
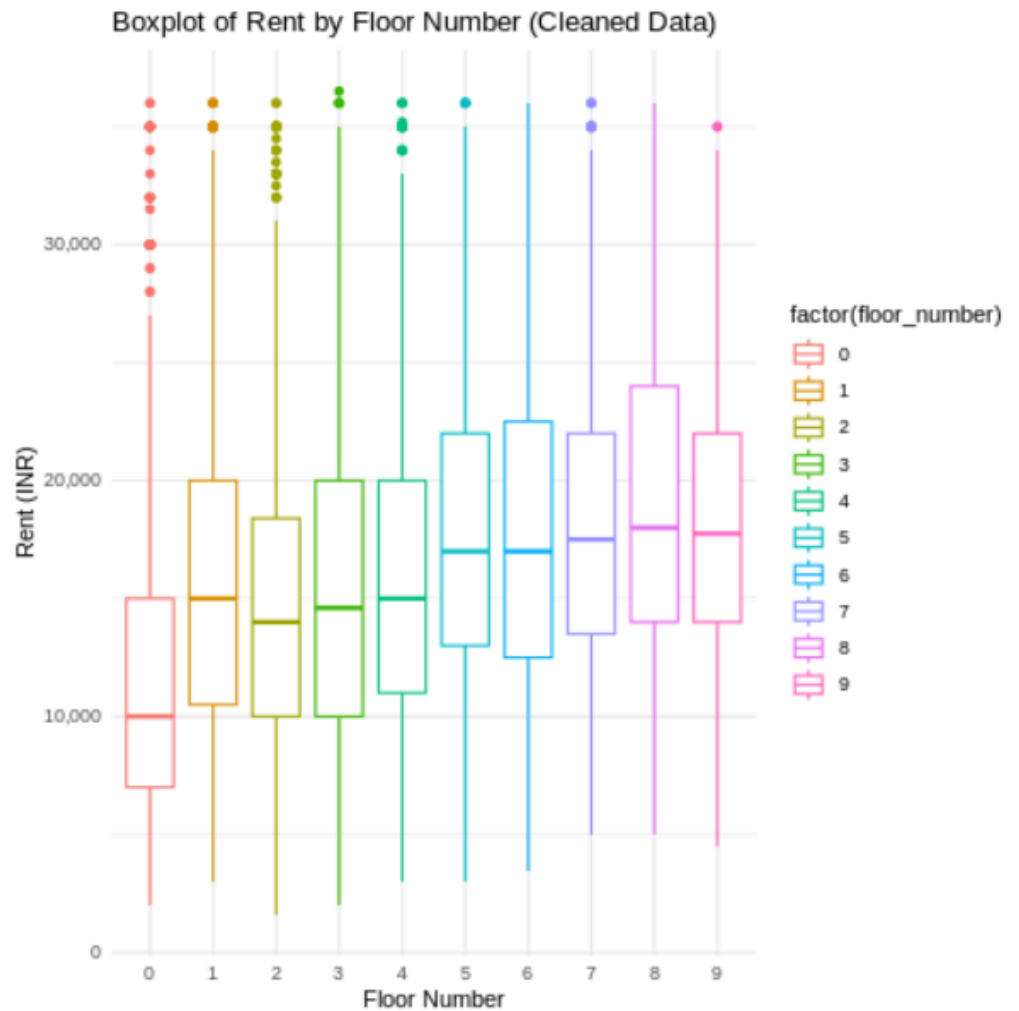
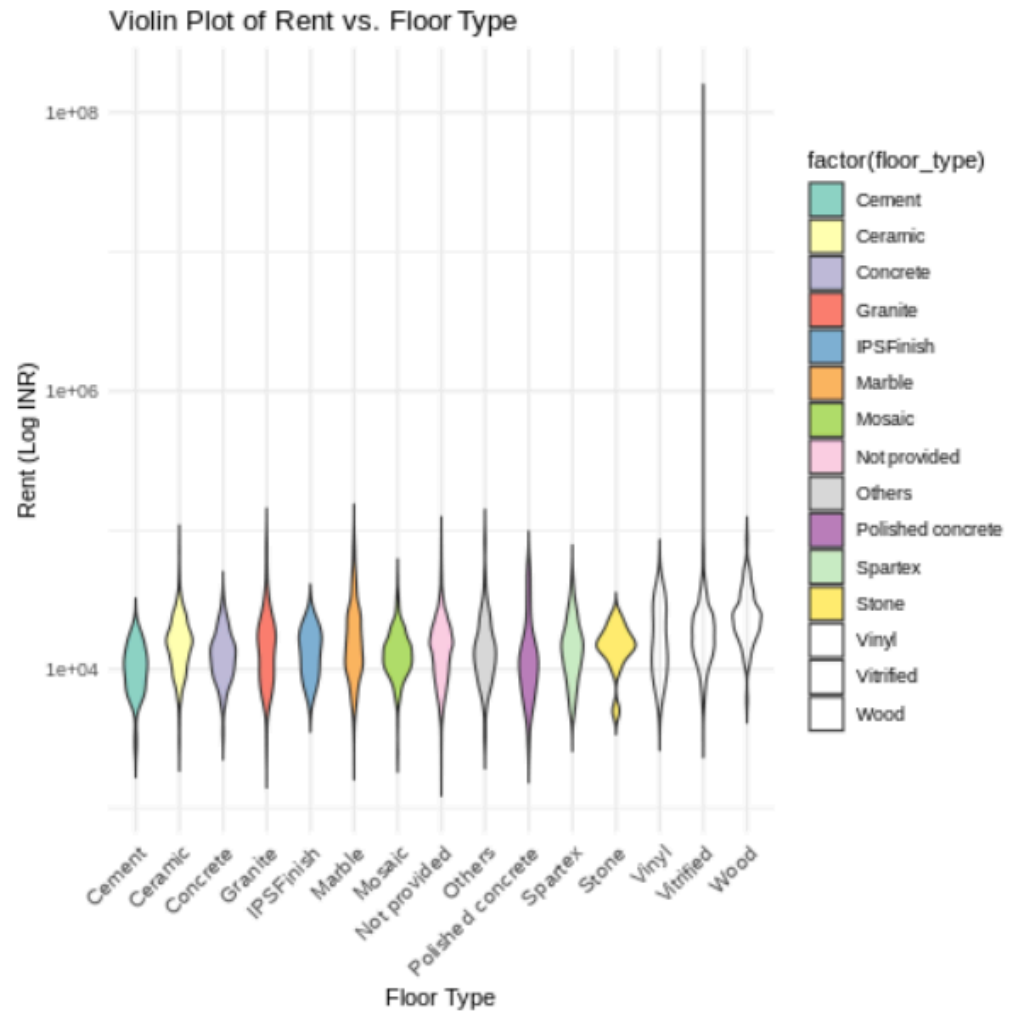


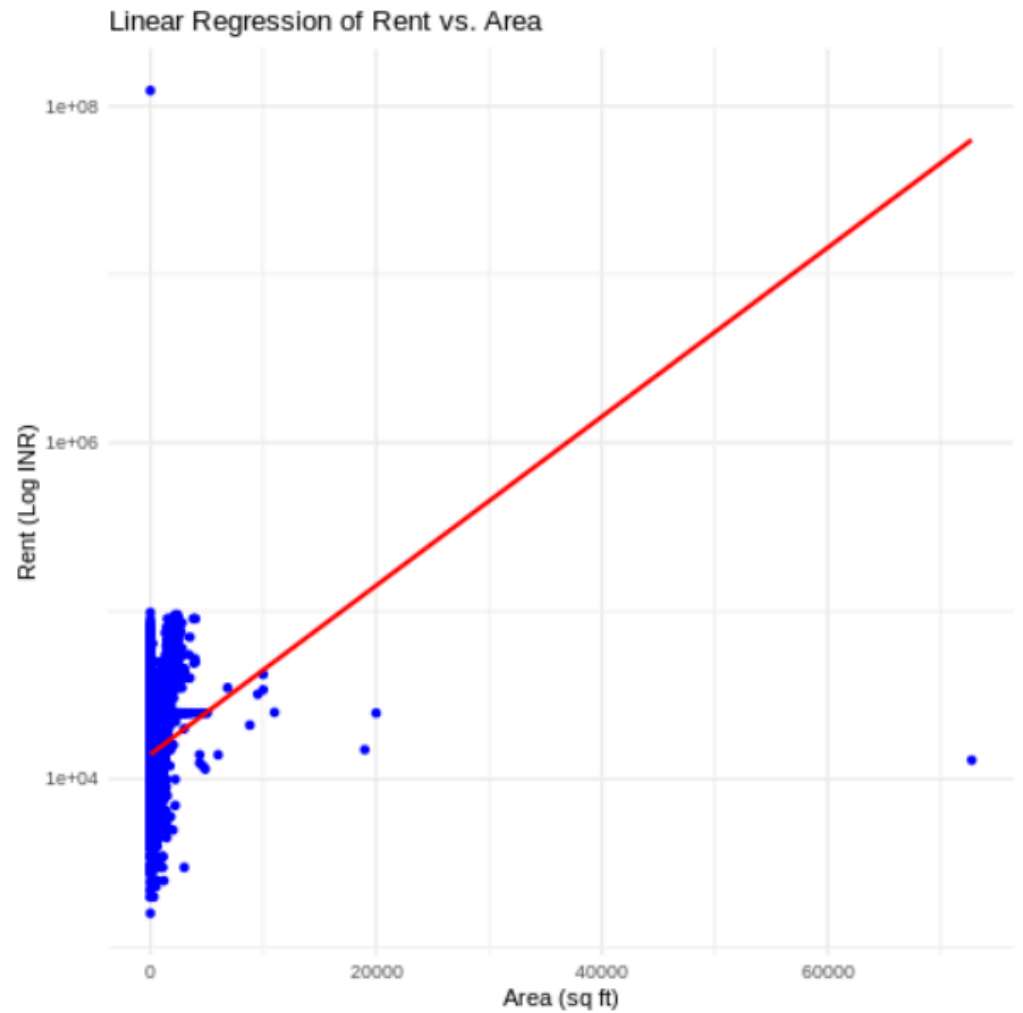
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UID:	2021600029
Experiment No:	05
Batch:	B
Aim:	To explore and visualize housing data using advanced charts in R, including Word chart, Box and Whisker plot, Violin plot, Regression plot (linear and nonlinear), 3D chart, and Jitter plot, in order to uncover patterns and insights in the dataset
Dataset link:	https://www.kaggle.com/datasets/anantsakhare/rental-price-of-indias-it-capital-pune-mh-ind
Results / Outputs	 <p>Word Chart : The word cloud visualizes the frequency of different floor types in the dataset. Each word represents a floor type, and its size corresponds to its frequency in the dataset.</p>



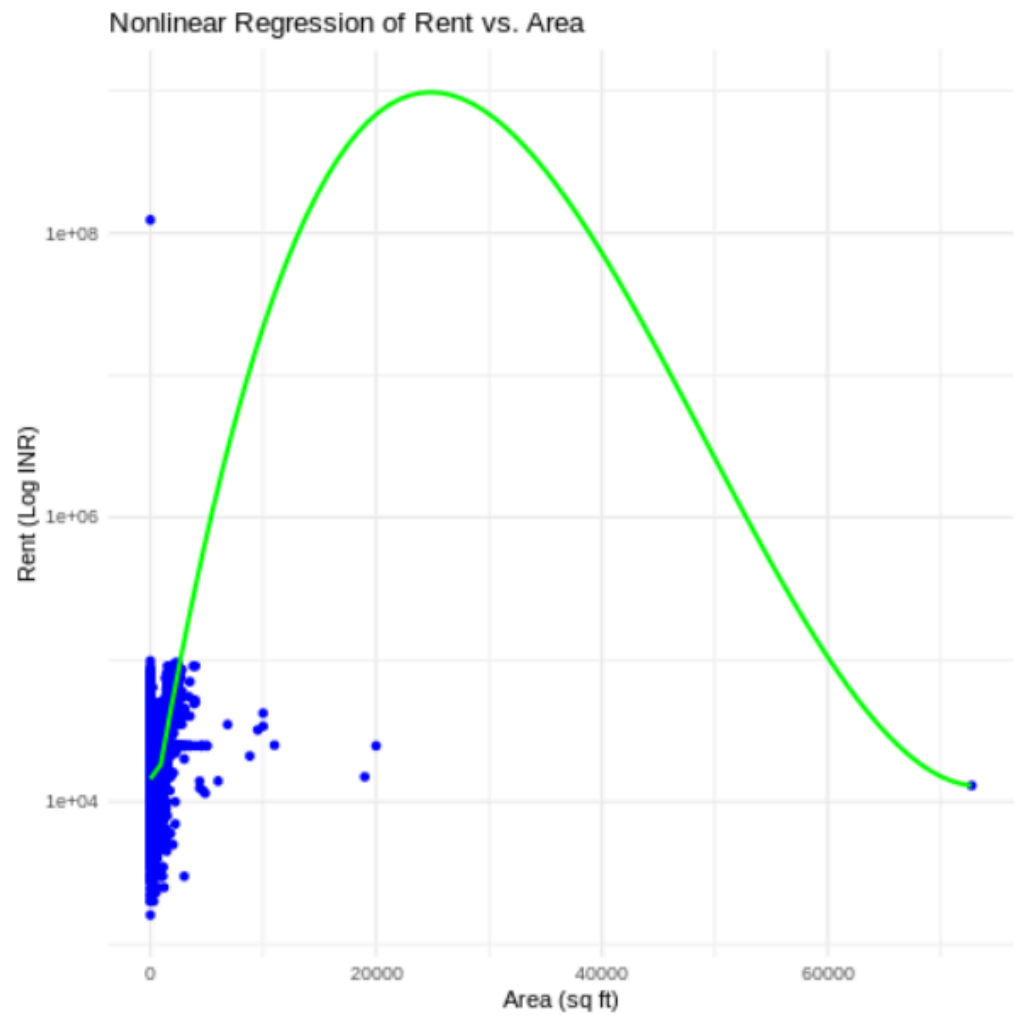
Box and Whisker Plot : This boxplot visualizes the distribution of rent values for different floor numbers, with outliers removed. Each box represents the range of rent values for a given floor number, with the line inside the box indicating the median rent.



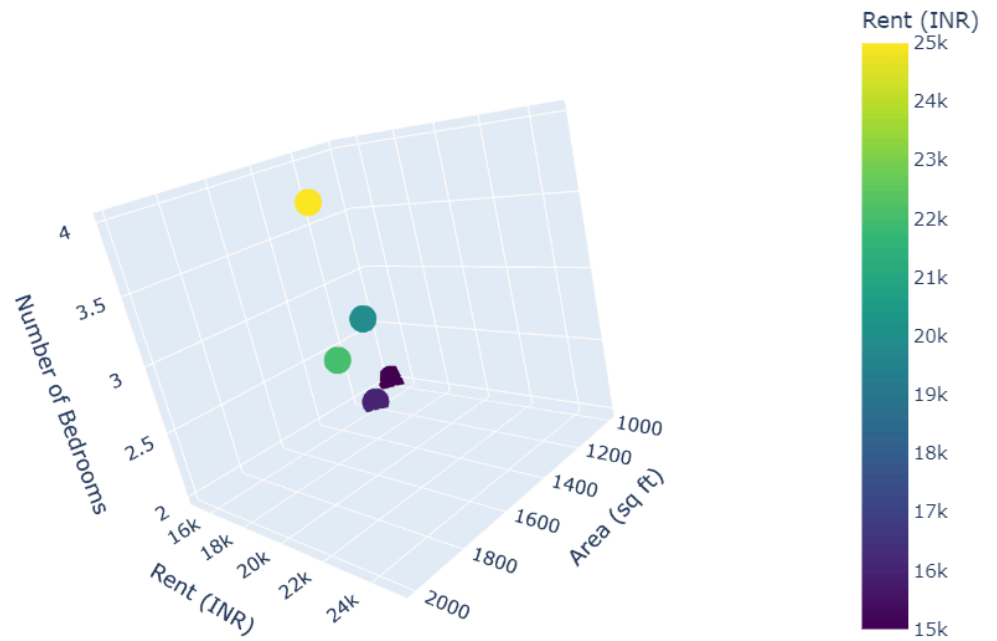
Violin plot : This violin plot displays the distribution of rent values across different floor types, using a logarithmic scale for the y-axis to manage wide ranges of rent values. Each "violin" shape represents the distribution of rent for a given floor type, with the width of the violin indicating the density of rent values at different levels.



Linear Regression plot : This linear regression plot illustrates the relationship between area (in square feet) and rent (in INR) using a log scale for the y-axis to handle the wide range of rent values. Blue points represent individual data observations, showing how rent varies with area. The red line is the linear regression line, which shows the trend/relationship between Area and Rent.

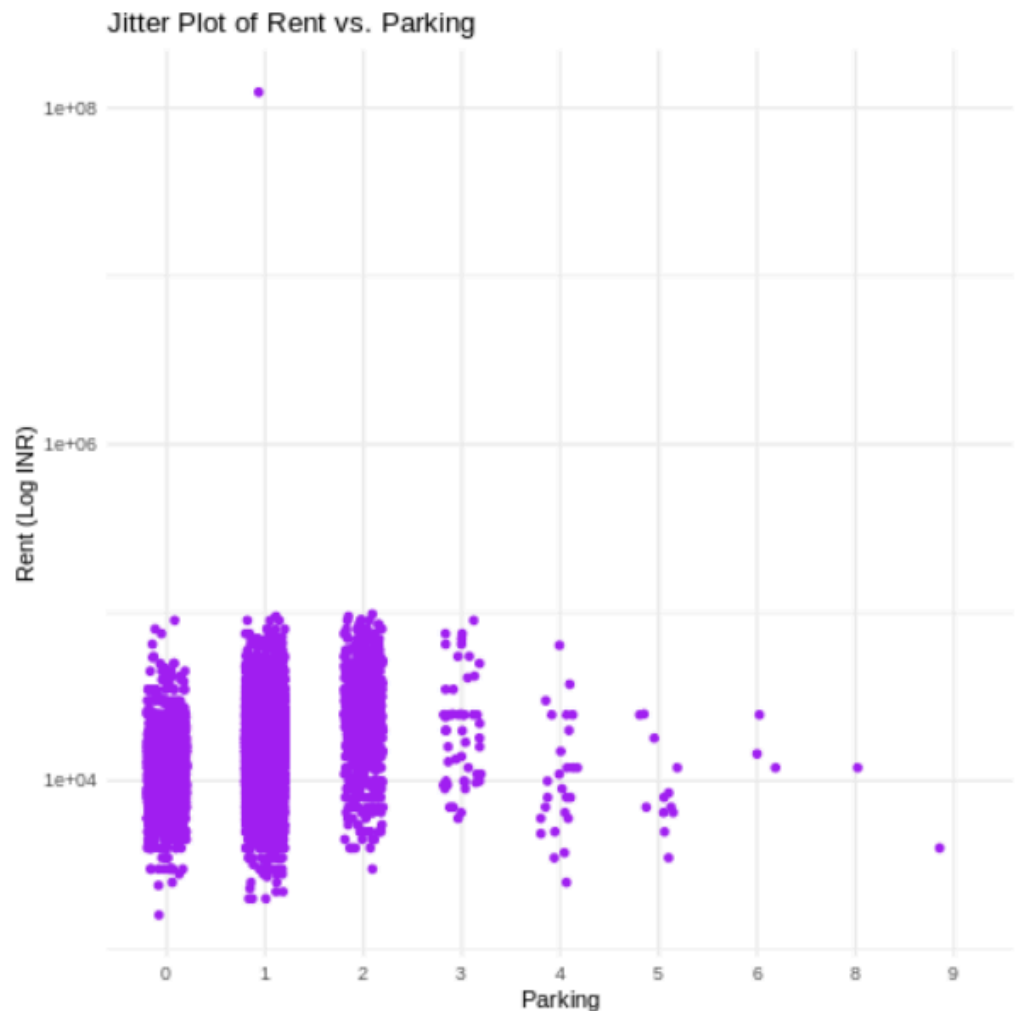


Nonlinear Regression plot : This plot showcases the relationship between area (in square feet) and rent (in INR) using a nonlinear regression model (Loess). Blue points represent individual data observations, while the green line represents the Loess smoothed curve that captures the underlying nonlinear relationship between area and rent.



3D Chart : The 3D scatter plot visualizes the relationship between three variables:

1. Area (sq ft): The horizontal axis (x-axis) represents the size of the property.
2. Rent (INR): The vertical axis (y-axis) shows the rent amount.
3. Number of Bedrooms: The depth axis (z-axis) indicates the number of bedrooms in the property.



Jitter Plot: The jitter plot shows how rent varies with the number of parking spaces. By using a log scale for rent, it highlights trends and variations, revealing whether more parking is associated with higher rents and how rent distribution differs across parking categories.

Conclusion

In this experiment we analyzed and visualized housing data using various types of plots, including Word chart, Box and whisker plot, Violin plot, Regression plot (linear and nonlinear), 3D chart, Jitter. Each plot served a specific purpose in understanding different aspects of the data.

Word Chart: Word cloud provided a visual representation of the frequency of different floor types, highlighting the most common types and their prevalence within the dataset.

Box and Whisker Plot: The boxplot provided insights into rent distribution across different floor numbers, highlighting variations and central tendencies.

Violin Plot: The violin plot compared rent distributions across floor types, offering a view of how different floor types influence rent, with detailed attention to data spread and density.

	<p>Regression Plot(Linear and Non-Linear): Linear and nonlinear regression plots explored the relationship between rent and area, showcasing how rent changes with increasing area and the complexity of this relationship.</p> <p>3D Chart: 3D plot illustrated the interplay between area, rent, and the number of bedrooms, enriching the understanding of these variables in a multidimensional context.</p> <p>Jitter Plot: Jitter plot examined the impact of parking availability on rent, revealing whether more parking correlates with higher rent and how rent distribution varies by parking category.</p>
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