Coin Dataset Model's Predictions Comparison Spreadsheet

Classifier	Respective Classifier Params Range	Bagging Classifier Params Range	Best Respective Classifier Params	Best Bagging Classifier Params	Runtime (Seconds)	Accuracy
Default K-Nearest Neighbors (KNN) Params	None	N/A	None	N/A	0.20659	87.963%
Default K-Nearest Neighbors (KNN) Params w/ Default Bagging Params	None	None	None	None	1.20243	89.815%
Best K-Nearest Neighbors (KNN) Params from Grid Search	n_neighbors': [3, 5, 7, 9, 11],'weights': ['uniform', 'distance'],'algorithm': ['auto', 'ball_tree', 'kd_tree', 'brute'],'leaf_size': [5, 15, 30, 50, 75],'p': [1, 2]	N/A	algorithm': 'auto', 'leaf_size': 5, 'n_neighbors': 3, 'p': 1, 'weights': 'distance'	N/A	3.18013	94.444%
Best K-Nearest Neighbors (KNN) Params from Random Search	n_neighbors': [3, 5, 7, 9, 11],'weights': ['uniform', 'distance'],'algorithm': ['auto', 'ball_tree', 'kd_tree', 'brute'],'leaf_size': [5, 15, 30, 50, 75],'p': [1, 2]	N/A	weights': 'distance', 'p': 1, 'n_neighbors': 3, 'leaf_size': 5, 'algorithm': 'kd_tree'	N/A	0.05234	94.444%
Best K-Nearest Neighbors (KNN) Params w/ Best Bagging Params from Grid Search	n_neighbors': [3, 5, 7, 9, 11],'weights': ['uniform', 'distance'],'algorithm': ['auto', 'ball_tree', 'kd_tree', 'brute'],'leaf_size': [5, 15, 30, 50, 75],'p': [1, 2]	n_estimators': [5, 10, 25, 50, 100, 200, 400],'max_samples': [0.5, 0.75, 1.0],'bootstrap': [True, False],'bootstrap_features': [True, False]	algorithm': 'auto', 'leaf_size': 5, 'n_neighbors': 3, 'p': 1, 'weights': 'distance'	bootstrap': False, 'bootstrap_features': True, 'max_samples': 1.0, 'n_estimators': 200	6.14233	95.370%
Best K-Nearest Neighbors (KNN) Params w/ Best Bagging Params from Random Search	n_neighbors': [3, 5, 7, 9, 11],'weights': ['uniform', 'distance'],'algorithm': ['auto', 'ball_tree', 'kd_tree', 'brute'],'leaf_size': [5, 15, 30, 50, 75],'p': [1, 2]	n_estimators': [5, 10, 25, 50, 100, 200, 400],'max_samples': [0.5, 0.75, 1.0],'bootstrap': [True, False],'bootstrap_features': [True, False]	algorithm': 'auto', 'leaf_size': 5, 'n_neighbors': 3, 'p': 1, 'weights': 'distance'	n_estimators': 400, 'max_samples': 1.0, 'bootstrap_features': True, 'bootstrap': True	4.38098	94.444%

Default Decision Tree (DT) Params	None	N/A	None	N/A	0.00300	86.111%
Default Decision Tree (DT) Params w/ Default Bagging Params	None	None	None	None	1.98918	91.667%
Best Decision Tree (DT) Params from Grid Search	criterion': ['gini', 'entropy'],'max_depth': [5, 10, 20, 40, None],'min_samples_split': [2, 5, 10, 20],'min_samples_leaf': [1, 2, 5, 10],'max_features': [None, 'sqrt', 'log2'],'max_leaf_nodes': [None, 10, 50, 100],'splitter': ['best', 'random'],'class_weight': [None, 'balanced']	N/A	class_weight': None, 'criterion': 'entropy', 'max_depth': 20, 'max_features': None, 'max_leaf_nodes': 100, 'min_samples_leaf': 1, 'min_samples_split': 2, 'splitter': 'random'	N/A	14.72791	94.444%
Best Decision Tree (DT) Params from Random Search	criterion': ['gini', 'entropy'],'max_depth': [5, 10, 20, 40, None],'min_samples_split': [2, 5, 10, 20],'min_samples_leaf': [1, 2, 5, 10],'max_features': [None, 'sqrt', 'log2'],'max_leaf_nodes': [None, 10, 50, 100],'splitter': ['best', 'random'],'class_weight': [None, 'balanced']	N/A	splitter': 'random', 'min_samples_split': 2, 'min_samples_leaf': 1, 'max_leaf_nodes': None, 'max_features': 'log2', 'max_depth': None, 'criterion': 'gini', 'class_weight': 'balanced'	N/A	0.07309	91.667%
Best Decision Tree (DT) Params w/ Best Bagging Params from Grid Search	criterion': ['gini', 'entropy'],'max_depth': [5, 10, 20, 40, None],'min_samples_split': [2, 5, 10, 20],'min_samples_leaf': [1, 2, 5, 10],'max_features': [None, 'sqrt', 'log2'],'max_leaf_nodes': [None, 10, 50, 100],'splitter': ['best', 'random'],'class_weight': [None, 'balanced']	n_estimators': [5, 10, 25, 50, 100, 200, 400],'max_samples': [0.5, 0.75, 1.0],'bootstrap': [True, False],'bootstrap_features': [True, False]	class_weight': None, 'criterion': 'entropy', 'max_depth': 20, 'max_features': None, 'max_leaf_nodes': 100, 'min_samples_leaf': 1, 'min_samples_split': 2, 'splitter': 'random'	bootstrap': False, 'bootstrap_features': True, 'max_samples': 1.0, 'n_estimators': 100	7.46132	98.148%
Best Decision Tree (DT) Params w/ Best Bagging Params from Random Search	criterion': ['gini', 'entropy'],'max_depth': [5, 10, 20, 40, None],'min_samples_split': [2, 5, 10, 20],'min_samples_leaf': [1, 2, 5, 10],'max_features': [None, 'sqrt', 'log2'],'max_leaf_nodes': [None, 10, 50, 100],'splitter': ['best', 'random'],'class_weight': [None, 'balanced']	n_estimators': [5, 10, 25, 50, 100, 200, 400],'max_samples': [0.5, 0.75, 1.0],'bootstrap': [True, False],'bootstrap_features': [True, False]	class_weight': None, 'criterion': 'entropy', 'max_depth': 20, 'max_features': None, 'max_leaf_nodes': 100, 'min_samples_leaf': 1, 'min_samples_split': 2, 'splitter': 'random'	n_estimators': 200, 'max_samples': 0.75, 'bootstrap_features': True, 'bootstrap': True	2.43139	97.222%

Default Random Forest (RF) Params	None	N/A	None	N/A	0.06175	97.222%
Default Random Forest (RF) Params w/ Default Bagging Params	None	None	None	None	2.11494	94.444%
Best Random Forest (RF) Params from Grid Search	n_estimators': [5, 10, 25, 50, 75],'criterion': ['gini', 'entropy'],'max_depth': [5, 10, 20, None],'min_samples_split': [2, 5, 10],'min_samples_leaf': [1, 2, 5],'max_features': [None, 'sqrt', 'log2'],'bootstrap': [True, False],'class_weight': [None, 'balanced']	N/A	bootstrap': False, 'class_weight': 'balanced', 'criterion': 'entropy', 'max_depth': 20, 'max_features': 'sqrt', 'min_samples_leaf': 2, 'min_samples_split': 2, 'n_estimators': 50	N/A	457.57454	94.444%
Best Random Forest (RF) Params from Random Search	n_estimators': [5, 10, 25, 50, 75],'criterion': ['gini', 'entropy'],'max_depth': [5, 10, 20, None],'min_samples_split': [2, 5, 10],'min_samples_leaf': [1, 2, 5],'max_features': [None, 'sqrt', 'log2'],'bootstrap': [True, False],'class_weight': [None, 'balanced']	N/A	n_estimators': 25, 'min_samples_split': 2, 'min_samples_leaf': 1, 'max_features': 'sqrt', 'max_depth': 20, 'criterion': 'gini', 'class_weight': None, 'bootstrap': False	N/A	0.56273	96.296%
Best Random Forest (RF) Params w/ Best Bagging Params from Grid Search	n_estimators': [5, 10, 25, 50, 75],'criterion': ['gini', 'entropy'],'max_depth': [5, 10, 20, None],'min_samples_split': [2, 5, 10],'min_samples_leaf': [1, 2, 5],'max_features': [None, 'sqrt', 'log2'],'bootstrap': [True, False],'class_weight': [None, 'balanced']	n_estimators': [5, 10, 25, 50, 100, 200, 400],'max_samples': [0.5, 0.75, 1.0],'bootstrap': [True, False],'bootstrap_features': [True, False]	n_estimators': 25, 'min_samples_split': 2, 'min_samples_leaf': 1, 'max_features': 'sqrt', 'max_depth': 20, 'criterion': 'gini', 'class_weight': None, 'bootstrap': False	bootstrap': False, 'bootstrap_features': True, 'max_samples': 1.0, 'n_estimators': 100	191.83544	95.370%
Best Random Forest (RF) Params w/ Best Bagging Params from Random Search	n_estimators': [5, 10, 25, 50, 75],'criterion': ['gini', 'entropy'],'max_depth': [5, 10, 20, None],'min_samples_split': [2, 5, 10],'min_samples_leaf': [1, 2, 5],'max_features': [None, 'sqrt', 'log2'],'bootstrap': [True, False],'class_weight': [None, 'balanced']	n_estimators': [5, 10, 25, 50, 100, 200, 400],'max_samples': [0.5, 0.75, 1.0],'bootstrap': [True, False],'bootstrap_features': [True, False]	n_estimators': 25, 'min_samples_split': 2, 'min_samples_leaf': 1, 'max_features': 'sqrt', 'max_depth': 20, 'criterion': 'gini', 'class_weight': None, 'bootstrap': False	n_estimators': 400, 'max_samples': 1.0, 'bootstrap_features': False, 'bootstrap': False	94.80024	97.222%

Default Perceptron Params	None	N/A	None	N/A	0.00100	72.222%
Default Perceptron Params w/ Default Bagging Params	None	None	None	None	1.91110	73.148%
Best Perceptron Params from Grid Search	penalty': ['l2', 'l1', 'elasticnet', None],'alpha': [0.0001, 0.001, 0.01, 0.1, 1],'max_iter': [500, 1000, 2000, 3500, 5000, 7500],'tol': [1e-5, 1e-4, 1e-3, 1e-2],'eta0': [0.001, 0.01, 0.1, 1],'early_stopping': [True, False],'validation_fraction': [0.1, 0.2, 0.3],'n_iter_no_change': [5, 10, 15, 20, 25]	N/A	alpha': 0.001, 'early_stopping': True, 'eta0': 1, 'max_iter': 500, 'n_iter_no_change': 25, 'penalty': None, 'tol': 1e-05, 'validation_fraction': 0.1	N/A	154.23980	69.444%
Best Perceptron Params from Random Search	penalty': ['l2', 'l1', 'elasticnet', None],'alpha': [0.0001, 0.001, 0.01, 0.1, 1],'max_iter': [500, 1000, 2000, 3500, 5000, 7500],'tol': [1e-5, 1e-4, 1e-3, 1e-2],'eta0': [0.001, 0.01, 0.1, 1],'early_stopping': [True, False],'validation_fraction': [0.1, 0.2, 0.3],'n_iter_no_change': [5, 10, 15, 20, 25]	N/A	validation_fraction': 0.3, 'tol': 1e-05, 'penalty': 'l2', 'n_iter_no_change': 20, 'max_iter': 500, 'eta0': 0.01, 'early_stopping': True, 'alpha': 0.0001	N/A	0.09692	63.889%
Best Perceptron Params w/ Best Bagging Params from Grid Search	penalty': ['l2', 'l1', 'elasticnet', None],'alpha': [0.0001, 0.001, 0.01, 0.1, 1],'max_iter': [500, 1000, 2000, 3500, 5000, 7500],'tol': [1e-5, 1e-4, 1e-3, 1e-2],'eta0': [0.001, 0.01, 0.1, 1],'early_stopping': [True, False],'validation_fraction': [0.1, 0.2, 0.3],'n_iter_no_change': [5, 10, 15, 20, 25]	n_estimators': [5, 10, 25, 50, 100, 200, 400],'max_samples': [0.5, 0.75, 1.0],'bootstrap': [True, False],'bootstrap_features': [True, False]	alpha': 0.001, 'early_stopping': True, 'eta0': 1, 'max_iter': 500, 'n_iter_no_change': 25, 'penalty': None, 'tol': 1e-05, 'validation_fraction': 0.1	bootstrap': False, 'bootstrap_features': False, 'max_samples': 0.5, 'n_estimators': 25	55.96688	74.074%
Best Perceptron Params w/ Best Bagging Params from Random Search	penalty': ['l2', 'l1', 'elasticnet', None],'alpha': [0.0001, 0.001, 0.01, 0.1, 1],'max_iter': [500, 1000, 2000, 3500, 5000, 7500],'tol': [1e-5, 1e-4, 1e-3, 1e-2],'eta0': [0.001, 0.01, 0.1, 1],'early_stopping': [True, False],'validation_fraction': [0.1, 0.2, 0.3],'n_iter_no_change': [5, 10, 15, 20, 25]	n_estimators': [5, 10, 25, 50, 100, 200, 400],'max_samples': [0.5, 0.75, 1.0],'bootstrap': [True, False],'bootstrap_features': [True, False]	alpha': 0.001, 'early_stopping': True, 'eta0': 1, 'max_iter': 500, 'n_iter_no_change': 25, 'penalty': None, 'tol': 1e-05, 'validation_fraction': 0.1	n_estimators': 200, 'max_samples': 0.75, 'bootstrap_features': False, 'bootstrap': True	10.01814	73.148%

Default Logistic Regression (LR) Params	None	N/A	None	N/A	0.00200	67.593%
Default Logistic Regression (LR) Params w/ Default Bagging Params	None	None	None	None	1.84968	69.444%
Best Logistic Regression (LR) Params from Grid Search	C': [0.01, 0.1, 1, 5, 10, 25, 50],'solver': ['newton-cg', 'lbfgs', 'saga'],'max_iter': [100, 500, 1000, 2000, 3000],'tol': [1e-4, 1e-3, 1e-2, 1e-1],'class_weight': [None, 'balanced'],'intercept_scaling': [1, 5, 10],'warm_start': [True, False]	N/A	C': 0.01, 'class_weight': None, 'intercept_scaling': 1, 'max_iter': 100, 'solver': 'newton-cg', 'tol': 0.1, 'warm_start': True	N/A	11.94676	55.556%
Best Logistic Regression (LR) Params from Random Search	C': [0.01, 0.1, 1, 5, 10, 25, 50],'solver': ['newton-cg', 'lbfgs', 'saga'],'max_iter': [100, 500, 1000, 2000, 3000],'tol': [1e-4, 1e-3, 1e-2, 1e-1],'class_weight': [None, 'balanced'],'intercept_scaling': [1, 5, 10],'warm_start': [True, False]	N/A	warm_start': False, 'tol': 0.1, 'solver': 'newton-cg', 'max_iter': 100, 'intercept_scaling': 10, 'class_weight': 'balanced', 'C': 50	N/A	0.06024	65.741%
Best Logistic Regression (LR) Params w/ Best Bagging Params from Grid Search	C': [0.01, 0.1, 1, 5, 10, 25, 50],'solver': ['newton-cg', 'lbfgs', 'saga'],'max_iter': [100, 500, 1000, 2000, 3000],'tol': [1e-4, 1e-3, 1e-2, 1e-1],'class_weight': [None, 'balanced'],'intercept_scaling': [1, 5, 10],'warm_start': [True, False]	n_estimators': [5, 10, 25, 50, 100, 200, 400],'max_samples': [0.5, 0.75, 1.0],'bootstrap': [True, False],'bootstrap_features': [True, False]	warm_start': False, 'tol': 0.1, 'solver': 'newton-cg', 'max_iter': 100, 'intercept_scaling': 10, 'class_weight': 'balanced', 'C': 50	bootstrap': False, 'bootstrap_features': True, 'max_samples': 1.0, 'n_estimators': 400	9.02997	65.741%
Best Logistic Regression Params w/ Best Bagging Params from Random Search	C': [0.01, 0.1, 1, 5, 10, 25, 50],'solver': ['newton-cg', 'lbfgs', 'saga'],'max_iter': [100, 500, 1000, 2000, 3000],'tol': [1e-4, 1e-3, 1e-2, 1e-1],'class_weight': [None, 'balanced'],'intercept_scaling': [1, 5, 10],'warm_start': [True, False]	n_estimators': [5, 10, 25, 50, 100, 200, 400],'max_samples': [0.5, 0.75, 1.0],'bootstrap': [True, False],'bootstrap_features': [True, False]	warm_start': False, 'tol': 0.1, 'solver': 'newton-cg', 'max_iter': 100, 'intercept_scaling': 10, 'class_weight': 'balanced', 'C': 50	n_estimators': 400, 'max_samples': 0.5, 'bootstrap_features': True, 'bootstrap': True	3.29277	65.741%