RENT ANALYSIS IN ORLANDO

Project III

DSC 680

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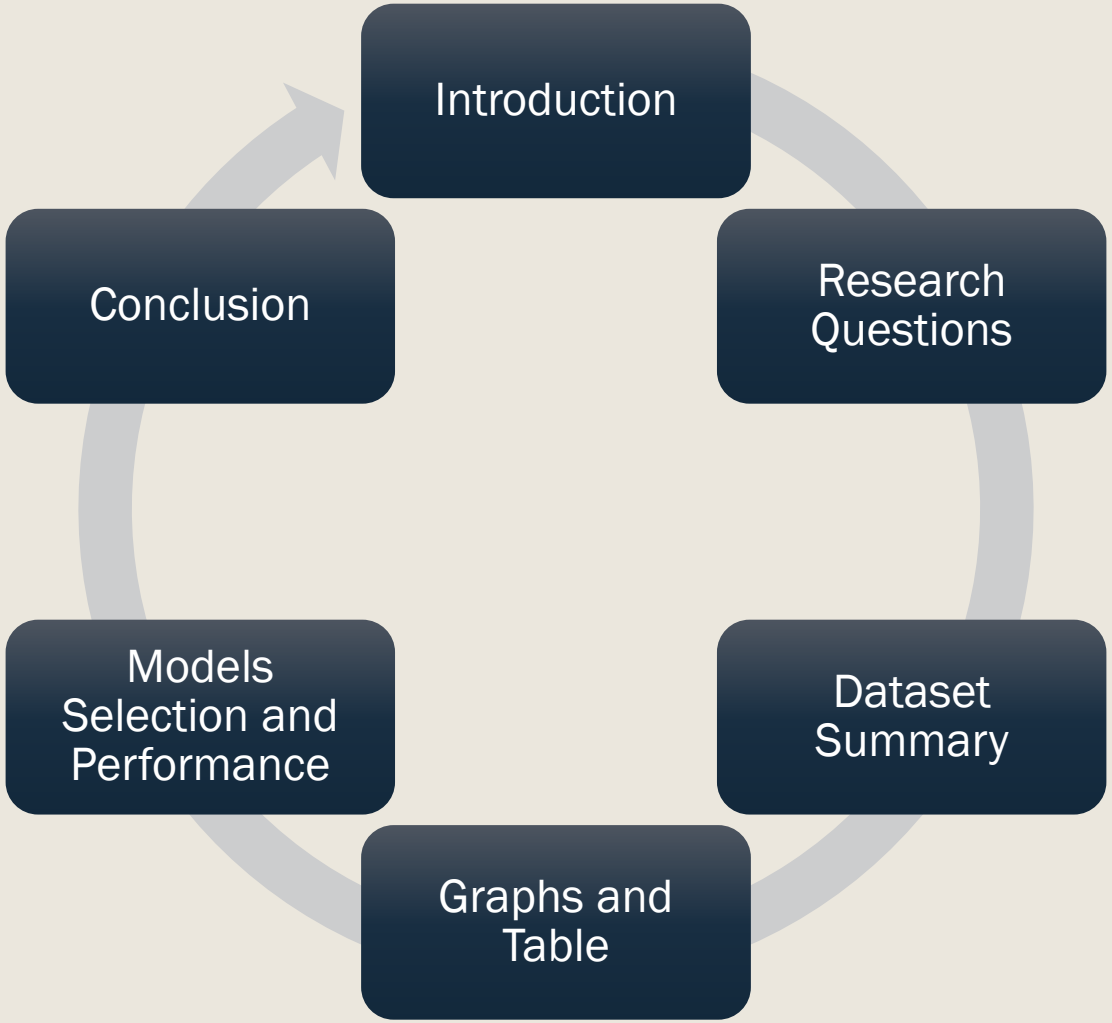


Introduction

Orlando's 75 million visitors generated $75.2 billion in annual economic impact for Central Florida or about $1,000 per traveler, which is a 6.4% increase over 2019. In the last five years, a 20% growth in visits has spurred nearly 25% growth in spending, supporting 13% growth in employment in Central Fla (2014 vs 2018).

Orlando's population grew from 2,512,917 to 2,772,962 from July 2018 to July 2019, a difference of 259,775. About 1.1 million people were employed in the area, and total wages for the quarter that ended on March 31, 2014, were over $10 billion, a one-year increase of 4.7 percent. The average annualized salary was $42,644, a one-year increase of 2.6 percent. The Metro Orlando Economic Development Commission's March 2018 economic indicators report shows that the leisure and hospitality industry, at 21 percent of all jobs, remained the leading employer in the area.

The demand for housing in the Greater Orlando Area has been significantly increased in the past 20 years. At $1,151, real median gross rent in Orlando was at its highest level in 2017 since the series began in 2005. At $1,170, real average gross rent in Orlando was at its highest level in 2017 since the series began in 2005.

Research Questions

Is Orlando literally the worst place in the country right now for affordable housing?

How does the household income affect the housing affordability in Orlando?

How does the Orlando housing market look like in the next ten years?

Data Summary

1. The primary data has not been generated by surveys, interviews, and experiments. It is a normal dataset that was generated from kids.kiddle.co, and it is designed for understanding and solving the research problem at hand.
2. The secondary data truly follows the definition of a real secondary data. It is also generated by www.deptofnumbers.com.
3. It will serve as supporting data for the project. US. Census Bureau is about the government-informed statistics on the lives of US citizens including population, economy, education, geography, and more, which is a great source to gather data.

- Data 1: https://kids.kiddle.co/Greater_Orlando
- Data 2: https://www.deptofnumbers.com/rent/florida/orlando/

Statistical and Visual Methods

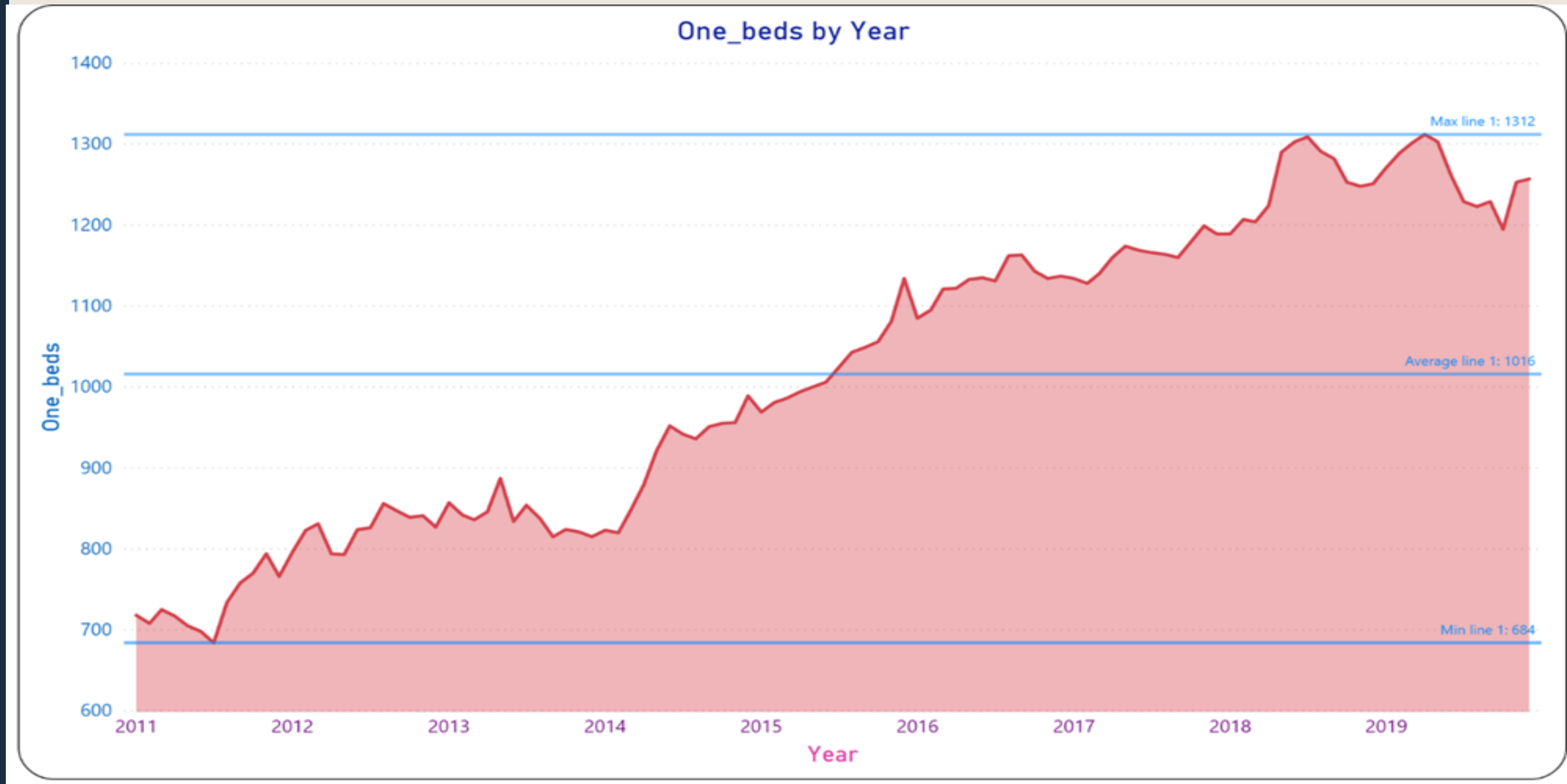
Statistical Methods

- OLS is a variation of linear regression, a statistical method that examines associations between multiple independent variables and a single dependent variable; once the assumptions are satisfied, the regression output indicates the strength of the association between the dependent variable and each of the independent variables.
- I also believe that simple linear regression may be a great way to examine my single input. Because simple linear regression requires statistical properties from the data such as means, standard deviations, correlations, and covariance, all the data must be available to traverse and calculate statistics.

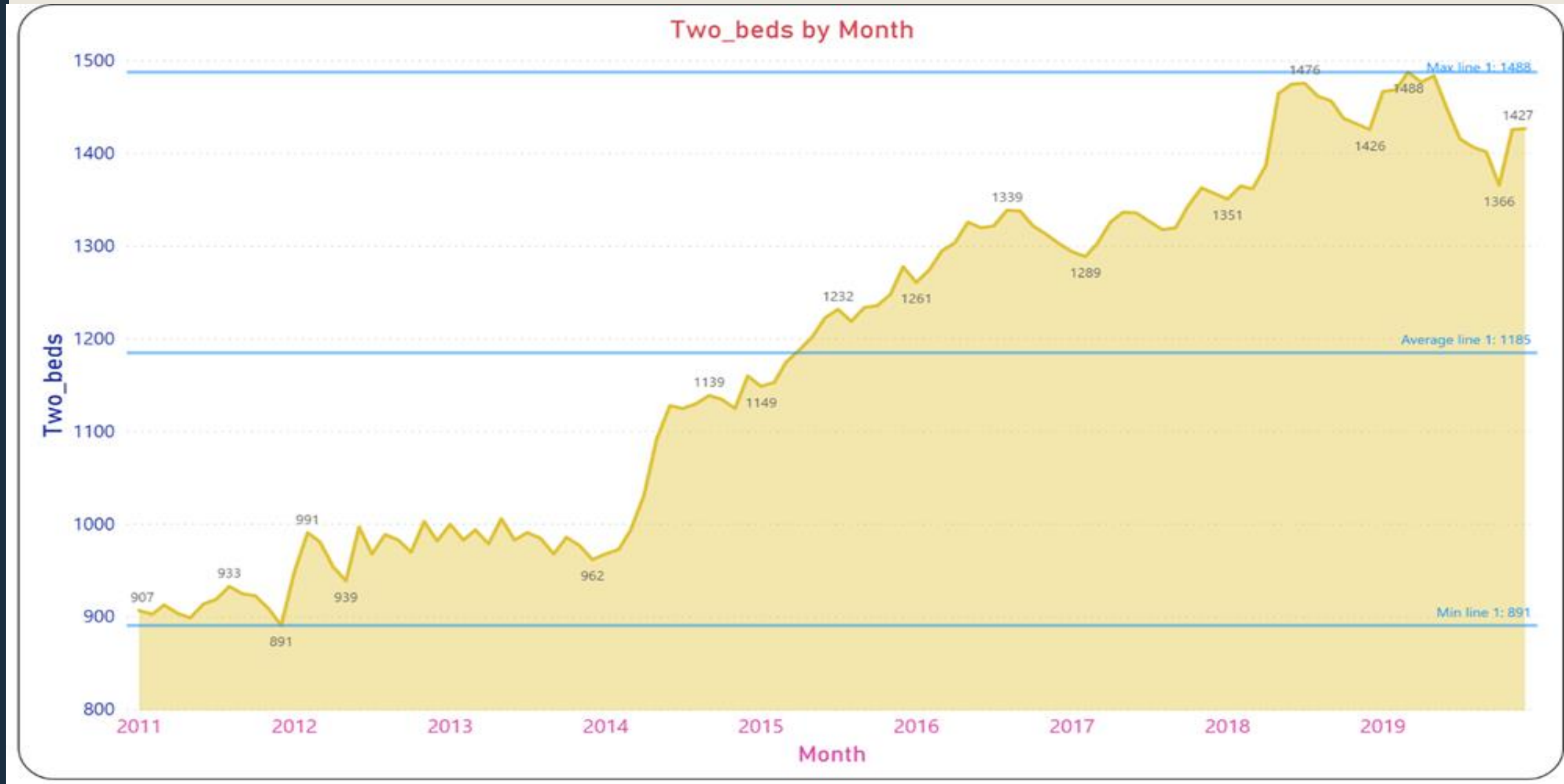
Statistical Methods

- I will use Python and Power BI for this project.
- I will use NumPy to assist me with any type of linear algebra, Fourier transform, and matrices. With Pandas, the DataFrames allow me to store and manipulate tabular data in rows of observations and columns of variables, which will assist me with data wrangling.
- I will also use Matplotlib for my visual applications. It allows me visual access to huge amounts of data in easily digestible visuals. Matplotlib consists of several plots like line, bar, scatter, and histogram.

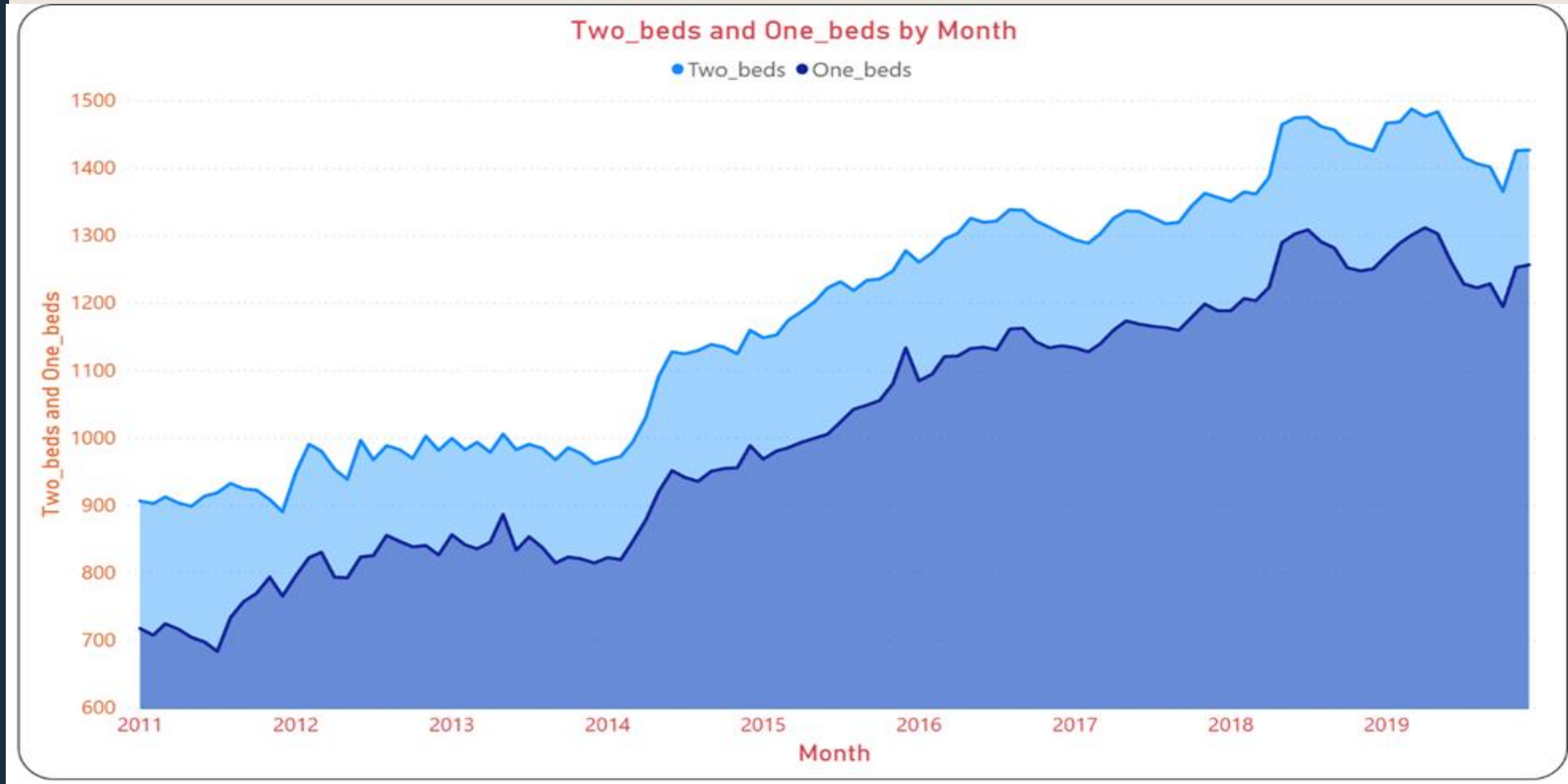
Graphs


One_beds by Year
1400
1300
1200
1100
1000
900
800
700
600
One_beds
Max line 1: 1312
Average line 1: 1016
Min line 1: 684
2011
2012
2013
2014
2015
2016
2017
2018
2019
Year

Graphs


Two_beds by Month
Two_beds
Month
Max line 1: 1488
Average line 1: 1185
Min line 1: 891
1500
1400
1300
1200
1100
1000
900
800
2011
2012
2013
2014
2015
2016
2017
2018
2019
907
933
891
991
939
962
1139
1149
1232
1261
1339
1289
1351
1476
1488
1426
1366
1427

Graphs


Two_beds and One_beds by Month
Two_beds
One_beds
1500
1400
1300
1200
1100
1000
900
800
700
600
Two_beds and One_beds
2011
2012
2013
2014
2015
2016
2017
2018
2019
Month

Graphs

One Bedroom		
Lowest	$684	July 2011
Average	$1,016	July 2015
Highest	$1,312	April 2019

- Increased by 48% overall from July 2011 to April 2019.
- Increased by 32.7% from July 2011 to July 2015.
- Increased by 22.5% from July 2015 to April 2019.

Graphs

Two Bedrooms		
Lowest	$891	December 2011
Average	$1,185	April 2015
Highest	$1,488	March 2019

- Increased by 40.12% overall from July 2011 to April 2019.
- Increased by 24.81% from July 2011 to July 2015.
- Increased by 20.37% from July 2015 to April 2019.

In [74]:
```
from pandas import Series, DataFrame

import numpy as np

import string
import re
import matplotlib.pyplot as plt
from matplotlib.pyplot import rcParams

%matplotlib inline
from collections import Counter
```

In [75]:
```
import keras
```

In [76]:
```
from csv import reader
from datetime import datetime
```

In [77]:
```
import pandas as pd
import json
import sys
import warnings
```

In [78]:
```
import sklearn
from sklearn import datasets, linear_model
from sklearn.model_selection import train_test_split
from sklearn.tree import DecisionTreeClassifier
from sklearn.ensemble import RandomForestClassifier, BaggingClassifier
from sklearn.linear_model import LinearRegression
```

In [79]:
```
df = ("C:\\Users\\orlan\Rent_Orlando_10years.csv")
```

In [80]:
```
data1 = pd.read_csv(df)
```

In [81]:
```
print (data1)
```

```
      Month  Two_beds  One_beds
0    11-Jan       907       718
1    11-Feb       903       708
2    11-Mar       913       725
3    11-Apr       904       717
4    11-May       899       705
..      ...       ...       ...
103  20-Jan      1407      1223
104  20-Mar      1402      1229
105  20-Apr      1366      1195
106  20-May      1426      1253
107  20-Jun      1427      1257

[108 rows x 3 columns]
```


In [82]:
```
data1.describe()
```

Out[82]:

	Two_beds	One_beds
count	108.000000	108.000000
mean	1185.203704	1016.064815
std	194.894688	189.793605
min	891.000000	684.000000
25%	983.000000	835.500000
50%	1221.000000	1015.000000
75%	1340.250000	1175.250000
max	1488.000000	1312.000000

In [83]:
```
data1.min()
```

Out[83]:
```
Month        11-Apr
Two_beds        891
One_beds        684
dtype: object
```

In [84]:
```
data1.max()
```

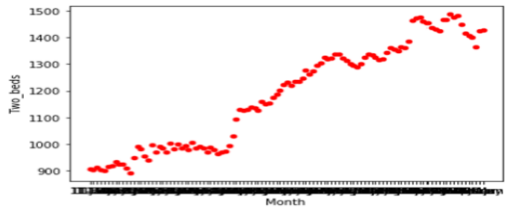
Out[84]:
```
Month        20-May
Two_beds       1488
One_beds       1312
dtype: object
```

In [ ]:
```

```

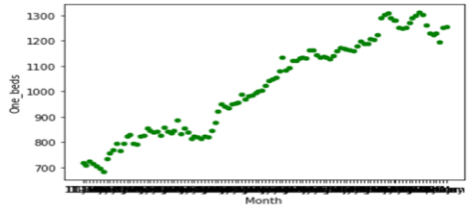
In [86]:
```
data1.plot(kind='scatter', x='Month', y='Two_beds', c=['red'])
```

Out[86]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x2966fefbac8>
```



In [87]:
```
data1.plot(kind='scatter', x='Month', y='One_beds', c=['green'])
```

Out[87]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x2967003cdc8>
```



In [88]:
```
import scipy
import math
```

In [89]:
```
linreg = LinearRegression()
```

In [90]:
```
Two_beds = np.array([907,903,913,904,899,914,919,933,925,923,909,891,949,991,9
81,954,939,997,968,989,983,970,1003,982,1000,983,994,979,1006,983,991,985,968,
986,977,962,968,973,994,1031,1092,1128,1125,1130,1139,1135,1125,1160,1149,1153
,1175,1188,1202,1223,1232,1219,1234,1236,1248,1278,1261,1275,1295,1304,1326,13
20,1322,1339,1338,1322,1313,1303,1294,1289,1303,1326,1337,1336,1327,1318,1320,
1344,1363,1357,1351,1365,1362,1387,1465,1475,1476,1462,1457,1438,1432,1426,146
7,1469,1488,1477,1484,1448,1416,1407,1402,1366,1426,1427])
```

In [94]:
```
One_beds = np.array([718,708,725,717,705,698,684,734,758,770,794,766,796,823,8
31,794,793,824,826,856,847,839,841,827,857,842,836,846,887,834,854,838,815,824
,821,815,823,820,847,879,921,952,942,936,951,955,956,989,969,981,986,994,1000,
1006,1024,1043,1049,1056,1081,1134,1085,1095,1121,1122,1133,1135,1131,1162,116
3,1143,1134,1137,1134,1128,1140,1160,1174,1169,1166,1164,1160,1179,1199,1189,1
189,1207,1204,1224,1290,1303,1309,1291,1282,1253,1248,1251,1271,1289,1301,1312
,1303,1262,1229,1223,1229,1195,1253,1257])
```

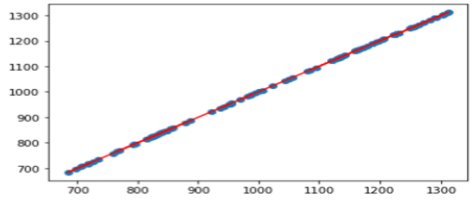
In [95]:
```
Two_beds = Two_beds.reshape(-1, 1)
```

In [96]:
```
linreg.fit(Two_beds, One_beds)
```

Out[96]:
```
LinearRegression(copy_X=True, fit_intercept=True, n_jobs=None, normalize=Fals
e)
```

In [97]:
```
One_beds_pred = linreg.predict(Two_beds)
```


In [98]:
```
plt.scatter(Two_beds,One_beds)
plt.plot(Two_beds, One_beds_pred, color='red')
plt.show()
```



In [ ]:
```
```

CONCLUSION

If you are moving to the Orlando area as renter hoping to save enough to buy a home, this may be scary news. The best advice we can give you is to rent a home owned by one of the millions and millions of decent landlords out there. And to do your best to be a respectful and considerate tenant. Landlords sometimes get a bad rap, but most of them are not bad people. They may raise your rent a little bit each year to make sure they have enough to pay for their rising costs and fees, but in doing so they're able to make sure you have a properly maintained and nicely run place to live.

If you are a landlord in the Orlando area rising rents are obviously a good thing. Higher rents mean more cash flow. Rising demand for rentals means lower vacancy rates, which also helps you make more cash flow. That said, not all areas in Orlando are experiencing rising rents and lower vacancy rates, but it still really matters where and when you buy your rental property. Therefore, it is so important to always perform a market analysis in the area you are looking to buy before purchasing a rental property.

Two Bedrooms

Increased by 40.12% overall from July 2011 to April 2019.

Increased by 24.81% from July 2011 to July 2015.

Increased by 20.37% from July 2015 to April 2019.

One Bedroom

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Increased by 32.7% from July 2011 to July 2015.

Increased by 22.5% from July 2015 to April 2019.

REFERENCES

1. https://kids.kiddle.co/Greater_Orlando
2. https://www.niche.com/places-to-live/search/best-neighborhoods/m/orlando-metro-area/
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8. https://www.numbeo.com/cost-of-living/in/Orlando
9. https://www.orlandorealtors.org/marketreports
10. https://www.orlandoweekly.com/Blogs/archives/2019/03/15/orlando-is-literally-the-worst-place-in-the-country-right-now-for-affordable-housing

ACKNOWLEDGEMENTS

- There are so many articles, data, and organizations that I owe great credit and great deals of respects to. After reading several articles, I realized that I needed to add more concepts into my research to make my projects more appealing and concrete. These articles have really helped me to understand some of the more important ways to structure my analysis.

- Finally, I must thank my family especially my wife to allow me to skip so many family activities to focus on working in this project.

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