

		Notebook	CRC modelling with balancing 6th June.ipynb		
		Top Model by metrics	#1	#2	#3
		Model description	Voting Classifier using balanced data (Random UnderSampler)	Voting Classifier on balanced data (oversampled followed by undersampled - SMOTETomek)	Voting Classifier on balanced data (Oversampling using SMOTE)
	Performance Metrics	Balanced Accuracy Score	0.929	0.886	0.864
		Weighted Avg Precision	0.977	0.963	0.957
		Weighted Avg Recall	0.976	0.962	0.955
		Class 1 Recall	0.860	0.770	0.730
		Weighted Avg F1 Score	0.975	0.960	0.950
		Snapshots from notebook	<div>voting_classifiers(X_train_new_under_sampled,y_train_new_unc # Recommended model no.1, since class 1 recall, balanced acc =====</div> <div>Voting Classifier</div> <div>=====</div> <div>Accuracy: 0.976 Weighted_Precision: 0.977 Weighted_Recall: 0.976 Weighted_F1_score: 0.975</div> <div>Balanced Accuracy: 0.9285714285714286</div> <div>precision recall f1-score support</div> <div>0 0.97 1.00 0.99 349</div> <div>1 1.00 0.86 0.92 70</div> <div>accuracy 0.98 419</div> <div>macro avg 0.99 0.93 0.95 419</div> <div>weighted avg 0.98 0.98 0.98 419</div>	<div>voting_classifiers(X_smt,y_smt,X_test,y_test) # Recommended model no.2 =====</div> <div>Voting Classifier</div> <div>=====</div> <div>Accuracy: 0.962 Weighted_Precision: 0.963 Weighted_Recall: 0.962 Weighted_F1_score: 0.960</div> <div>Balanced Accuracy: 0.8857142857142857</div> <div>precision recall f1-score support</div> <div>0 0.96 1.00 0.98 349</div> <div>1 1.00 0.77 0.87 70</div> <div>accuracy 0.96 419</div> <div>macro avg 0.98 0.89 0.92 419</div> <div>weighted avg 0.96 0.96 0.96 419</div>	<div>voting_classifiers(X_sm,y_sm,X_test,y_test) # Recommended model no.3 =====</div> <div>Voting Classifier</div> <div>=====</div> <div>Accuracy: 0.955 Weighted_Precision: 0.957 Weighted_Recall: 0.955 Weighted_F1_score: 0.952</div> <div>Balanced Accuracy: 0.8642857142857143</div> <div>precision recall f1-score support</div> <div>0 0.95 1.00 0.97 349</div> <div>1 1.00 0.73 0.84 70</div> <div>accuracy 0.95 419</div> <div>macro avg 0.97 0.86 0.91 419</div> <div>weighted avg 0.96 0.95 0.95 419</div>

