Summary of Analysis and Business Recommendations

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1. What are the key factors influencing rental prices (realSum)?

Conclusion: Key factors influencing rental prices include:

- **Geographical factors:** Distance to the city center (dist), proximity to metro stations (metro_dist), and coordinates (lat, lng).
- **Property attributes:** Number of bedrooms (bedrooms), cleanliness rating (cleanliness_rating), and guest satisfaction (guest_satisfaction_overall).
- **Proximity to amenities:** Normalized attraction index (attr_index_norm) and restaurant index (rest_index_norm). These factors emphasize the importance of location and quality in determining rental prices.

    Methods Used: Feature Importance with Random Forest.

Business Recommendations:

1. Highlight proximity to metro stations and tourist attractions in property listings.
2. Focus on improving property cleanliness and guest satisfaction ratings to justify higher prices.

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2. How do key variables identified in Feature Importance correlate with each other?

Conclusion:

- A strong positive correlation ($\rho = 0.714$) exists between cleanliness_rating and guest_satisfaction_overall, indicating that higher cleanliness ratings lead to higher guest satisfaction.
- Moderate correlations are seen between bedrooms and person_capacity, as well as metro_dist and dist, reflecting logical dependencies between capacity and proximity.

    Methods Used: Correlation matrix and statistical tests.

Business Recommendations:

1. Maintain high cleanliness standards to improve guest satisfaction.
2. Market properties with higher capacity (e.g., more bedrooms) for group travelers.

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3. Are there significant differences in rental prices between weekdays and weekends?

Conclusion:

- Significant price differences are observed in cities like Amsterdam, Rome, and Budapest due to events and increased weekend tourism. This trend highlights the impact of tourist behavior on pricing strategies.
- Cities like Vienna and London show stable prices due to consistent visitor flows, reflecting different demand patterns.

    Methods Used: Grouping and comparative analysis.

Business Recommendations:

1. Implement dynamic pricing to increase revenue during peak demand (weekends/events).
2. Offer weekday promotions to ensure steady occupancy.

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4. Does the host's status (superhost) affect the type of accommodation offered (room_type)?

Conclusion: Superhosts tend to offer "Entire Home/Apt" more frequently, likely due to the appeal of this accommodation type to guests seeking privacy and autonomy. Regular hosts, on the other hand, favor "Private Room." "Shared Room" is rarely offered by superhosts, possibly due to the difficulty in maintaining high standards.

Methods Used: Chi-square test and contingency table.

Business Recommendations:

1. Encourage hosts offering "Private Room" to improve service quality and achieve superhost status.
2. Develop strategies to increase the appeal of "Shared Room" for budget-conscious travelers.

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5. What is the frequency of selection for each room_type?

Conclusion:

This question expands on the previous one and analysis showed that:

- "Entire Home/Apt" is the most popular (63.14%), reflecting guest preference for independent accommodations.
- "Shared Room" is the least popular (0.71%), indicating limited demand for this type of rental.

    Methods Used: Frequency analysis.

Business Recommendations:

1. Maintain high quality in "Entire Home/Apt" to sustain demand.
2. Introduce promotions for "Shared Room" to attract budget travelers.

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6. How do geographical factors influence the choice of room_type?

Conclusion:

- "Entire Home/Apt" is more common in less central areas, indicating that renters prioritize privacy over location for this type.
- "Private Room" and "Shared Room" are preferred in central locations, highlighting the importance of proximity for budget-conscious travelers. **Methods Used:** Statistical tests and descriptive analysis.

Business Recommendations:

1. Expand "Entire Home/Apt" offerings in central areas to capture broader demand.
2. Ensure "Private Room" availability in well-connected areas with good public transport.

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7. City ranking by cleanliness and guest satisfaction.

Conclusion:

- Athens, Rome, and Budapest excel in cleanliness and guest satisfaction, showcasing strong service standards in these cities.
- London lags significantly in both metrics, signaling potential issues with property quality or service consistency.

Methods Used: Tukey HSD test and ranking analysis.

Business Recommendations:

1. Conduct surveys in cities like London to identify areas for improvement.
2. Use successful cities (e.g., Athens) as benchmarks to adopt best practices.

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8. How do bedrooms and capacity affect rental prices?

Conclusion:

- Bedrooms have a larger impact on price than capacity, with each additional bedroom increasing price by 82.18 units.
- Additional capacity adds 29.03 units, suggesting that room count is a stronger indicator of value for renters.

  Methods Used: Regression analysis.

Business Recommendations:

1. Market properties with more bedrooms as ideal for group stays.
2. Highlight the spaciousness of accommodations to justify higher prices.

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9. How do geographical factors affect rental prices?

Conclusion:

- Proximity to metro stations is more influential than proximity to the city center, reflecting the importance of convenience in pricing.
- Central and western European cities have higher prices, while eastern cities like Budapest have lower prices, likely due to differences in demand and infrastructure.
  Methods Used: Cluster analysis.

Business Recommendations:

1. Highlight metro accessibility in property descriptions.
2. Emphasize cultural or scenic advantages for suburban properties.

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10. How do geographical factors affect guest satisfaction?

Conclusion:

- Properties close to metro stations and located in eastern Europe show the highest guest satisfaction. These areas often combine affordability with convenient access.
- "Entire Home/Apt" consistently receives higher ratings than other room types, reflecting guest preference for private accommodations.

   Methods Used: Cluster analysis and descriptive statistics.

Business Recommendations:

1. Improve facilities in "Private Room/Shared Rooms" to increase guest satisfaction.
2. For highly rated clusters, focus on consistent service to maintain satisfaction.

Overall Conclusion:

The analysis highlights how geographical factors, property attributes, and service quality interact to influence rental prices and guest satisfaction. Proximity to metro stations emerges as the most significant determinant of pricing, outweighing even proximity to city centers. Central and western European cities command higher prices due to their robust infrastructure and economic activity, while eastern cities like Budapest offer more affordability but still achieve high guest satisfaction.

Guest satisfaction is heavily tied to cleanliness and the type of accommodation. "Entire Home/Apt" consistently delivers the highest satisfaction ratings, emphasizing the value guests place on privacy and independence. However, the low ratings and demand for "Shared Rooms" suggest an area for potential improvement.

Key Business Recommendations:

1. **Enhance metro accessibility:** Highlight this feature in marketing materials and property descriptions.
2. **Focus on cleanliness:** Invest in cleaning protocols to improve guest satisfaction and maintain competitive pricing.
3. **Leverage regional strengths:** Use the cultural and scenic advantages of locations to market properties effectively.
4. **Revitalize "Shared Room" offerings:** Introduce promotions and improve amenities to attract budget-conscious travelers while enhancing their experience.