

About Data Challenge Submission

Tools Used : R programming language , used R as it provides multiple libraries with built in easy to read verb functions. It also provides R markdown to neatly present the solution in html / pdf format.

Libraries Used: tidyverse , dplyr , ggplot2 , plotly , data.table , DataExplorer , kableExtra , stringr ,DT , rio

Code with Documentation : DataChallenge.Rmd

Html Notebook of DataChallenge.Rmd : DataChallenge.html (Preferable Chrome)

MetaData

Parameters:

- property_buy_year - change it to the year when you want to buy the property
- zillow_start_date , zillow_end_date - These dates are used to filter the years on which analysis of average increase in zillow property median purchase price is done
- property_buy_year (Currently last 10 years data is used for analysis)
- filter_city - target city for analysis
- airbnb_col_filters - Column names filtered from Airbnb data
- filter_bedroom- number of bedrooms in the target property analysis

Derived Metrics:

- estimate_2019_price (Zillow_final) : estimated property price in 2019 based on average increase in median price per year per zipcode.
- Vacancy_rate = (availability_30 x 100)/30 , Vacancy rate of a property
- Occupancy_rate = 100-vacancy_rate , Occupancy rate of a property
- percent_superhost = Number of properties with superhost /total number of properties
- gross_monthly_income = avg_rent x (30 - ((vacancy_rate/100) x 30))

Assumptions:

1. The investor will pay for the property in cash (i.e. no mortgage/interest rate will need to be accounted for).
2. The time value of money discount rate is 0% (i.e. \$1 today is worth the same 100 years from now).
3. All properties and all square feet within each locale can be assumed to be homogeneous (i.e. a 1000 square foot property in a locale such as Bronx or Manhattan generates twice the revenue and costs twice as much as any other 500 square foot property within that same locale.)
4. The company is planning to buy the property in 2019.
5. There is no increase in rent Year over Year for airbnb listings. The price host is charging per night is for the entire property irrespective of private room/entire house listing.
6. Yearly Maintenance of property does not exceed around a month's rent.
7. Property repair for damage caused by tenants is totally covered by the security deposit charged.
8. Vacancy rate remains consistent across years. No seasonality.
9. Properties are active listings for 365 days.