```
import lotOfFun as lof
lof.helloFrom(“The Miners”)
```

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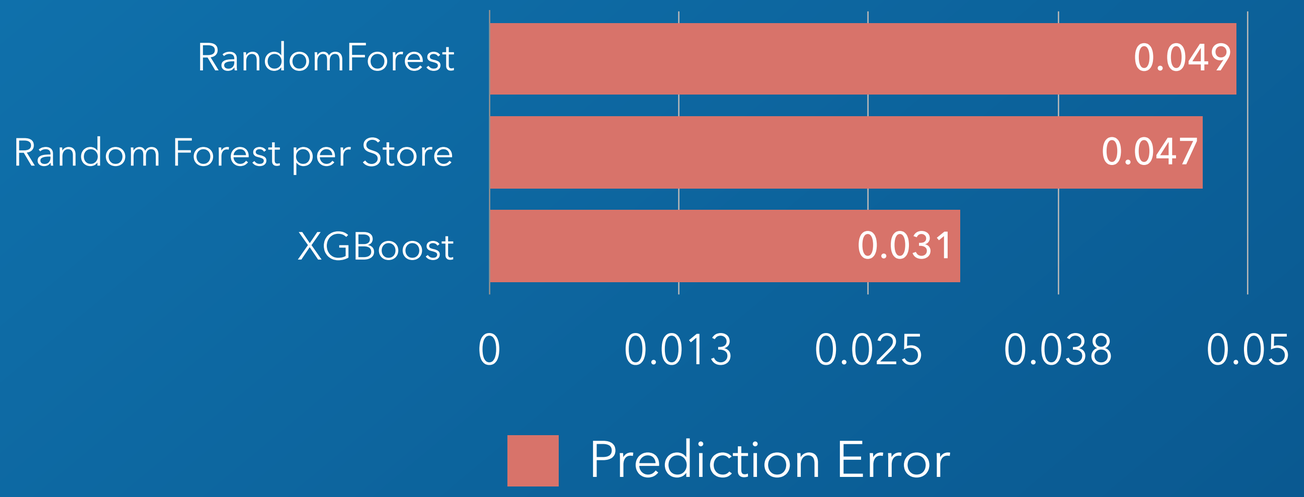
Our model

We used xgboost to minimize the error: a technique that allows to combine an ensemble of weak predictors (decision trees)

It uses a more regularized model formalization to control over-fitting



Model performance:

20% test set hold out evaluation

Prediction Error	3.18%
R^2	95.71%
R^2 month	99.23%

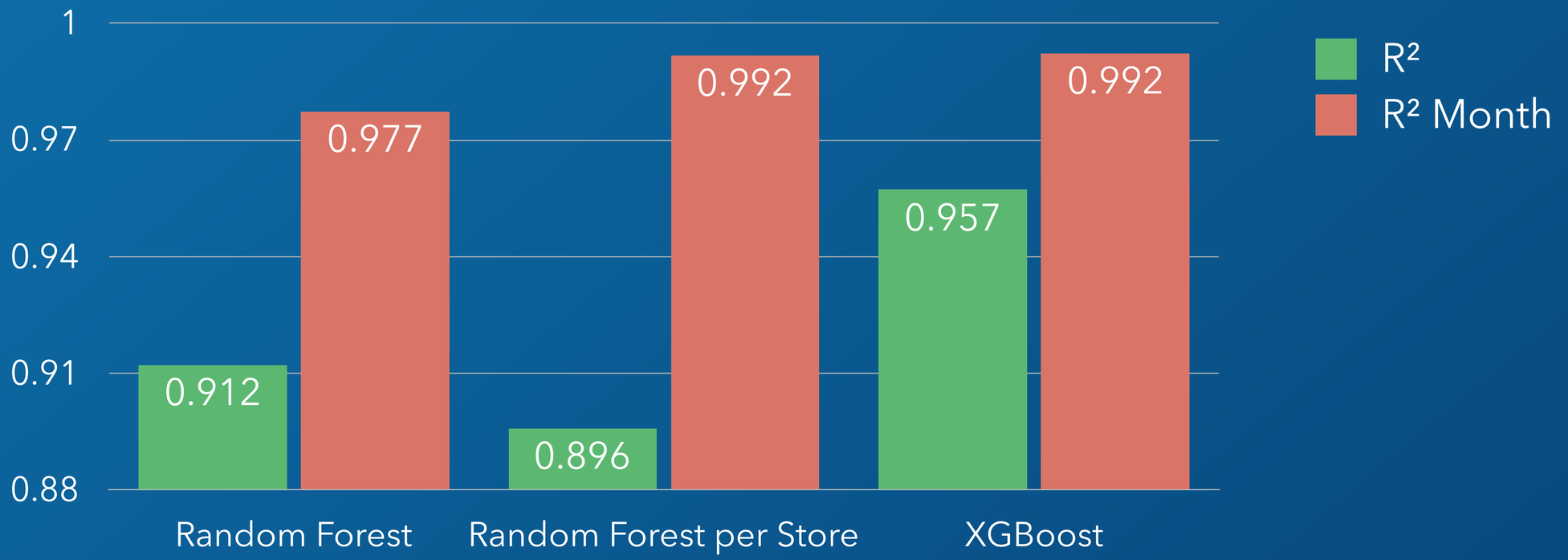
We also tried to make a Random forest per Store, since each Store may have its own characteristics, with results comparable to a more generalist approach

Preprocessing

1. Dropped NumberOfCustomers
   Would convey information that couldn't be used for the predictions
2. Transformed categorical variables with One-hot Encoding
   For the following features: Event, AssortmentType, Storetype
3. Split Date into three different features
   Allowed to compute the predictions per Month
4. Scaled temperature to Kelvin
   To reduce eventual errors with negative temperatures

R^2 of models

All regression models were made by predicting daily Number of Sales and summing the prediction per month. This explains why R^2 Month is higher than R^2 calculated on daily base: sum of single prediction allows error reduction



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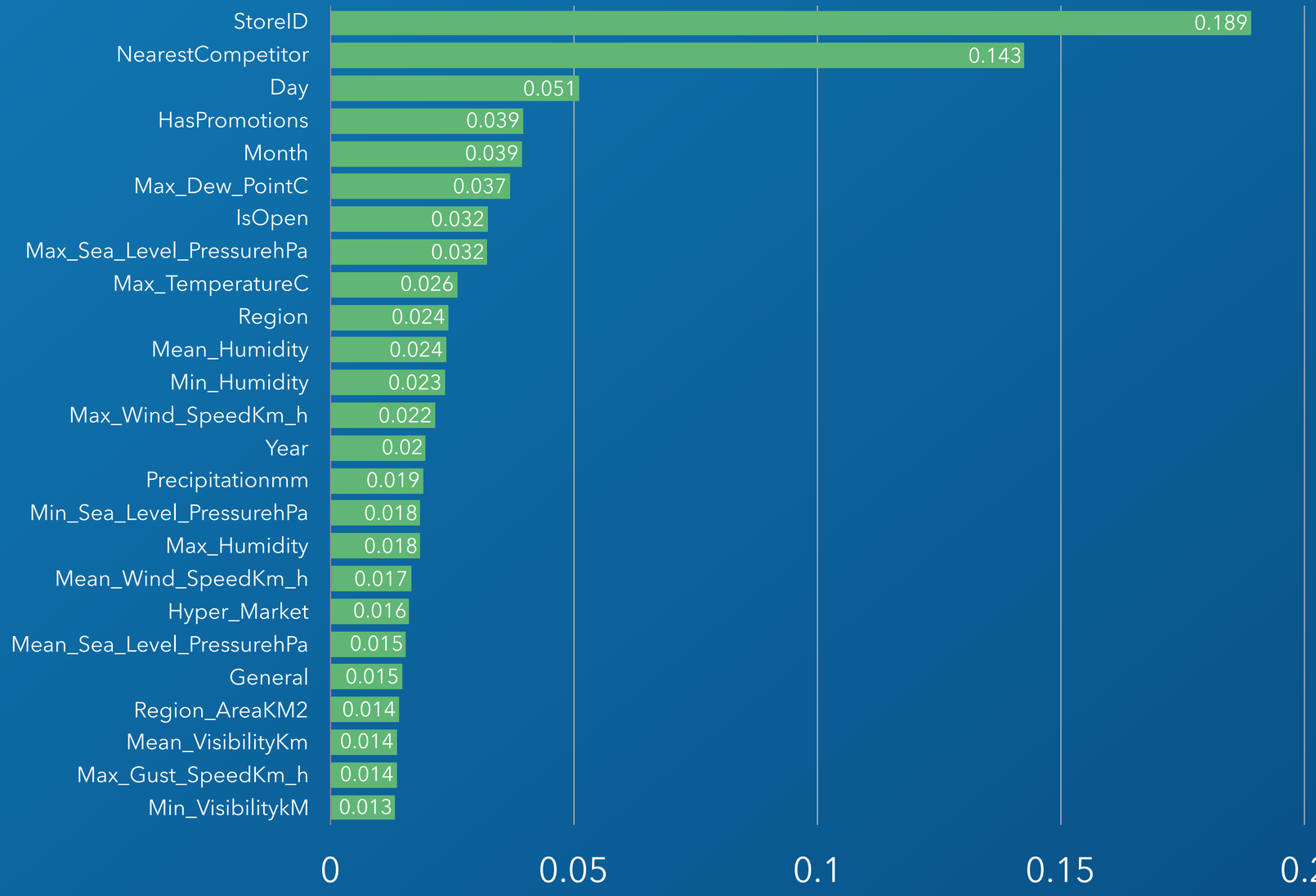
Features Ranking for xgboost



The most important feature seems to be the StoreID

Weather information are not as important as other features

```
lof.thankYou()
```