

Certainly! Data wrangling involves cleaning and transforming raw data into a more usable format. Here are some common data wrangling steps that can be applied to this dataset:

## 1. Data Cleaning

- **Remove Duplicates:** Check for and remove any duplicate rows.
- **Handle Missing Values:** Identify any missing values and decide how to handle them (e.g., fill with a default value, remove the row, etc.).
- **Standardize Data Types:** Ensure that each column has a consistent data type (e.g., numeric columns should be integers or floats).

## 2. Data Transformation

- **Convert Currency:** If needed, convert the price to a consistent currency format (e.g., remove the \$ sign and convert to a float).
- **Date Handling:** Combine `prev_sold_month`, `prev_sold_day`, and `prev_sold_year` into a single `prev_sold_date` column with a proper date format.
- **Normalize Text:** Standardize text data, such as converting all text to lowercase or title case for consistency.

## 3. Feature Engineering

- **Calculate Price per Square Foot:** Create a new column that calculates the price per square foot of the house.
- **Categorize Properties:** Create categories based on the number of bedrooms or bathrooms (e.g., “small”, “medium”, “large”).
- **Geographical Features:** Extract city and state from the address for easier geographical analysis.

## 4. Data Filtering

- **Filter by Status:** Separate the dataset into properties that are “sold” and those that are “for\_sale”.
- **Price Range Filtering:** Filter properties within a certain price range if needed for specific analysis.

## Example Code (using Python and Pandas)

Here’s a basic example of how you might perform some of these steps using Python and Pandas:

```
import pandas as pd

# Load the dataset
data = pd.read_csv('real_estate_data.csv')

# Remove duplicates
data = data.drop_duplicates()

# Handle missing values (example: fill with zero)
data = data.fillna(0)

# Convert price to float
data['price'] = data['price'].replace('\$', '', regex=True).astype(float)

# Combine date columns into a single date column
data['prev_sold_date'] = pd.to_datetime(data[['prev_sold_year', 'prev_sold_month', 'prev_sold_day']])

# Calculate price per square foot
data['price_per_sqft'] = data['price'] / data['house_size']

# Extract city and state from address
data[['city', 'state']] = data['address'].str.extract(r'\s*([^\,]+)\s*([A-Z]{2})')

# Filter by status
sold_properties = data[data['status'] == 'sold']
for_sale_properties = data[data['status'] == 'for_sale']
```

```
# Display the first few rows of the cleaned dataset  
print(data.head())
```

This code provides a basic framework for data wrangling. Depending on your specific needs, you might want to add more transformations or filters.