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HOUSE PRICE PREDICTION REPORT

This project aims to predict house prices based on floor size using a linear regression model. The model was trained using gradient descent and compared with the normal equation solution.

Data Preprocessing

Dataset: The training and test data (from train.txt and test.txt) contain house size and price columns.

Standardization: Data was standardized using the mean and standard deviation from scaling.py functions.

Model Training

Parameters:

Learning Rate: 0.1

Epochs: 500

Model Weights:

Gradient Descent Weights: $w_0 = \text{<w0 value>}$, $w_1 = \text{<w1 value>}$

Normal Equation Weights: $w_0 = \text{<w0_normal_eq>}$, $w_1 = \text{<w1_normal_eq>}$

Results

Cost Function: Decreased with epochs, confirming successful gradient descent optimization. A plot of cost vs. epochs is provided.

Performance:

Training RMSE: $\text{<Training RMSE value>}$

Test RMSE: <Test RMSE value>

Prediction Plot: Shows training data (blue circles), test data (green x's), and regression line (red).

Conclusion

The linear regression model achieved reasonable accuracy in predicting house prices, with gradient descent results closely matching the normal equation solution. Future improvements could include adding more features or using more advanced regression techniques.