**Exercise Sheet 2:** Tree-based Methods December 15, 2022

1. **Random Forest**
   1. Predict the demand of all product-location-date combinations in test.gzip using a Random Forest, e.g., from *scikit-learn*. You can choose one of the two setups described in exercise 2) a and b of exercise sheet 1. Repeat the evaluations with this model.
   2. Estimate the importances of the different features in your model averaged over the training.
2. Predict the demand of all product-location-date combinations in test.csv using a **Gradient Boosting** method, e.g., LGBM (also implemented in *scikit-learn* as HistGradBoost) or XGBoost (python package *xgboost*). Again, you can choose one of the two setups described in exercise 2) a and b of exercise sheet 1. Repeat the evaluations with this model.
3. Use one of the two methods LIME or SHAP (python packages *lime* and *shap*) to go beyond feature importances averaged over the training and explain a bunch of individual predictions in terms of influences of the different features.