US HOUSING MARKET DYNAMICS

A home is usually the expensive purchase a person makes in one's lifetime. Ensuring users have sufficient information about their interested market is paramount. Housing market refers to the type, cost, supply/demand of homes in a specific region. Housing markets usually experience substantial short-term price change momentum, supply/demand volatility due to various factors. Market dynamics can be analyzed using metrics & trends observed over time. Providing insights from market dynamics data aids buyers/sellers to make better & informed decisions.

Problem Statement:

- Analyze metrics at state & county level provide your insights in an hierarchical fashion.
- Analyze & infer trends, seasonality, cyclic nature of metrics provided.

Objectives:

- Extract provided data and if needed, transfer into any database of your choice.
- Provide insightful inferences which would be of interest for buyers/sellers.
- Build an interactive dashboard to visualize your findings/provided metrics using any language or tool, preferably as a web page.
  Eg: https://www.covid19india.org/
- Host your dashboard on any platform of your choice.
  Eg: Github pages

Data:

Observation of 91 metrics as either a rolling 1, 4 or 12-week window from Jan 2017 to Mar 2022 of all counties & metro regions in the US is provided.

Link: https://tinyurl.com/8hcw3s7b

Definitions:

1. **Listing -** It's a property listed for sale in the market.
2. **Active Listing -** It's a property listed for sale and still available for sale.
   Note: Particular property can have multiple listings but only 0 or 1 active listing.
3. **Age of inventory** - Median days that all active properties have been on the market during a given time period.
4. **Average price drop ratio** - The average of the ratio between the current list price and the original list price. An average price drop ratio of 5% means active listings have dropped their price by 5% of their original list price on average.
5. **Average sale to list -** The mean ratio of each home's sale price divided by their list price covering all homes with a sale date during a given time period. Above the listing price or with a sale price 50% below the list price.
6. **Inventory** - Total number of active listings on the last day of a given time period.
7. **Median active list ppsf -** The median list price per square foot of all active listings.
8. **Median active list price -** The median list price of all active listings.

9. **Median active listings -** The median of how many listings were active on each day within a given time period.
10. **Median days on market -** The median number of days between the date the home was listed for sale and when the home went off-market/pending sale covering all homes with an off-market date during a given time period.
11. **Median days to close** - The median number of days a home takes to go from pending to sold.
12. **Median list price -** The most recent listing price covering all homes with a listing date during a given time period where 50% of the active listings were above this price and 50% were below this price.
13. **Median list price per square foot** - Median of (most recent listing price divided by the total square feet of the property (not the lot) covering all homes with a listing date during a given time period).
14. **Median listing with price drops -** The median of how many listings were active on each day and whose current list price is less than the original list price within a given time period.
15. **Median sale price -** Median sale price covering all homes with a sale date during a given time period.
16. **Median sale price per square foot -** The median home sale price divided by the total square feet of the property (not the lot) covering all homes with a sale date during a given time period.
17. **New listings -** Total number of homes with a listing added date during a given time period.
18. **Pending home sales -** Total homes that went under contract during the period. Excludes homes that were on the market longer than 90 days.
19. **Percent active listings delisted -** The share of active listings that were pulled off the market during a given time period.
20. **Percent of median active listings with price drops -** The share of median active listings that dropped their price in a given time period
21. **Percent of total active listings with price drops -** The share of total active listings that dropped their price in a given time period.
22. **Percent total homes sold with price drops -** The share of homes with a sale date during a given time period where the sale price is less than the latest listing price.
23. **Price drops -** How many listings dropped their price in a given time period.
24. **Sold above list -** The percent of homes sales with a sale price greater than their latest list price covering all homes with a sale date during a given time period. Excludes properties with a sale price 50% above the listing price or with a sale price 50% below the list price.
25. **Total active listings -** The total number of listings that were active at any point during a given time period.
26. **Total homes sold with price drops -** The total number of homes with a sale date during a given time period and where the sale price is less than the latest listing price.

All the best! :-)