Real Estate Dashboard

by Joshua Nguyen

Abstract New York City is the most populous city in the United States of America. Naturally, the housing market in this area is an extensive area for research.

Project Overview

1. A real estate agent needs to increase its profits and assets in the housing market.
2. This project finds a KPI to increase profits at the lowest cost. It aims to help potential investors purchase properties in several neighborhoods/boroughs in New York City. It also provides insight for investors to purchase what type of real estate (residential or commercial) and helps select the most applicable time of the year to maximize profits while minimizing costs.
3. Sales were evaluated by neighborhood over time.
4. This project utilizes **Excel** only for data transformation, analyzing and visualizations.

Objectives

The overall goal of this project is to build a report that showcases summarized information about **New York City's** real estate market for potential investors.

Questions of Interest

1. What are the top 5 neighborhoods/boroughs by total profits?
2. What are the top 5 neighborhoods/boroughs by total units sold?
3. What are the top 3 building types by total profits?
4. What are the top 3 building types by total units sold?
5. Compare total profit sales between residential and commercial real estate for the 2017 fiscal year.
6. Compare total profits sales between residential and commercial real estate per month.
7. Compare total units sold between residential and commercial real estate per day.

Extraction, Transformation and Preparation

Extracting The Data

This project uses New York City Real Estate data during the 2017 fiscal year which has over 65,000 values.

Data Cleaning

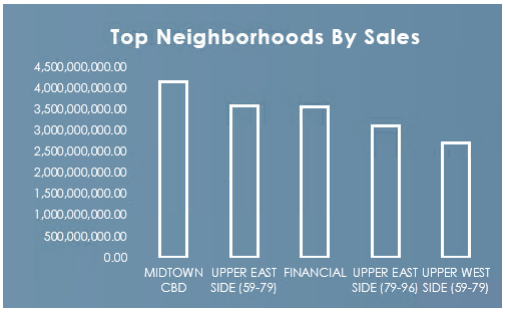
The following data transformation were preformed:

1. Removed null values
2. Eliminated duplicate values
3. Eliminated erroneous cell values *(e.g., sales price = 1 USD)*
4. Adjusted date-time column into proper format
5. Created two additional columns for analysis, *day of week* and *month of year*.
6. Created column to identify if a building is modern or traditional. For convenience, buildings built after the year 2000 were considered **modern** and buildings before the year 2000 were considered **traditional**. However, the target year can easily be adjusted for reference.

Data Analysis

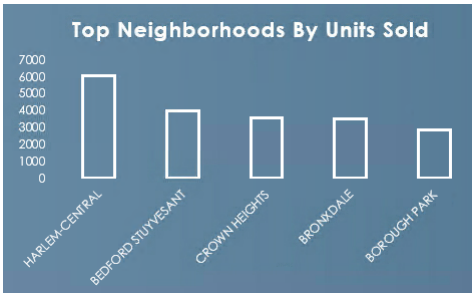
Analyzing the neighborhoods by total profits for the whole 2017 fiscal year, we see that the top 5 neighborhoods are:

1. Midtown CBD
2. Upper East Side (59-79)
3. Financial District
4. Upper East Side (79-96)
5. Upper West Side (59-79)



Analyzing the neighborhoods by total units sold for the whole 2017 fiscal year, we see that the top 5 neighborhoods are:

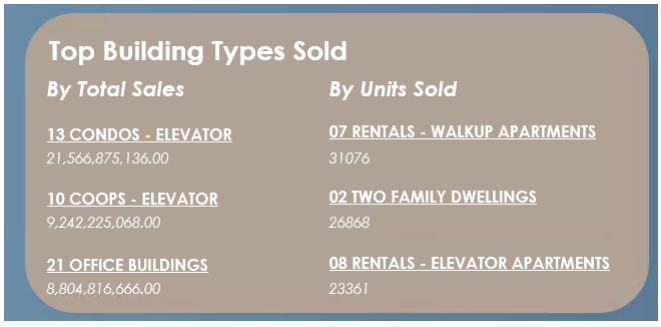
1. Harlem-Central
2. Bedford Stuyvesant
3. Crown Heights
4. Bronxdale
5. Borough Park



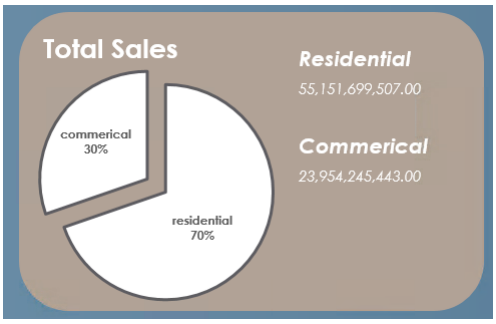
Analyzing building types by total profit sales and total units sold for the whole 2017 fiscal year, we see that the top 3 neighborhoods are:

1. **Total Profit Sales**
2. Condos-Elevator
3. Coops-Elevator
4. Office Buildings

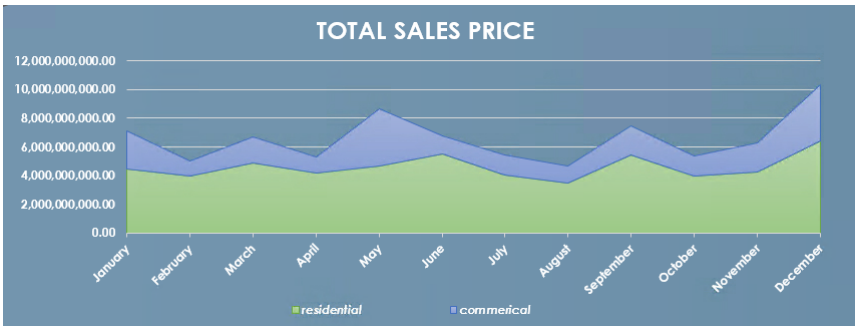
1. **Total Units Sold**
2. Rentals-Walkup Apartments
3. Two Family Dwellings
4. Rentals-Elevator Apartments



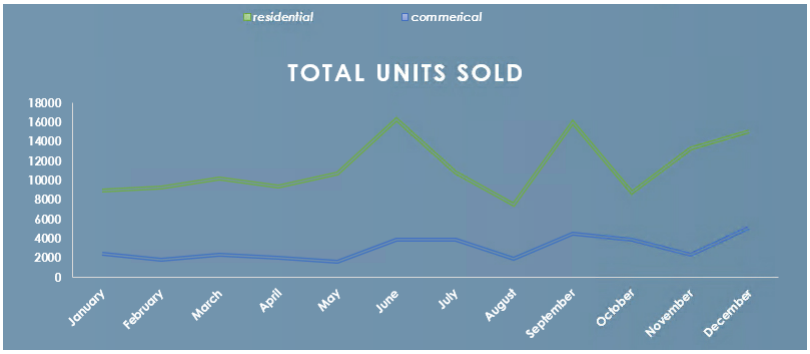
Analyzing the total profits sales for the entire 2017 fiscal year, we see that *residential* buildings significantly sold more than their commercial counterparts, in fact, 40% more for a total of %70 of the total profits sold. In particular, residential compounds sold in total, $55,151,699,507.00, but commercial housing sold a total of $23,954,245,443.00.



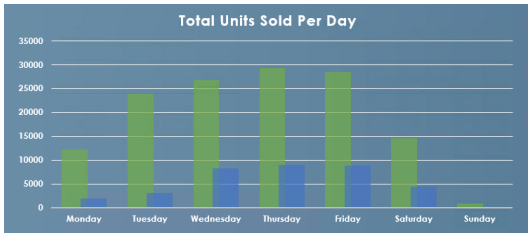
Interestingly, however, analyzing the profits sales per month between residential and commercial real estate for the entire 2017 fiscal year, we see that *commercial* buildings significantly sold more than their residential real estate per month.



Why? Analyzing total units sold per month between residential and commercial real estate for the entire 2017 fiscal year, we see that *residential* buildings significantly sold more than their commercial real estate per month. This adds up leading to residential compounds selling more in total profits per the entire fiscal year.



Lastly, in addition, analyzing total units sold per day between residential and commercial real estate for the entire 2017 fiscal year, we see that *residential* buildings significantly sold more than their commercial real estate. Many of the units for both residential and commercial buildings were sold later during the week on *Thursday* and *Friday*, but significantly declined during the weekend.



Conclusions

Overall, we get the final two page dashboard. The following VBA code was utilized to allow for multiple paged dashboards in Excel.

```
Sub Display_dash1()
    With ActiveSheet
        .Shapes("page1_active").Visible = False
        .Shapes("page1_inactive").Visible = True
        .Shapes("page2_active").Visible = True
        .Shapes("page2_inactive").Visible = False

        .Shapes("dash1").Visible = True
        .Shapes("dash2").Visible = False
    End With
End Sub

Sub Display_dash2()
    With ActiveSheet
        .Shapes("page1_active").Visible = True
        .Shapes("page1_inactive").Visible = False
        .Shapes("page2_active").Visible = False
        .Shapes("page2_inactive").Visible = True

        .Shapes("dash1").Visible = False
        .Shapes("dash2").Visible = True
    End With
End Sub
```