How has the AirBnB Market in LA Changed after COVID?

Clustering Methodology:

- Extracted Month and Year from the Scrape File column to enhance temporal analysis.
- Identified missing values in the neighbourhood column, where some listings had NaN values in earlier months but valid entries later.
- Found that NaN values in the neighbourhood column accounted for ~17% of the data, leading to the decision to drop these rows as part of the data cleaning process.
- Grouped data by key attributes (id, date, year, month, host_id, neighbourhood, neighbourhood_group, latitude, longitude, room_type) to compute:Number of listings, Average price, Average minimum nights, Average number of reviews, Average reviews per month,Average availability (365 days)
- Aggregated unique listing counts per neighbourhood per year to analyze long-term trends.
- Created clusters based on the average number of listings in 2018 and 2019, using K-Means clustering (3 clusters).

-> Focused on Clusters 0 and 2 for trend analysis, as they represented the majority of the data.
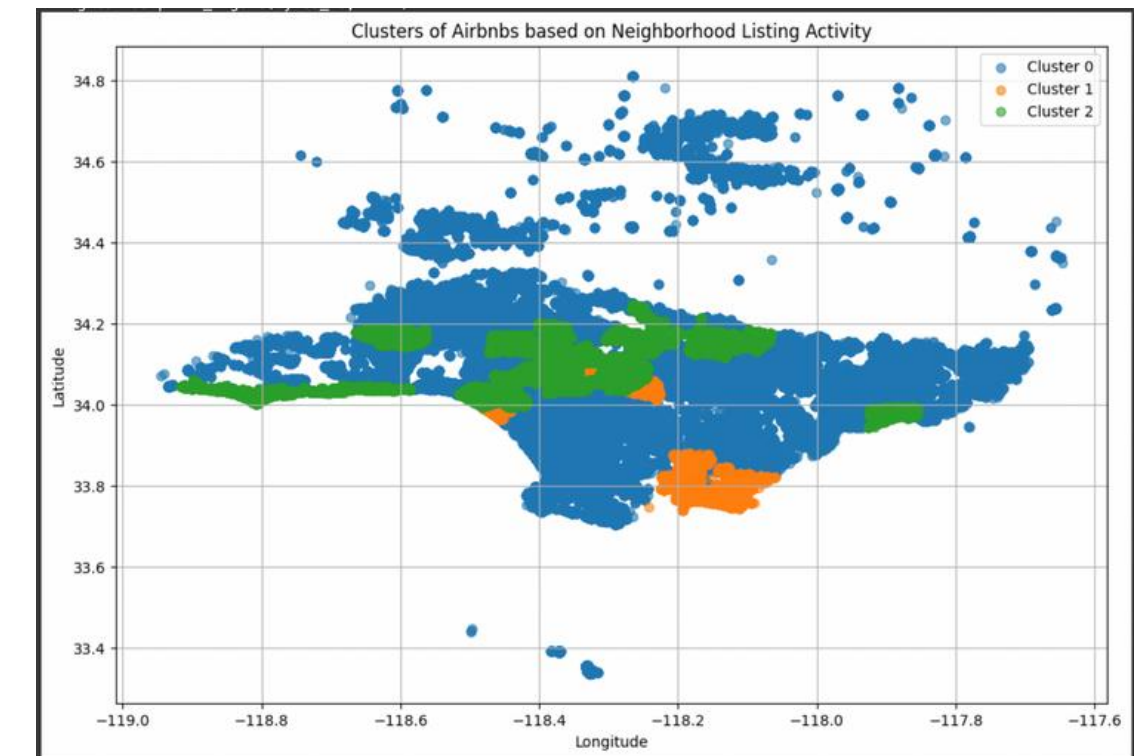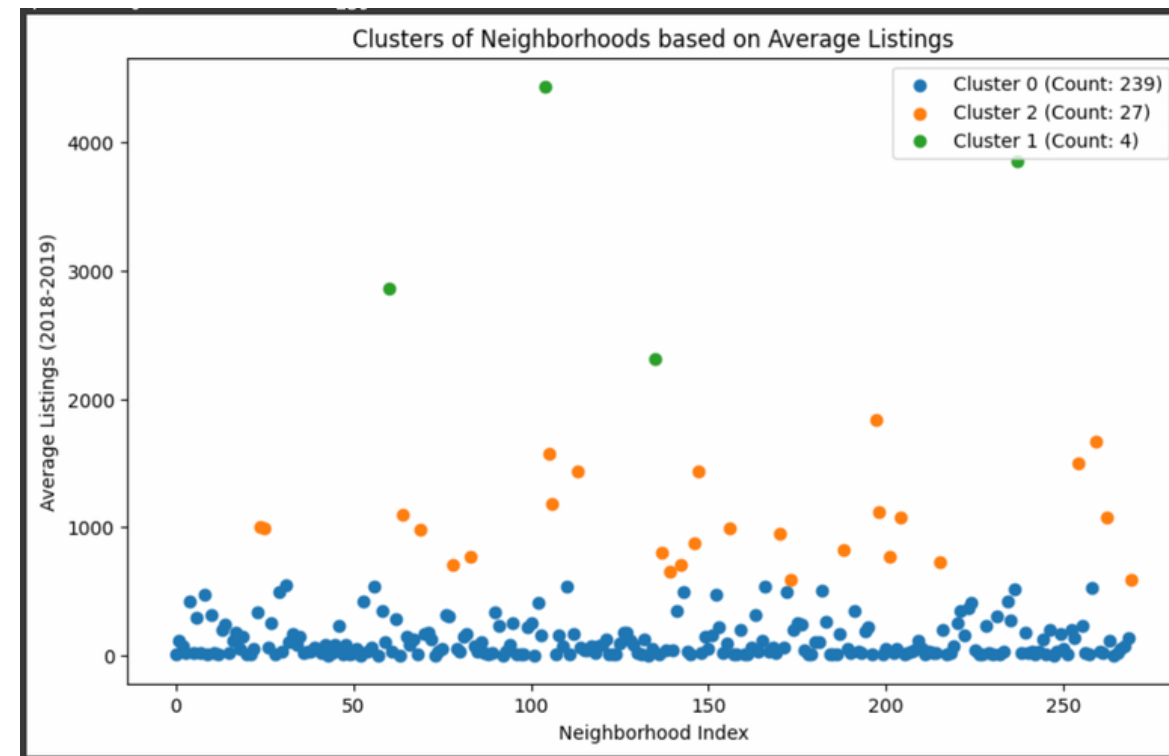

Clusters of Neighborhoods based on Average Listings

Clusters of Airbnbs based on Neighborhood Listing Activity

By Shreya & Anh Tuyet To

Figure 1: Number of Unique Listings OverTime

Number of Unique Listings Over Time (Clusters 0 and 2)

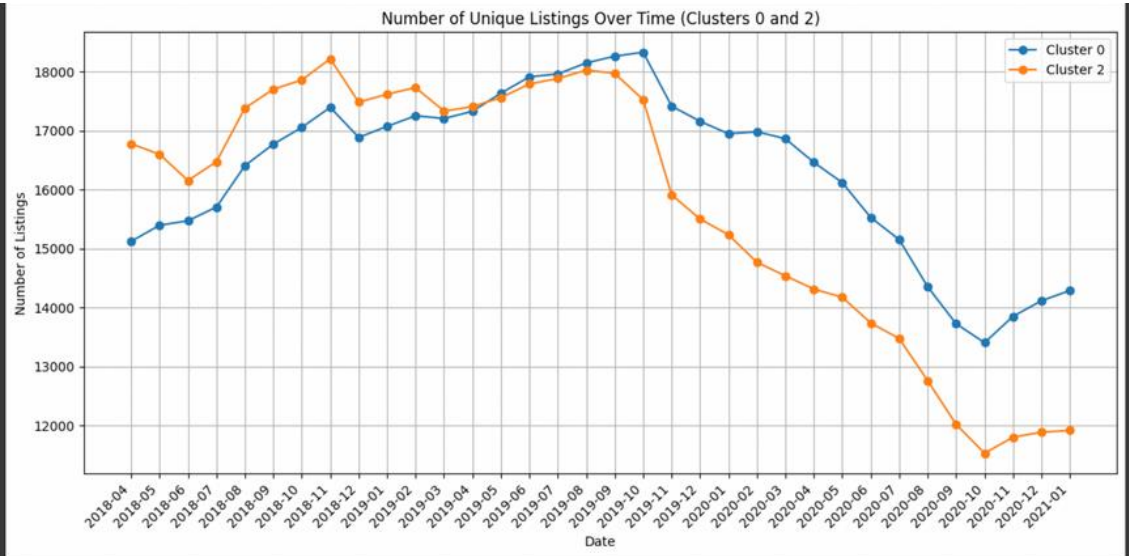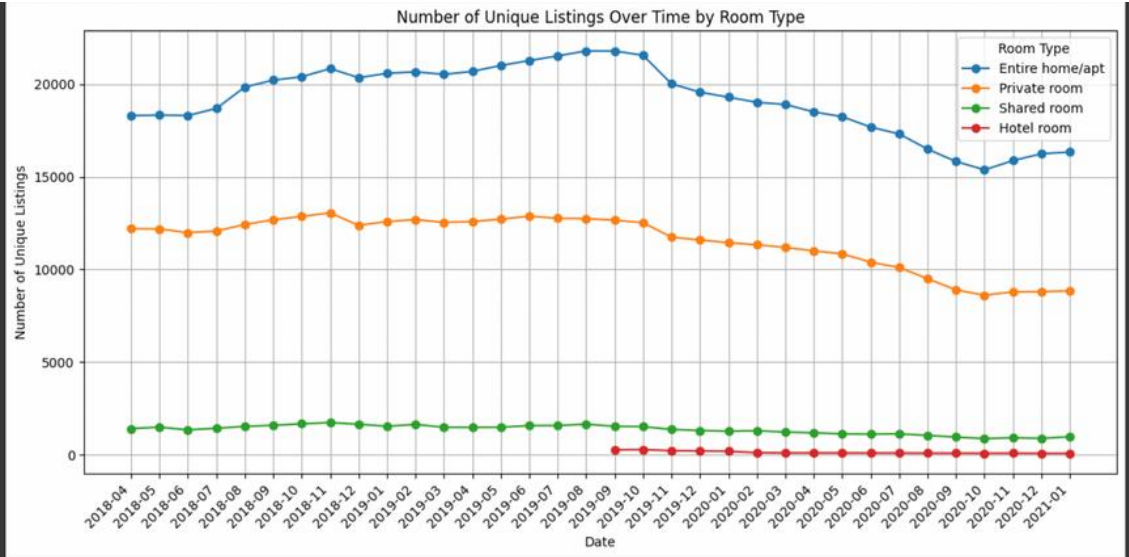**Figure 2:** Number of Unique Listings by Room Type

Number of Unique Listings Over Time by Room Type

Table 1: Distribution of Room Types Across Clusters(%)

room_type	Entire home/apt	Hotel room	Private room	Shared room
cluster				
0	52.18	0.16	43.30	4.36
1	74.75	0.65	21.42	3.18
2	67.52	0.24	28.20	4.04

Figure 3: Average Price Over Time

Average Price Over Time (Clusters 0 and 2)
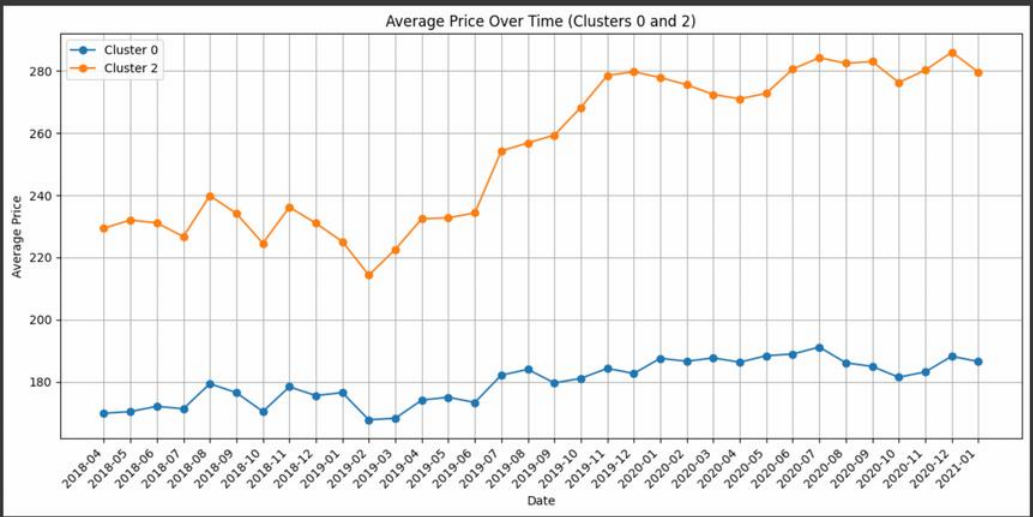
Figure 4: Average Listings per Host Over Time

Average Listings per Host Over Time (Clusters 0 and 2)

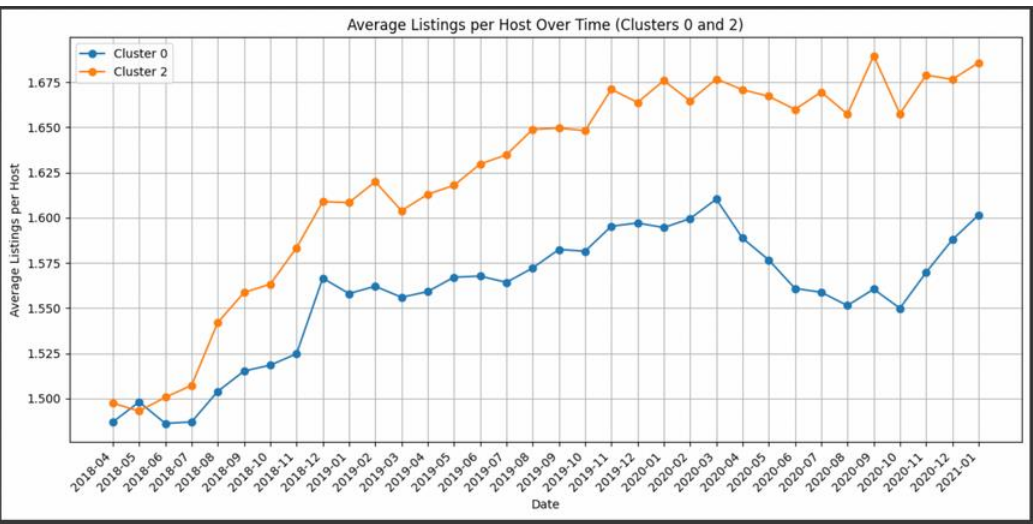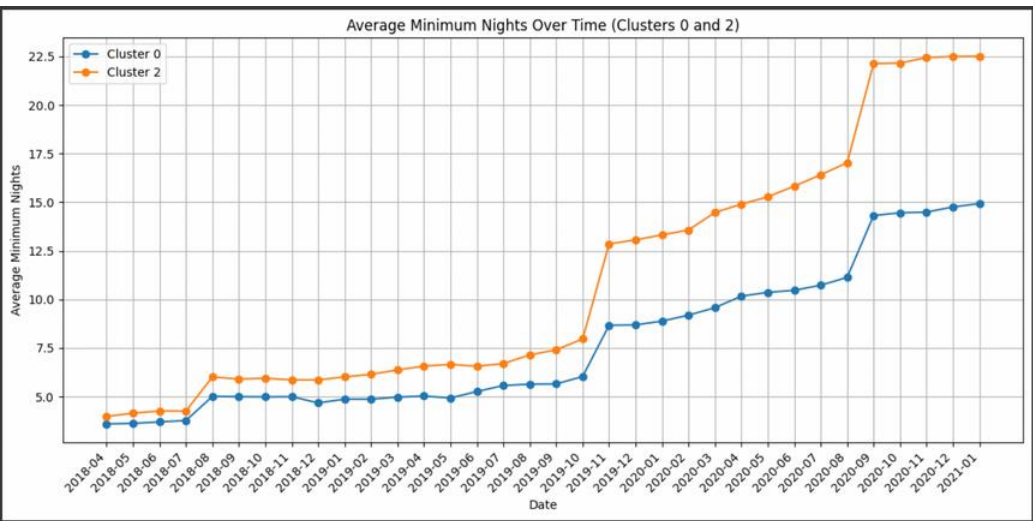**Figure 5:** Average Minimum Nights Overtime:

Average Minimum Nights Over Time (Clusters 0 and 2)

- **Figure 1:** Unique listings declined in late 2019 due to stricter LA regulations, with a sharper drop in March 2020 due to COVID-19 travel restrictions. Listings stabilized by late 2020 as travel resumed.

- **Figure 2**: Room types (entire homes, private rooms, shared spaces) followed a similar trend, declining during the pandemic and stabilizing by late 2020, with shared rooms and hotels excluded due to their low share (**Table 1**).

- **Figure 3**: Cluster 0 (lower-priced listings) remained stable, while Cluster 2 (higher-priced listings) saw a sharp price increase from mid-2019, peaking in mid-2020 and stabilizing at higher levels.

- **Figure 4:** Host listings grew steadily until March 2020, with Cluster 0 declining sharply and Cluster 2 recovering faster by mid-2020 due to long-term rental shifts.

- **Figure 5**: Minimum night requirements spiked in November 2019 with LA's ordinance and again in early 2020, stabilizing at higher levels by late 2020 due to pandemic and regulatory impacts.

In summary:
- While the COVID-19 pandemic **negatively impacted** the Airbnb market in LA, the effects were **not as severe** as expected.
- The market began to **recover post-pandemic**, driven by a resurgence in travel demand after a long period of quarantine.
- Long-term challenges:
  - increased competition
  - low switching costs for both hosts and guests
  - growing complexity of policies