When exploring real estate data, one of the intriguing questions that often arises is whether certain property types are more prevalent in specific neighborhoods. In this blog post, we'll dive into an analysis of Seattle Airbnb listings to uncover whether there's a pattern in property types across different neighborhoods.

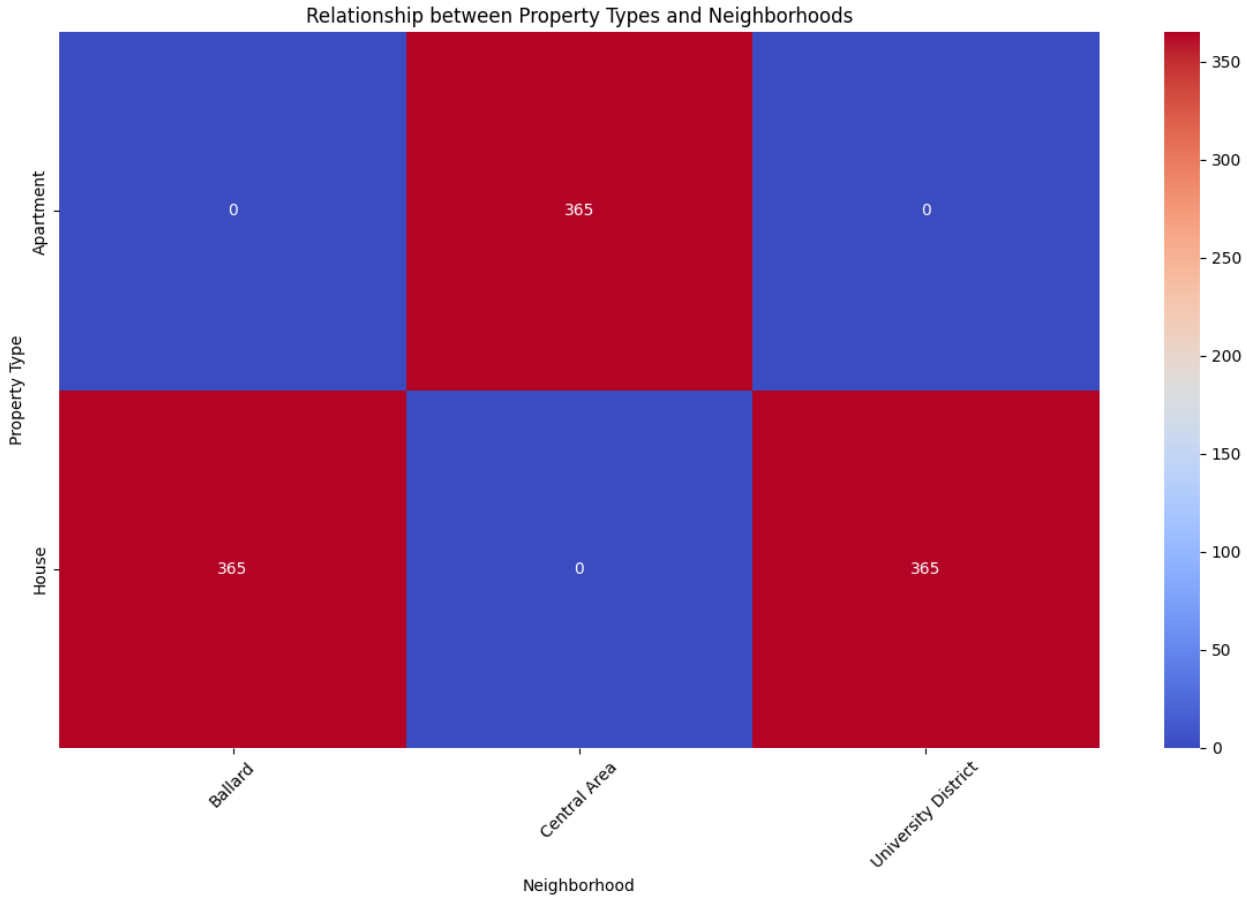
1. Analyzing the Relationship Between Property Types and Neighborhoods

To address this question, we'll analyze the distribution of different property types across various neighborhoods in Seattle. We'll use a dataset that includes information about property types and neighborhood groups, and perform a group-by operation to understand the counts of each property type within different neighborhoods.

Data Aggregation

We aggregated the data to count the number of listings for each property type in each neighborhood. The resulting data frame shows how many listings of each property type are present in each neighborhood group.

The analysis reveals the following relationship between property types and neighborhoods:



From the output, we observe the following key points:

- Ballard: This neighborhood predominantly features Houses, with a count of 365 listings. Apartments are not listed in this neighborhood.

- Central Area: Here, Apartments are the primary property type, with 365 listings. There are no Houses listed in this neighborhood.

- University District: Similar to Ballard, this neighborhood is mostly characterized by Houses, with a count of 365 listings. Apartments are not present.

Insights

The analysis suggests a clear pattern in the distribution of property types across neighborhoods:

- Ballard and University District are predominantly home to Houses, indicating that these neighborhoods may have more residential or single-family homes.

- Central Area is characterized by Apartments, which might suggest a higher density of rental units or a more urban setting suited to apartment living.

2. Investigating the Relationship Between Listing Attributes and Average Review Scores

When evaluating Airbnb listings, one crucial aspect is understanding how different property types impact guest satisfaction. In this post, we'll investigate whether there is a relationship between property types and their average review scores. This analysis can provide insights into which property types generally receive higher ratings from guests.

To delve into this, we analyzed the average review scores for different property types in Seattle. We used the dataset to calculate the mean review score for each property type and visualized the results.

Data Aggregation

We grouped the data by property type and calculated the average review score for each type. Here's how we did it:

Results

The average review scores by property type are as follows:

Average review scores by property type:

property_type

Apartment 98.0

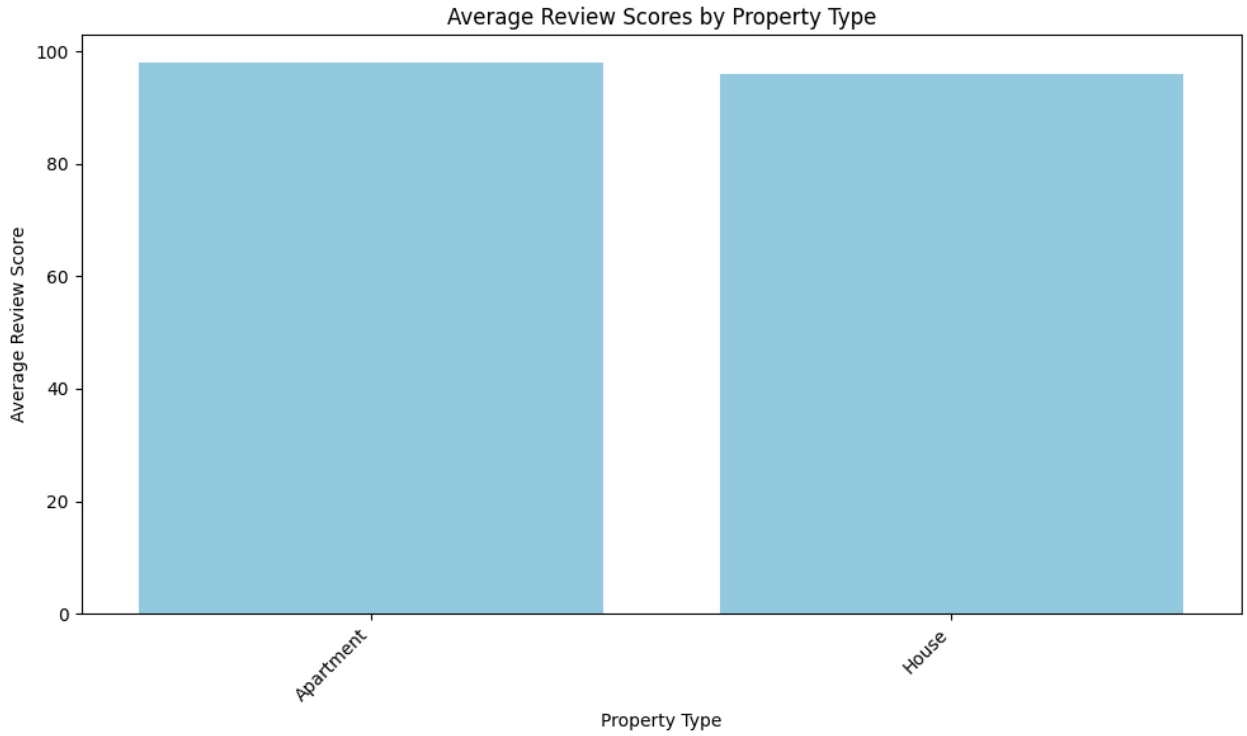
House 96.0

From the results, we see that:

- **Apartments** have an average review score of **98.0**.
- **Houses** have an average review score of **96.0**.

Visualization

To better understand the distribution of review scores across property types, we visualized the data using a bar plot:



The bar plot clearly shows that Apartments generally receive slightly higher average review scores compared to Houses.

Insights

The analysis provides the following insights:

- **Apartments** tend to have higher average review scores than Houses. This could be attributed to factors such as modern amenities, better locations, or more consistent quality standards associated with apartment rentals.
- **Houses**, while also highly rated, have slightly lower average scores, which might reflect differences in the variety of house types, sizes, or locations.

3. Exploring the Relationship Between Host Responsiveness and Neighborhood Groups

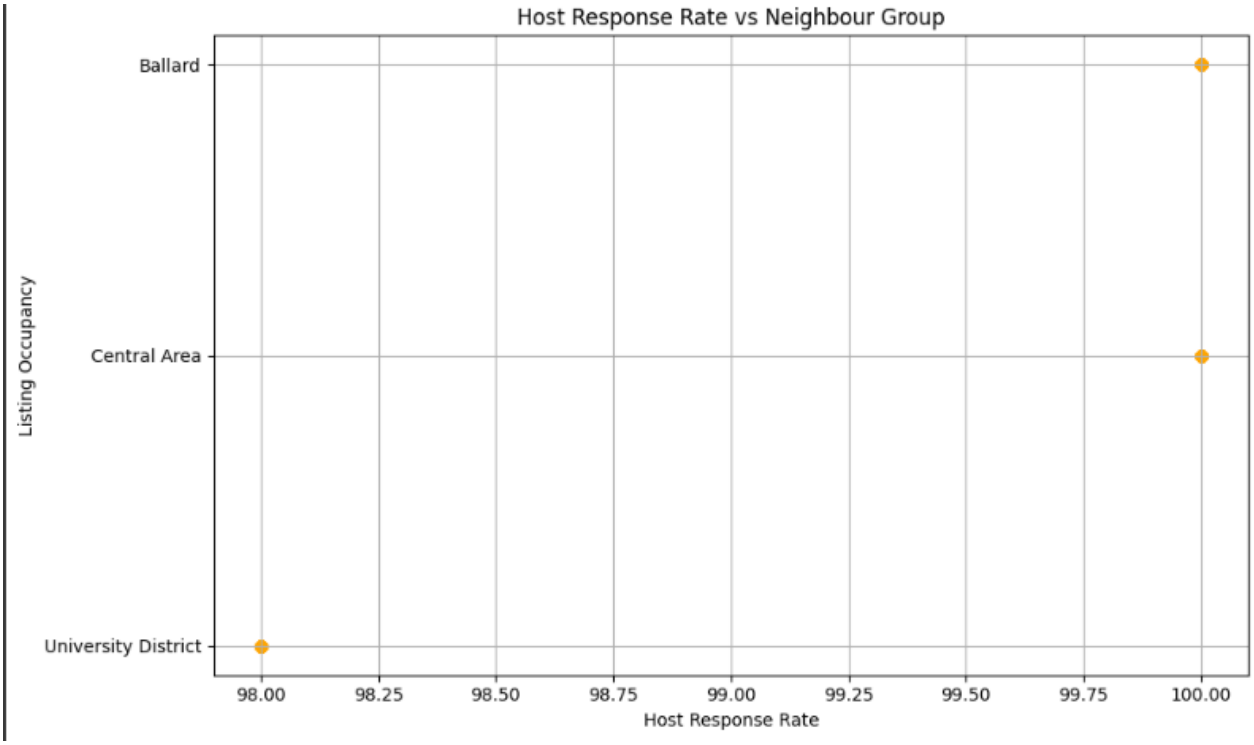
We investigated whether there are notable differences in host responsiveness across various neighborhood groups. The responsiveness metric used here is derived from how promptly hosts respond to guest inquiries and other communication.

Results

The average host responsiveness rates by neighborhood group are as follows:

- **University District**: 98%
- **Central Area**: 100%

- **Ballard**: 100%



Insights

The analysis reveals:

- **University District** has an average host responsiveness rate of **98%**, which is slightly lower compared to other neighborhoods.
- **Central Area** and **Ballard** both have a perfect host responsiveness rate of **100%**.

Interpretation

- **High Responsiveness in Central Area and Ballard**: The perfect responsiveness in these neighborhoods might reflect a high standard of customer service among hosts or more competitive market conditions driving hosts to be more responsive.
- **University District**: Although slightly lower, the responsiveness rate in the University District is still quite high. The lower rate compared to Central Area and Ballard might be due to varying demands or host preferences in this area.