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Stacking Ensemble Approach for Combining Different Methods in Real Estate Prediction

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Abstract : A home is often the largest and most expensive purchase a person makes. Whether the decision leads to a successful outcome will be determined by a combination of critical factors. In this paper, we propose a method that efficiently handles all the factors in residential real estate and performs predictions given a feature space with high dimensionality while controlling for overfitting. The proposed method was built on gradient descent and boosting algorithms and uses a mixed optimizing technique to improve the prediction power. Usually, a single model cannot handle all the cases thus our approach builds multiple models based on different subsets of the predictors. The algorithm was tested on 3 million homes across the U.S., and the experimental results demonstrate the efficiency of this approach by outperforming techniques currently used in forecasting prices. With everyday changes on the real estate market, our proposed algorithm capitalizes from new events allowing more efficient predictions.

Keywords : real estate prediction, gradient descent, boosting, ensemble methods, active learning, training
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