

Final Comparisons

In this homework, I used 3 sets of labels. For each label, I used all the combinations of 3 hyperparameters and 3 optimal features. The following table reports the best result from the optimal feature for each set of hyperparameter set.

Labels	Hyperparameter Set	Best optimal feature	Sharpe Ratio	Max Drawdown
Label 1: {-1,1}	hyperparameter 1	gb_opt_feat_3	1.1731	0.1504
	hyperparameter 2	gb_opt_feat_3	1.0932	0.1238
	hyperparameter 3	gb_opt_feat_3	1.1351	0.1132
Label 2: {-1,1}	hyperparameter 1	gb_opt_feat_3	1.1919	0.1464
	hyperparameter 2	gb_opt_feat_3	1.1722	0.1512
	hyperparameter 3	gb_opt_feat_3	1.2676	0.1190
Label 3: {2,1,0,-1,-2}	hyperparameter 1	gb_opt_feat_3	1.2485	0.1328
	hyperparameter 2	gb_opt_feat_3	1.1994	0.1167
	hyperparameter 3	gb_opt_feat_3	1.1704	0.1179

We can see that for all the labels and hyperparameters, the best results all come from the optimal feature set 3.

And for both label 1 and label 2, the best outcomes are all from the hyperparameter set 3. However, for label 3, the best outcome is from the hyperparameter set 2.