Fish Weight Prediction

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Introduction

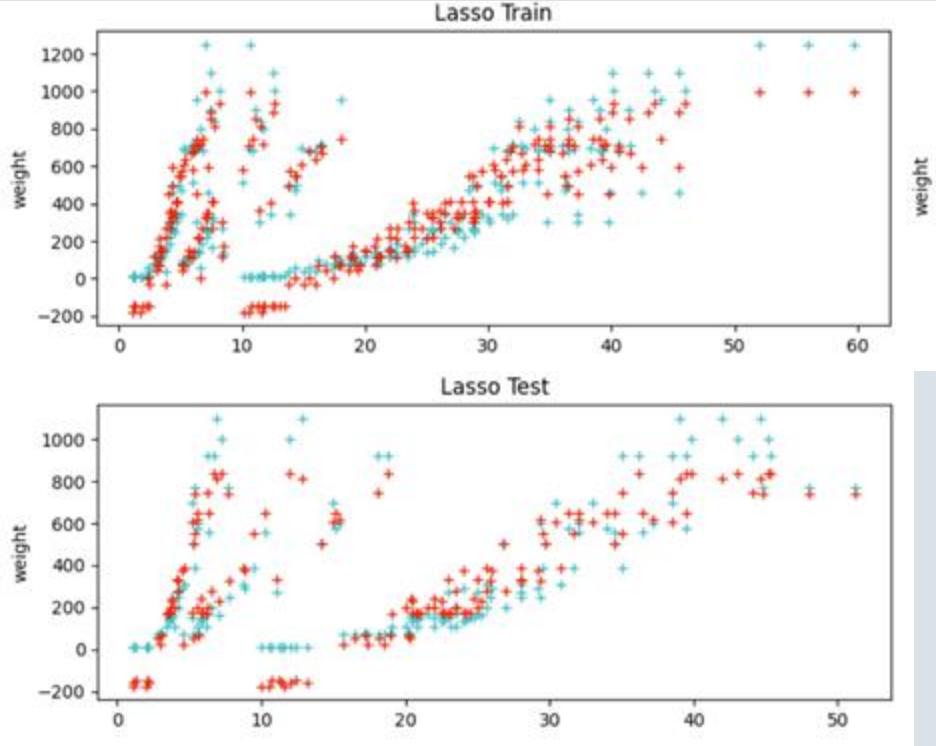
To predict fish weight, we split the given dataset into training and validation set.
The test set is used to demonstrate the models
The weight is predicted using 3 length measures, the height, and width.

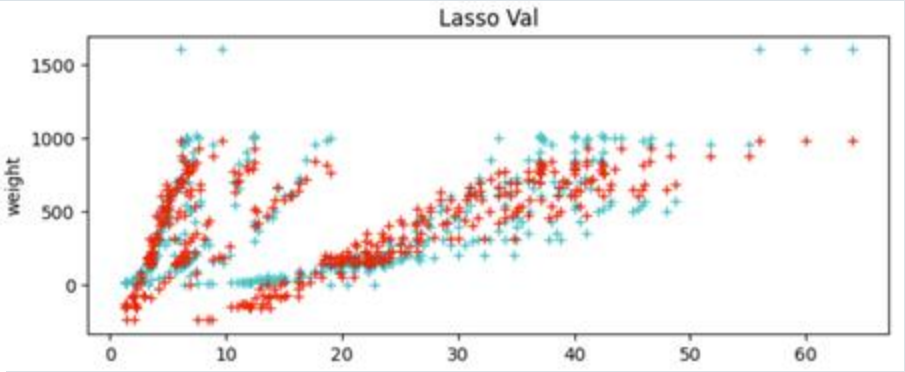
Model and Loss Functions

- Lasso
- Ridge
- Linear Regression
- Penrose Manual
- Polyfit

- Compared their root mean squared errors

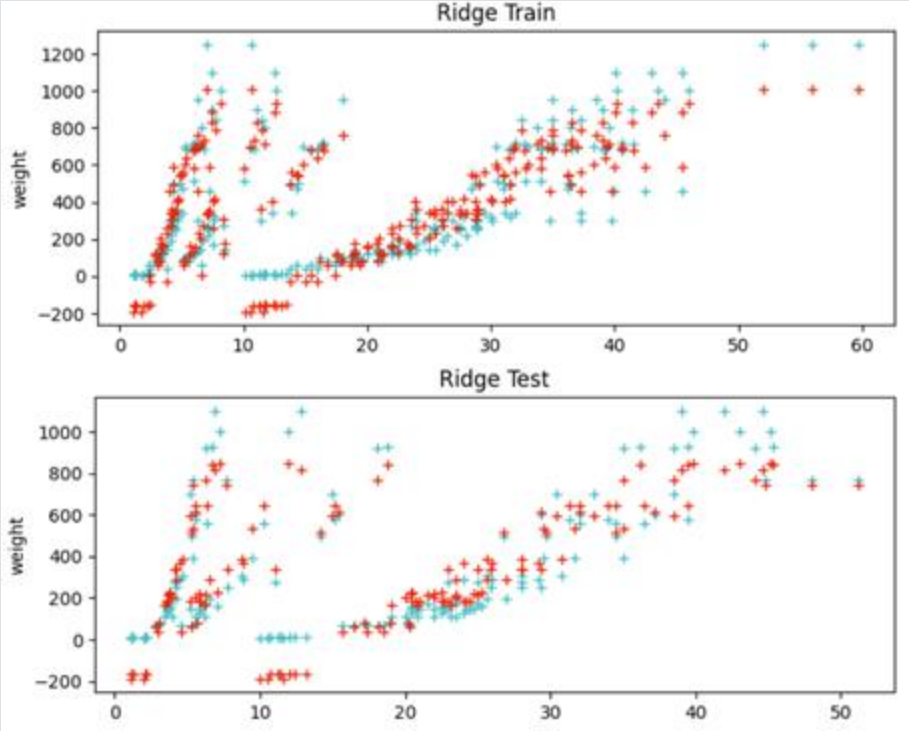
Model Performance: Lasso

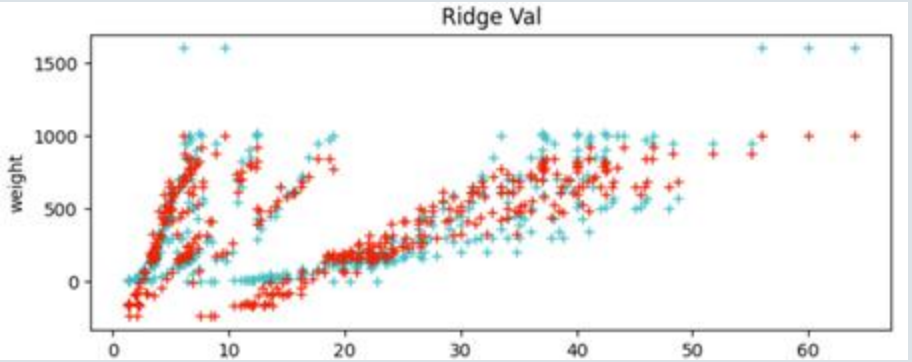




RMSE Train: 447.12
RMSE Val: 459.72
RMSE Test: 437.36

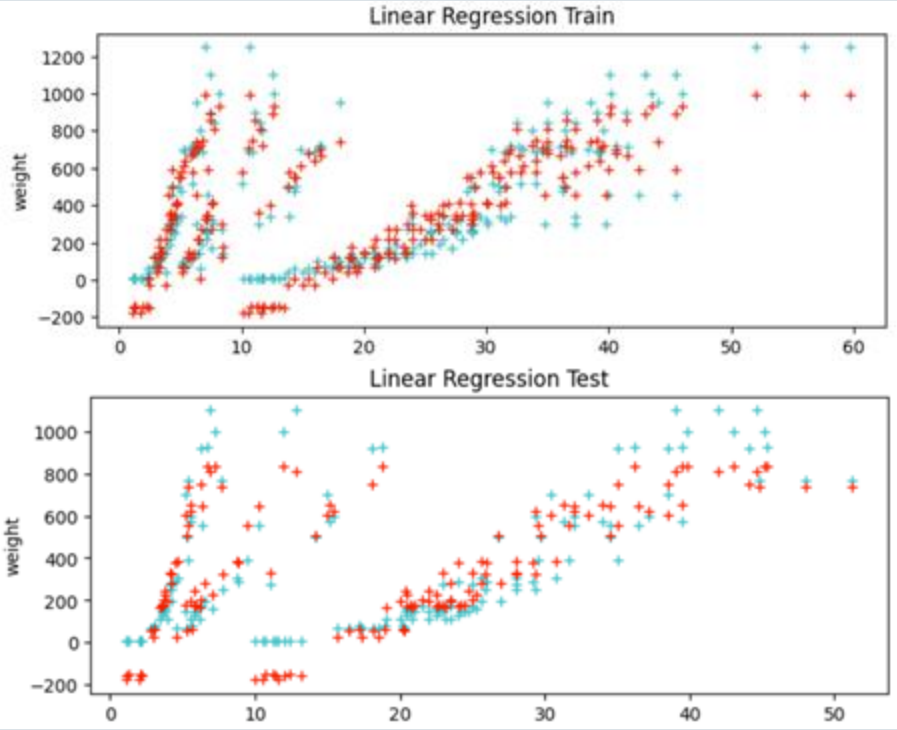
Model Performance: Ridge

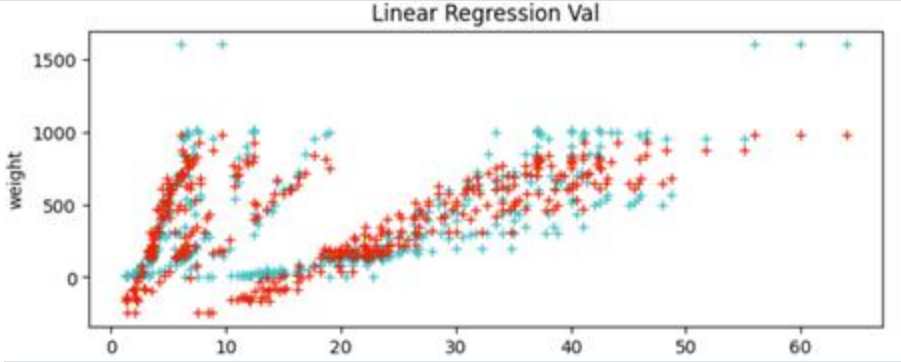




RMSE Train: 102.89
RMSE Val: 123.11
RMSE Test: 106.69

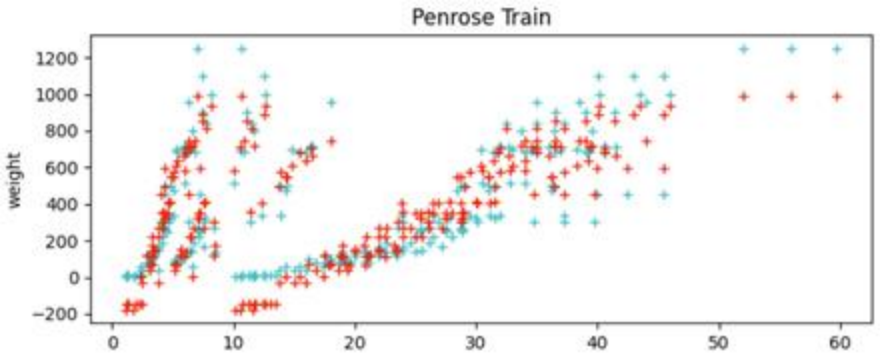
Model Performance: Linear Regression

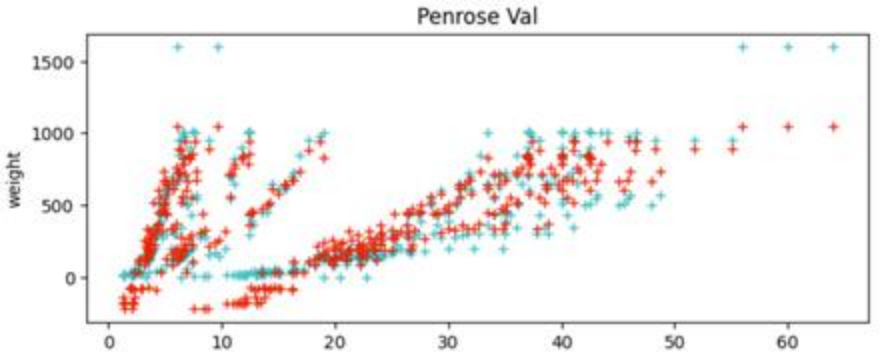


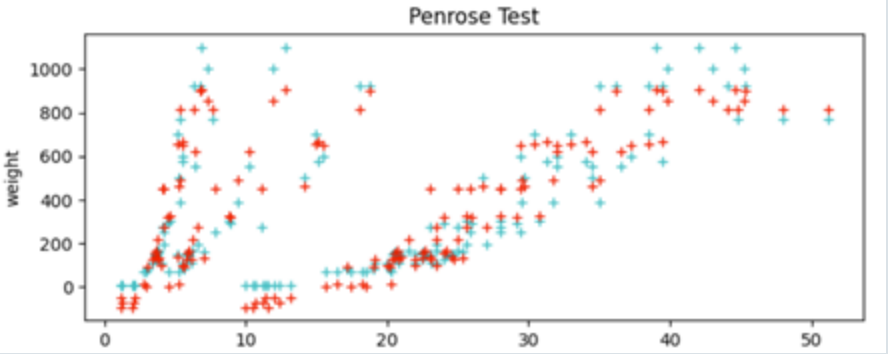


RMSE Train: 102.26
RMSE Val: 127.71
RMSE Test: 107.66

Model Performance: Penrose

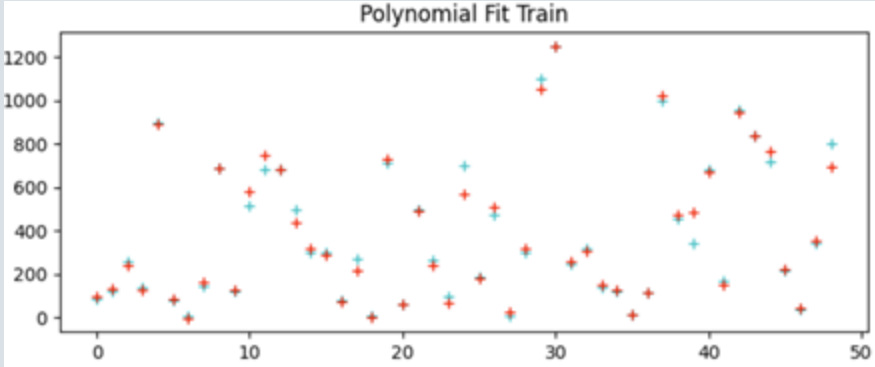


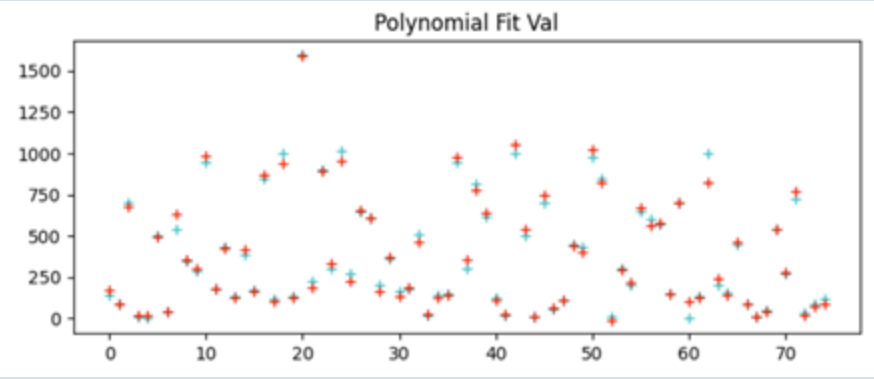


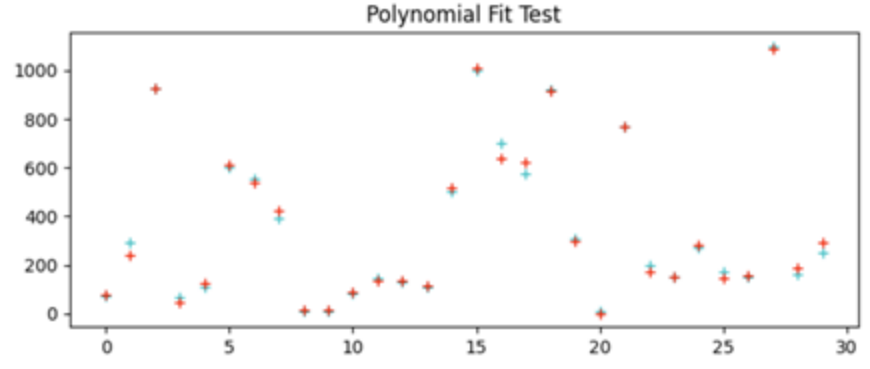


RMSE Train: 102.26
RMSE Val: 115.36
RMSE Test: 84.43

Model Performance: Polyfit







RMSE Train: 39.82
RMSE Val: 36.25
RMSE Test: 22.84

Challenges and Resolutions

- Google Colab Collaboration Issues → Create separate files to code in, and then copying it into a google doc
- Lasso not taking outliers into account → increasing the number of iterations from 1,000 to 10,000
- Polyfit Graph → loop is functional

Model order and concatenation

Conclusion

1. Poly Fit
2. Penrose Manual
3. Ridge
4. Linear Regression
5. Lasso