# ELASTICNET REGRESSION

This code uses **ElasticNet Regression** to predict the PRODUCT_LENGTH of products based on their PRODUCT_TYPE_ID.

- First, we import the necessary libraries: pandas for data handling, ElasticNet from scikit-learn for regression, and mean_absolute_percentage_error from scikit-learn for evaluation.

- We then load the train and test data from CSV files using pandas' read_csv method.

- To prepare the data for modeling, we combine the train and test data into a single DataFrame using pandas' concat method. We also replace any missing values with 0 using the fillna method.

- Next, we select the features we want to use for training and testing the model. In this case, we only use the PRODUCT_TYPE_ID feature.

- We split the combined data into training and testing sets based on the original train and test data using pandas' loc method.

- We then create an instance of the ElasticNet regression model.We train the model using the fit method by passing in the training data.

- We make predictions on the test data using the predict method.We evaluate the performance of the model using the mean absolute percentage error metric.

- Finally, we create a submission file by creating a DataFrame of the predicted PRODUCT_LENGTH values and their corresponding PRODUCT_IDs, setting the PRODUCT_IDs as the index, and exporting the DataFrame to a CSV file using pandas' to_csv method.