

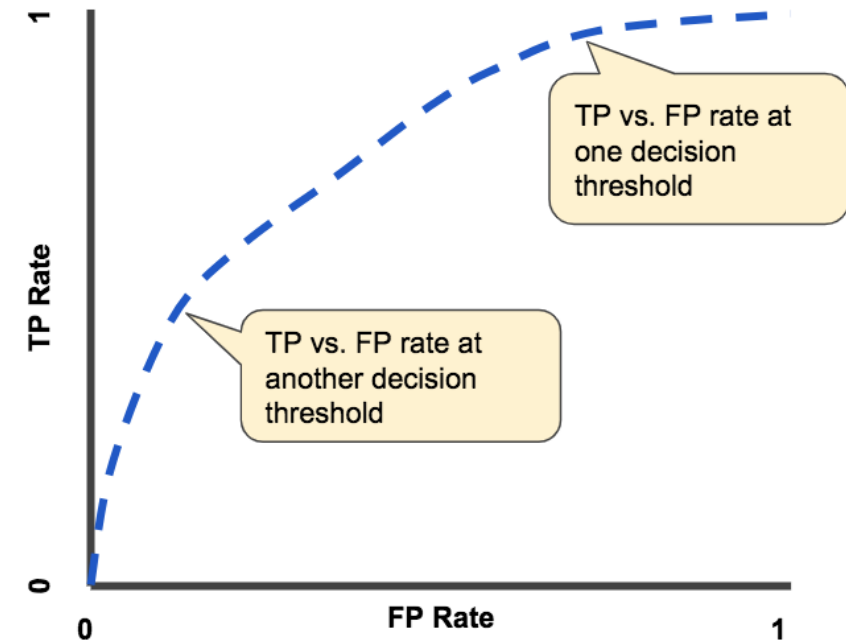


# ROC and PR Curves for Multiclass

# Receiving Operating Characteristic (ROC)

Plots the True positive Rate vs the False positive Rate at various thresholds.

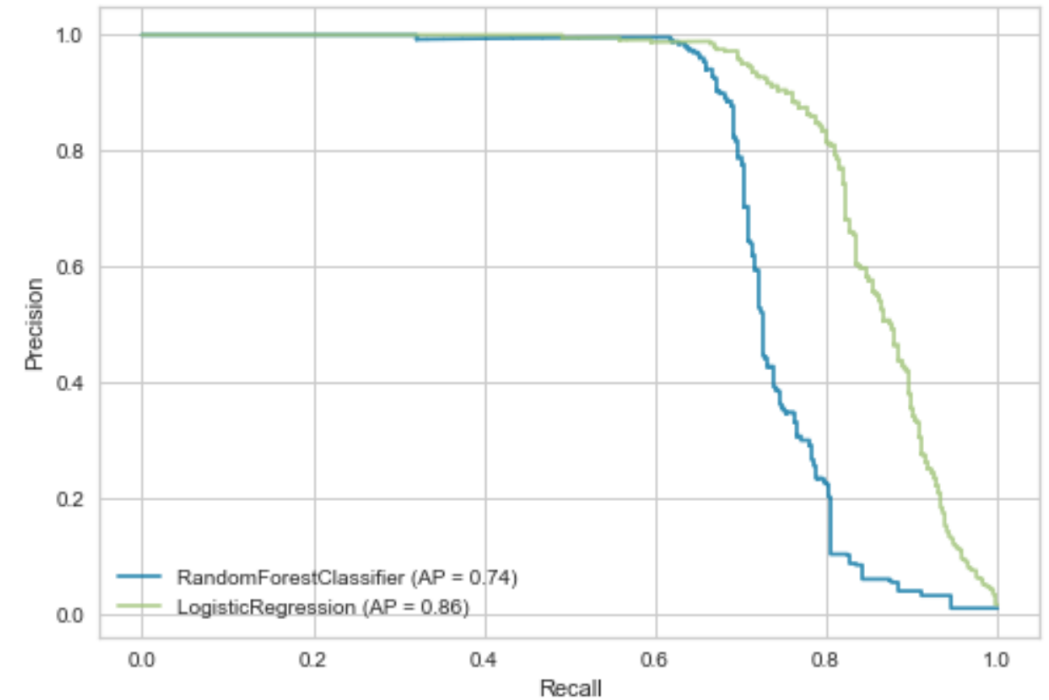
It is designed for binary classification.



# Precision-Recall Curve

Plots the Precision vs the Recall for 1 class at various thresholds.

It is designed for binary classification.



# ■ ■ ■ How do we extend the use to multiclass problems?

One vs Rest strategy



# Multiclass target

Target
0
1
2
1
0

Train a machine learning  
model that handles  
multiclass targets



Class 0	Class 1	Class 2
0.8	0.15	0.05
0.2	0.3	0.5
0.2	0.6	0.2
0.1	0.8	0.1
0.9	0.05	0.05

All classifiers in scikit-learn do multiclass classification out-of-the-box

# One vs Rest

Target
0
1
2
1
0

- Class 0 vs Rest [1 and 2]
- Class 1 vs Rest [0 and 2]
- Class 2 vs Rest [0 and 1]

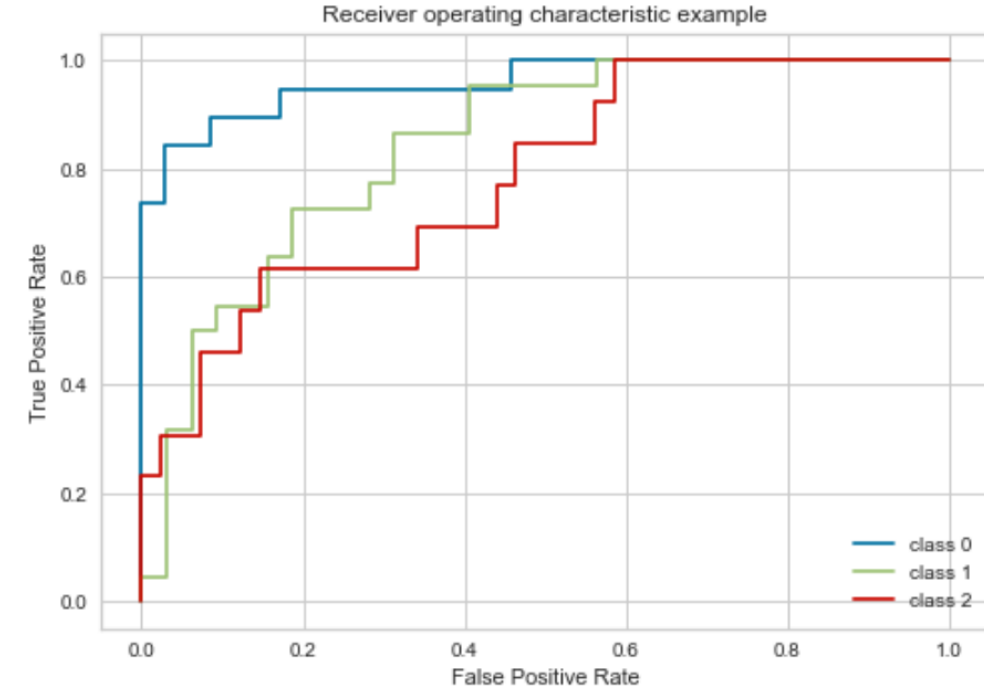
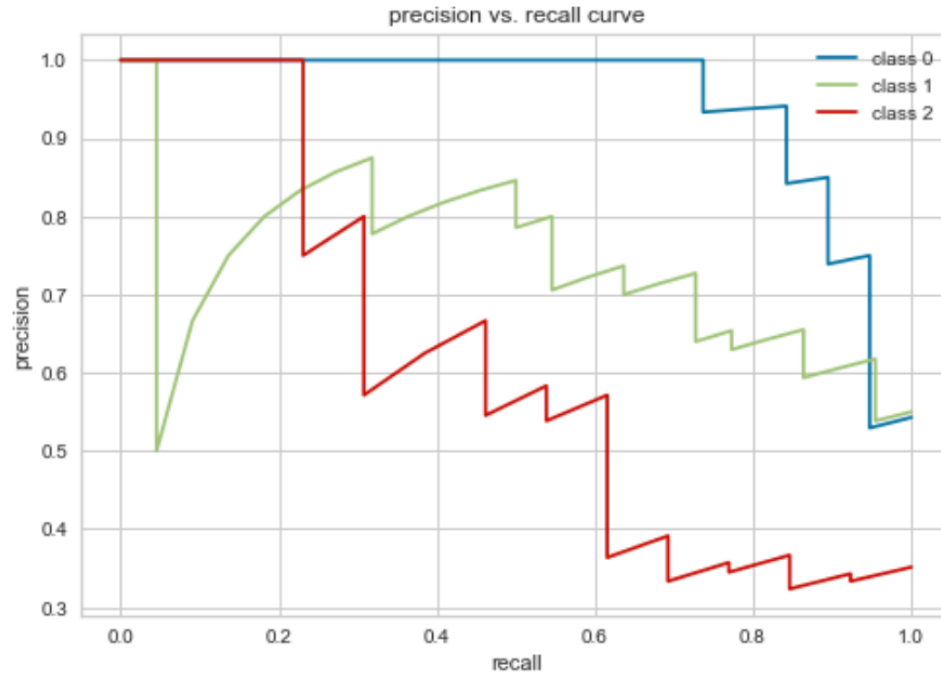
Train one  
machine learning  
model per class



OneVsRestClassifier  
from sklearn.

Class 0	Class 1	Class 2
0.8	0.15	0.05
0.2	0.3	0.5
0.2	0.6	0.2
0.1	0.8	0.1
0.9	0.05	0.05

# PR and ROC Curve per class

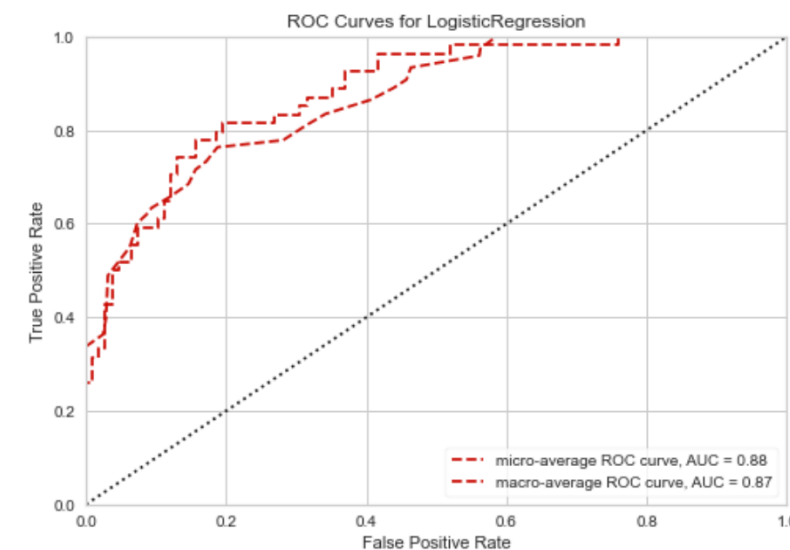
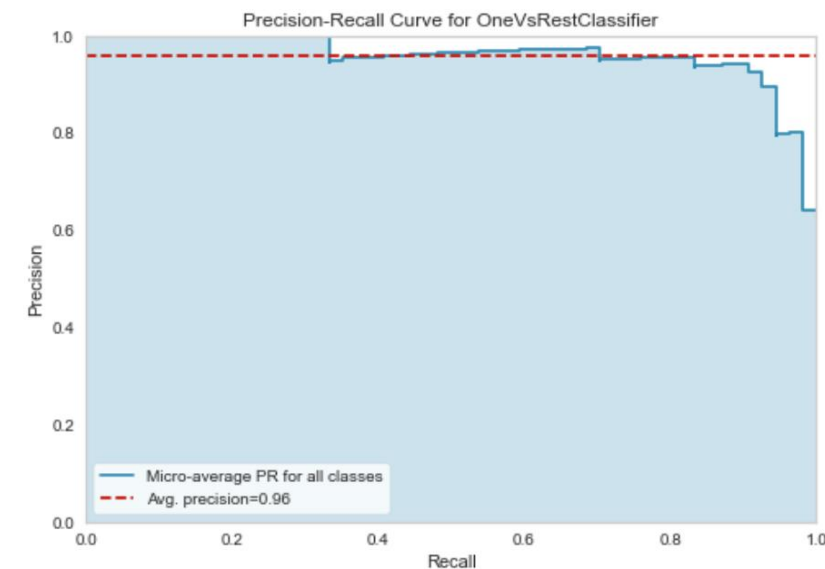
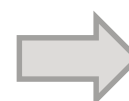


# Micro PR and ROC

Class 0	Class 1	Class 2
0.8	0.15	0.05
0.2	0.3	0.5
0.2	0.6	0.2
0.1	0.8	0.1
0.9	0.05	0.05



Stacked
0.8
0.2
0.2
0.1
0.9
0.15
0.3
0.6
0.8
0.05
0.05
0.5
0.2
0.1
0.05





# THANK YOU

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