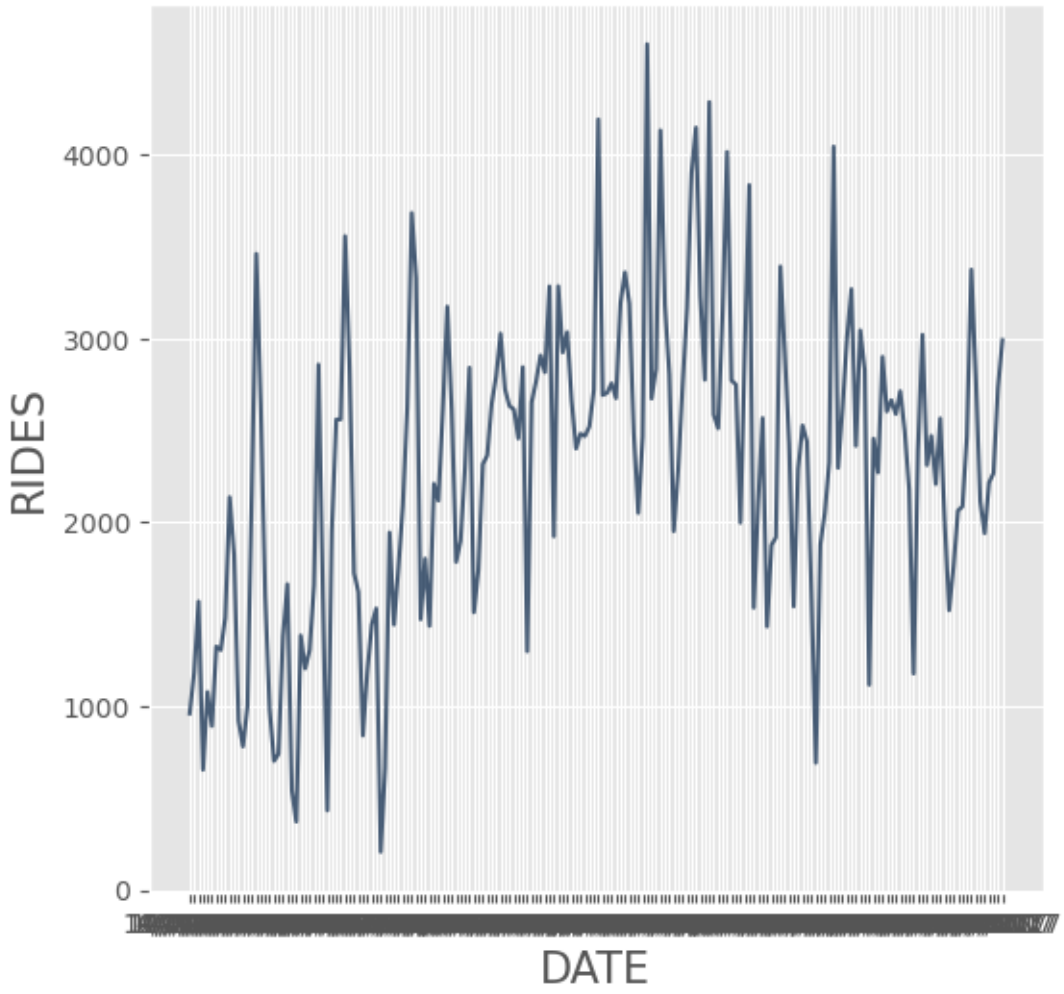
[4]:
```
weather = Table.read_table("WeatherDailyMinneapolis2017_mod.csv")
weather = weather.drop(5)
weather = weather.take(np.arange(184))
weather
```

[4]:
```
DATE      | HIGH | LOW  | TAVG    | RIDES
4/3/2017  | 53   | 43   | 2100.7  | 543
4/4/2017  | 49   | 42   | 1823.79 | 1385
4/5/2017  | 59   | 36   | 996.39  | 1205
4/6/2017  | 52   | 33   | 1359.66 | 1305
4/7/2017  | 52   | 29   | 1375.83 | 1659
4/8/2017  | 58   | 32   | 2229.51 | 2858
4/9/2017  | 69   | 47   | 2532.54 | 1600
4/10/2017 | 70   | 42   | 546.794 | 655
4/11/2017 | 43   | 29   | 1454.38 | 1078
4/12/2017 | 50   | 30   | 975.251 | 893
… (174 rows omitted)
```

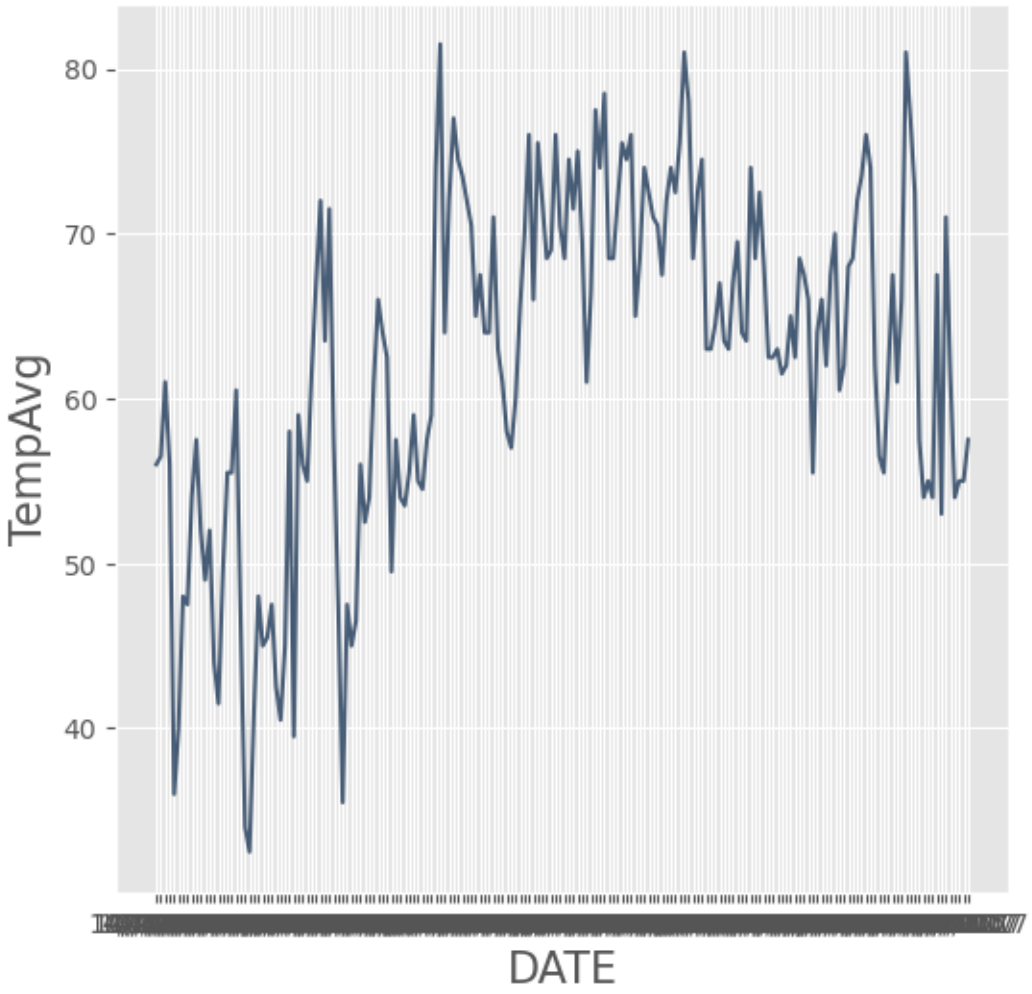
[5]:
```
temp = (weather.column('HIGH').astype(int) + weather.column('LOW').astype(int))␣
  ↪/ 2
weather = weather.with_columns('TempAvg', temp)
weather = weather.select('DATE','TAVG','RIDES','TempAvg')
weather
```

[5]:
```
DATE      | TAVG    | RIDES | TempAvg
4/3/2017  | 2100.7  | 543   | 48
4/4/2017  | 1823.79 | 1385  | 45.5
4/5/2017  | 996.39  | 1205  | 47.5
4/6/2017  | 1359.66 | 1305  | 42.5
4/7/2017  | 1375.83 | 1659  | 40.5
4/8/2017  | 2229.51 | 2858  | 45
4/9/2017  | 2532.54 | 1600  | 58
4/10/2017 | 546.794 | 655   | 56
4/11/2017 | 1454.38 | 1078  | 36
4/12/2017 | 975.251 | 893   | 40
… (174 rows omitted)
```

[6]:
```
weatherRides = weather.select('DATE','TAVG','RIDES')
weatherRides.plot('DATE','RIDES')
```



[10]:
```
weatherTemp = weather.select('DATE','TempAvg')
weatherTemp.plot('DATE','TempAvg')
```



With the above graphs, we can compare the ride times for each date depending on the weather