



CASE STUDY

LOTWIZE'S PUSH FOR ML HOME VALUATIONS



BACKGROUND

LotwiZe, a promising startup in the online real estate marketplace, burst onto the scene in 2023 with a vision to revolutionize how property information is accessed and utilized across the United States. Despite its youth, the company has quickly gained traction, bolstered by a successful Seed A funding round that provided the financial runway to turn its ambitious ideas into reality. In its short existence, LotwiZe has focused on building a comprehensive database of property listings, historical sales data, and various property characteristics. This focus on data has quickly positioned the company as a valuable resource for homebuyers, sellers, and real estate professionals seeking innovative tools in the real estate market.

The real estate market of the 2020s has experienced significant volatility, with rapid price changes and shifting buyer preferences influenced by broader societal and economic factors. This dynamic situation creates both challenges and opportunities for a young company like LotwiZe. Traditional valuation methods often struggle to accurately reflect current market conditions, prompting LotwiZe's leadership to pursue the development of an Automated Valuation Model (AVM) using machine learning techniques.



THE TASK

As the newest data expert at LotwiZe, you received access to a small section of the company's database with the task to develop the company's AVM for that region, focusing on the variable 'price' as the selected y-variable. This project involves working through the entire cycle of the data analytics process, from importing and cleaning data to exploring and analyzing it, with specific attention to creating useful features, training valuation models, and testing their performance out of sample.

Tackling this challenge requires a systematic approach. Begin by familiarizing yourself with the data jungle in front of you. It's okay to feel a bit lost at first – just start mapping out what you've got. There is a wide array of information, starting with property details such as square footage, lot size, construction year, and number of bathrooms, to past price information, images, and neighborhood data waiting for you.

You'll need to handle missing data, remove outliers, and resolve any inconsistencies in the dataset. After cleaning, conduct a thorough analysis of the data to uncover patterns, relationships, and potential factors that might predict property values. Focus on what is most central from your domain expertise and from a business perspective.



Some data might not be useful in its current state, but creating new, more informative features could change that, so make feature engineering a vital part of your analytics process — it might give your final model a competitive advantage versus your peers. When selecting features, be also cautious of variables that may already reflect property valuations, as they could introduce bias and lead to overfitting, reducing your model's ability to make independent predictions. To add another layer of complexity, the Zillow-scraped data comes without a key, challenging you to decipher variables using your own real estate knowledge and possibly put some of your research skills to work.



Ultimately it comes down to this: Showcase the accuracy of at least two machine learning models using the appropriate evaluation metrics, explaining which one provides the best predictions and why certain features play a significant role in pricing models. Throughout your process, you will create visualizations to help explain patterns and model outcomes to support your analysis. Select the most important ones and include them in your presentation to LotwiZe's leadership and investors so they can follow your process. Your audience is data-driven, so you should be too.

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