Graphs

1. Graph 1: Price Distribution
   * Type: Histogram
   * X-axis: Price ranges (binning in appropriate intervals, e.g., every $50)
   * Y-axis: Number of listings
   * Insights: Observe the overall distribution of listing prices and identify the most common price ranges.
2. Graph 2: Average Price by Neighborhood
   * Type: Bar Chart
   * X-axis: Neighborhood
   * Y-axis: Average price
   * Insights: Identify neighborhoods with the highest and lowest average prices.
3. Graph 3: Number of Listings by Neighborhood
   * Type: Bar Chart
   * X-axis: Neighborhood
   * Y-axis: Number of listings
   * Insights: Determine which neighborhoods have the highest and lowest number of listings.
4. Graph 4: Room Type Distribution
   * Type: Pie Chart
   * Value field: Room type
   * Insights: Understand the proportion of different room types (e.g., Entire home/apt, Private room, Shared room) in the dataset.
5. Graph 5: Availability by Neighborhood
   * Type: Bar Chart
   * X-axis: Neighborhood
   * Y-axis: Average availability\_365
   * Insights: Identify neighborhoods with the highest and lowest average availability throughout the year.
6. Graph 6: Price vs. Minimum Nights
   * Type: Scatterplot
   * X-axis: Minimum nights
   * Y-axis: Price
   * Insights: Explore the relationship between price and minimum nights to see if there's any correlation.
7. Graph 7: Number of Reviews by Neighborhood
   * Type: Bar Chart
   * X-axis: Neighborhood
   * Y-axis: Total number of reviews
   * Insights: Determine which neighborhoods have the most reviews, indicating higher popularity.
8. Graph 8: Review Scores Distribution
   * Type: Histogram
   * X-axis: Review scores rating (binning in appropriate intervals, e.g., every 10 points)
   * Y-axis: Number of listings
   * Insights: Observe the distribution of review scores to see if most listings have high or low ratings.
9. Graph 9: Price vs. Review Scores
   * Type: Scatterplot
   * X-axis: Price
   * Y-axis: Review scores rating
   * Insights: Explore the relationship between price and review scores to see if higher prices correlate with better reviews.
10. Graph 10: Top 10 Hosts by Number of Listings
    * Type: Bar Chart
    * X-axis: Host ID
    * Y-axis: Number of listings
    * Insights: Identify the hosts with the most listings, indicating successful Airbnb businesses.
11. Graph 11: Neighborhood vs. Room Type
    * Type: Stacked Bar Chart
    * X-axis: Neighborhood
    * Y-axis: Number of listings
    * Legend: Room type
    * Insights: Compare the proportion of room types across different neighborhoods.
12. Graph 12: Price Heatmap
    * Type: Heatmap
    * X-axis: Latitude
    * Y-axis: Longitude
    * Color Scale: Price
    * Insights: Visualize the spatial distribution of prices to identify areas with higher or lower prices.
13. Graph 13: Number of Listings Over Time
    * Type: Line Chart
    * X-axis: Year (based on the "last\_review" column)
    * Y-axis: Number of listings
    * Insights: Analyze the growth of Airbnb listings over time.
14. Graph 14: Review Scores by Room Type
    * Type: Boxplot
    * X-axis: Room type
    * Y-axis: Review scores rating
15. Graph 15: Price vs. Number of Reviews
    * Type: Scatterplot
    * X-axis: Price
    * Y-axis: Number of reviews
    * Insights: Explore the relationship between price and number of reviews to see if higher-priced listings receive more or fewer reviews.
16. Graph 16: Availability by Room Type
    * Type: Boxplot
    * X-axis: Room type
    * Y-axis: Availability\_365
    * Insights: Compare the availability of different room types throughout the year.
17. Graph 17: Host Tenure (Years as Host)
    * Type: Histogram
    * X-axis: Host tenure (years, calculated based on "host\_since" column)
    * Y-axis: Number of hosts
    * Insights: Observe the distribution of host tenure to understand how long hosts have been active on the platform.
18. Graph 18: Host Response Rate by Room Type
    * Type: Boxplot
    * X-axis: Room type
    * Y-axis: Host response rate
    * Insights: Compare the host response rates across different room types to see if certain types of listings have more responsive hosts.
19. Graph 19: Price vs. Number of Amenities
    * Type: Scatterplot
    * X-axis: Number of amenities (calculated based on the "amenities" column)
    * Y-axis: Price
    * Insights: Explore the relationship between price and the number of amenities provided to see if listings with more amenities tend to be more expensive.
20. Graph 20: Number of Reviews by Month
    * Type: Line Chart
    * X-axis: Month (based on the "last\_review" column)
    * Y-axis: Number of reviews
    * Insights: Analyze the seasonality of Airbnb reviews to identify peak demand and low-demand periods.

Reccomendation based on Graphs

1. Graph 1: Price Distribution
   * Recommendation: Focus on listings within the most common price ranges to appeal to a larger audience.
2. Graph 2: Average Price by Neighborhood
   * Recommendation: Consider setting prices competitively based on the neighborhood's average price.
3. Graph 3: Number of Listings by Neighborhood
   * Recommendation: Target neighborhoods with fewer listings to face less competition.
4. Graph 4: Room Type Distribution
   * Recommendation: Offer the most popular room types to attract more bookings.
5. Graph 5: Availability by Neighborhood
   * Recommendation: Choose neighborhoods with higher average availability to maximize booking opportunities.
6. Graph 6: Price vs. Minimum Nights
   * Recommendation: Set minimum nights based on the observed trend to match market expectations.
7. Graph 7: Number of Reviews by Neighborhood
   * Recommendation: Focus on popular neighborhoods with more reviews to benefit from increased demand.
8. Graph 8: Review Scores Distribution
   * Recommendation: Aim for high review scores by providing excellent service and accommodations.
9. Graph 9: Price vs. Review Scores
   * Recommendation: Offer competitive prices while maintaining high-quality accommodations to achieve high review scores.
10. Graph 10: Top 10 Hosts by Number of Listings
    * Recommendation: Study the strategies of successful hosts to learn from their experiences and improve your own listings.
11. Graph 11: Neighborhood vs. Room Type
    * Recommendation: Offer room types that are popular in specific neighborhoods to cater to local demand.
12. Graph 12: Price Heatmap
    * Recommendation: Set prices in line with the local area's price trends to remain competitive.
13. Graph 13: Number of Listings Over Time
    * Recommendation: Analyze market growth trends to determine the best time to enter or expand your presence in the market.
14. Graph 14: Review Scores by Room Type
    * Recommendation: Aim to achieve high review scores across all room types, as this may positively influence bookings.
15. Graph 15: Price vs. Number of Reviews
    * Recommendation: Set competitive prices while maintaining quality to attract more reviews and potential bookings.
16. Graph 16: Availability by Room Type
    * Recommendation: Consider offering room types with higher availability to increase the chances of securing bookings.
17. Graph 17: Host Tenure (Years as Host)
    * Recommendation: Learn from experienced hosts and adapt to the changing market trends to remain successful over time.
18. Graph 18: Host Response Rate by Room Type
    * Recommendation: Maintain a high response rate regardless of room type to provide excellent customer service and encourage positive reviews.
19. Graph 19: Price vs. Number of Amenities
    * Recommendation: Offer a competitive number of amenities for your price range to provide added value to guests.
20. Graph 20: Number of Reviews by Month
    * Recommendation: Prepare for peak demand periods by optimizing pricing, marketing efforts, and availability during these times.

Further Ellaboration on the reccomendations

1. Graph 1: Price Distribution
   * Recommendation: Focus on listings within the most common price ranges to appeal to a larger audience. By pricing your listings competitively and within the market's preferred range, you increase the likelihood of attracting more guests and achieving higher occupancy rates.
2. Graph 2: Average Price by Neighborhood
   * Recommendation: Consider setting prices competitively based on the neighborhood's average price. Research the local market to understand the price expectations of potential guests and adjust your pricing strategy accordingly. This will help you remain competitive and attractive to potential guests.
3. Graph 3: Number of Listings by Neighborhood
   * Recommendation: Target neighborhoods with fewer listings to face less competition. Entering markets with less competition increases the chances of your listing standing out and receiving more bookings. Consider analyzing the unique selling points of these neighborhoods to tailor your listing to potential guests' preferences.
4. Graph 4: Room Type Distribution
   * Recommendation: Offer the most popular room types to attract more bookings. By catering to the majority of guests' preferences, you increase your listing's appeal and potential for bookings. Analyze the room type distribution in your target area and adjust your offerings to match popular demand.
5. Graph 5: Availability by Neighborhood
   * Recommendation: Choose neighborhoods with higher average availability to maximize booking opportunities. High availability indicates that there may be a steady demand for accommodations in that area. By listing your property in such neighborhoods, you increase your chances of receiving more consistent bookings.
6. Graph 6: Price vs. Minimum Nights
   * Recommendation: Set minimum nights based on the observed trend to match market expectations. Analyze the relationship between price and minimum nights to set appropriate minimum stay requirements. This can help you cater to guests' preferences and improve booking rates.
7. Graph 7: Number of Reviews by Neighborhood
   * Recommendation: Focus on popular neighborhoods with more reviews to benefit from increased demand. A higher number of reviews may indicate a higher level of interest in a particular neighborhood. By listing your property in these areas, you can capitalize on this demand and potentially receive more bookings.
8. Graph 8: Review Scores Distribution
   * Recommendation: Aim for high review scores by providing excellent service and accommodations. High review scores can significantly impact a guest's decision to book your listing. Ensure that your property is clean, well-maintained, and that you provide outstanding customer service to encourage positive reviews.
9. Graph 9: Price vs. Review Scores
   * Recommendation: Offer competitive prices while maintaining high-quality accommodations to achieve high review scores. Striking a balance between affordability and quality can make your listing more attractive to potential guests. This can lead to higher review scores, which can further enhance your listing's appeal.
10. Graph 10: Top 10 Hosts by Number of Listings
    * Recommendation: Study the strategies of successful hosts to learn from their experiences and improve your own listings. Examine their pricing, amenities, and customer service practices to identify areas where you can enhance your own offerings and better compete in the market.
11. Graph 11: Neighborhood vs. Room Type
    * Recommendation: Offer room types that are popular in specific neighborhoods to cater to local demand. By tailoring your offerings to the preferences of guests in a particular area, you increase your listing's appeal and potential for bookings. Research the most popular room types in your target neighborhood and adjust your property accordingly.
12. Graph 12: Price Heatmap
    * Recommendation: Set prices in line with the local area's price trends to remain competitive. Use the heatmap to identify areas with higher or lower prices and adjust your pricing strategy accordingly. This can help you stay competitive in the market and attract more potential guests.
13. Graph 13: Number of Listings Over Time
    * Recommendation: Analyze market growth trends to determine the best time to enter or expand your presence in the market. Understanding the growth of Airbnb listings over time can help you identify opportunities for expansion or entry into new neighborhoods. Align your strategy with the market's growth patterns to maximize your chances of success.
14. Graph 14: Review Scores by Room Type
    * Recommendation: Aim to achieve high review scores across all room types, as this may positively influence bookings. Regardless of the room type you offer, consistently high review scores can improve your listing's appeal to potential guests. Focus on providing excellent customer service, cleanliness, and comfortable accommodations to maintain high review scores across all room types.
15. Graph 15: Price vs. Number of Reviews
    * Recommendation: Set competitive prices while maintaining quality to attract more reviews and potential bookings. A higher number of reviews can indicate higher demand and guest satisfaction. By offering competitive prices without compromising on quality, you can attract more guests, potentially leading to more positive reviews.
16. Graph 16: Availability by Room Type
    * Recommendation: Consider offering room types with higher availability to increase the chances of securing bookings. Analyze the average availability for each room type to identify which ones are more likely to be booked. Offering room types with higher availability may help you attract more guests and maximize occupancy rates.
17. Graph 17: Host Tenure (Years as Host)
    * Recommendation: Learn from experienced hosts and adapt to the changing market trends to remain successful over time. Host tenure can provide insights into best practices and strategies for maintaining a successful Airbnb business. Connect with experienced hosts, join online forums, or participate in local events to learn from their experiences and continually improve your offerings.
18. Graph 18: Host Response Rate by Room Type
    * Recommendation: Maintain a high response rate regardless of room type to provide excellent customer service and encourage positive reviews. Prompt communication is crucial in the hospitality industry, and a high response rate can leave a positive impression on potential guests. Ensure you respond quickly to inquiries and requests, regardless of the room type you offer.
19. Graph 19: Price vs. Number of Amenities
    * Recommendation: Offer a competitive number of amenities for your price range to provide added value to guests. Analyze the relationship between price and the number of amenities to determine the appropriate level of amenities for your listing. Providing a competitive number of amenities can help enhance your listing's appeal and increase the chances of bookings.
20. Graph 20: Number of Reviews by Month
    * Recommendation: Prepare for peak demand periods by optimizing pricing, marketing efforts, and availability during these times. By understanding the seasonality of Airbnb reviews, you can identify peak demand and low-demand periods. Adjust your pricing, marketing efforts, and property availability to capitalize on peak seasons and attract more bookings. During low-demand periods, consider offering special promotions or discounts to attract more guests.