

Capstone Project 1: Project Proposal

Customer/Client: General Public or Real Estate agents

Problem Statement:

Determine when the housing price is likely to go up or down based on demand and supply information from 45 days to 6 month in advance.

How would this help the clients/customers?

For general public, it would be so they can determine when to buy or sell. Without this information, general public would have to rely on hearsay from their acquaintances and real estate agents without a hard data they can rely on.

For real estate agents, they can use the information as marketing material and persuade potential clients that it is a good time to buy or sell with them. Having data will make it easier to sell the strategy to the clients.

It generally takes about 30-60 days to complete the closing process. The amount of time to find and buy a house is different for everyone but 6 months is generally the amount of time you are in contract with a real estate agent. Using these factors, 45 days as lower boundary and 6 months as upper boundary for forecasting will serve most non-commercial real estate dealings.

Data set:

Data set	URL	Level	Time range	Time interval / frequency	Format
Zillow Economics data. (Housing price, # of days on the market, # of properties on the market, etc)	https://www.kaggle.com/zillow/zecoon#County_time_series.csv	County	1996 - 2017	Monthly (month end)	CSV
Unemployment data	https://fred.stlouisfed.org/tags/series?t=bls%3Bcounty	County	1990 - 2019	Monthly	Excel or CSV

	&ob=pv&od=desc				
Mortgage Rate	http://www.freddiemac.com/pmms/docs/30yr_pmmsmonth.xls	National	1970 - 2019	Monthly	Excel
Population data (Estimate)	https://www.census.gov/data/datasets/time-series/demo/popest/2010s-counties-total.html#par_textimage_739801612	County	2010 - 2018	Annual	CSV
Weather data	https://www.ncdc.noaa.gov/cdo-web/	County	1990s - current	Hourly	CSV

Solution approach:

Use historical data to correlate the changes in housing demand and supply with changes in housing price in given markets.

1. Pick number of representative markets - Urban, Suburb, Rural, west coast, east coast, etc.
Compare multiple markets to show that the solution is applicable universally, not just in one or similar markets.
2. Pick various factors that can influence housing prices

Deliverables:

1. Code - take in csv files and extract relevant data into appropriate data types. Generate graphs that demonstrate the correlation between demand/supply and price.
2. Slide deck: Introduce problem statement. Graphs and explanation of the solution.