**Data Challenge – Airbnb and Zillow Analysis**

* Problem Statement

To analyse Airbnb and Zillow data and determine which zip codes would generate the most profit on short term rentals within New York City.

* Assumptions

1. The data indicates that it was last scrapped in May 2017, the analysis has been made by assuming that a real estate investor wants to invest in May 2017 and not the current date.
2. With the mentioned property prices in Zillow, the investor will pay the entire amount and no loans, interest rates or maintenance cost would further be considered as additional investment for the property. The amount mentioned in the Zillow dataset will be considered as the only investment that the investor must make.
3. The daily, monthly, yearly prices in the Airbnb dataset are assumed to be fully paid to the investor, and no third-party charges are considered.
4. The cleaning fee is assumed to be used entirely for cleaning purposes only and is not assumed to be received by the investor.
5. The Occupancy rate for every Airbnb listing is assumed to be constant at the time of investment as well as future years, as far as the years go.
6. The Occupancy rate is set to be 75% throughout a year of 365 days. Out of the 75%, the daily booking percentage is assumed to be 50%, the weekly booking percentage is assumed to be 30% and monthly booking percentage is assumed to be 20%.
7. A weekly booking is considered for 7 days, monthly for 30 days.

* Approach

1. There were two major factors used to measure profitability
   * + - 1. Median Daily Price in each zip code/Median Investment Amount in each zip code
         2. Median yearly revenue in each zip code/number of years to recover investment in each zip code
2. The higher the ratio of particular zip codes, were selected to further analyse based on amount of data available, number of Airbnb listings available in that particular zip code, neighbourhood, 30-year summaries of zip codes.

* Conclusion

1. 1 - I identify 5 Zip codes (Manhattan [10022, 10023, 10036], Brooklyn [11234], Queens[11434]) based on sufficient data, recovery years, yearly revenue, investment cost and Airbnb prices that would generate the most profit.  
   2 - Looking at all the charts, we can say that if one wants to recover their investment the fastest, investing in Brooklyn and Queens will be the most accurate option. Because these zip codes require less investment and give a good ROI in the future years.  
   3 - Investing in Manhattan requires on an average 10 years more than Brooklyn and queens to recover the investment but the profit earned in future years is substantially higher than Brooklyn and queens. Manhattan being the prime hub for tourists results in higher Airbnb prices.
2. 4 - Although investing in Staten Island seems exciting due to faster recovery based on the graphs, we have to consider that we do not have enough data for short term rentals in those zip codes. Thus, one should avoid investing in Staten Island until we can find more data on those zip codes.