presenter

May 12, 2019

In [1]:
```
from internal_scripts.data_loaders.BlackFridayDataLoader import BlackFridayDataLoader
from internal_scripts.data_loaders.LoanDataLoader import *
from internal_scripts.modelling.loading.models_loading import get_saved_models
from internal_scripts.descriptors.Eli5Descriptor import Eli5Descriptor
from internal_scripts.descriptors.ShapDescriptor import ShapDescriptor
from internal_scripts.descriptors.LimeDescriptor import LimeDescriptor

import shap
shap.initjs()

from IPython.display import display, HTML
```

```
<IPython.core.display.HTML object>
```

In [2]:
```
loaders = [LoanDataLoader(), BlackFridayDataLoader()]
descriptors = [Eli5Descriptor(), ShapDescriptor(), LimeDescriptor()]
final_dict = {}
```

In [3]:
```
for loader in loaders:
    data = loader.get_train_test_split()
    data_name = data['dataset_name']
    print(f"Working with {data_name}")
    models = get_saved_models(data_name)
    final_dict[data_name] = {}
    for name, model in models.items():
        print(f"Describing {name} model")
        final_dict[data_name][name] = {}
        for desc in descriptors:
            desc_name = desc.get_descriptor_name()
            print(f"Using {desc_name} descriptor")
            model_desc = desc.describe(name, model, data)
            final_dict[data_name][name][desc_name] = model_desc
    print()
```

```
Working with Loan_Data
```

```
Using TensorFlow backend.


Describing Decision_Tree_Loan_Data model
Using Eli 5 descriptor
Using Shap descriptor
Using Lime descriptor
Decision_Tree_Loan_Data
Intercept 0.4975222717425971
Prediction_local [0.72673558]
Right: 1.0
Describing Logistic_Regression_Loan_Data model
Using Eli 5 descriptor
Using Shap descriptor
Model type not yet supported by TreeExplainer: <class 'sklearn.linear_model.logistic.LogisticR
Using Lime descriptor
Logistic_Regression_Loan_Data
Describing Random_Forest_Classifier_Loan_Data model
Using Eli 5 descriptor
Using Shap descriptor
Using Lime descriptor
Random_Forest_Classifier_Loan_Data
Describing XGboost_Loan_Data model
Using Eli 5 descriptor
Using Shap descriptor
Using Lime descriptor
XGboost_Loan_Data
Describing Keras_Simple_Classifier_Loan_Data model
Using Eli 5 descriptor
Using Shap descriptor


c:\program files\python36\lib\site-packages\shap\explainers\deep\deep_tf.py:138: UserWarning: Y
  warnings.warn("You have provided over 5k background samples! For better performance consider


0
Using Lime descriptor
Keras_Simple_Classifier_Loan_Data

Working with Black_Friday
Describing Decision_Tree_Black_Friday model
Using Eli 5 descriptor
Using Shap descriptor
Using Lime descriptor
Decision_Tree_Black_Friday


c:\program files\python36\lib\site-packages\sklearn\utils\validation.py:595: DataConversionWarn
```

```
  warnings.warn(msg, DataConversionWarning)


Intercept 0.3937733793596836
Prediction_local [0.284543]
Right: 0.0
Describing Logistic_Regression_Black_Friday model
Using Eli 5 descriptor
Using Shap descriptor
Model type not yet supported by TreeExplainer: <class 'sklearn.linear_model.logistic.LogisticR
Using Lime descriptor
Logistic_Regression_Black_Friday
Describing Random_Forest_Classifier_Black_Friday model
Using Eli 5 descriptor
Using Shap descriptor
Using Lime descriptor
Random_Forest_Classifier_Black_Friday
Describing XGboost_Black_Friday model
Using Eli 5 descriptor
Using Shap descriptor
Using Lime descriptor
XGboost_Black_Friday
Describing Keras_Simple_Classifier_Black_Friday model
Using Eli 5 descriptor
Using Shap descriptor
0
Using Lime descriptor
Keras_Simple_Classifier_Black_Friday
```

```
In [4]: for dataset, dicts in final_dict.items():
            display(HTML(f"<h1>{dataset} data</h1>"))
            for model, results in dicts.items():
                display(HTML(f"<h2>{model} data</h2>"))
                for descriptor, results in results.items():
                    if len(results) == 0:
                        continue
                    display(HTML(f"<h3>{descriptor} data</h3>"))
                    for metric, result in results.items():
                        display(HTML(f"<h4>{metric} data</h4>"))
                        display(result)
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