# RENTAL PROPERTY IN GERMANY

**OVERVIEW:**

'Rental property in Germany' is a comprehensive exploration and analysis of the rental estate market in Germany. This project aims to gain insights into various aspects of rental properties, including pricing trends, location preferences, property types and more, by leveraging a rich dataset sourced from immoscout24, one of Germany's leading real estate platforms.

**OBJECTIVE:**

The goal of the analysis was to analyse the rental estate market in Germany. To achieve this,

- I conducted an EDA & describe patterns in the data such as establish correlation & decide which of them to take further.
- Formulate a hypothesis & conduct a regression analysis to test the model.
- Conduct a cluster analysis using K-means to identify groupings in the data.
- Illustrate total rent in Germany using geographical analysis.

**TOOLS USED:**

Python, jupyter, anaconda, pandas, numpy, seaborn, matplotlib, statsmodels, folium, tableau.

## DATA PREPARATION

- ✓ Basic descriptive exploratory tests;
- ✓ Data wrangling: dropping columns, changing data types, renaming columns;
- ✓ Data consistency: mixed type data checks, removing duplicates, handling missing values;

## ANALIZING RELATIONSHIP

- ✓ Conduct EDA to determine possible correlations between variables and formulate a hypothesis;
- ✓ Conduct a regression analysis to test the model;
- ✓ Conduct a cluster analysis to determine data groupings.

## GEOSPATIAL ANALYSIS

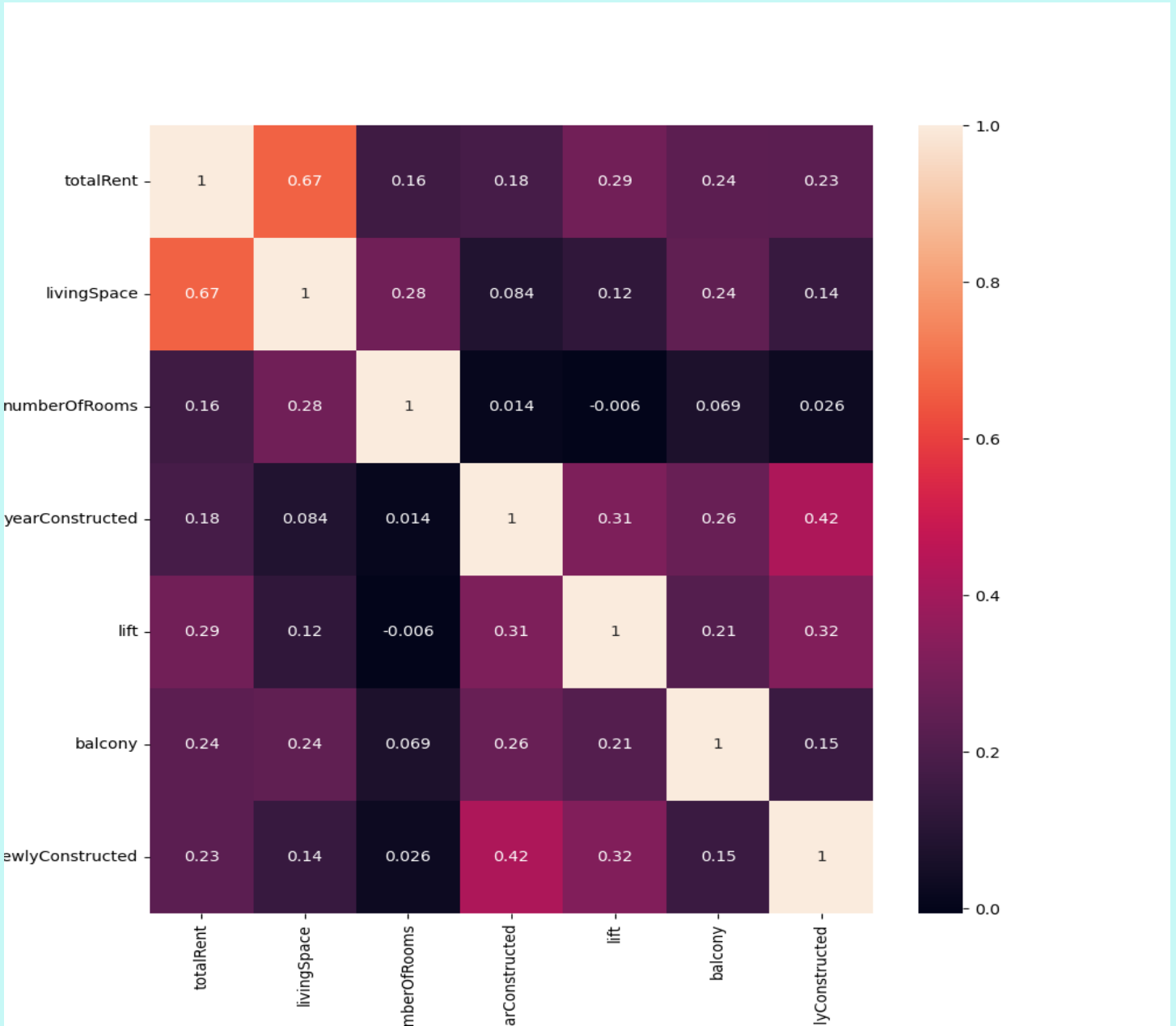
- ✓ Conduct a geospatial analysis in Python to determine the geographical distribution of data .

## DATA VISUALIZATION

- ✓ Creating histograms, bar
- ✓ charts, line charts,
- ✓ scatterplots, map charts
- ✓ for different variables and
- ✓ relationships between
- ✓ variables in Python and
- ✓ Tableau

# CORRELATION HEAT MAP

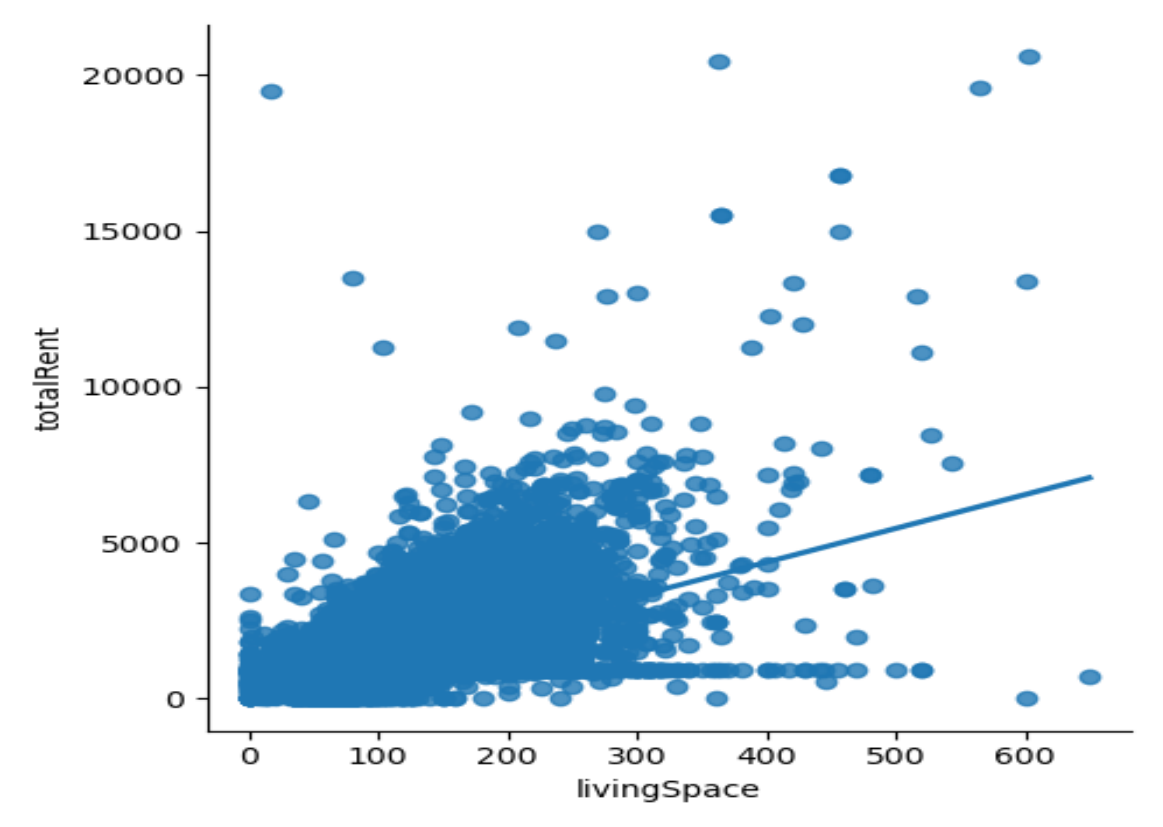
The results indicate that 'total rent' is influenced by factors such as living space, year of construction, and additional amenities like a lift and balcony. Notably, there exists a strong correlation between 'totalRent' and 'livingSpace,' signifying that an increase in living space is associated with a corresponding increase in total rent.



# ANALYSIS: TESTING LINEAR RELATIONSHIP

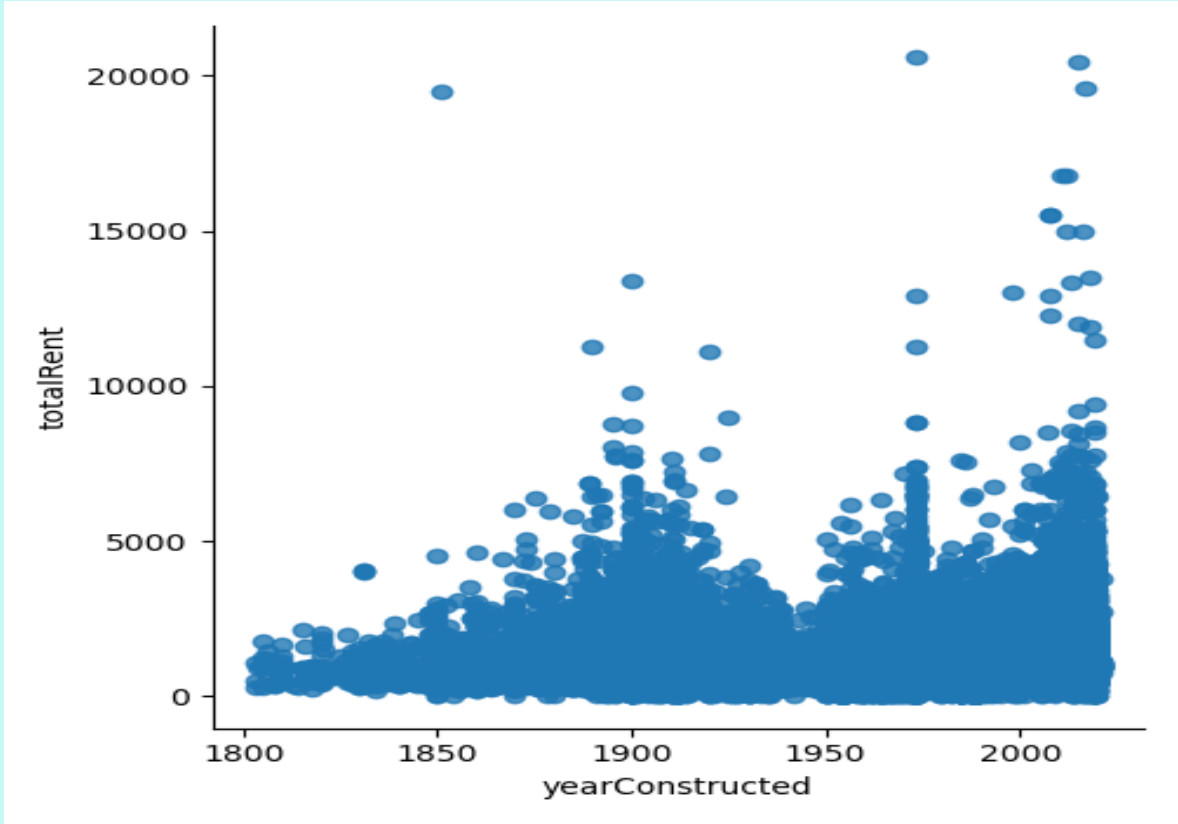
**Hypothesis:** There is a positive correlation between the size of living space and rental price, indicating that larger properties tends to higher rents.

The line fits the data but R2 score is only 0.44, which indicates that this relationship isn't that great of a fit. It must be not the only factor that plays the role.




**Hypothesis:** Properties constructed in more recent years demand higher rents due to better amenities.

After conducting regression analysis R2 score is only 0.03 which indicates that the relationship between variables 'totalRent' & 'yearConstructed' is not linear.



# RECOMMENDATION:

- Individuals seeking for lower rental cost, consider states **Saarland, Rhineland, Thüringen**. Conversely, those willing to invest in higher-rent properties should focus on **Berlin, Hamburg, Brandenburg.**
- People interested in renting a **penthouse** or **maisonette** can consider buying in more affordable areas like Saarland, rather than renting a small apartment in Berlin.
- To make more informed decisions about rental properties, individuals and investors should take into account not only living space and the year of construction but also other variables, such as the type of flat, condition etc..
- Investors looking for higher rental income should explore opportunities in newly constructed houses, considering the significant rental price difference(**10,000** euro) between new and refurbished properties.

# LINKS FOR FURTHER EXPLORATION:

- PYTHON SCRIPTS
- TABLEAU PRESENTATION