Key Insights from House Rent Data Analysis

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1 City Is the Strongest Driver of Rent Prices

- Metro cities such as **Mumbai and Bangalore** consistently show the highest average rents.
- However, **total rent alone is misleading**.
- When normalized by size (rent per sqft), **some cities become significantly more expensive than they initially appear**.

Insight:
 Location premium plays a major role, but value must be measured per square foot.

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2 Property Size Has a Strong Positive Relationship with Rent

- Rent increases steadily as **property size increases**.
- Size shows a **stronger and more consistent impact on rent than BHK alone**.
- Larger properties in metros experience **exponential rent growth**.

Insight:
 Size is a better predictor of rent than just the number of rooms.

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3 BHK Impact Is Non-Linear

- Moving from **1 BHK to 2 BHK** causes a noticeable jump in rent.
- Beyond **3 BHK**, rent increases slow down relative to size.
- High-BHK properties are fewer, indicating limited demand.

Insight:
 2–3 BHK properties offer the best balance between demand and pricing power.

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4 Furnishing Status Increases Rent, but Value Varies

- **Fully furnished houses** command significantly higher rents.

- However, rent per sqft analysis shows:
  - Furnishing adds **more value in metro cities**
  - In smaller cities, the extra cost may **not be justified**

Insight:
 Furnishing is a premium feature only in high-demand urban markets.

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5 Family Tenants Generate Higher Rental Value

- Properties preferred by **families** have higher average rents than bachelor-preferred properties.
- This trend is consistent across most cities.

Insight:
 Targeting family tenants leads to higher and more stable rental income.

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6 Floor Level Has a Moderate Impact on Rent

- Mid-to-high floor apartments tend to have **slightly higher rents**.
- The impact is stronger in **high-rise metro cities**.
- Floor alone does not determine rent but contributes as a secondary factor.

Insight:
 Floor level adds value, but only when combined with location and size.

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7 Rent Is Influenced by Multiple Factors Together

- Multivariate analysis shows rent depends on:
  - City
  - Size
  - BHK
  - Furnishing
- No single feature explains rent in isolation.

Insight:
 Rental pricing is a result of **combined property characteristics**, not one variable.

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8 Machine Learning Confirms EDA Findings

- The **Random Forest model** outperformed linear regression.
- Most important features:
    1. Size
    2. City
    3. Number of Bathrooms
    4. Furnishing Status

Insight:
 The model validates real-world intuition and EDA conclusions.

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9 Predictive Modeling Is Reliable but Not Absolute

- ML predictions are reasonably accurate but:
    - Do not capture locality-level differences
    - Do not account for market timing or demand fluctuations

Insight:
 The model is best used as a **decision-support tool**, not a final pricing authority.

Overall Strategic Insight

House rent pricing is primarily driven by **location and size**, enhanced by **furnishing and tenant type**, and influenced by **multiple interacting factors rather than a single variable**.

- Shorten these insights into **resume bullets**
- Convert them into **executive summary**
- Help you explain them **confidently in interviews**

Key Insights (In Short)

- **City and property size are the strongest drivers of rent**
- **Rent per square foot** gives a more accurate cost comparison than total rent
- **2–3 BHK properties** offer the best balance between demand and pricing
- **Fully furnished houses** add value mainly in metro cities
- **Family tenants** generally pay higher and more stable rents
- **Floor level** has a moderate impact, stronger in high-rise cities

- Rent is influenced by **multiple factors together**, not a single feature
- **Machine learning models confirm EDA findings**, with size and city being the most important predictors
- Rent prediction models are useful for **estimation and decision support**, not exact pricing