RENTAL APARTMENT IN GERMANY PRICES ANALYSIS

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In this project, I will use scraped data from immobilienscount24, the biggest real estate platform in Germany, available on Kaggle to analyze what is it that informs the price of rental apartments in Germany. I conducted EDA to understand the dataset and I used regression ML technique to see if we can predict the total rent amount. Then, Kmeans unsupervised ML techniques is applied to identify clusters within the dataset. Furthermore, geospatial analysis for the German rental market will be conducted by creating a choropleth map.

DATA

- Scrapped from immobilienscount24.de and available on Kaggle
- The datasets contain 49 variables & over 260,000 observations

TOOLS

- Python and Jupyter
- Libraries: Pandas, Numpy, Matplotlib, Seaborn, Scipy

SKILLS USED

- Data cleaning and wrangling
- Exploratory Analysis
- Machine Learning techniques: Regression Analysis and Clustering
- Geospatial Analysis
- Analysing Time Series Data

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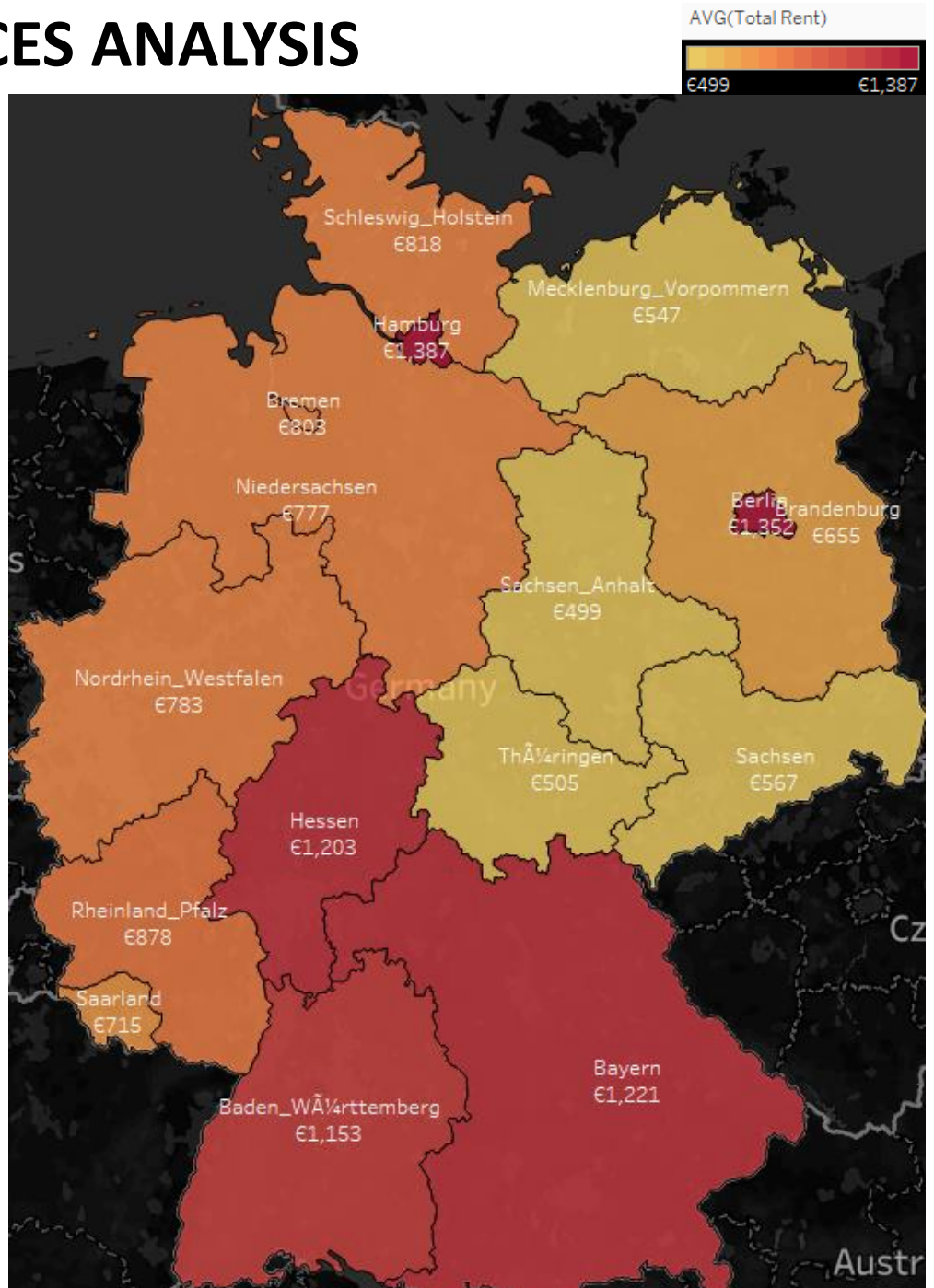
The map on the right shows the States in Germany and the Average monthly Total Rent per State.

The 3 Most Expensive States to rent an apartment are:

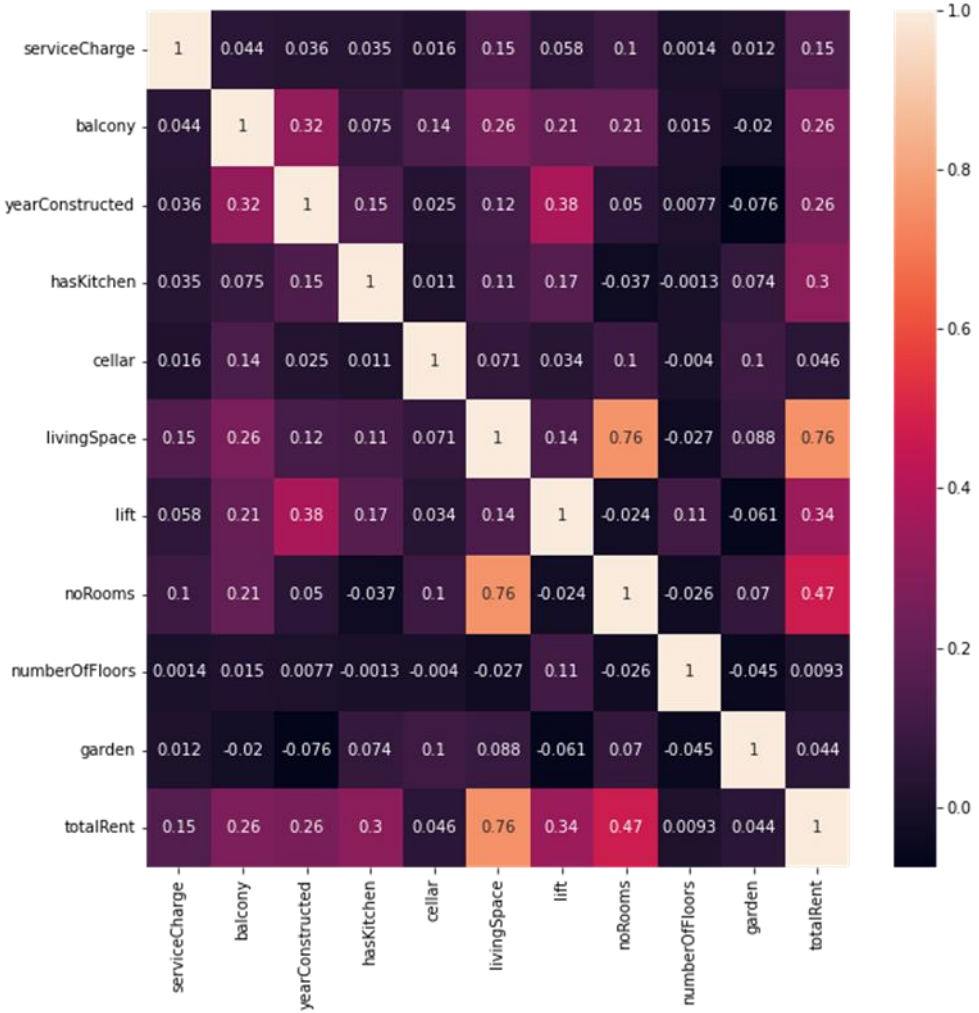
1. Hamburg - Total Rent - €1,387
2. Berlin - Total Rent - € 1,352
3. Bayern - Total Rent - € 1221

The 3 cheapest States to rent an apartment are:

1. Sachen-Anhalt - Total Rent - €499
2. Thüringen - Total Rent - €505
3. Mecklenburg-Vorpommern - Total Rent - €547

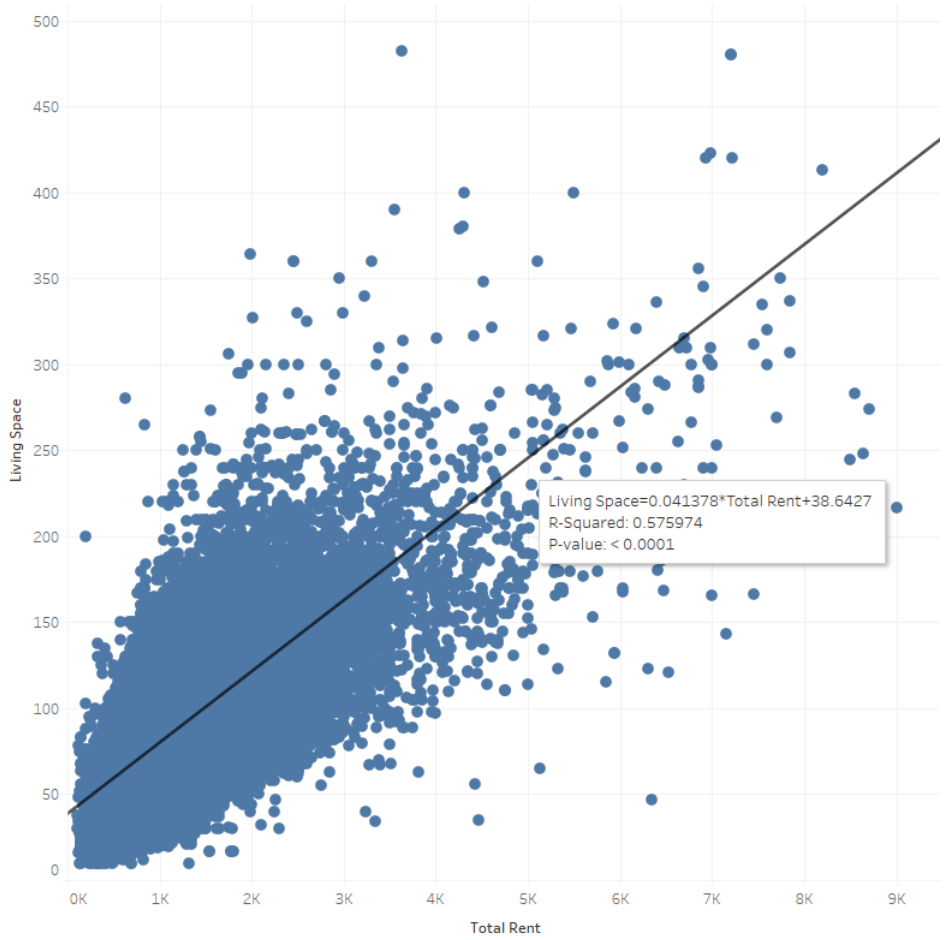


Correlation Heat Map



- From the heat map above, TotalRent has a strong positive correlation of 0.76 with LivingSpace.

Linear Regression TotalRent vs LivingSpace



- LivingSpace is able to contribute to around 57% in explaining the TotalRent amount.

CLUSTER ANALYSIS

The most expensive of the clusters is, cluster 2, purple. With:

- Average Total Rent of € 2,357 per Month
- Average LivingSpace of 142 square meters
- Average Number of Rooms is 4

The cheapest cluster is, cluster 3, blue. With :

- Average Total Rent of € 553 per Month
- Average LivingSpace of 54.29 square meters
- Average Number of Rooms is 2

CONCLUSIONS & RECOMMENDATIONS

Conclusions

- Apartments with bigger living space tend to be more expensive
- Apartments with more rooms number also tend to be more expensive
- But there are exceptions as this is not always the case
- Furthermore, it should be noted that all 4 clusters can be found in all the states

Limitations

- Inconsistency in the data when scrapping from website
- Whether Scrapping data ethical or not

Next Steps

Investigate the linear relationship between several variables (Multiple Linear Regression). I believe more variables will help to better predict the rent prices.

 Click to see Tableau Storyboard

 Click to see full presentation

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