LASSO REGRESSION

This code is an implementation of **Lasso Regression** to predict the PRODUCT_LENGTH based on the PRODUCT_TYPE_ID feature. Here is a breakdown of the code:

- Import necessary libraries: pandas to load and manipulate data, Lasso from scikit-learn's linear_model module for Lasso Regression, and mean_absolute_percentage_error from scikit-learn's metrics module to calculate the error metric.

- Load the training and test datasets from CSV files using pandas read_csv() function.

- Combine the train and test data into a single dataframe using pandas concat() function. Replace the NaN values in the combined dataframe with 0 using pandas fillna() function.

- Select the feature 'PRODUCT_TYPE_ID' as input (X) for both the training and test dataframes, and the target feature 'PRODUCT_LENGTH' as output (y) for the training dataframe.

- Create an instance of Lasso model and fit the training data using its fit() function.

- Use the trained model to predict the values of the 'PRODUCT_LENGTH' for the test dataset using the predict() function.

- Calculate the score of the model using the mean_absolute_percentage_error() function.Create a submission dataframe containing the predicted 'PRODUCT_LENGTH' values for each 'PRODUCT_ID' in the test dataset.

- Set the 'PRODUCT_ID' column as the index of the submission dataframe. Save the submission dataframe to a CSV file named 'Lasso Regression Result Submission.csv'.

Overall, the code is a simple implementation of Lasso Regression model for a single feature dataset. The main steps include loading data, selecting features, training the model, making predictions, calculating error, and creating a submission file.