

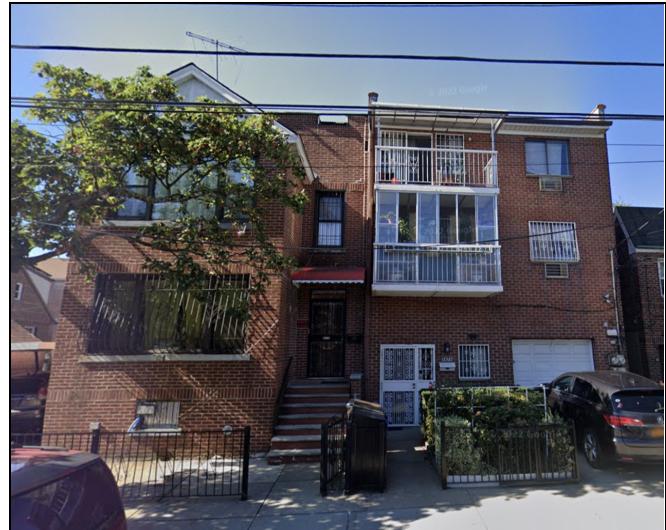
## Homework 8 - Describe 5 Unusual NY Properties

### 1. Property Record: 658933

This property is a residential building located at 54-76 83 STREET. This property is owned by an individual, WAN CHIU CHEUNG. The initial examination of this record does not reveal any evident missing values, making it appear normal at first glance. However, this record has been marked as unusual, which necessitates a more thorough review of the variables.

The record includes data such as LOT FRONTAGE (LTFRONT) and LOT DEPTH (LTDEPTH), both of which are typically expected to be larger than the building dimensions (BLDFRONT and BLDDEPTH). However, in this case, we observe an anomaly; the dimensions of the building are larger than those of the lot. This discrepancy suggests a possible data entry error or potentially fraudulent activity, as such an occurrence is practically impossible.

Field	Value
OWNER	Wan Chiu Cheung
LTFRONT	25.0 ft
LTDEPTH	100.0 ft
STORIES	3
FULLVAL	\$776,000.00
AVLAND	\$26,940.00
AVTOT	\$46,560.00
STADDR	54-76 83 Street
BLDFRONT	2,500 ft
BLDDEPTH	5,600 ft



Moreover, upon diving deeper into the value-to-size ratios (r8inv and r9inv), alongside the corresponding values grouped under zip code (r2inv\_zip5, r3inv\_zip, r5inv\_zip, etc.), and tax class categories (r2inv\_taxclass, r3inv\_taxclass), we find these figures to be flagged as unusual. The value of the size\_ratio variable, in particular, is strikingly high for this property.

r8inv:  $2.919099 \times 10^2$   
r8inv\_zip5:  $5.148627 \times 10^3$   
r8\_taxclass:  $2.072328 \times 10^{-8}$

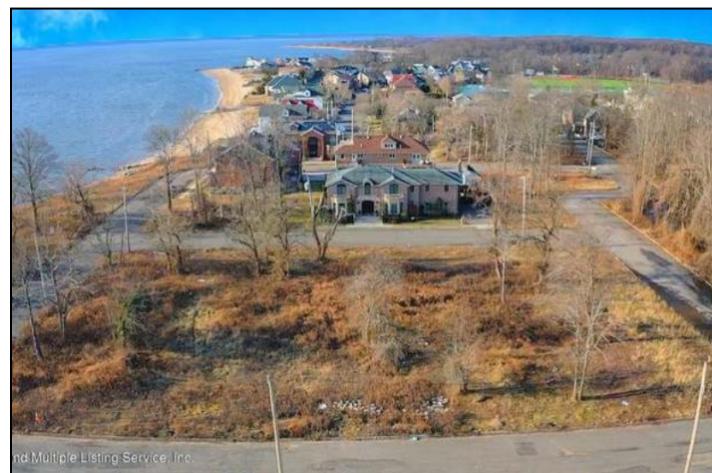
r9inv:  $8.274232 \times 10^2$   
r9inv\_zip5:  $5.125755 \times 10^3$   
r9\_taxclass:  $2.072055 \times 10^{-8}$

Additionally, another aspect of this record that raises concerns is the extraordinarily high monetary values per tax class and zip code categories. Such unusually high figures call into question the legitimacy of the stated property values and underline the necessity for further investigation.

## 2. Property Record: 1053859

The property in question is located on DISCALA LANE and is classified as a residential building. Several irregularities have been identified in the associated record from the dataset, which include both missing and zero values. Most notably, the building dimensions fields, namely BLDFRONT and BLDDEPTH, are recorded as zero, which is atypical.

Field	Value
LTFRONT	1000
LTDEPTH	1000
STORIES	2
FULLVAL	450
AVLAND	203
AVTOT	203
STADDR	DISCALA LANE
BLDFRONT	0
BLDDEPTH	0



These inconsistencies are reflected in the heatmap analysis, revealing how they affect the record. Variables such as r1inv, r4inv, r7inv, and their respective groupings under zip5 and taxclass appear to be irregular.

To illustrate:

r1inv: 1818.181818

r4inv: 3300.330033

r7inv: 3300.330033

On closer inspection, it is clear that while the building dimensions (BLDFRONT, BLDDEPTH) are recorded as zero, the lot dimensions (LTFRONT, LTDEPTH) are recorded as non-zero, alongside a likely incorrect STORIES value. This inconsistency could stem from a simple data entry error, or it may suggest potential fraudulent activity. Hence, this property has been flagged for potential fraud due to these oddities.

Moreover, the value-to-size ratio's inverse is unusually high, further emphasizing this record as an anomaly. This irregularity can be attributed to the property's low dollar values, causing these ratios to skyrocket. On revisiting the original fields, it's clear that the monetary values – FULLVAL, AVLAND, and AVTOT – are seemingly underreported for this property. Therefore, questions arise about the legitimacy of this property record due to these unusual \$ values.

### 3. Property Record: 1067360

This property is situated at 20 Emily Court and is referenced by the record number 1067360. Intriguingly, there's no owner indicated in the property record. However, using Google Street View, we could infer that this is likely a private residential property.

Field	Value
LTFRONT	1
LTDEPTH	1
STORIES	2
FULLVAL	836,000
AVLAND	28,800
AVTOT	50,160
STADDR	20 EMILY COURT
BLDFRONT	36
BLDDEPTH	45



The z-scores of certain variables such as R1 (V1/S1), R4 (V2/S1), and R7 (V3/S1) exhibit significant deviation. These are calculated based on the lot front (LTFRONT) and depth (LTDEPTH)

These ratios have unusually high z-scores, which could be due to the recorded lot front and depth, both being listed as '1'. It's unusual for a residential property to have such small dimensions, and this impacts the z-scores for these ratios, making them very high when compared with other properties of the same tax class and in the same zip code.

Adding to the anomaly is the size\_ratio, which is calculated by dividing the building size (front and depth) by the lot size. In this case, the building's front and depth are 36 and 45, respectively, yielding a size\_ratio significantly higher than 1, suggesting that the building's dimensions exceed the lot's dimensions - a physical impossibility.

This property's lot depth and lot front values are the main factors driving the variation in these variables. This could be a simple data entry error, or it could potentially be a sign of fraudulent activity. To ensure accuracy and maintain the integrity of our property database, a more thorough investigation is needed for this property.

#### 4. Property Record: 956520

This record pertains to a privately owned residential property registered under the name of Trompeta Rizalina. On initial examination, there are several anomalies that raise suspicion. The first noticeable discrepancy is the exceptionally high ratio of building size to lot size. Detailed analysis shows that the documented frontage and depth measurements of the building significantly exceed those of the lot, a situation which is architecturally impossible.

Field	Value
OWNER	TROMPETA RIZALINA
LTFRONT	91
LTDEPTH	3
STORIES	25
FULLVAL	\$348,200
AVLAND	\$15,600
AVTOT	\$20,892
STADDR	12 ONEIDA AVENUE
BLDFRONT	1812
BLDDEPTH	5020



Further compounding suspicions about this property are the unusually high ratios of property value to size. The inverses of the ratios  $R2 = V1/S2$ ,  $R3 = V1/S3$ ,  $R5 = V2/S2$ ,  $R6 = V2/S3$ ,  $R7 = V3/S2$ , and  $R8 = V3/S3$  have extremely high z-scores for this property. This indicates that the reported values for this property are considerably low in comparison to the building front and depth values, as categorized under Tax Class 1.

These anomalies suggest two possible issues. First, the reported property prices may be fraudulent, intentionally undervalued to circumvent proper tax payments. Second, the recorded property size could be inflated, creating a distorted perception of the property's value. Due to these potential issues, further investigation into this property is warranted.

## 5. Property Record: 293330

The property under investigation is located at 95 Prospect Park West. Owned by the City of NY Parks, this mansion is identified in the record as having 2 stories. However, upon visual inspection, it's clear that the actual number of stories surpasses this number.

Field	Value
OWNER	CITY OF NY PARKS
LTFRONT	526
LTDEPTH	250
STORIES	2
FULLVAL	270500800
AVLAND	115650000
AVTOT	121725360
STADDR	95 PROSPECT PARK WEST
BLDFRONT	0
BLDDEPTH	0



Several discrepancies were noted in this property's record. Missing values were found, mainly concerning tax exemption fields. Most notably, the 'BLDFRONT' and 'BLDDEPTH' fields, representing the building's frontage and depth respectively, were recorded as zero. This is atypical and affects the integrity of the record.

The heatmap analysis further indicates significant anomalies in several variables, namely 'r2', 'r3', 'r5', 'r6', 'r2inv', 'r3inv', 'r5inv', and 'r6inv', including their grouped values under 'taxclass'. The values for these variables appear as:

r2: 2,705,008,000,000.0

r2inv: 0

r3: 901,669,333,333.33

r3inv: 0

r5: 1,156,500,000,000.0

r5inv: 0

Upon examining the property's initial record, we discovered that while the lot dimensions ('LTFRONT', 'LTDEPTH') were non-zero, the building dimensions ('BLDFRONT', 'BLDDEPTH') were indeed recorded as zero. In conjunction with the incorrect 'STORIES' value, this discrepancy could be due to a data entry error or potentially suggest fraudulent activity.