upGrad

airbnb

NYC

Story Telling Case Study

PPT - II

Agenda

1.	Objective
2.	Background
3.	Key Findings
4.	Recommendations
5.	Data Methodology

Objective

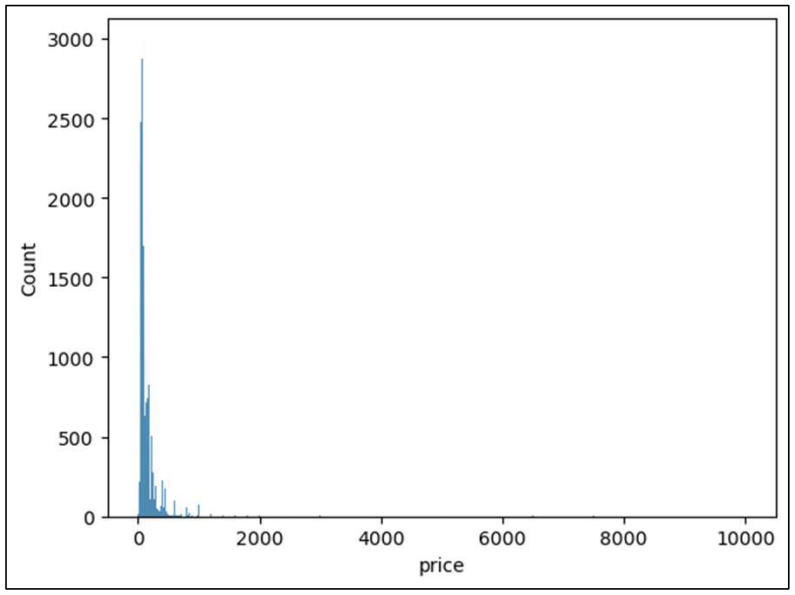
Share insights and strategic recommendations aimed at optimizing property acquisitions, price negotiations, service enhancements, and user-centric property listing optimization to maximize business growth and customer experience.

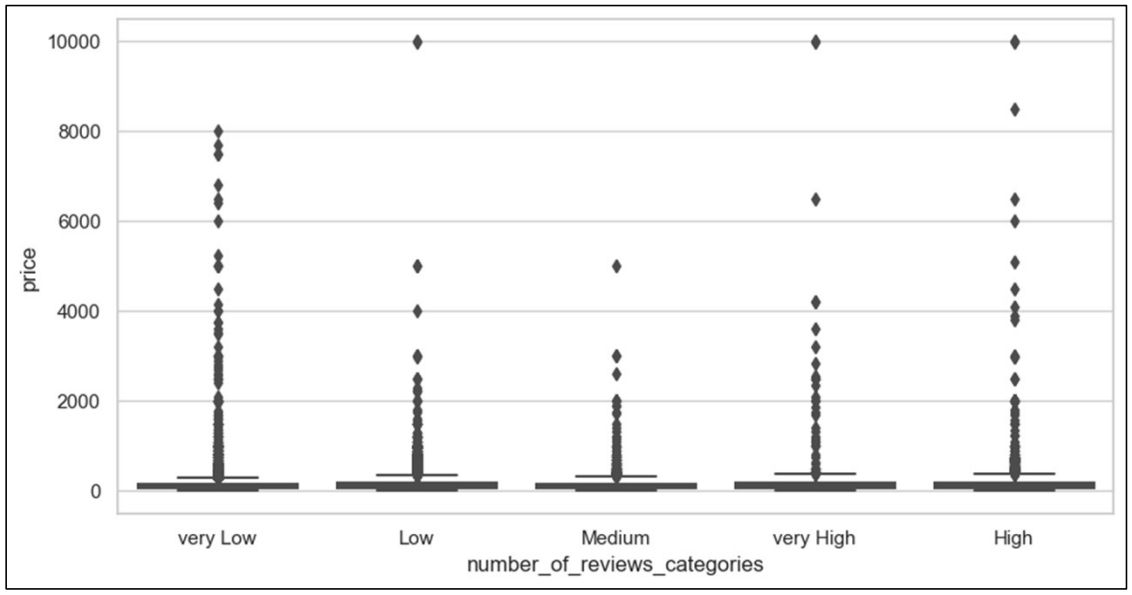
These presentations aim to guide the targeted audience in making informed decisions and implementing strategic improvements using the analysis results of the New York Airbnb dataset.

Key Findings

Pricing Insights:

- Majority of listings fall within lower price categories indicating price sensitivity in customer choices.
- Higher prices are associated with lower review likelihood, possibly impacting customer satisfaction.

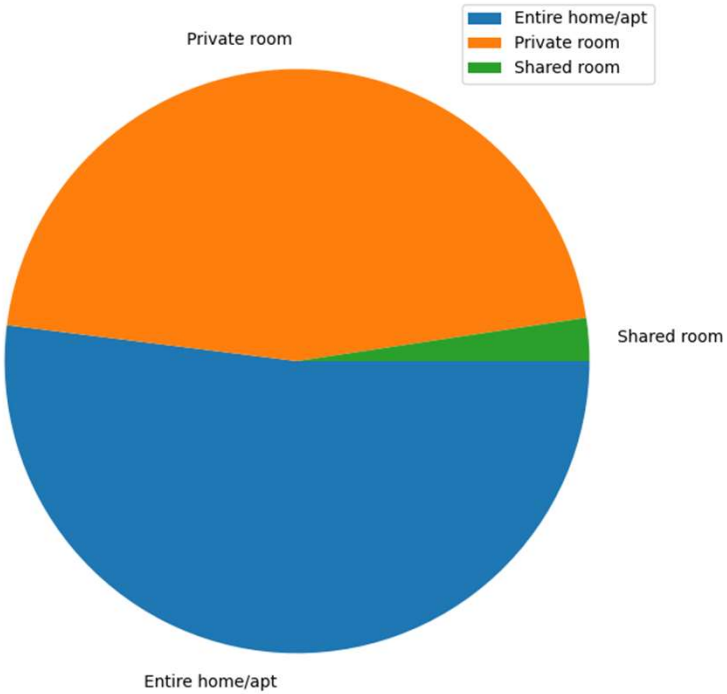




Key Findings

Property Types:

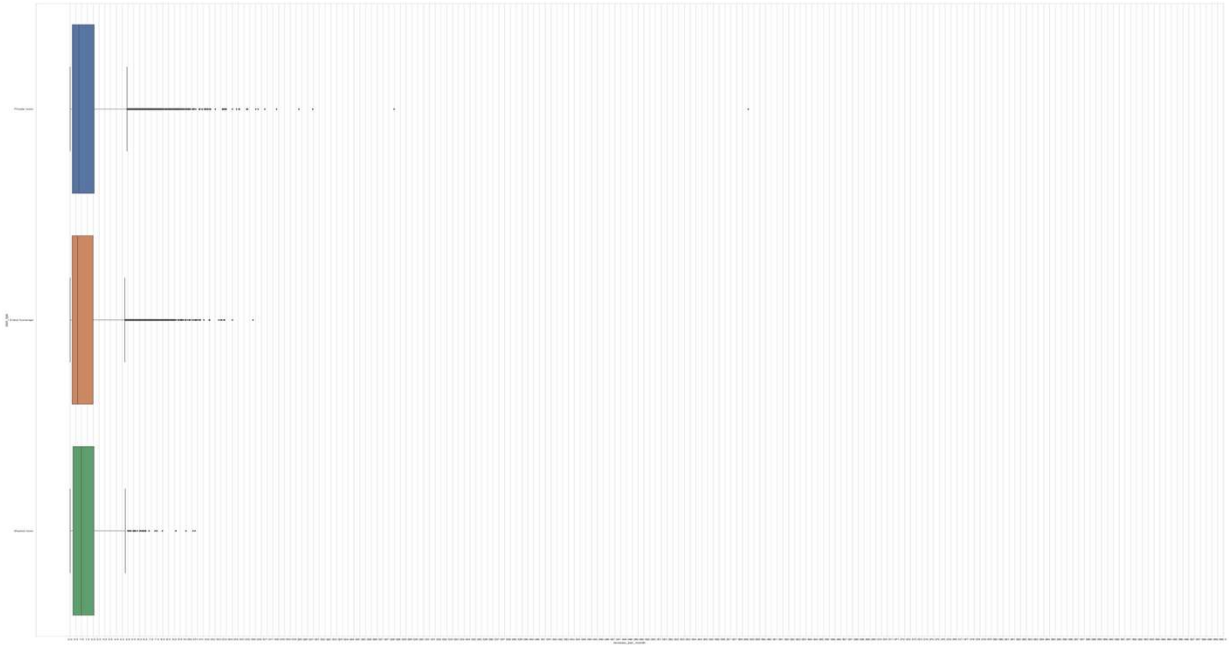
'Entire home/apt' listings are the most preferred, indicating a higher demand for these property types.



Key Findings

User Behavior:

Shared rooms tend to receive fewer reviews and possibly attract lesser customer interest.



7.6 Room Type and Reviews per Month

```
In [107]: abnb.room_type.value_counts()

Out[107]: Entire home/apt    25409
          Private room       22326
          Shared room         1160
          Name: room_type, dtype: int64

In [108]: abnb.groupby('room_type').reviews_per_month.mean()

Out[108]: room_type
          Entire home/apt    1.306578
          Private room       1.445209
          Shared room        1.471726
          Name: reviews_per_month, dtype: float64

In [109]: abnb.groupby('room_type').reviews_per_month.median()

Out[109]: room_type
          Entire home/apt    0.66
          Private room       0.77
          Shared room        0.98
          Name: reviews_per_month, dtype: float64

In [110]: abnb.groupby('room_type').reviews_per_month.sum()

Out[110]: room_type
          Entire home/apt    26565.34
          Private room       25529.62
          Shared room         1245.08
          Name: reviews_per_month, dtype: float64
```

Key Findings

Availability & Pricing:

Listings with very high availability and very low prices tend to generate more reviews, implying the potential value of this pricing strategy.

availability_365_categories	price_categories	
High	High	0.598431
	Low	2.200373
	Medium	1.056111
	very High	0.342308
	very Low	3.289381
Low	High	0.638307
	Low	1.783956
	Medium	0.883844
	very High	0.803750
	very Low	2.896114
Medium	High	0.591070
	Low	1.993565
	Medium	1.157492
	very High	0.517500
	very Low	2.893918
very High	High	0.428464
	Low	1.490562
	Medium	0.694283
	very High	0.276571
	very Low	2.206077
very Low	High	0.337780
	Low	0.506051
	Medium	0.276970
	very High	0.480588
	very Low	0.673759

Recommendations

1. **Price Adjustment:** Adjust pricing strategies to align with the 'very low' or 'low' categories, which are more likely to attract reviews and potentially increase demand.

2. **Property Diversification:** Encourage more listings under 'Entire home/apt' categories as they are in high demand. Adjust existing listings or focus on acquiring similar properties.

3. **Optimize Shared Room Listings:** Enhance the appeal of shared rooms by either adjusting pricing strategies or introducing promotional activities to increase their traction.

4. **Improve User Engagement:** Optimize the property listings for better user experience to attract more customers. Highlight properties with high availability and competitive pricing to improve customer traction.

Data Methodology

Introduction

The methodology aims to conduct a comprehensive Exploratory Data Analysis (EDA) on the Airbnb NYC dataset. The dataset includes various features related to properties listed on Airbnb in New York City.

Data Collection and Preparation

- Data Importing: Utilized Pandas library to read the dataset ('AB_NYC_2019.csv').
- Data Understanding: Displayed the first few rows to gain an initial understanding of the data structure.

Feature Engineering and Categorization

- Availability, Nights, Reviews, and Pricing Categories: Categorized columns including 'availability_365', 'minimum_nights', 'number_of_reviews', and 'price' into five distinct categories using defined conditional functions.

Data Cleaning and Column Adjustments

- Data Type Corrections: Transformed the 'last_review' column to 'datetime64' data type.
- Column Adjustments: Identified categorical, numerical, coordinates, and date columns and displayed their content for a preliminary understanding.

Missing Values Analysis

- Evaluation of Missing Values: Investigated the presence of missing values in columns, specifically focusing on 'last_review' and 'reviews_per_month' columns.

Data Methodology

Univariate Analysis

- Exploration of Features: Analyzed individual features including 'host_name', 'neighbourhood_group', 'price', 'minimum_nights', 'number_of_reviews', 'reviews_per_month', 'calculated_host_listings_count', and 'availability_365'.
- Visualization: Utilized various visualizations such as bar plots, box plots, histograms, and pie charts to understand the distributions and characteristics of different features.

Bivariate and Multivariate Analysis

- Correlation Analysis: Explored correlations among numerical columns using correlation matrices and visualizations.
- Top Correlations: Identified and examined top meaningful correlations within the dataset.
- Relationship Analysis: Studied the relationships between room types, number of reviews, prices, and availability for further insights.

Data Saving

- Export of Updated Data: Saved the manipulated dataset to 'AB_NYC_2019_updated.csv' after categorization and adjustments.

Conclusion and Recommendations

- Insights: Derived insights into the impact of various categories on prices, reviews, and customer preferences.
- Recommendations: Suggested adjustments such as keeping minimum nights lower, modifying prices for higher availability, and understanding property features more customer-oriented.

Data Methodology

Implications

- This methodology provides a foundation for making data-driven decisions and more in-depth analyses related to Airbnb's business operations.

Further Steps

The methodology serves as a basis for future advanced analyses, predictive modelling, and strategic decision-making in the context of Airbnb's property listings.