



## ❏ ML Pipeline Overview

- **Data Import & Preprocessing** – Loaded the dataset, cleaned missing values, and prepared features for modeling.
- **Exploratory Data Analysis (EDA)** – Analyzed pairwise relationships and feature correlations; identified multicollinearity.
- **Feature Scaling & Initial Modeling** – Applied standard scaling, but the model did not perform well.
- **Model Development without Scaling** – Built multiple models, tuning Lasso alpha values iteratively.
- **Final Model** – With **Lasso alpha = 6.5**, the model achieved excellent performance on both training and testing sets, demonstrating accurate height prediction

## Model Summary

The model predicts a person's height using physical attributes such as shoe size, arm weight, leg length, and age. By learning patterns and relationships from the training data, it can accurately estimate height for new individuals. Lasso Regression was used to handle multicollinearity and optimize feature selection, resulting in high prediction accuracy.

•**Train R<sup>2</sup>: 0.9910 | MAE: 0.6487 | MSE: 0.5027**

•**Test R<sup>2</sup>: 0.9856 | MAE: 0.5817 | MSE: 0.5186**