PROJECT PLAN

PURPOSE

Where in Broward County, Florida can the sisters, Amy and Addy, purchase an investment property that they can use for 4 weeks, rent out for the rest of the year, and hopefully use the rental income to cover the costs of ownership?

The focus of this analysis is to assist Amy and Addy, two sisters from Georgia, who are looking to buy an investment property with quick access to a beach that allows swimming or snorkeling. They require this property to be within 8 hours driving distance from their main home, and also be within 20 minutes of a business district. The sisters plan on using the property 4 weeks out of the year and have it rented out for the rest of the time. They also want the rental income to cover most of the cost of ownership.

Through this analysis, the group will determine which areas in Broward County, Florida would be optimal to purchase an investment property for the sisters. The analysis aims to recommend which areas are the most popular for tourists/visitors to stay in, what kind and size of property is the most booked, how they can price their listing to be competitive with market, and how much the sisters stand to earn per month and/or per annum based on current historical data from existing AirBnb listings.

Broward County in Florida was chosen as the area for consideration for the sisters' property purchase as it is part of the eastern coast of the state, is part of the Miami metropolitan area, and has several cities with access to beaches that people can swim in and do snorkeling.

By performing this market analysis, the sisters will be assisted in making an informed decision as to whether Broward County is a feasible location for an investment property that meets their requirements. This will also assist them in positioning themselves competitively (with regards to location, size, pricing, and projected income) in the short term rental market.

DATA

We have selected a dataset from Inside AirBnb (http://insideairbnb.com/get-the-data/) as a primary source that shows listing and review information for Broward County. This data was scraped from AirBnb in 2023.

The listing dataset can give information as to the trends of demand and occupancy for Airbnb rentals in the chosen area (i.e. how many beds, which city in the county is most often

visited, etc.). We expect that the below listed elements of the data will provide the following key insights:

- Accommodates - The number of how many guests the listing can accommodate.
- Availability X - The number of days the listing has. This subtracted by a number of calendar days can show how often a listing is occupied.
- Bathroom - The number of bathrooms the listing has.
- Bedrooms - The number of usable bedrooms the listing has.
- Beds - The number of usable beds the listing has.
- Neighborhood - Where the listing is located.
- Price - The price per night of occupancy.
- Reviews - Can be counted to see how many reviews (and consequently how often booked) a listing has.

Data Set Profile:

- Number of Columns: 75
- Number of Rows: 17,916
- Number of Listings: 17,915

As an addition to assisting the sisters in choosing a well-positioned investment property, we also intend to look at possible property taxes for a secondary home and median prices for properties in Broward County to further make recommendations for their purchase.

ANALYSIS

DATA DRIVEN INSIGHTS

- **Average Nightly Rate (Price)**: This KPI can help determine the average rental income the property can generate. We'll calculate the average nightly rate for different neighborhoods or cities in Broward County.
- **Occupancy Rate:** This KPI can provide insights into how often the property is likely to be rented out. It also helps us understand and project the annual rental income.
- **Average Length of Stay**: This KPI gives us an idea on how long guests typically stay in the property that can help with pricing strategies and income projections. We'll calculate the average length of stay in Broward County.
- **Property Type**: Determining the type of properties like entire homes, studio apartments, condo units, private rooms, shared rooms etc. to influence the decision on property investment.
- **Neighborhood/City Popularity**: This KPI helps to guide in location selection as identifying which neighborhood or cities in Broward County have the highest demand and booking frequency.
- **Average number of Bedrooms and Bathrooms**: We need to understand the most common property sizes which can help in our property features to match the market preferences.

- **Property Tax Rates**: Analyzing the property tax rates in different neighborhoods to understand the impact of overall cost of ownership or leasing.
- **Cleaning and Maintenance Costs**: We need to estimate the average cleaning and maintaining costs which are crucial for managing the property cost effectively.
- **Income Projection**: Based on this KPI, we need to project the income on the number of available rental days and average nightly rates accounting the sister's intended use of the property.

As a starting point to the analysis, the following list of questions will be answered:

- Which neighborhoods/cities in Broward County have the most number of listings?
- How much is the average cost per night for neighborhoods and cities in Broward County?
- What size of residence is most commonly booked?
- In which neighborhood do most renters choose to stay in?
- If there is data on what the average number of nights a stay is, what is the projected income of the property using this in different neighborhoods?

The following processes will be implemented to draw observations:

1. Data Collection and Loading: We'll collect the dataset for Broward County from the chosen source (i.e. InsideAirbnb) and load the dataset into Excel for further processing.
2. Data Profiling: We'll explore the dataset to understand its structure. The number of rows, columns, data types etc. Also use summary statistics to get a sense of the data's distribution.
3. Data Cleaning: We will address the missing data, identify and handle the missing values by inputting, removing or replacing them appropriately and carefully. We will also format the data where necessary to ensure the consistency of the data and standardizing its formats.
4. Exploratory Data Analysis: We'll do descriptive statistics to get an overview of our key metrics such as average nightly rate, occupancy rate, and property sizes then create visualizations like histograms, box plots, scatter plots to establish relationships and patterns.
5. KPI calculations: We'll calculate the KPIs mentioned and segment KPIs by neighborhoods or cities within Broward County to identify variations.
6. Hypothesis Testing: If we have a hypothesis we could conduct a test to either confirm or reject them. For instance, we can conduct a test to see if a specific neighborhood has significant nightly rates.
7. Data Visualizations: We'll create visually appealing charts and graphs to convey our projections and insights.
8. Report and Recommendations: We'll compile the insights into a comprehensive report and provide recommendations based on the analysis, answering the questions and KPIs outlined for our project.

The following are additional calculations or statistical measures that maybe required to complete the analysis:

1. Seasonal Analysis: We need to identify seasonal trends and take into consideration the rental demand and pricing. We'll calculate the average nightly rate and occupancy rate for each season to understand peak booking periods.
2. Correlation Analysis: Calculate the correlations to determine if there is a statistical relationship between factors like property size, price and occupancy rate.
3. Regression Analysis: To estimate rental income based on property features and locations.
4. Time series analysis: Depending on the availability of date related data, we can use time series analysis to identify trends and patterns in rental demand over time and assess the seasonal overall growth.
5. Cost-Benefit Analysis: We'll calculate the cost of property ownership, including property taxes, maintenance costs and management fees. We'll compare these costs to projected income to determine the net financial benefit.

Are there any models or "what if" scenarios that you plan to build and to test your data with?

- Regulatory Scenarios: We need to consider and assess the impact of scenarios where local regulations or taxation policies change.
- Competitive Scenarios: We need to analyze and consider changes in the number of Airbnb listings or the presence of high demand events in the area.
- Economic Downturn Scenario: We need to test how the property's income might be affected during economic downturns and challenges such as the impact of COVID-19.
- Business District Proximity Scenarios: We need to explore how proximity to a business district affects the rental income.
- Long Term Investment Scenario: We need to explore whether the sisters decide to keep the property as long term or short term. We need to analyze the appreciation of income and property over the long term.

What method(s) will you use to confirm your findings?

- Data validation: We need to carefully validate and cross check the data to ensure the accuracy. This includes the missing, inconsistent, duplicate values in the data.
- Peer Review
- Historical Data Analysis: We will compare our findings with historical data, trends and projects close to ours. This will confirm whether our observations align with the basic prediction.

Make note of any limitations or assumptions in the data that will affect your analysis.

- Limitations:
    1. Data Accuracy: The dataset may contain inaccuracies in terms of pricing and rates. The listings might not always be up to date.
    2. Missing Data: Common to have missing data which will impact our analysis.
    3. Dynamic Market: The market is dynamic for Airbnb and the demand in property can change over time. The dataset may not have all these fluctuations which also impacts our projections.

4. Regulatory Changes: The dataset may not reflect the latest legal requirements, as local regulations for short-term rentals can change over a short period of time and locations.

- Assumptions:
    1. Stable Economic Conditions:There is an assumption that this analysis has stable economic conditions without considering potential economic downturns that could possibly impact the rental market.
    2. Booking patterns: There is an assumption that the booking patterns like average length of stay, average nightly rate, average bookings are based on historical data and do not account for future patterns.
    3. Property Tax Rate: There is an assumption that the tax rates are to be consistent but are always subject to vary.
    4. Property Availability: There is an assumption in the analysis that the property is consistently available for rent.