

Here's a data profiling report on the provided dataset, covering data types, missing values, descriptive statistics, and potential data quality issues:

1. Dataset Overview:

The dataset appears to contain information about real estate listings, including details like price, number of bedrooms and bathrooms, lot size, location, and sale status. It's likely scraped or aggregated from multiple sources, given the inconsistencies in formatting and missing data.

2. Variables:

- **brokered_by:** Likely an ID for the broker. Data type: Numeric (though likely categorical). Contains missing values and potentially meaningless "-1" values.
- **status:** Listing status (e.g., sold, for_sale). Data type: Categorical. Contains missing values, inconsistencies in capitalization, and potentially incorrect/abbreviated entries (e.g., "s," "f").
- **price:** Listing price. Data type: Numeric. Contains missing values, dollar signs, and potentially incorrect "-1" values.
- **bed:** Number of bedrooms. Data type: Numeric. Contains missing values, textual representations of numbers (e.g., "three"), and potentially meaningless "-1" values.
- **bath:** Number of bathrooms. Data type: Numeric. Contains missing values, textual representations of numbers, and potentially meaningless "-1" values.
- **acre_lot:** Lot size in acres. Data type: Numeric. Contains missing values and potentially incorrect "-1" values. Also contains very small values that might represent errors or a different unit of measurement.
- **street:** Street address. Data type: Text. Contains missing values and inconsistencies in formatting (e.g., sometimes includes apartment/unit number).
- **city:** City. Data type: Text. Contains missing values and "Unknown" entries.
- **state:** State. Data type: Text. Contains missing values, abbreviations, and "Unknown" entries.
- **zip_code:** Zip code. Data type: Numeric. Contains missing values and potentially meaningless "-1" values.
- **house_size:** House size (units unclear). Data type: Numeric. Contains missing values and potentially meaningless "-1" values.
- **prev_sold_date:** Date of previous sale. Data type: Date. Contains missing values and inconsistencies in formatting (MM/DD/YY and YYYY-MM-DD).

3. Data Quality Issues:

- **Missing Values:** Pervasive throughout the dataset, especially in **brokered_by**, **price**, **bed**, **bath**, **acre_lot**, **zip_code**, and **house_size**. Requires careful handling depending on the intended analysis.
- **Inconsistent Data Types:** Numeric columns often contain text, especially **bed** and **bath**. **price** contains dollar signs. Requires cleaning and conversion.
- **Inconsistent Formatting:** **prev_sold_date** has different date formats. **street** sometimes includes unit numbers. Requires standardization.
- **Placeholder Values:** "-1" and "Unknown" are used as placeholders for missing data in various columns. These should be treated as missing values.
- **Data Entry Errors:** Possible typos and inconsistencies in **city** and **state**. Very small values in **acre_lot** might be errors. Requires validation and correction.
- **Abbreviations:** State abbreviations need to be standardized. Abbreviations in **status** need to be expanded.

4. Descriptive Statistics (where applicable):

Meaningful descriptive statistics (mean, median, standard deviation, etc.) can only be calculated after data cleaning and type conversion. However, a quick observation reveals a wide range of values for **price** and **house_size**, suggesting potential outliers.

5. Recommendations for Data Cleaning:

- **Handle Missing Values:** Imputation (e.g., mean/median imputation, KNN imputation) or removal, depending on the extent of missingness and the analysis goals.
- **Standardize Data Types:** Convert **bed**, **bath**, and **price** to numeric types after cleaning. Convert **prev_sold_date** to a consistent date format.
- **Standardize Formatting:** Clean **street** addresses. Expand abbreviations in **status**. Standardize state names.
- **Address Placeholder Values:** Replace "-1" and "Unknown" with NaN or a consistent missing value representation.
- **Validate and Correct Data Entry Errors:** Review and correct inconsistencies in **city** and **state**. Investigate and correct potential errors in **acre_lot**.

This data profiling report provides a starting point for understanding the dataset and identifying areas that require cleaning and preprocessing before any meaningful analysis can be performed. The specific cleaning steps will depend on the intended

use of the data.