Fish Weight Prediction Using Linear Regression

Introduction

The weight of a fish is an important characteristic that can provide insights into its health, species classification, and habitat conditions. In this project, we aim to predict the weight of a fish based on its various physical characteristics, including vertical length, diagonal length, cross length, height, and width. We will utilize the Linear Regression method to determine the relationship between these characteristics and the weight of the fish.

Data Set Description

The dataset used in this project includes information on different species of fish and their physical measurements. The data is structured as follows:

Data Columns

- **Species:** Species name of the fish
- **Weight:** Weight of the fish in grams
- **Length1:** Vertical length in cm
- **Length2:** Diagonal length in cm
- **Length3:** Cross length in cm
- **Height:** Height in cm
- **Width:** Diagonal width in cm

Methodology

In this project, we will employ Linear Regression to predict the weight of the fish. Linear Regression is a simple yet powerful method for predicting a continuous dependent variable based on one or more independent variables. In this case, we will use the physical characteristics of the fish (Length1, Length2, Length3, Height, and Width) as the independent variables and the weight of the fish as the dependent variable.

Conclusion

By employing various regression models, we aim to determine the most accurate method for predicting fish weight based on their physical characteristics. Initial evaluations using Linear Regression, Ridge Regression, Lasso Regression, and Polynomial Regression will provide insights into the relationship between the fish's physical measurements and their weight, ultimately guiding us to the best predictive model.