

### 1) Random Forest

- a) 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.
- b) 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.