

Housing Price Prediction

Objective

In Phase 2, we aim to enhance our housing price prediction model using deep learning techniques. This documentation outlines the steps taken to improve the accuracy and robustness of the model. We have already implemented a Linear Regression model in Phase 1, and now we will focus on improving and optimizing the model further.

Dataset Exploration and Preprocessing

- Explore the dataset to understand its structure, feature columns, and data types.
- Data Preprocessing: Perform preprocessing steps such as handling missing values, removing unnecessary columns ("Address"), and splitting the dataset into features (X) and the target (y).
- Data Scaling: Standardize the feature data to bring all features to a similar scale.

Designing Neural Network

- Define the deep learning model architecture with layers and activation functions :
 - Input layer with 128 neurons and ReLU activation function.
 - Hidden layer with 64 neurons and ReLU activation function.
 - Another hidden layer with 32 neurons and ReLU activation function.
 - Output layer with 1 neuron, suitable for regression tasks.
- Compile the model by specifying the optimizer("adam"), loss function("mean squared error"), and evaluation metric (mean absolute error).
- Train the model using the standardized training data using 100 epochs and a batch size of 32.

Model Evaluation

- Evaluate the model's performance on the test dataset.
- Calculate the R-squared score to assess the goodness of fit.
- Compute the mean squared error as a measure of prediction accuracy.