RANDOM FOREST ALGORITHM

This code performs regression using the **Random Forest algorithm** to predict the `PRODUCT_LENGTH` of a product given its `PRODUCT_TYPE_ID`. Here are the steps:

- ➢ Import the necessary packages: `pandas` for data loading and manipulation, `RandomForestRegressor` for regression modeling, and `mean_absolute_percentage_error` for evaluation.

- ➢ Load the training and test data from csv files using `pd.read_csv()`.Replace any missing values in the data with 0 using `fillna()`.

- ➢ Select the features for the model, which in this case is just the `PRODUCT_TYPE_ID`.Split the data into training and testing sets for both the features and target variable.

- ➢ Create an instance of the `RandomForestRegressor` class with 100 trees and a random seed of 42.

- ➢ Fit the model on the training data using `fit()`.

- ➢ Use the model to make predictions on the test data using `predict()`.

- ➢ Calculate the performance of the model using `mean_absolute_percentage_error()`.

- ➢ Create a submission file with the predicted `PRODUCT_LENGTH` values for the test data using `pd.DataFrame()` and `to_csv()`.

Overall, this code is a simple example of regression using Random Forest, and does not involve much feature engineering beyond selecting the `PRODUCT_TYPE_ID` as a feature.