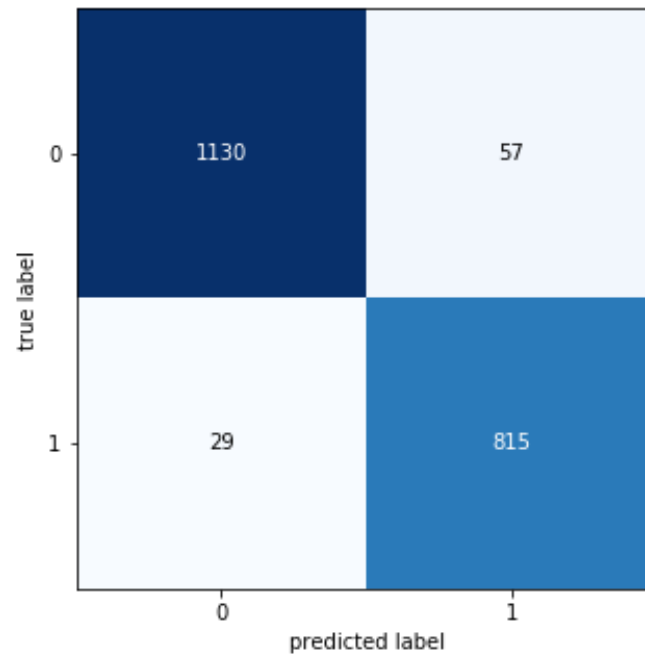


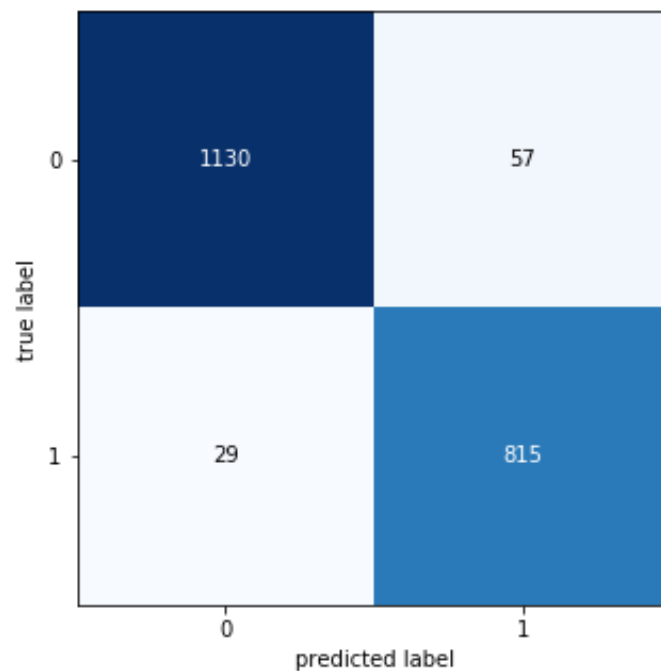
Bagging

Our Implementation:

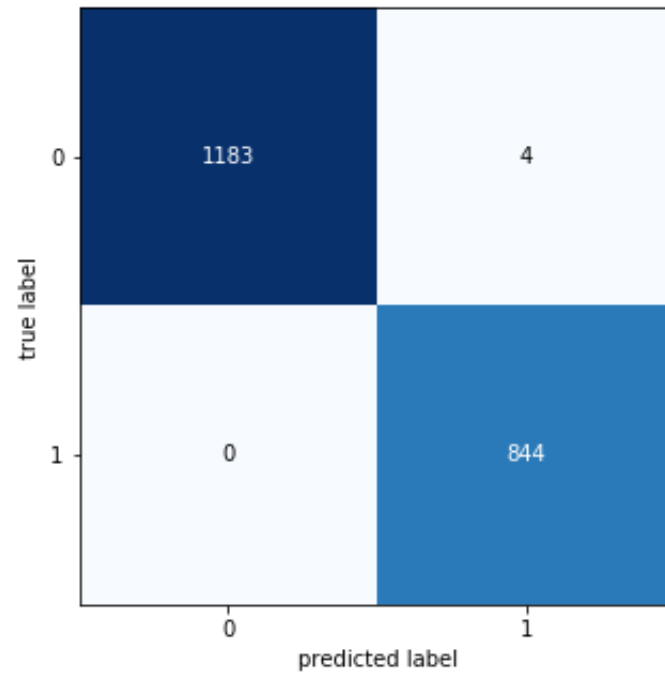
Confusion Matrix - Max Depth 3 Bag Size 10



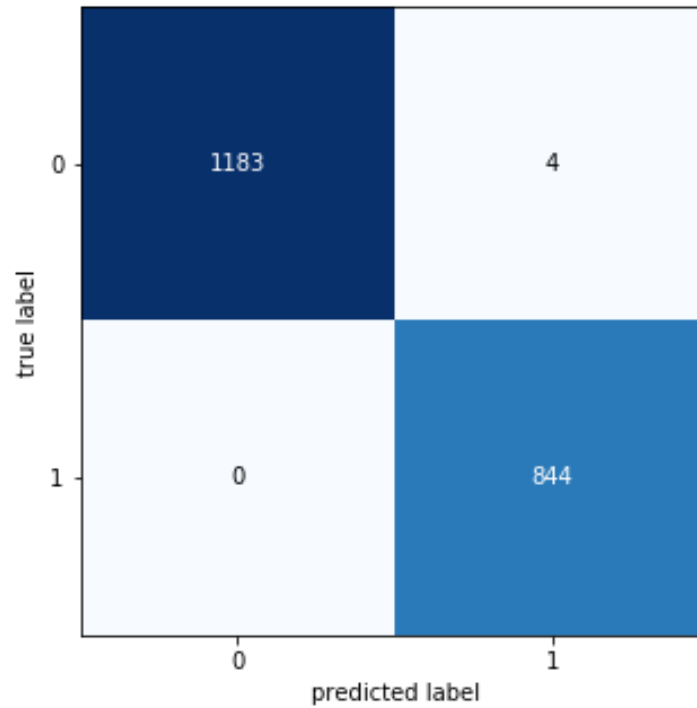
Confusion Matrix - Max Depth 3 Bag Size 20



Confusion Matrix - Max Depth 5 Bag Size 10



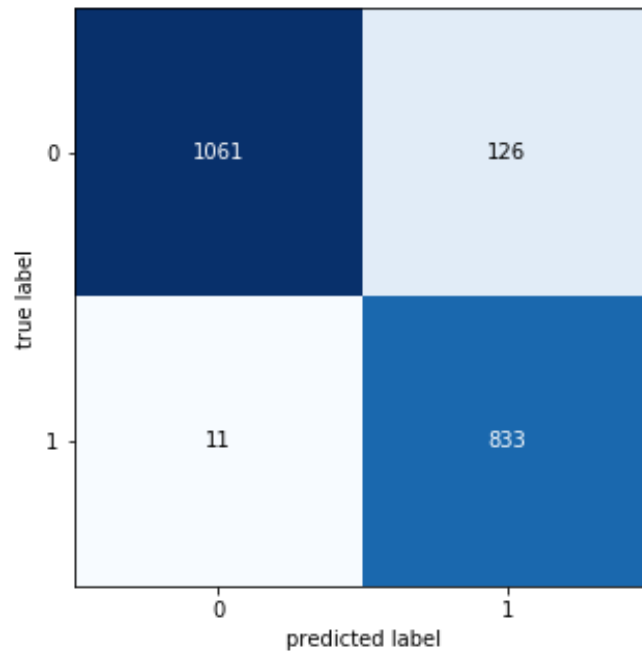
Confusion Matrix - Max Depth 5 Bag Size 20



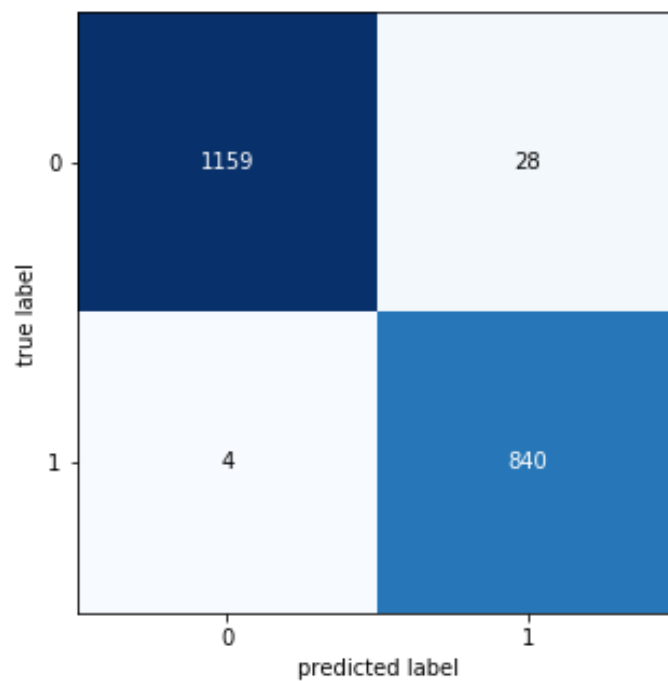
Boosting

Our Implementation:

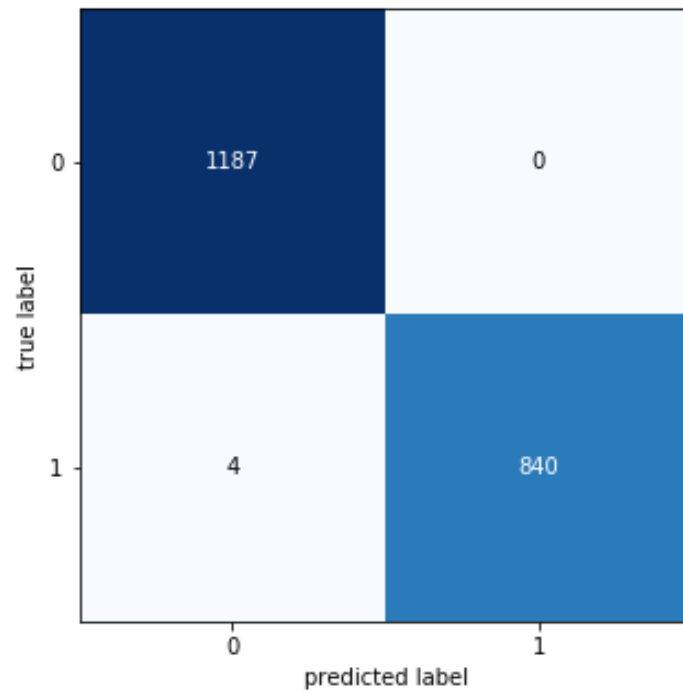
Confusion Matrix - Max Depth 1 Bag Size 20



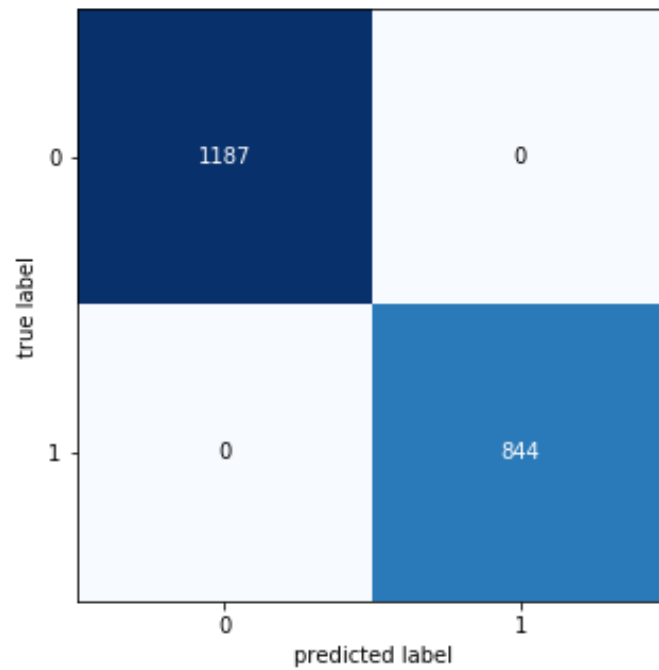
Confusion Matrix - Max Depth 1 Bag Size 40



Confusion Matrix - Max Depth 2 Bag Size 20



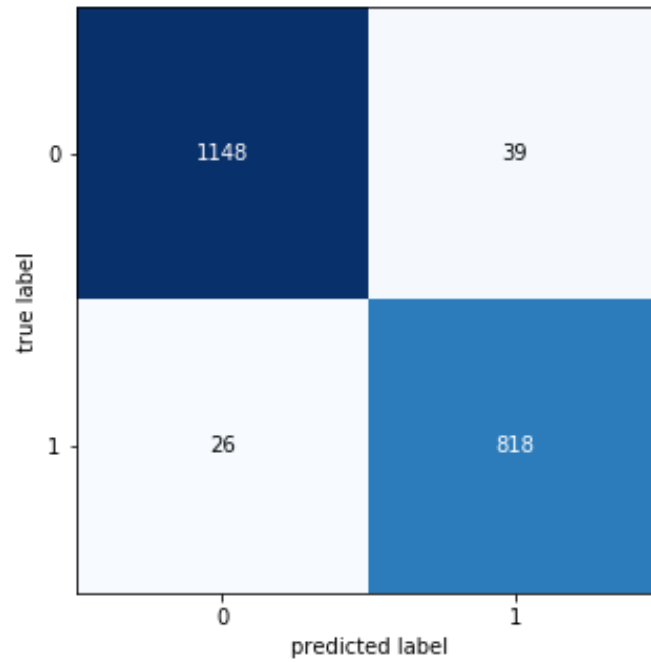
Confusion Matrix - Max Depth 2 Bag Size 40



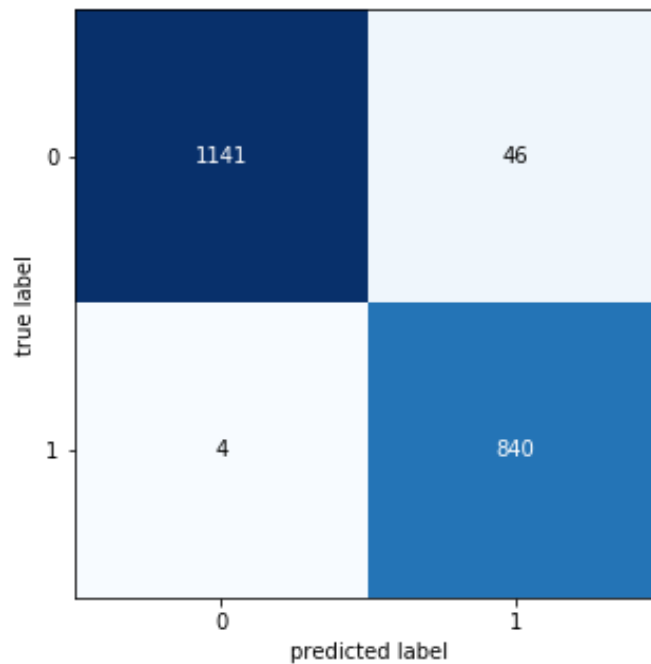
SCIKIT Learn

Bagging

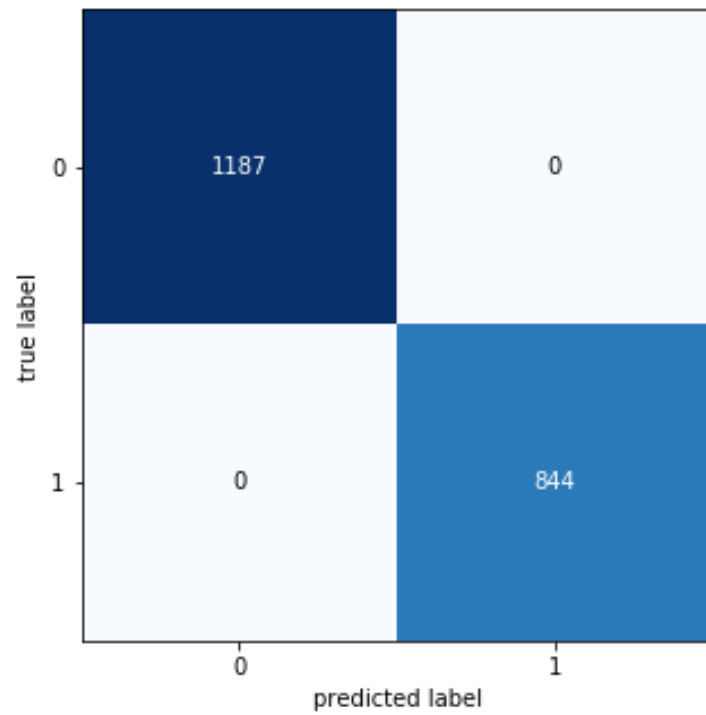
Confusion Matrix - Max Depth 3 Bag Size 10



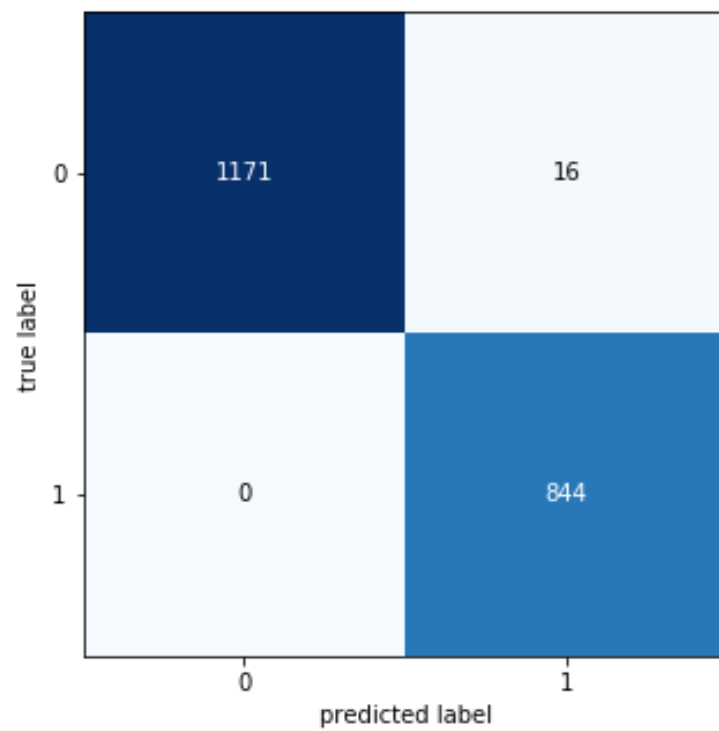
Confusion Matrix - Max Depth 3 Bag Size 20



Confusion Matrix - Max Depth 5 Bag Size 10

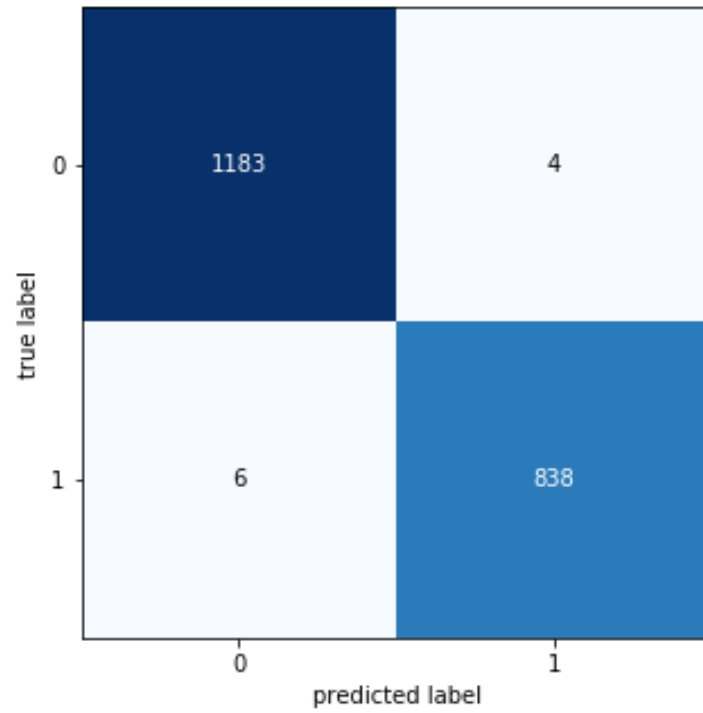


Confusion Matrix - Max Depth 5 Bag Size 20

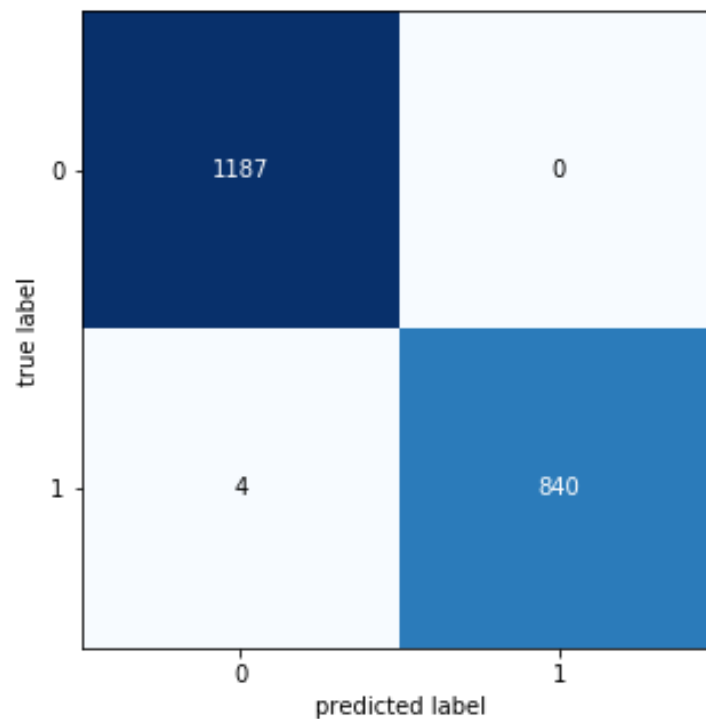


Boosting

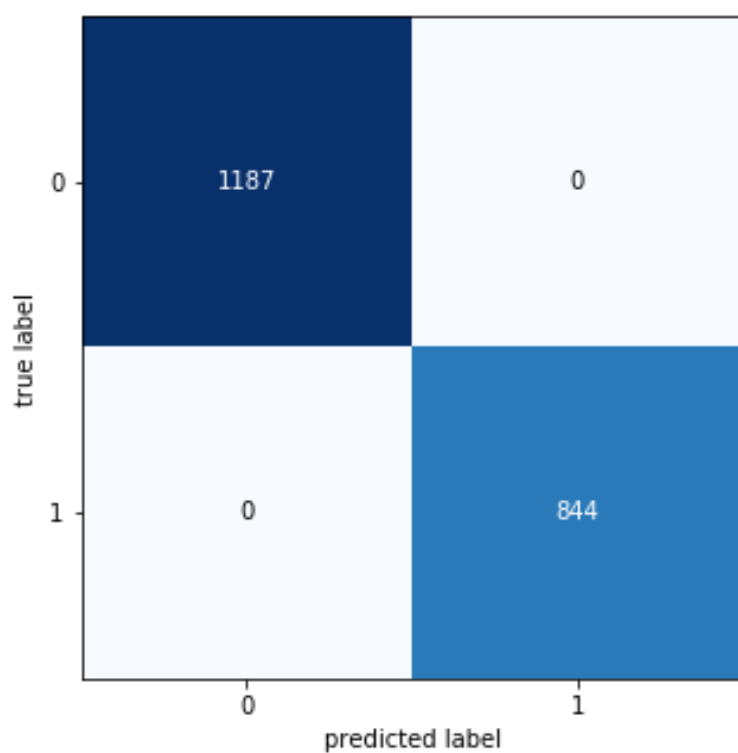
Confusion Matrix - Max Depth 1 Bag Size 20



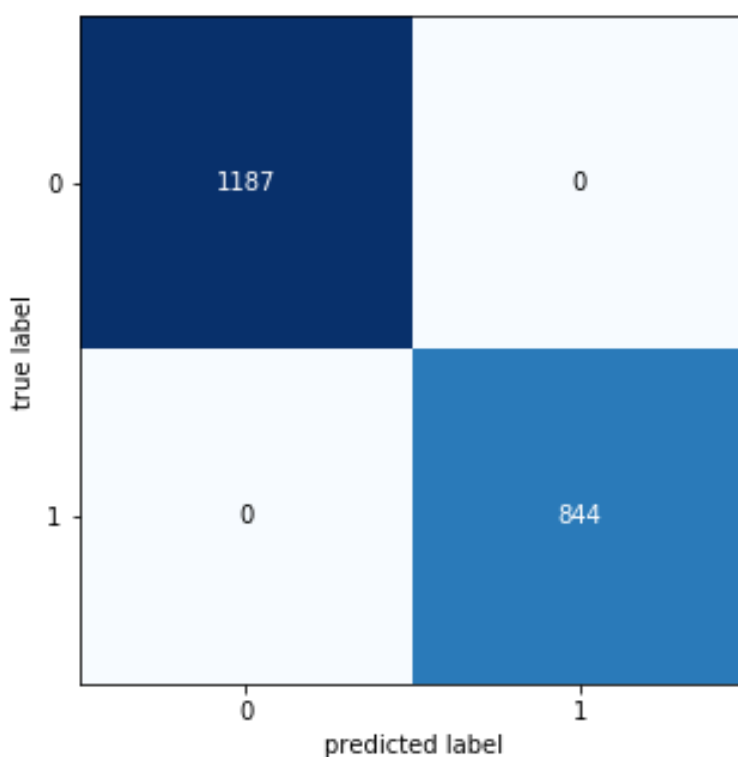
Confusion Matrix - Max Depth 1 Bag Size 40



Confusion Matrix - Max Depth 2 Bag Size 20



Confusion Matrix - Max Depth 2 Bag Size 40



Comparison

The learning curve for our implemented bagging and boosting methodology follows the learning curve observed from SCIKIT implementation of the same.

As observed from the table below our accuracy for depth 5 and bag size 20 (99.8%) is better than the observed SCIKIT accuracy (99.2%) for same combination. SCIKIT gives 100% accuracy for depth 5 and bag size 10 but in our implementation of bagging 100% accuracy was not reached.

For boosting SCIKIT gives an accuracy of 100% over two of the combinations our of 4 implemented. Our implementation of the same gives 100% only for one of the combinations.

All the data is provided below for referencing along with the relevant details.

	Algorithm	Implementation	Depth	Bag Size	Accuracy
0	Bagging	Custom	3	10	0.957656
1	Bagging	Custom	3	20	0.957656
2	Bagging	Custom	5	10	0.998031
3	Bagging	Custom	5	20	0.998031
4	Bagging	Sci-Kit	3	10	0.967996
5	Bagging	Sci-Kit	3	20	0.975382
6	Bagging	Sci-Kit	5	10	1.000000
7	Bagging	Sci-Kit	5	20	0.992122
8	Boosting	Custom	1	20	0.932546
9	Boosting	Custom	1	40	0.984244
10	Boosting	Custom	2	20	0.998031
11	Boosting	Custom	2	40	1.000000
12	Boosting	Sci-Kit	1	20	0.995076
13	Boosting	Sci-Kit	1	40	0.998031
14	Boosting	Sci-Kit	2	20	1.000000
15	Boosting	Sci-Kit	2	40	1.000000