

# Research Questions & Hypotheses

*What characteristics affect the prices of Airbnb listings in Toronto and to what extent?*

1. How does **geographic location** affect listing price?

H1: Significant impact on price; listings near the CBD will have the highest price

2. How does **property type** affect listing price?

H1: unique properties will have higher prices; expected relationship with location

3. How does **listing capacity and amount of space** affect listing price?

H1: entire properties will have higher prices than private rooms and shared rooms

4. How do a **host's characteristics** affect listing price?

H1: high quality of service indicators correlate to higher prices

5. How do **booking constraints** affect listing prices?

H1: constraints are expected to be negatively related to price

6. How do **amenities** affect listing prices?

H1: presence of more amenities is related to higher prices

# Methodology

## Data Sets

1. **Insideairbnb**: site that scrapes city-level Airbnb data
2. **City of Toronto's GeoJSON file**: for geographical analysis and mapping

## Methods

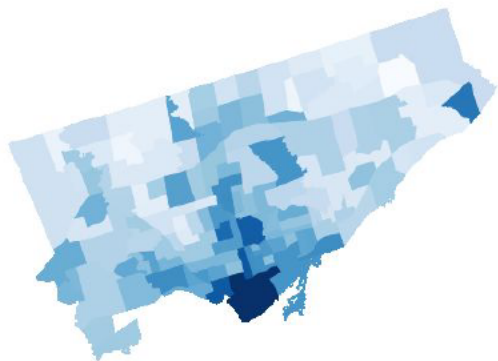
1. Preliminary data exploration
  - a. Price, Time Series, Reviews
  - b. 6 Categories
2. Hedonic pricing model

## Limitations on the Data

1. "price" represents asking prices not actual prices guests paid
2. Interior amenities depends on what was reported by

# Geographic Location

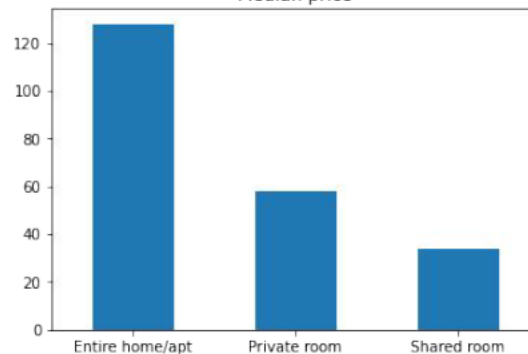
Median price of listings in every neighbourhood



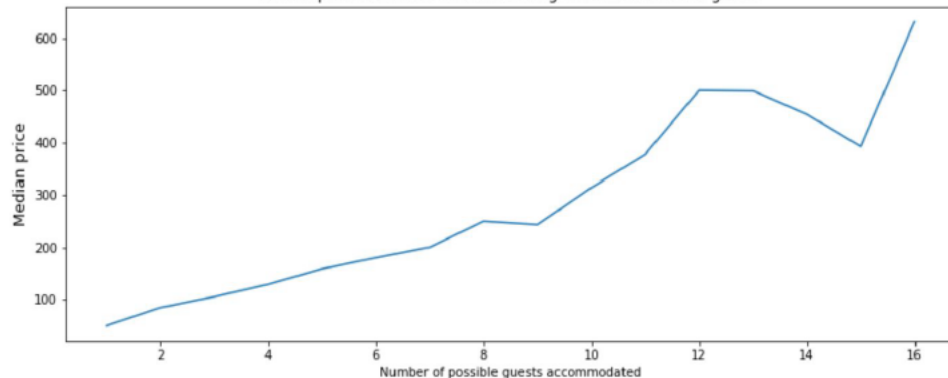
Neighbourhood	Coefficient	SE
Waterfront Communities	0.5384	0.092
Bay Street	0.4965	0.099
University	0.4607	0.114
Church-Yonge	0.4426	0.099
Casa Loma	0.4016	0.105
Forest Hill South	-0.2866	0.220
Mount Olive Silverstone	-0.2363	0.127
Keeleisdale-Eglinton West	-0.1861	0.112

# Capacity and Space

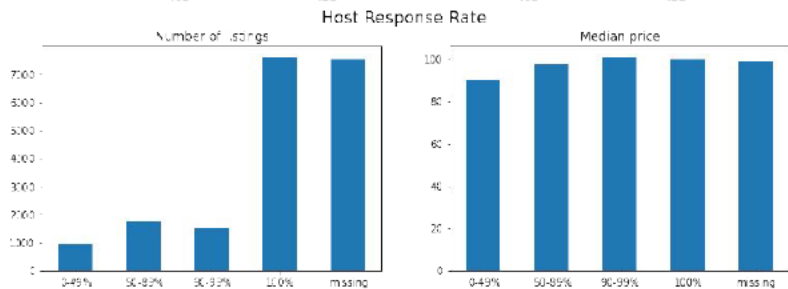
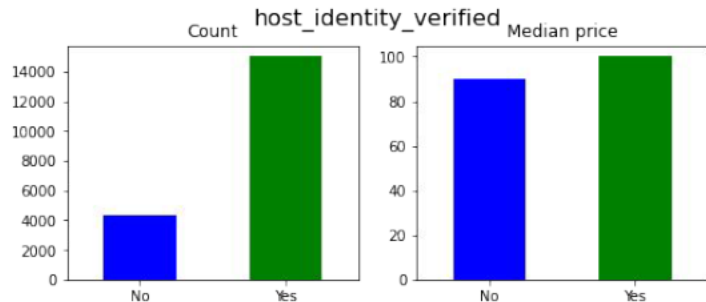
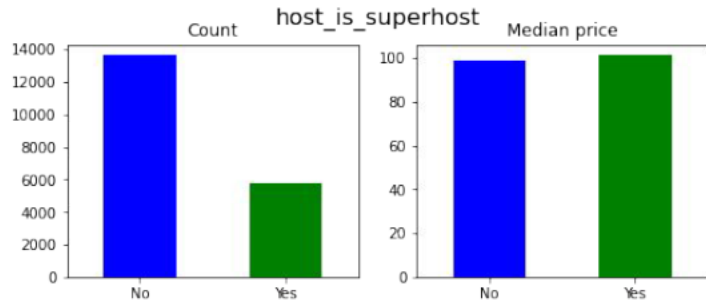
Median price



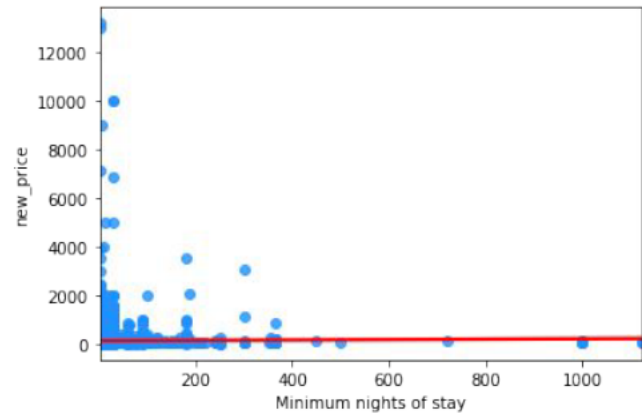
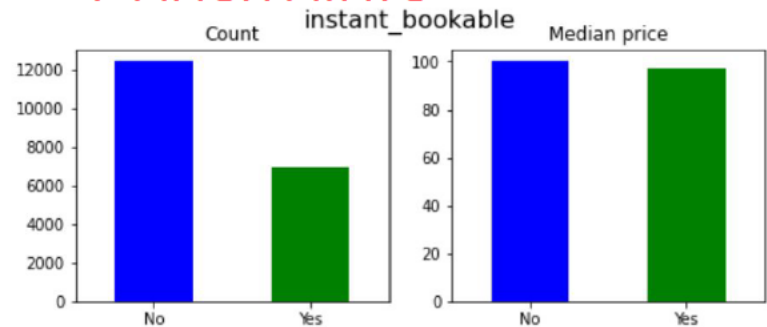
Median price of Airbnbs accommodating different number of guests



# Host Characteristics



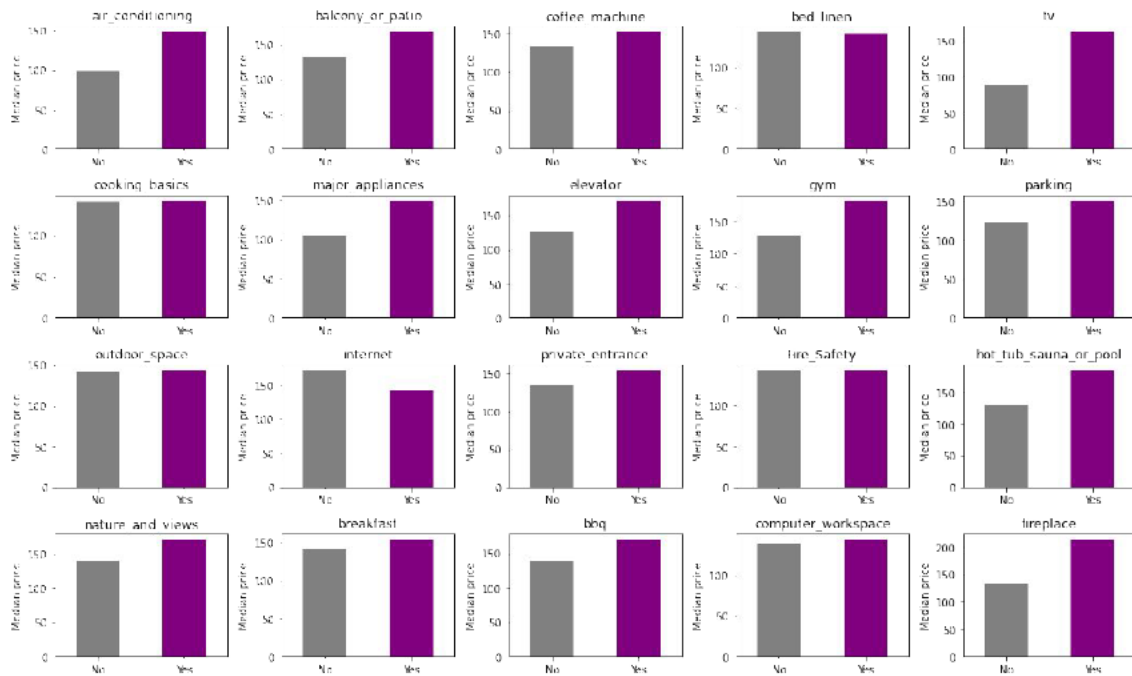
# Booking Constraints



# Property Type



# Internal Amenities



# Conclusion

## Takeaways

- Largest Impacts : Geographic Location and Capacity/Space
- Smallest Impacts: Host Characteristics and Booking Constraints

## Future directions

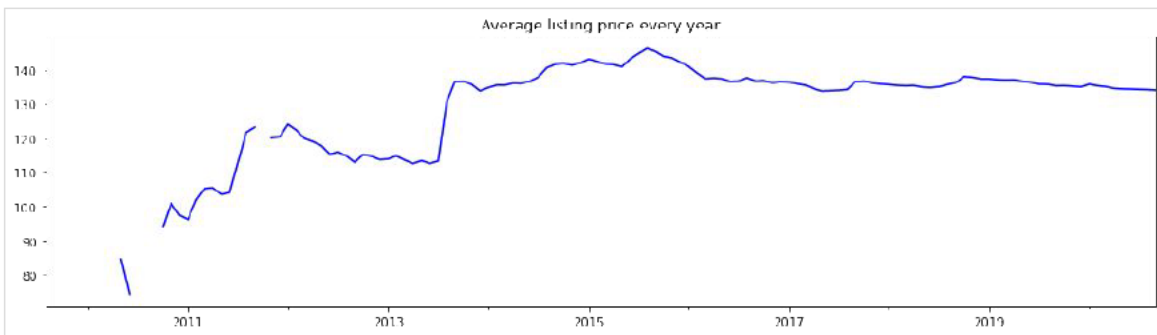
- Non-Airbnb amenities
  - Google API to find the distance of listings from certain attractions or transit.
  - Discover more in-depth relationships with location-based amenity characteristics and price

# Appendix

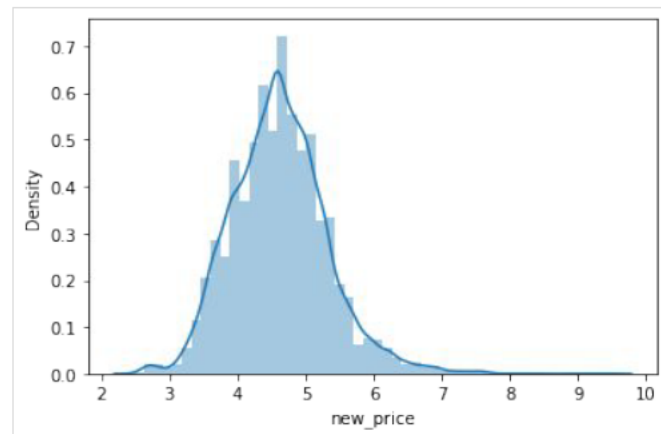
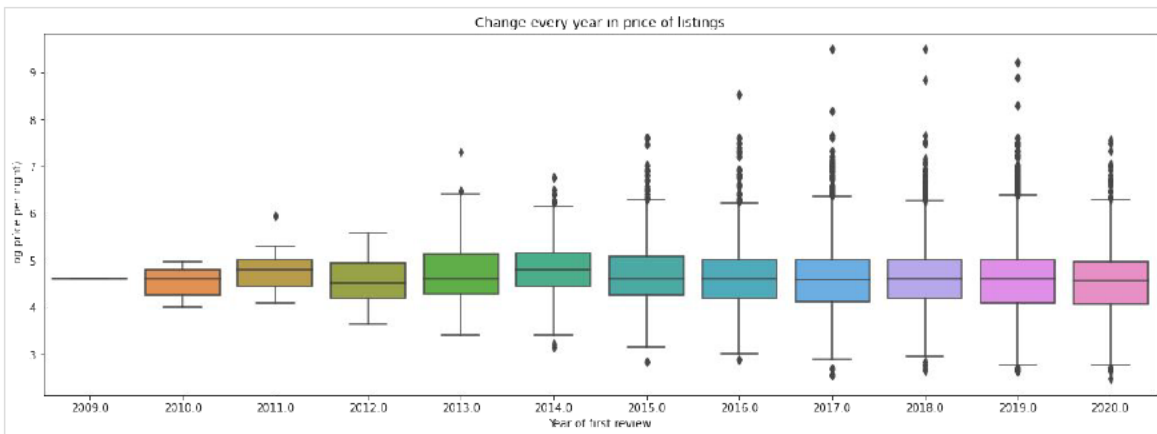
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# Looking at Price...



Maximum price	\$13,164.00
Minimum price	\$12.00
Mean price	\$141.27
Median price	\$100.00

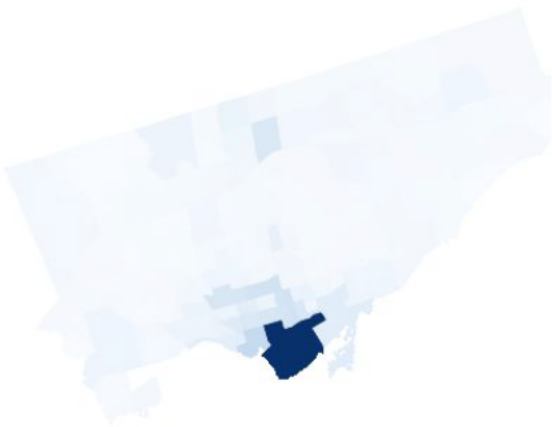


# Background

1. Ontario's capital and Canada's most populous city; **2.7 million** people in Toronto proper and **6.4 million** in the GTA (2016)
  2. **4th most populous** city in North America
  3. **43 million** tourists per year
  4. Airbnbs make up **0.8%** of the city's private dwellings
  5. Experts believe that Airbnbs have a **significant impact on housing** prices in Toronto
  6. **>9,500** Airbnb listings in April 2019
  7. Listings concentrated in the waterfront communities, one of the **top 5 Airbnb locations** in Canada
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- A faint, light blue background image of the Toronto skyline, featuring the CN Tower and several skyscrapers.

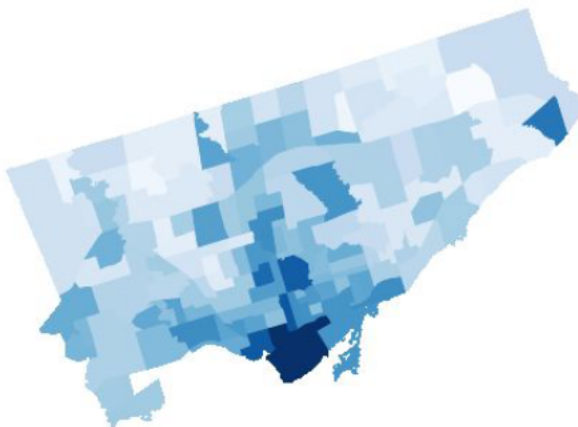
# 1. Geographic Location & Neighborhood

Number of listings in every neighbourhood



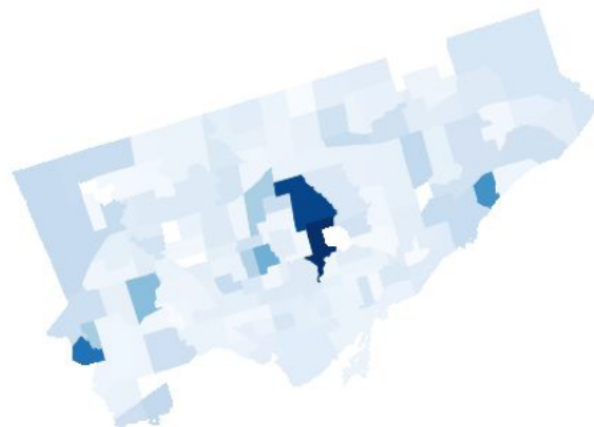
Listings are concentrated in the downtown core of the city, particularly in the Waterfront communities

Median price of listings in every neighbourhood



The median price is highest in downtown Toronto, nearest the waterfront, tourist attractions, etc.

Growth rate of listings in every neighbourhood from 2019-2020



Growth in number of new listings is highest in the Leaside-Bennington neighborhood



## 2. Property Type

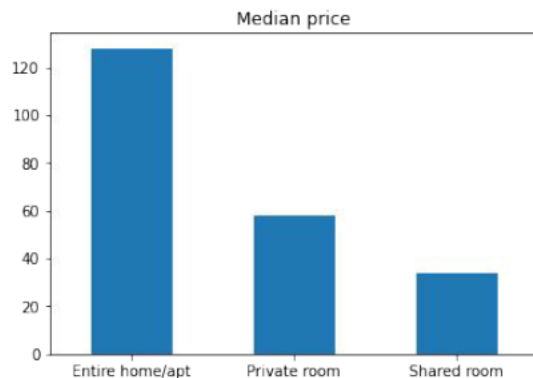
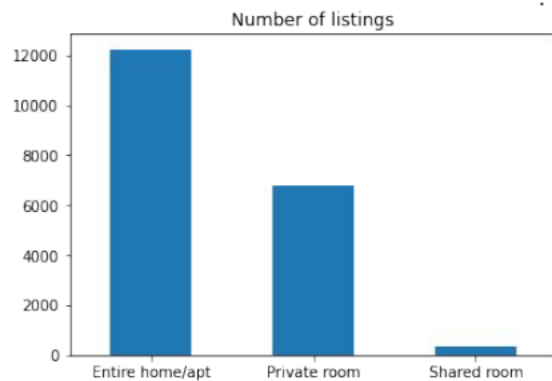
1. Majority of listings are apartments and houses
2. Property type is potentially correlated with neighborhood
3. Apartments are more common in the downtown area, where listings have the highest median price



Other type: cottages, treehouses, cabins, etc.  
Hotel: boutique, lifestyle (business certified)

### 3. Room Type, Size, and Space

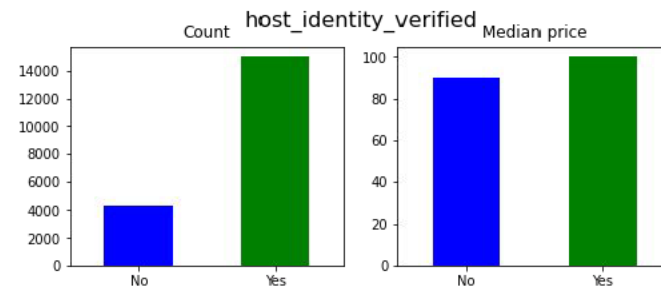
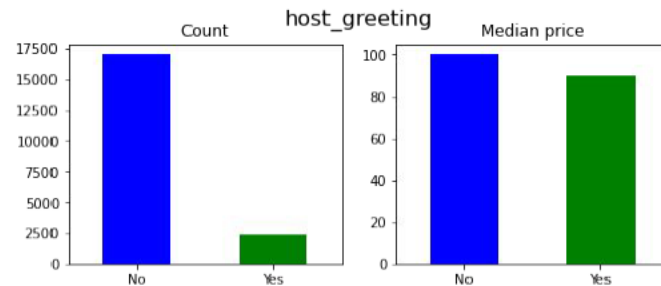
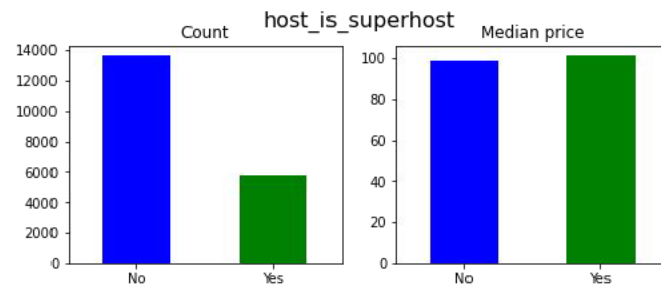
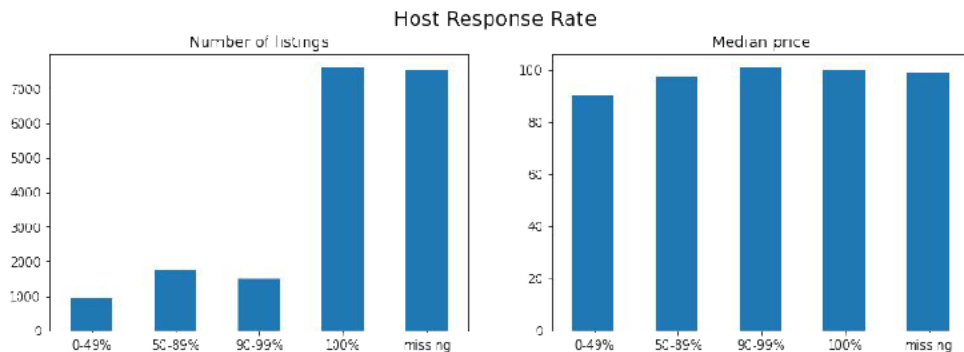
1. Entire home and apartment listings are more attractive to guests because of safety and privacy
2. Shared rooms command a much lower price (similar to comparing hotels to hostels)
3. High variance in number of listings by room type



# 4. Host Characteristics

**Variables:** Superhost, verification, greeting, response rate, tenure (number of days as host)

- Average host has been active for ~4.5 years
- Superhost status and host verification are potentially related
- Little difference in median price for binary host characteristics
- Majority of hosts have high response rates
- Tenure and price are (loosely) positively related



# 5. Booking Constraints

**Potential constraints:** instantly bookable, minimum stay

1. Instantly bookable median price: **\$97**
2. Standard booking median price: **\$100**
3. Insufficient information on listings with long minimum stays, limiting our interpretation
4. Slightly positive correlation with log price and length of minimum duration

