UCLA Anderson School of Management

Airbnb Berlin Performance

Visual Analytics Assessment

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Agenda

- Project Objectives
- Data and Analysis Methodology & Wireframes
- Final Visualizations: Tableau Dashboard
- Key Insights
- Future Steps

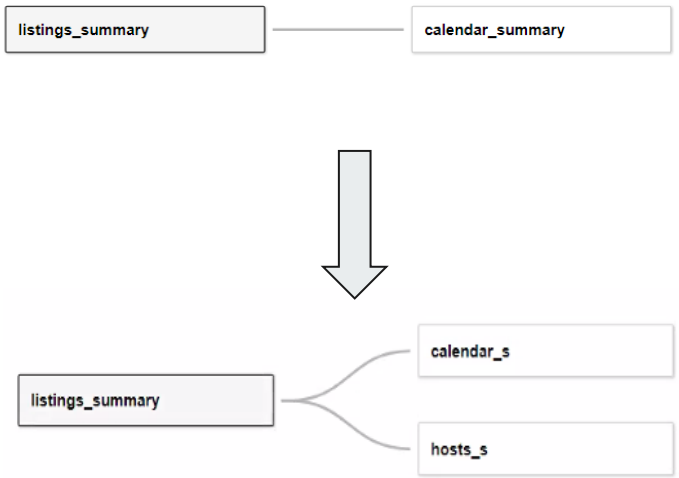
Project Objectives

- **Assessing Overall Market Performance of Listings**
  - Identify the factors separating high revenue listings from under performing ones
  - Identifying top revenue generating neighbourhood
  - Recommend strategies for improving poor performing properties
- **Evaluating performance of Host Listings**
  - Identifying and tracking the characteristics of top performing hosts
  - Highlightling traits of superhosts' success
  - Recommend strategies or best practices for all the hosts on Airbnb.

Data & Analysis

Data Description

- **Original Tables:**
  - Listings_summary: 22,552 listings, 90+ columns
  - Calendar_summary: 8,231,480 (367 days)
- **Time Frame:** November 2018 - November 2019
- **Main Parameters used:**
  - Availability
  - Price
  - Score Rating
  - Neighborhood names & locations
- **Calculated Variables:**
  - Occupancy – for each listing calculated as % of total days available
  - Revenue - derived from occupancy multiplied by listing price
  - Price / Sq ft, Revenue / Sq ft – for each neighborhood



Analysis Methodology

- Data pre-processing and exploratory data analysis
  - Created new data tables for faster processing and ease of analysis
- Finalizing Scope of Analysis -
  - Narrowed scope from initial 2 personas into 1
  - Identified dashboard targets - listing market performance, individual host performance
- Creating Wireframe and Tableau Dashboard

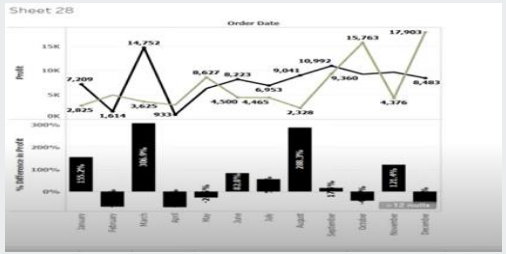
Wireframes

Performance Dashboard Wireframe

Objective: At the Neighborhood level - check characteristics that makes certain locations more appealing than others
Audience: Airbnb officials and potential Customers

Revenue

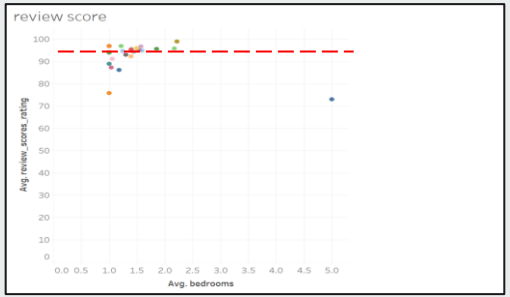
Current Revenue Month	Average Revenue per Month	Occupancy



Neighborhoods Grouped Cleansed

Revenue/sq. ft vs Price/sq.ft Neighborhood (Size quantity of listings or available)

Neighborhoods Quality Performance



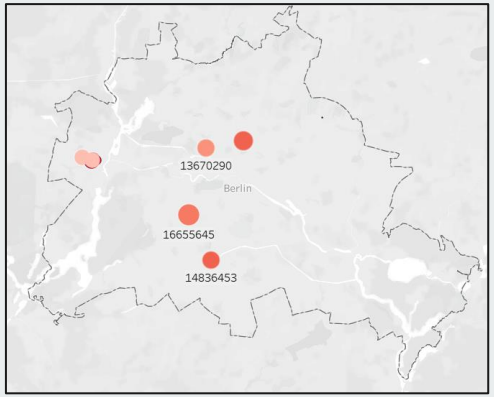
Host Dashboard Wireframe

Objective: At the Host level - compare key metrics about listings to the average ones and identify which types are more popular.
Audience: Airbnb officials and Hosts

How do you compare with other hosts?

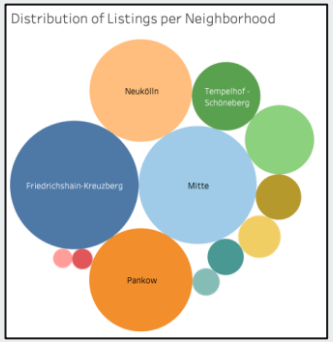
	Avg. Rating	Avg. Response Time	Avg. Price	Avg. Number of Amenities	Avg. Number of reviews
Host					
All Hosts					

Where are my listings?

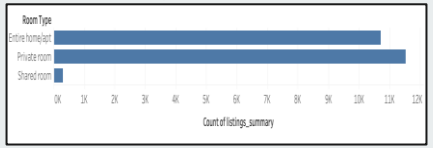


Which listings are more popular?

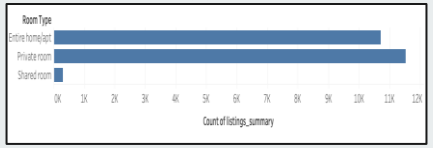
Num Listing per NB



Room Type



Property Type



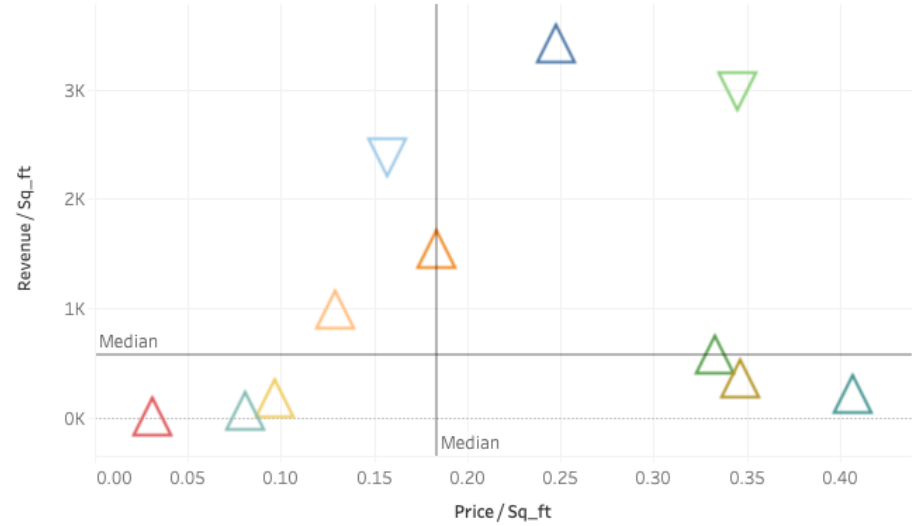
Final Visualizations: Tableau Dashboards

Performance Dashboard

12 Month KPIs

Total Revenue	Total Days Rented	% Occupancy
$368,950,869	6,430,639	78.1%

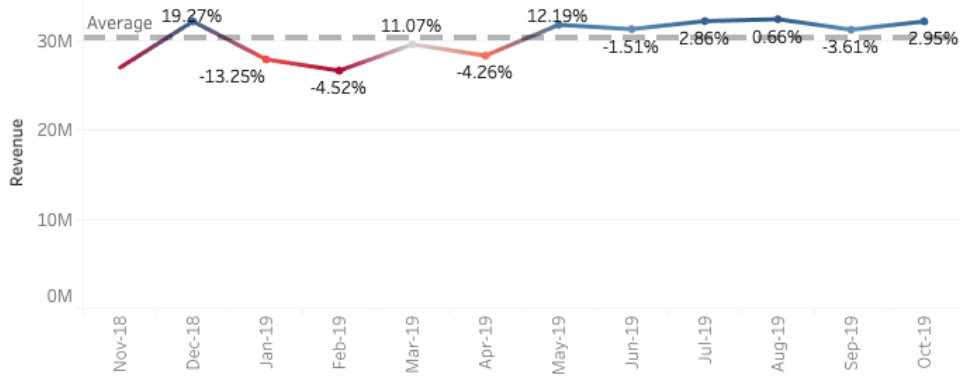
Revenue/sq_ft vs Price/sq_ft



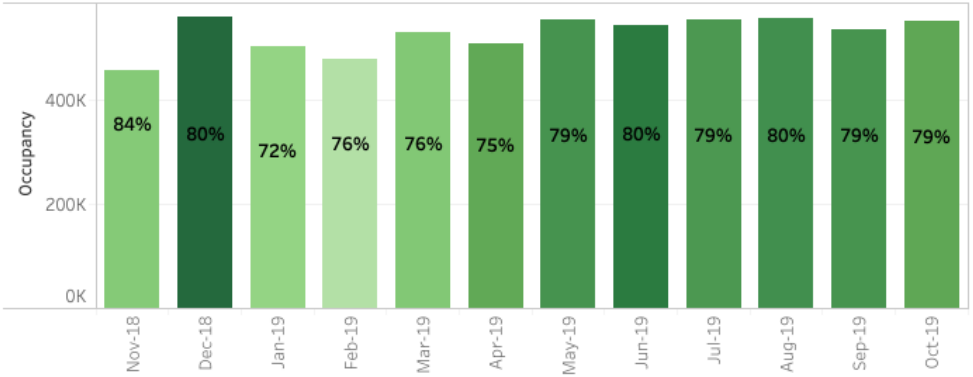
Neighbourhood Group Cleansed
- Charlottenburg-Wilm.
- Friedrichshain-Kreuzb..
- Lichtenberg
- Marzahn - Hellersdorf
- Mitte
- Neukölln
- Pankow
- Reinickendorf
- Steglitz - Zehlendorf
- Tempelhof - Schöneberg
- Treptow - Köpenick

Rating Threshold
- △ Above
- ▽ Below

Revenue & Growth Rate per Month



Listings & Occupancy Rate per Month



Price 62.789 — 63.967

Host Dashboard

Berlin Listings

Avg. Host Revenue

$19,236

Avg. Rating

94.41

Avg. # Listings

1.18

Avg. Price

67.14

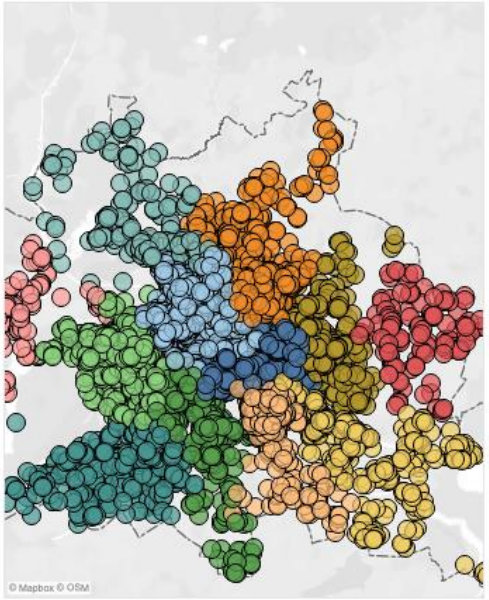
# of Hosts

19,180

Top 10 Hosts by Revenue

Rank	Host		
1	4259960	Rev. (10k)	238.0
		Avg Rating	94.8
		# Listings	4.0
2	3003519	Rev. (10k)	84.8
		Avg Rating	98.6
		# Listings	8.0
3	1625771	Rev. (10k)	50.2
		Avg Rating	91.8
		# Listings	45.0
4	102461	Rev. (10k)	49.5
		Avg Rating	96.8
		# Listings	9.0
5	87442687	Rev. (10k)	47.8
		Avg Rating	96.3
		# Listings	16.0
6	113498573	Rev. (10k)	45.4
		Avg Rating	80.7
		# Listings	9.0
7	112363455	Rev. (10k)	45.3
		Avg Rating	79.6
		# Listings	8.0
8	1194258	Rev. (10k)	34.2
		Avg Rating	95.0
		# Listings	12.0
9	161221	Rev. (10k)	31.5
		Avg Rating	97.6
		# Listings	7.0
10	109353960	Rev. (10k)	29.6
		Avg Rating	89.6
		# Listings	9.0

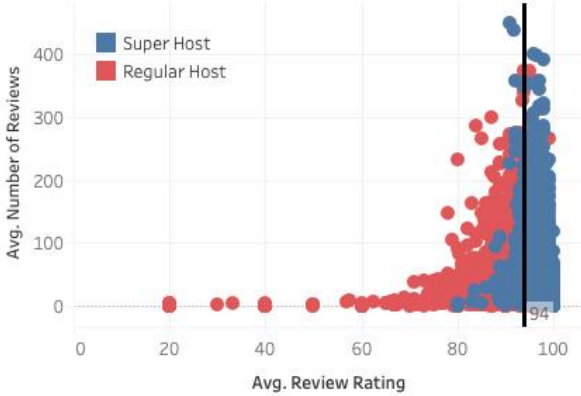
Listings Map



Neighbourhood Group Cleansed

- Charlottenburg-Wilm.
- Friedrichshain-Kreuzberg
- Lichtenberg
- Marzahn - Hellersdorf
- Mitte
- Neukölln
- Pankow
- Reinickendorf
- Spandau

Avg. # Reviews VS Avg. Rating



% Occupancy

Key Insights and Recommendations

Key Insights

- **Listing and Neighborhood performance**
  - **Summers are more profitable than other months** - December is an outlier
  - **Location matters -** Highest performing listings by revenue have high price per sq. feet but have poor quality score
  - **Xmas bonus -** Neighborhoods charge their highest price in the Christmas season(Nov-Dec)
  - **Least popular neighborhood** (based off occupancy %) seems to be the eastern neighborhood of Marzahn-Hellersdorf

Key Insights

- **Host performance**
  - **Superhost? -** Only 4 out of the 10 top hosts by Revenue are superhosts
  - **Primary business -** Hosts with multiple listings bring in a huge share of revenue even though majority of hosts own a single listing
  - **Undivided attention -** Hosts having listings in the same neighborhood tend to have better reviews and higher chances of being a superhost
  - **“Mitte” matters -** Most hosts with higher revenue have listings in Mitte neighborhood

Future Steps

- **Additional Data Inputs from Client**
  - More Historical Data
  - Data from different cities to compare
  - Knowledge of industry or company’s benchmarks
  - Understanding company’s long-term goals

Appendix

Project Plan

WBS NUMBER	TASK TITLE	TASK OWNER	START DATE	DUE DATE	DURATION	PCT OF TASK COMPLETE
1	Project Conception and Initiation					
1.1	Project Description	Kristian G	10/6/20	10/6/20	0	100%
1.2	AWS Accounts Sign UP	Team	10/6/20	10/11/20	5	100%
1.3	Team meeting - Project Review	Team	10/11/20	10/12/20	1	100%
1.3.1	Assignment of roles and responsabilities	Team	10/11/20	10/13/20	2	100%
1.4	Data Available in AWS	Kristian G	10/7/20	10/9/20	2	100%
1.4.1	Data Selection	Team	10/7/20	10/11/20	4	100%
1.5	Request Data Approval	Kristian G	10/7/20	10/11/20	4	50%
M1	Approved Data Set Selected	Kristian G		10/19/20		0%
2	Project Definition and Planning					
2.1	Defining Scope in Project Plan	Team	10/11/20	10/13/20	2	100%
2.2	Goal Setting in Project Plan	Team	10/11/20	10/11/20	0	100%
2.3	Communication Plan Agreement w/ Client	Team	10/13/20	10/13/20	0	100%
2.4	Review first draft Project Plan w/ Client	Team	10/13/20	10/13/20	0	100%
M2	Approved Project Plan			10/19/20		0%
3	Project Launch & Execution					
3.1	Create Status & Tracking Documents	Vyshak	10/11/20	10/13/20	2	100%
3.2	Ask data clarifying questions to client	Team	10/14/20	10/20/20	6	0%
3.3.1	Data Cleaning	Francisco	10/14/20	10/17/20	3	0%
3.3.2	Data Analysis	Pedro Pablo	10/16/20	10/20/20	4	0%
3.3.3	KPIs Proposal	Team	10/17/20	10/20/20	3	0%
3.4	Create Visualization Idea Drafts	Team	10/18/20	10/22/20	4	0%
3.5	Wireframe creation	Team	10/20/20	10/24/20	4	0%
3.6	Deliver Wireframe to client	Team	10/23/20	10/24/20	1	0%
M3	Approved Wireframe			10/25/20		0%
3.7	Create Visualization V1	Team	10/23/20	10/28/20	5	0%
3.8	Deliver Visualization V1 to client	Team	10/27/20	10/31/20	4	0%
3.9	Feedback from Client - Visualization V1	Kristian G	10/27/20	10/31/20	4	0%
3.10	Update Visualization to Final Version	Team	10/28/20	11/1/20	3	0%
3.11	Prepare Final Presentation	Apoorva	10/31/20	11/2/20	2	0%
3.12	Submit Visualization and Docs	Team	11/2/20	11/3/20	1	0%
M4	Final Presentation	Team		11/3/20		0%
4	Project Performance/Monitoring					
4.1	Status Report Presentation	Aayushi	10/13/20	10/27/20	14	0%
4.2	Final Presentation Feedback	Kristian G	11/3/20	11/3/20	0	0%