
Rent Price Analysis

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Objective

- Collect current rent prices from Zillow
- Analyze data and see what trends are found
- Develop an ML model to predict rent pricing

Provide tools to allow users to analyze housing market for zip codes users are interested in

Methodology: Zillow Scraper

- We decided to scrape Zillow because:
 - Lack of free APIs that provide the same information
 - Curated datasets cannot be updated to relay current market information
 - Curated datasets have too few sample points to make relevant conclusions
- How did we accomplish this?
 - a. Created a proxy rotator to prevent Zillow from blocking us
 - b. Created appropriate URL for specific zip code to extract longitude and latitude info
 - c. Utilized longitude and latitude data to pull all listings in the area
 - d. Extracted listing info (pricing, area, #beds, #baths, etc.) and stored it in database

Methodology: Deep Learning Model

- Inputs:
 - Zip code
 - Area (square footage)
 - Number of bedrooms
 - Number of bathrooms

- Structure:

Layer 1: 256 neurons, ReLu

Layer 2: 128 neurons, ReLu

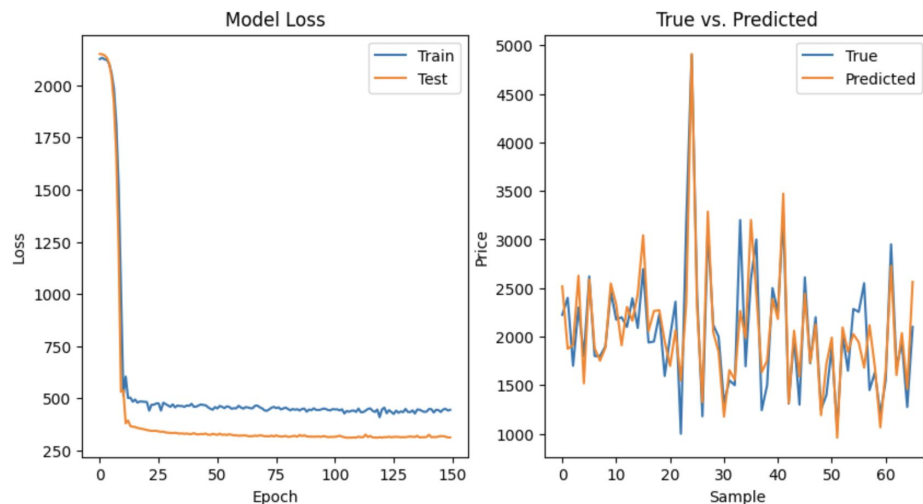
Layer 3: 64 neurons, ReLu

Layer 4: 3 neurons, ReLu

Layer 5: 1 neuron, ReLu

150 epochs of training

Loss Function: RMSE



Model for zip codes: 37920, 37076

Challenges

- Issues with Zillow
 - Ran into issues with CAPTCHAS and human verification
 - Limited number of proxies
 - Zillow blocked proxies after pulling data
 - Unable to perform live demo at the moment
 - Restrictions on what data could be pulled
- Limited features

Future Work

- Include for-sale homes on top of renting
- Collect historical data
- Predict what rent prices will be in the future