

Gradient Tree Boosting

Gradient Tree Boosting				
	F1	Recall	Precision	Accuracy
Out of the Box:	0.46220	0.35408	0.66539	0.82056
Multicollinearity:	0.46220	0.35408	0.66539	0.82056
RFE:	N/A	N/A	N/A	N/A
Outliers:	0.49413	0.38831	0.67922	0.79727
Oversampling	0.52643	0.61990	0.45745	0.75711
Undersampling	0.52537	0.62602	0.45260	0.75367
Outliers, Undersampling	0.55867	0.63877	0.49641	0.74266
Outliers, Undersampling, Bagged	0.56186	0.64554	0.49739	0.74329

Ada Boost

Ada Boost				
	F1	Recall	Precision	Accuracy
Out of the Box:	0.43496	0.32245	0.66808	0.81756
Multicollinearity:	0.43496	0.32245	0.66808	0.81756
RFE:	N/A	N/A	N/A	N/A
Outliers:	0.44748	0.33292	0.68222	0.79037
Oversampling	0.51784	0.60714	0.45144	0.75378
Undersampling	0.52087	0.61122	0.45379	0.75511
Outliers, Undersampling	0.54437	0.61723	0.48689	0.73654

Random Forest

Random Forest				
	F1	Recall	Precision	Accuracy
Out of the Box:	0.31292	0.20204	0.69352	0.80678
Multicollinearity:	0.30616	0.19643	0.69369	0.80611
RFE:	0.28443	0.17806	0.70648	0.80489
Outliers:	0.37562	0.256	0.70508	0.78299
Oversampling	0.52106	0.57449	0.47671	0.77000
Undersampling	0.52316	0.57347	0.48096	0.77233
Outliers, Oversampling	0.54190	0.59692	0.49616	0.74266
Outliers, Undersampling	0.54196	0.59015	0.50104	0.74565

Random Forest parameter tuning:

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{'n_estimators': 200,  
'min_samples_split': 35,  
'min_samples_leaf': 4,  
'max_features': 'auto',  
'max_depth': 20,  
'bootstrap': False}
```

K-Nearest Neighbor

K-Nearest Neighbor				
	F1	Recall	Precision	Accuracy
Out of the Box:	0.27176	0.22704	0.3384	0.735
Multicollinearity	0.26833	0.21939	0.34538	0.73944
RFE:	N/A	N/A	N/A	N/A
Outliers:	0.31157	0.26277	0.38262	0.70391
Oversampling	0.34831	0.46071	0.28000	0.62456
Undersampling	0.35044	0.46684	0.28050	0.62311
Outliers, Undersampling	0.40617	0.58338	0.31153	0.56504

Guassian Naive Bayes

Guassian Naive Bayes				
	F1	Recall	Precision	Accuracy
Out of the Box	0.38326	0.86429	0.24622	0.39422
Multicollinearity	0.38323	0.89541	0.24378	0.37233
RFE	N/A	N/A	N/A	N/A
Outliers	0.42385	0.54031	0.34869	0.62545
Oversampling	0.37503	0.93010	0.23486	0.32489
Undersampling	0.37488	0.93214	0.23462	0.32300
Outliers, Undersampling	0.42746	0.76246	0.29698	0.47921

Least Squares Support Vector Machine

Least Squares Support Vector Machine				
	F1	Recall	Precision	Accuracy

Out of the Box	0.08544	0.05	0.29341	0.76689
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All Models, after Outliers and Undersampling				
	F1	Recall	Precision	Accuracy
KNN	0.40617	0.58338	0.31153	0.56504
Random Forest	0.54196	0.59015	0.50104	0.74565
Ada Boost	0.54437	0.61723	0.48689	0.73654
Gradient TB	0.55867	0.63877	0.49641	0.74266
Gaussian NB	0.42746	0.76246	0.29698	0.47921
stacked_models	0.55122	0.62585	0.49249	0.74015
stacked_models_tunedRF	0.55921	0.65969	0.48529	0.73482
stacked_rf_tuned_gtb_bagged	0.55973	0.65600	0.48810	0.73686