

- Problem

- A recent lawsuit settlement has affected homebuyer's perception of real estate agents, particularly those who represent buyers

- Goals:

- Provide a tool for Buyer's Agents to wow buyers and show their value
- 3 market analysis dashboards. Multiple levels of granularity with market KPIs at each level of granularity
- Buyers can view market statistics at the County, City, ZIP, and individual property levels
- Buyer's Agents can capture a buyer's preferred location by filtering cities, counties and listings within buyer's parameters

- Data Sources and Definitions in a Data Dictionary:

Data Source	Column Name	Description
MLS Dataset	Address	Address of Listing
Data Compiled from NWMLS Matrix	City	City of Listing
Northwest Multiple Listing Service	Community	Community/Neighborhood of Listing
Main Focus: CDOM over DOM, Median Price Per Square Foot	AddressFull	Full Address w/ City and State Included
	ZipCode	US Postal Code
	County	County of Listing
	DOM	Days on Market since last change
	CDOM	Cumulative Days on Market (incl price changes/time spent temp off market/MLS)
	YearBuilt	Year Structure was Built
	Bedrooms	No. of Bedrooms
	Bathrooms	No. of Bathrooms
	LotSz	Lot Size in Acre and SqFt (hidden)
	LotAcres	Lot Size in Acres
	LotSzSqft	Lot Size in SqFt
	LotSqft	Lot SqFt less "sqft"
	SquareFootage	Structure Square Footage
	TotalRoomsCount	Total # of Rooms
	AccessoryDwellingUnit	True: Has ADU/Mother-in-Law
	ADUBed	Count of Bedrooms in ADU
	Financing	Financing Type (if sold, actives show "TBD")
	HeatType	Heat Source of Listing
	HeatingCoolingType	Combined w/previous column to impute null values
	Status	Status of Listing: Active, Pending, or Sold

	ListingDate	Date Property was Listed on the MLS
	OriginalPrice	Original Price before adjustments
	ListingPrice	Current List price of Property
	PendingDate	Date Status was changed from "Active" to "Pending"
	PriceperSquareFoot	Square Footage/Original Price
	Roof	Roof Type
	SaleType	Indicates wether property was sold on MLS (ALL
	SellingPrice	Price Listing sold for after negotiations/concessions in the form of price cuts
	SellingPriceByListingPrice	% of List Price Property sold for
	SellingOfficeName	Seller's Agent Main office
	PriceChangeDate	Date Price Changed (if applicable)
	SellingDate	Date Status was changed from "Pending" to "Sold"
	lat	Property Latitude
	lng	Property Longitude
Historical Mortgage Rates	date	Date interest rate data was pulled
<a href="https://www.freddiemac.com/pmms/docs/PMMS_history.csv">https://www.freddiemac.com/pmms/docs/PMMS_history.csv</a>	30_yr_FRM	30-Year Fixed Mortgage Interest Rate
Solely Focusing on 30-Yr Fixed Mortgage Rates	30_yr_FRM_fees&points	30-Year Fixed Mortgage Fees and Points (1=100 Basis Points )
	15_yr_FRM	15-Year Fixed Mortgage Interest Rate
	15_yr_FRM_fees&points	15-Year Fixed Mortgage Fees and Points
	5/1_yr_ARM	5/1 Adjustable Rate Mortgage Interest Rate
	5/1_yr_ARM_fees&points	5/1 Adjustable Rate Mortgage Fees and Points
	5/1_yr_ARM_margins	5/1 Adjustable Rate Mortgage Margins
	5/1_yr_ARM_spread	30_yr_FRM_minus_5/1_yr_ARM
Median Income by ZIP Code for WA	ZIP	Postal Code
<a href="https://censusreporter.org/data/table/?table=B19013&amp;geo_ids=860104000US53&amp;primary_geo_id=04000US53">https://censusreporter.org/data/table/?table=B19013&amp;geo_ids=860104000US53&amp;primary_geo_id=04000US53</a>	MedianIncome	Median Income for Postal Code

- Data points from 21,642 Active, Pending, and Sold Listings
- Only listings located within limits of Washington's three most populated counties: King, Pierce, and Snohomish, also referred to as the South Puget Sound region
- Active Listings: Active as of March 1, 2024
  - Listed within loan limit for Conventional financing (\$200K-\$770K)
- Pending and Sold Listings:

- Sold/Pending between March 2023 and March 2024
- Sold/Pending within Conventional loan limit

## • **Cleaning Documentation:**

### **Change Log:**

- Performed unions on all tables in SQL for one master .csv with listing data from each distinct county, Pierce, King, and Snohomish
- Removed duplicate address column
- Added County column to each of the three county tables
- Performed union query to join all tables for final cleaning
- Rows: 21650, Columns: 37
- Manually Replaced “unit” with “#” for unit number on 2 values
- Removed “type of property” blank column
- Investigated nulls in financing column
  - Found all nulls were associated with active and pending listing
  - Imputed “TBD” into blank cells
- Elementary School column is inaccurate. I will attempt to retrieve this via API instead
- Added AddressFull column for API call
- Deleted effective year built column
  - Eff. Year built=year building was rebuilt
  - Too many null values- Over 9700
- Deleted 1 row where year built=196
- Deleted Rows w/ no Sq footage listed (7)
- Deleted Sqft Finished and Sqft Unfinished- too many nulls
- Deleted TotalSqft, same as Sqft
- Separated Lot Acreage and Squarefootage into two separate columns, LotAcres and LotSqft
- Filled blanks in HeatType with values from Heating/Cooling type, hid the latter column
- SellingOfficeName Nulls=“TBD”
- Financing Type nulls left blank
- Corrected Obviously Incorrect Latitudes and Longitudes (obvious once plotted in Tableau)
- Corrected obvious naming conventions in City and County
- Corrected glaringly obviously wrong ZIP codes

### **Additional Datasets:**

- Median Household Income by ZIP
  - [https://censusreporter.org/data/table/?table=B19013&geo\\_ids=860|04000US53&primary\\_geo\\_id=04000US53](https://censusreporter.org/data/table/?table=B19013&geo_ids=860|04000US53&primary_geo_id=04000US53)
- Historical Mortgage Rates
  - [https://www.freddiemac.com/pmms/docs/PMMS\\_history.csv](https://www.freddiemac.com/pmms/docs/PMMS_history.csv)
- Article on NAR Settlement

- <https://finance.yahoo.com/news/realtor-lawsuit-settlement-unburdens-home-sellers-from-heavy-commissions-what-now-for-buyers->

King	\$460.66
Pierce	\$306.27
Snohomish	\$381.81

- **Patterns, Trends and Insights**

- Average Price Per Square Foot By County:
- ZIP Codes near bodies of water like lakes, bays, and harbors tend to have a higher average price per square foot, in line with a higher median household income
- Sellers are likely to take a price cut in the late fall/early winter as the holidays ramp up. This is reflected in a dip below 100% in median sold price by list price (homes are generally selling for below list price during that time)
- A histogram shows most listings falling between 900 and 1650 square feet in structure size
- See TWBX

- **Recommendations:**

- Buyers will see value in the relevant market information at their fingertips. Data at this type of detail usually requires switching between multiple platforms. Market insights are gained directly from the same source as the agent.
- Agents now have a new tool to use in their buyer consultations to help them gain knowledge about their buyer and the state of their home search. As a form of lead generation, this could also be used as an open house talking point, gathering data on unrepresented buyers and their home search criteria

- **Next steps:**

- Replicate the process of building these tools with live data
- Add data on schools, crime, and walkability
- Attempt to forecast interest rates, and median home price to aid buyers in deciding on a future purchase