Project Report: New York City Airbnb Dashboard

Project Title: NYC Accommodation Guide: Interactive Budget & Borough Analysis **Team**

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1. Executive Summary

This project focuses on the complexity of the New York City rental market. Unlike smaller cities, NYC requires robust filtering tools to be useful for travelers. We built an interactive dashboard that allows users to filter listings by their specific budget and compare average costs across the five boroughs.

2. Data Source

- **Dataset:** NYC Airbnb Open Data.
- **Key Attributes:** Neighbourhood Group (Borough), Price, Availability, Room Type.

3. Methodology & Technical Steps

- **Parameter Creation (The "Budget Slider"):**
  - Created an Integer Parameter named `Max Budget` ranging from $0 to $1000.
  - Created a Calculated Field: `[Price] <= [Max Budget]`.
  - Applied this calculation as a global filter to remove listings exceeding the user's budget.
- **Dashboard Actions:** Implemented a "Use as Filter" action on the map. This enables "Cross-Filtering," where selecting a borough on the map automatically updates the bar charts to show data for only that specific area.
- **Color Logic:** Used a custom color ramp (capped at $500) to prevent expensive penthouses from skewing the color scale.

4. Visualizations Created

- **Sheet 1 (Geospatial Map):** A comprehensive map of all 5 boroughs, color-coded by price.
- **Sheet 2 (Comparative Bar Chart):** A chart displaying the Average Price per Neighbourhood Group, sorted descending to highlight the price disparity between Manhattan and the outer boroughs.

5. Conclusion

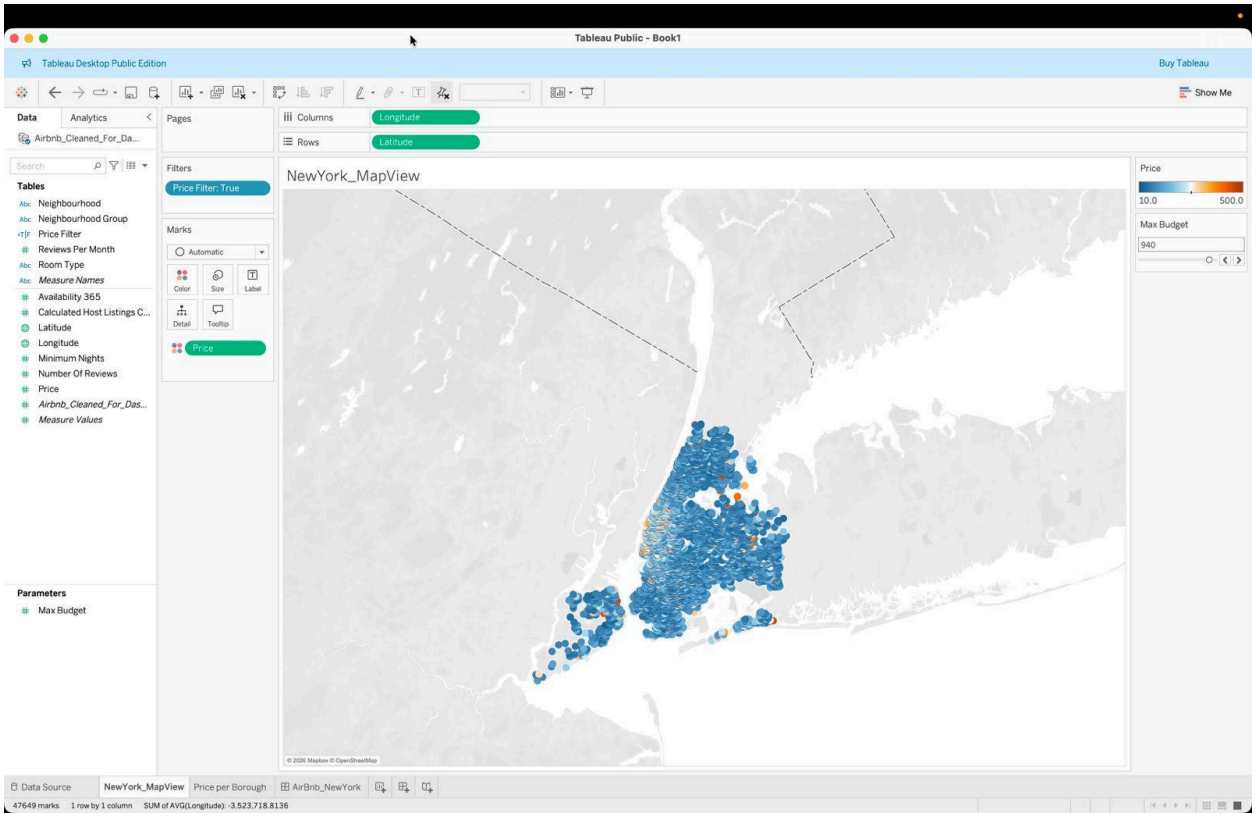
The final dashboard serves as a functional application for travelers. It highlights that while Manhattan is significantly more expensive on average, affordable pockets exist in Brooklyn and Queens when filtered using the dynamic budget slider.

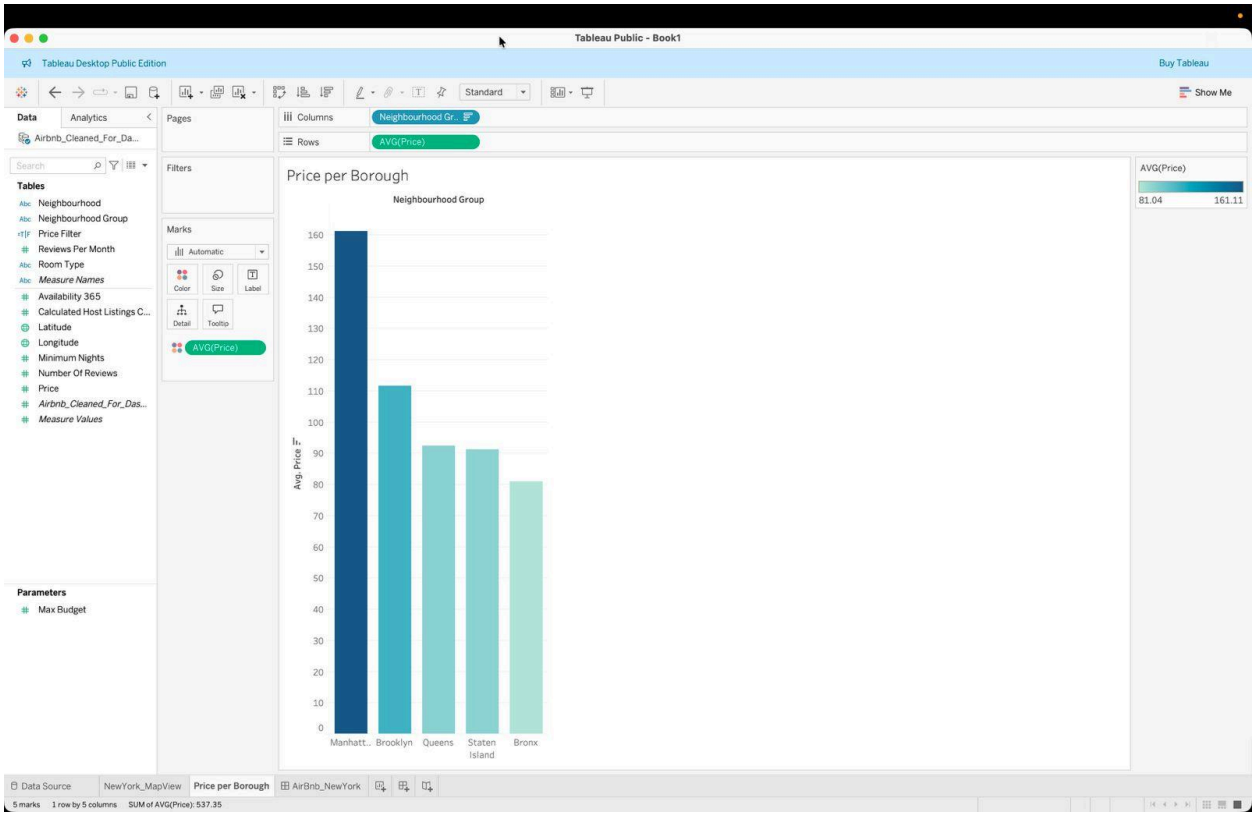
```
Downloading dataset from Kaggle...
Warning: Looks like you're using an outdated `kagglehub` version (installed: 0.3.13), please consider upgrading to the latest version (0.4.0).
Downloading from https://www.kaggle.com/api/v1/datasets/download/dgomonov/new-york-city-airbnb-open-data?dataset_version_number=3...
100%|██████████| 2.44M/2.44M [00:00<00:00, 117MB/s]Extracting files...
Dataset downloaded to: /root/.cache/kagglehub/datasets/dgomonov/new-york-city-airbnb-open-data/versions/3

Data Loaded Successfully: 47649 listings ready.

--- Average Price by Neighbourhood Group ---
```

neighbourhood_group	price
Manhattan	161.114141
Brooklyn	111.701958
Queens	92.344583
Staten Island	91.144414
Bronx	81.044403

dtype: float64

```
--- Model Trained ---
Accuracy (R2 Score): 0.39
The model is ready to predict prices!
SUCCESS: 'Airbnb_Cleaned_For_Dashboard.csv' is ready to download for Tableau.
```

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AVG(Price)
Columns
Neighbourhood Gr..
Rows
AVG(Price)
Price per Borough
Neighbourhood Group
Avg. Price
160
150
140
130
120
110
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90
80
70
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30
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Manhatt..
Brooklyn
Queens
Staten Island
Bronx
AVG(Price)
81.04
161.11
Data Source
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Price per Borough
AirBnb_NewYork
5 marks
1 row by 5 columns
SUM of AVG(Price): 537.35