Exercise Sheet 2: Tree-based Methods

December 15, 2022

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*. Repeat the evaluations with this model.
   b) Estimate the importances of the different features in your model averaged over the training.
2) Gradient Boosting
   a) Predict the demand of all product-location-date combinations in `test.csv` using a Gradient Boosting method, e.g., from *scikit-learn*. Repeat the evaluations with this model.
   b) Use one of the popular Gradient Boosting implementations like LGBM (e.g., HistGradBoost from *scikit-learn*) or XGBoost (python package *xgboost*). 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.