

Models created:

#	Model	Global Parameter s	Feature Selected	Feature Removed	Parameters	Acc	`+/-	AUC	`+/-	Reca ll	`+/-	Prec isio n	`+/-	runti me	notes
1	Decision Tree	cross val= 0 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 1 , grid search= 0	['age', 'cp', 'thalach', 'oldpeak', 'thal']	'sex', 'trestbps' , 'chol', 'fbs', 'restecg', 'exang', 'slope', 'ca']	{'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'presort': False, 'random_state': 0, 'splitter': 'best'}	0.63		0.62						0.0099	1=Stepwise Backwards Removal, no cross validation
2	Random Forest	cross val= 0 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 1 , grid search= 0	['age', 'cp', 'thalach', 'oldpeak', 'thal']	'sex', 'trestbps' , 'chol', 'fbs', 'restecg', 'exang', 'slope', 'ca']	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 200, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.76		0.84						0.19	1=Stepwise Backwards Removal, no cross validation
3	Gradient Boosting,	cross val= 0 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 1 , grid search= 0	['age', 'cp', 'thalach', 'oldpeak', 'thal']	'sex', 'trestbps' , 'chol', 'fbs', 'restecg', 'exang', 'slope', 'ca']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'deviance', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 100, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.68		0.75						0.072	1=Stepwise Backwards Removal, no cross validation
4	ADA Boost	cross val= 0 , binning= 1 , bin ct= 2 , feature	['age', 'cp', 'thalach',	'sex', 'trestbps' , 'chol', 'fbs',	{'algorithm': 'SAMME.R', 'base_estimator': None, 'learning_rate': 0.1, 'n_estimators': 100, 'random_state': 0}	0.73		0.84						0.11	1=Stepwise Backwards Removal, no cross validation

		selected= 1 , fs type= 1 , grid search= 0	'oldpeak', 'thal']	'restecg', 'exang', 'slope', 'ca']											
5	Neural Network	cross val= 0 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 1 , grid search= 0	['age', 'cp', 'thalach', 'oldpeak', 'thal']	'sex', 'trestbps' , 'chol', 'fbs', 'restecg', 'exang', 'slope', 'ca']	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (10,),'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.82		0.88						0.39	1=Stepwise Backwards Removal, no cross validation
6	SVC	cross val= 0 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 1 , grid search= 0	['age', 'cp', 'thalach', 'oldpeak', 'thal']	'sex', 'trestbps' , 'chol', 'fbs', 'restecg', 'exang', 'slope', 'ca']	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 'scale', 'kernel': 'linear', 'max_iter': -1, 'probability': True, 'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}	0.83		0.88						0.19	1=Stepwise Backwards Removal, no cross validation
7	Decision Tree	cross val= 0 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 2 , grid search= 0	['age', 'cp', 'trestbps', 'chol', 'thalach', 'oldpeak', 'ca', 'thal']	['sex', 'fbs', 'restecg', 'exang', 'slope']	{'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'presort': False, 'random_state': 0, 'splitter': 'best'}	0.79		0.79						0	changed wrapper to #2, improved socres, scores change each time they run, no cross validation
8	Random Forest	cross val= 0 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 2 , grid search= 0	['age', 'cp', 'trestbps', 'chol', 'thalach', 'oldpeak', 'ca', 'thal']	['sex', 'fbs', 'restecg', 'exang', 'slope']	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 200, 'n_jobs': None,	0.85		0.89						0.22	changed wrapper to #2, improved socres, scores change each time they run, no cross validation

					'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}										
9	Gradient Boosting,	cross val= 0 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 2 , grid search= 0	['age', 'cp', 'trestbps', 'chol', 'thalach', 'oldpeak', 'ca', 'thal']	['sex', 'fbs', 'restecg', 'exang', 'slope']	{ 'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'deviance', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 100, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.83		0.90						0.07	changed wrapper to #2, improved socres, scores change each time they run, no cross validation
10	ADA Boost	cross val= 0 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 2 , grid search= 0	['age', 'cp', 'trestbps', 'chol', 'thalach', 'oldpeak', 'ca', 'thal']	['sex', 'fbs', 'restecg', 'exang', 'slope']	{ 'algorithm': 'SAMME.R', 'base_estimator': None, 'learning_rate': 0.1, 'n_estimators': 100, 'random_state': 0}	0.86		0.90						0.14	changed wrapper to #2, improved socres, scores change each time they run, no cross validation
11	Neural Network	cross val= 0 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 2 , grid search= 0	['age', 'cp', 'trestbps', 'chol', 'thalach', 'oldpeak', 'ca', 'thal']	['sex', 'fbs', 'restecg', 'exang', 'slope']	{ 'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (10,), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.80		0.89						0.472	changed wrapper to #2, improved socres, scores change each time they run, no cross validation
12	SVC	cross val= 0 , binning= 1 , bin ct= 2 , feature	['age', 'cp', 'trestbps', 'chol',	['sex', 'fbs', 'restecg',	{ 'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 'scale', 'kernel': 'linear', 'max_iter': -1, 'probability': True,	0.83		0.89						0.81	changed wrapper to #2, improved socres, scores change each

		selected= 1 , fs type= 2 , grid search= 0	'thalach', 'oldpeak', 'ca', 'thal']	'exang', 'slope']	'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}										time they run, no cross validation
13	Decision Tree	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 1 , grid search= 0	['age', 'cp', 'thalach', 'oldpeak', 'thal']	['sex', 'trestbps' , 'chol', 'fbs', 'restecg', 'exang', 'slope', 'ca']	{ 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'presort': False, 'random_state': 0, 'splitter': 'best'}	0.71	0.18	0.70	0.18					0.019 99	Cross Valid, feature selection Stepwise Backwards Removal
14	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 1 , grid search= 0	['age', 'cp', 'thalach', 'oldpeak', 'thal']	['sex', 'trestbps' , 'chol', 'fbs', 'restecg', 'exang', 'slope', 'ca']	{ 'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 200, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.75	0.08	0.83	0.09					1.12	Cross Valid, feature selection Stepwise Backwards Removal
15	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 1 , grid search= 0	['age', 'cp', 'thalach', 'oldpeak', 'thal']	['sex', 'trestbps' , 'chol', 'fbs', 'restecg', 'exang', 'slope', 'ca']	{ 'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'deviance', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 100, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.75	0.10	0.83	0.08					0.3	Cross Valid, feature selection Stepwise Backwards Removal
16	ADA Boost	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1	['age', 'cp', 'thalach', 'oldpeak', 'thal']	['sex', 'trestbps' , 'chol', 'fbs', 'restecg',	{ 'algorithm': 'SAMME.R', 'base_estimator': None, 'learning_rate': 0.1, 'n_estimators': 100, 'random_state': 0}	0.78	0.13	0.85	0.14					0.7	Cross Valid, feature selection Stepwise Backwards Removal

		, fs type= 1 , grid search= 0		'exang', 'slope', 'ca']											
17	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 1 , grid search= 0	['age', 'cp', 'thalach', 'oldpeak', 'thal']	['sex', 'trestbps', 'chol', 'fbs', 'restecg', 'exang', 'slope', 'ca']	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (10,), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.80	0.12	0.88	0.07					2.415	Cross Valid, feature selection Stepwise Backwards Removal
18	SVC	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 1 , grid search= 0	['age', 'cp', 'thalach', 'oldpeak', 'thal']	['sex', 'trestbps', 'chol', 'fbs', 'restecg', 'exang', 'slope', 'ca']	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 'scale', 'kernel': 'linear', 'max_iter': -1, 'probability': True, 'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}	0.80	0.14	0.87	0.10					1.404	Cross Valid, feature selection Stepwise Backwards Removal
19	Decision Tree	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 2 , grid search= 0	['age', 'cp', 'chol', 'thalach', 'oldpeak', 'ca', 'thal']	['sex', 'trestbps', 'fbs', 'restecg', 'exang', 'slope']	{'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'presort': False, 'random_state': 0, 'splitter': 'best'}	0.73	0.16	0.73	0.15					0.029 9	CV, Wrapper Select via model Random Forest
20	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 2 , grid search= 0	['age', 'cp', 'chol', 'thalach', 'oldpeak', 'ca', 'thal']	['sex', 'trestbps', 'fbs', 'restecg', 'exang', 'slope']	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 200, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.79	0.11	0.88	0.07					1.155	CV, Wrapper Select via model Random Forest

21	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 2 , grid search= 0	['age', 'cp', 'chol', 'thalach', 'oldpeak', 'ca', 'thal']	['sex', 'trestbps', , 'fbs', 'restecg', 'exang', 'slope']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'deviance', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 100, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.77	0.11	0.88	0.07						0.31	CV, Wrapper Select via model Random Forest
22	ADA Boost	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 2 , grid search= 0	['age', 'cp', 'chol', 'thalach', 'oldpeak', 'ca', 'thal']	['sex', 'trestbps', , 'fbs', 'restecg', 'exang', 'slope']	{'algorithm': 'SAMME.R', 'base_estimator': None, 'learning_rate': 0.1, 'n_estimators': 100, 'random_state': 0}	0.80	0.12	0.88	0.10						0.72	CV, Wrapper Select via model Random Forest
23	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 2 , grid search= 0	['age', 'cp', 'chol', 'thalach', 'oldpeak', 'ca', 'thal']	['sex', 'trestbps', , 'fbs', 'restecg', 'exang', 'slope']	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (10,), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.54	0.00	0.27	0.09						0.13	CV, Wrapper Select via model Random Forest
24	SVC	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 2 , grid search= 0	['age', 'cp', 'chol', 'thalach', 'oldpeak', 'ca', 'thal']	['sex', 'trestbps', , 'fbs', 'restecg', 'exang', 'slope']	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 'scale', 'kernel': 'linear', 'max_iter': -1, 'probability': True, 'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}	0.82	0.10	0.89	0.07						8.752	CV, Wrapper Select via model Random Forest

25	Decision Tree	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 3 , grid search= 0	['age', 'cp', 'oldpeak', 'ca', 'thal']	['sex', 'trestbps', 'chol', 'fbs', 'restecg', 'thalach', 'exang', 'slope']	{'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'presort': False, 'random_state': 0, 'splitter': 'best'}	0.76	0.11	0.75	0.12						0.0199	CV, Wrapper Select via model Gradient Boosting
26	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 3 , grid search= 0	['age', 'cp', 'oldpeak', 'ca', 'thal']	['sex', 'trestbps', 'chol', 'fbs', 'restecg', 'thalach', 'exang', 'slope']	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 200, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.79	0.12	0.87	0.08						1.1	CV, Wrapper Select via model Gradient Boosting
27	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 3 , grid search= 0	['age', 'cp', 'oldpeak', 'ca', 'thal']	['sex', 'trestbps', 'chol', 'fbs', 'restecg', 'thalach', 'exang', 'slope']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'deviance', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 100, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.77	0.11	0.87	0.09						0.29	CV, Wrapper Select via model Gradient Boosting
28	ADA Boost	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 3 , grid search= 0	['age', 'cp', 'oldpeak', 'ca', 'thal']	['sex', 'trestbps', 'chol', 'fbs', 'restecg', 'thalach', 'exang', 'slope']	{'algorithm': 'SAMME.R', 'base_estimator': None, 'learning_rate': 0.1, 'n_estimators': 100, 'random_state': 0}	0.80	0.13	0.89	0.13						0.75	CV, Wrapper Select via model Gradient Boosting

29	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 3 , grid search= 0	['age', 'cp', 'oldpeak', 'ca', 'thal']	['sex', 'trestbps', 'chol', 'fbs', 'restecg', 'thalach', 'exang', 'slope']	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (10,), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.82	0.08	0.87	0.10						2.4	CV, Wrapper Select via model Gradient Boosting
30	SVC	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 3 , grid search= 0	['age', 'cp', 'oldpeak', 'ca', 'thal']	['sex', 'trestbps', 'chol', 'fbs', 'restecg', 'thalach', 'exang', 'slope']	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 'scale', 'kernel': 'linear', 'max_iter': -1, 'probability': True, 'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}	0.82	0.13	0.89	0.08						0.18	CV, Wrapper Select via model Gradient Boosting
31	Decision Tree	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'presort': False, 'random_state': 0, 'splitter': 'best'}	0.80	0.11	0.82	0.11						0.03	CV, Wrapper Select - SVC
32	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 200, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.82	0.06	0.90	0.03						1.198	CV, Wrapper Select - SVC
33	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 ,	['sex', 'cp', 'fbs', 'exang',	['age', 'trestbps', 'chol',	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'deviance', 'max_depth': 3, 'max_features': None,	0.82	0.05	0.89	0.05						0.564	CV, Wrapper Select - SVC

		feature selected= 1 , fs type= 4 , grid search= 0	'slope', 'ca', 'thal']	'restecg', 'thalach', 'oldpeak']	'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 100, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}											
34	ADA Boost	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'algorithm': 'SAMME.R', 'base_estimator': None, 'learning_rate': 0.1, 'n_estimators': 100, 'random_state': 0}	0.85	0.06	0.92	0.04						1.018	CV, Wrapper Select - SVC - best model so far
35	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (10,), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.79	0.09	0.90	0.05						3.378	CV, Wrapper Select - SVC
36	SVC	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 'scale', 'kernel': 'linear', 'max_iter': -1, 'probability': True, 'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}	0.83	0.09	0.90	0.07						0.049 9	CV, Wrapper Select - SVC
37	Decision Tree	cross val= 1 , binning= 1 , bin ct= 2 ,	['thalach', 'exang',	['age', 'sex', 'cp', 'trestbps'	{'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': None, 'max_leaf_nodes': None,	0.75	0.09	0.74	0.12						0.03	CV, Univariate Feature Selection - Chi-squared k=5

		feature selected= 1 , fs type= 5 , grid search= 0	'oldpeak', 'ca', 'thal']	, 'chol', 'fbs', 'restecg', 'slope']	'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'presort': False, 'random_state': 0, 'splitter': 'best']										
38	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 5 , grid search= 0	['thalach', 'exang', 'oldpeak', 'ca', 'thal']	['age', 'sex', 'cp', 'trestbps', 'chol', 'fbs', 'restecg', 'slope']	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 200, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.80	0.10	0.86	0.10					1.11	CV, Univariate Feature Selection - Chi-squared k=5
39	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 5 , grid search= 0	['thalach', 'exang', 'oldpeak', 'ca', 'thal']	['age', 'sex', 'cp', 'trestbps', 'chol', 'fbs', 'restecg', 'slope']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'deviance', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 100, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.77	0.05	0.85	0.06					0.29	CV, Univariate Feature Selection - Chi-squared k=5
40	ADA Boost	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 5 , grid search= 0	['thalach', 'exang', 'oldpeak', 'ca', 'thal']	['age', 'sex', 'cp', 'trestbps', 'chol', 'fbs', 'restecg', 'slope']	{'algorithm': 'SAMME.R', 'base_estimator': None, 'learning_rate': 0.1, 'n_estimators': 100, 'random_state': 0}	0.82	0.10	0.88	0.08					0.75	CV, Univariate Feature Selection - Chi-squared k=5
41	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature	['thalach', 'exang', 'oldpeak', 'ca', 'thal']	['age', 'sex', 'cp', 'trestbps', 'chol',	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (10,), 'learning_rate':	0.82	0.11	0.90	0.05					3.196	CV, Univariate Feature Selection - Chi-squared k=5

		selected= 1 , fs type= 5 , grid search= 0		'fbs', 'restecg', 'slope']	'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}										
42	SVC	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 5 , grid search= 0	['thalach', 'exang', 'oldpeak', 'ca', 'thal']	['age', 'sex', 'cp', 'trestbps' , 'chol', 'fbs', 'restecg', 'slope']	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 'scale', 'kernel': 'linear', 'max_iter': -1, 'probability': True, 'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}	0.83	0.08	0.90	0.05					0.884	CV, Univariate Feature Selection - Chi-squared k=5
43	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 200, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.82	0.06	0.90	0.04					1.322	CV, Wrapper Select - SVC, entropy ,200 trees
44	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 100, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.82	0.06	0.90	0.04					0.52	CV, Wrapper Select - SVC, , entropy ,100 trees
45	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg',	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None,	0.83	0.06	0.90	0.04					1.9	CV, Wrapper Select - SVC, , entropy ,300 trees

		, fs type= 4 , grid search= 0		'thalach', 'oldpeak']	'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 300, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}										
46	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 500, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.82	0.07	0.90	0.04					2.63	CV, Wrapper Select - SVC, entropy , 500
47	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 800, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.83	0.08	0.90	0.04					4.04	CV, Wrapper Select - SVC, entropy , 800
48	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 1000, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.83	0.06	0.91	0.04					6.16	CV, Wrapper Select - SVC, entropy , 1000 - large tree gives slightly better resoult
49	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg',	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None,	0.83	0.06	0.91	0.04					7.582	CV, Wrapper Select - SVC, entropy , 1500

		, fs type= 4 , grid search= 0		'thalach', 'oldpeak']	'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 1500, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}										
50	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 2000, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.83	0.07	0.90	0.04					10.19	CV, Wrapper Select - SVC, entropy , 2000
51	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'bootstrap': True, 'class_weight': None, 'criterion': 'gini', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 200, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.82	0.07	0.90	0.04					1.36	CV, Wrapper Select - SVC, gini , 200
52	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'bootstrap': True, 'class_weight': None, 'criterion': 'gini', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 100, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.82	0.06	0.90	0.04					0.55	CV, Wrapper Select - SVC, gini , 100
53	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg',	{'bootstrap': True, 'class_weight': None, 'criterion': 'gini', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None,	0.83	0.08	0.90	0.04					1.63	CV, Wrapper Select - SVC, gini , 300

		, fs type= 4 , grid search= 0		'thalach', 'oldpeak']	'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 300, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}										
54	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'bootstrap': True, 'class_weight': None, 'criterion': 'gini', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 500, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.83	0.08	0.90	0.04					2.62	CV, Wrapper Select - SVC, gini , 500
55	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'bootstrap': True, 'class_weight': None, 'criterion': 'gini', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 800, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.83	0.07	0.90	0.04					6.15	CV, Wrapper Select - SVC, gini , 800
56	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'bootstrap': True, 'class_weight': None, 'criterion': 'gini', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 1000, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.82	0.06	0.90	0.04					5.59	CV, Wrapper Select - SVC, gini , 1000
57	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg',	{'bootstrap': True, 'class_weight': None, 'criterion': 'gini', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None,	0.83	0.07	0.90	0.03					8.31	CV, Wrapper Select - SVC, gini , 1500

		, fs type= 4 , grid search= 0		'thalach', 'oldpeak']	'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 1500, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}										
58	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'bootstrap': True, 'class_weight': None, 'criterion': 'gini', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 2000, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.83	0.08	0.90	0.04					10.11	CV, Wrapper Select - SVC, gini , 2000
59	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 2, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 1000, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.83	0.05	0.90	0.04					5.25	CV, Wrapper Select - SVC, entropy , 1000, min split 2
60	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 5, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 1000, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.83	0.09	0.91	0.04					4.961	CV, Wrapper Select - SVC, entropy , 1000, min split 5
61	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg',	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None,	0.85	0.08	0.91	0.04					5.02	CV, Wrapper Select - SVC, entropy , 1000, min split 8

		, fs type= 4 , grid search= 0		'thalach', 'oldpeak']	'min_samples_leaf': 1, 'min_samples_split': 8, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 1000, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}										
62	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 10, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 1000, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.85	0.07	0.91	0.04					4.75	CV, Wrapper Select - SVC, entropy , 1000, min split 10
63	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 15, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 1000, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.85	0.08	0.92	0.04					5.15	CV, Wrapper Select - SVC, entropy , 1000, min split 15
64	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 20, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 1000, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.86	0.07	0.92	0.04					4.66	CV, Wrapper Select - SVC, entropy , 1000, min split 20
65	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg',	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None,	0.87	0.08	0.92	0.04	0.83	0.15	0.88	0.09	5.89	CV, Wrapper Select - SVC, entropy , 1000, min split 30 - split improved RF a by

		, fs type= 4 , grid search= 0		'thalach', 'oldpeak']	'min_samples_leaf': 1, 'min_samples_split': 30, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 1000, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}										0.04, best model so far
66	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{ 'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 40, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 1000, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.87	0.08	0.91	0.04					5.13	CV, Wrapper Select - SVC, entropy , 1000, min split 40
67	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 1	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{ 'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': 2, 'max_features': 'log2', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 28, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 900, 'n_jobs': None, 'oob_score': False, 'random_state': 0, 'verbose': 0, 'warm_start': False}	0.85	0.07	0.91	0.05					5527. 16	CV, Wrapper Select - SVC, gridsearchcv { 'n_estimators': [900,950,1000,1050] , 'max_features': ['log2', 'sqrt','auto', None], 'criterion': ['entropy'], 'max_depth': [None, 2, 3, 5, 10], 'min_samples_split': [28,29,30,31,32,33], 'min_samples_leaf': [1,5,8]}
68	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature	['sex', 'cp', 'fbs', 'exang',	['age', 'trestbps' , 'chol', 'restecg',	{ 'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'deviance', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None,	0.82	0.05	0.89	0.05					0.27	CV, Wrapper Select - SVC, deviance , tree = 100

		selected= 1 , fs type= 4 , grid search= 0	'slope', 'ca', 'thal']	'thalach', 'oldpeak']	'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 100, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}										
69	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'deviance', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 200, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.81	0.05	0.88	0.05					0.55	CV, Wrapper Select - SVC, deviance , tree = 200
70	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'deviance', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 300, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.81	0.05	0.88	0.05					0.84	CV, Wrapper Select - SVC, deviance , tree = 300
71	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg',	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'deviance', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0,	0.80	0.03	0.87	0.05					1.33	CV, Wrapper Select - SVC, deviance , tree = 500 - performance decreases, runtime increases

		, fs type= 4 , grid search= 0		'thalach', 'oldpeak']	'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 500, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}										
72	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'deviance', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 50, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.83	0.08	0.90	0.05					0.15	CV, Wrapper Select - SVC, deviance , tree = 50 - performance increased, runtime decreased
73	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'deviance', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 25, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.83	0.06	0.91	0.05					0.08	CV, Wrapper Select - SVC, deviance , tree = 25 - performance increased, runtime decreased
74	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'deviance', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None,	0.84	0.09	0.89	0.08					0.07	CV, Wrapper Select - SVC, deviance , tree = 10

		, grid search= 0			'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 10, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}										
75	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'exponential', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 100, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.83	0.07	0.89	0.04					0.26	CV, Wrapper Select - SVC, exponential , tree = 100
76	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'exponential', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 200, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.81	0.05	0.87	0.05					0.52	CV, Wrapper Select - SVC, exponential , tree = 200
77	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'exponential', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3,	0.81	0.04	0.87	0.05					0.9	CV, Wrapper Select - SVC, exponential , tree = 300

		, grid search= 0			'min_weight_fraction_leaf': 0.0, 'n_estimators': 300, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}										
78	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'exponential', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 500, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.80	0.04	0.86	0.05					1.694	CV, Wrapper Select - SVC, exponential , tree = 500
79	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'exponential', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 50, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.83	0.05	0.89	0.05					0.139 9	CV, Wrapper Select - SVC, exponential , tree = 50
80	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'exponential', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0,	0.84	0.07	0.91	0.06					0.079 9	CV, Wrapper Select - SVC, exponential , tree = 25

					'n_estimators': 25, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}										
81	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'exponential', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 10, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.84	0.08	0.90	0.07					0.102	CV, Wrapper Select - SVC, exponential , tree = 10
82	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.05, 'loss': 'exponential', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 25, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.85	0.07	0.90	0.06	0.80	0.15	0.86	0.07	0.089	CV, Wrapper Select - SVC, exponential , tree = 25, learning rate 0.05
83	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	Parameters: {'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.15, 'loss': 'exponential', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 25, 'n_iter_no_change': None,	0.83	0.07	0.90	0.06					0.099 9	CV, Wrapper Select - SVC, exponential , tree = 25, learning rate 0.15

					'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}										
84	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.15, 'loss': 'deviance', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 25, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.83	0.08	0.91	0.04					0.13	CV, Wrapper Select - SVC, deviance , tree = 25, learning rate 0.15
85	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.2, 'loss': 'deviance', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 25, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.83	0.08	0.90	0.05					0.143	CV, Wrapper Select - SVC, deviance , tree = 25, learning rate 0.2
86	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.05, 'loss': 'deviance', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 25, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0,	0.84	0.08	0.90	0.06					0.07	CV, Wrapper Select - SVC, deviance , tree = 25, learning rate 0.05

					'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}										
87	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'exponential', 'max_depth': 2, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 25, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.84	0.06	0.91	0.05					0.07	CV, Wrapper Select - SVC, exponential , tree = 25, max depth = 2
88	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'deviance', 'max_depth': 2, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 25, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.84	0.08	0.91	0.05					0.09	CV, Wrapper Select - SVC, deviance , tree = 25, max depth = 2
89	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'exponential', 'max_depth': 4, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 25, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001,	0.82	0.08	0.90	0.05					0.14	CV, Wrapper Select - SVC, exponential , tree = 25, max depth = 4

					'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}										
90	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{ 'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.1, 'loss': 'deviance', 'max_depth': 4, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 25, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.82	0.07	0.90	0.05					0.11	CV, Wrapper Select - SVC, deviance , tree = 25, max depth = 4
91	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 1	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{ 'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.05, 'loss': 'deviance', 'max_depth': 2, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 2, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 25, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.84	0.08	0.90	0.05					162.80	grid search
92	ADA Boost	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{ 'algorithm': 'SAMME.R', 'base_estimator': None, 'learning_rate': 0.1, 'n_estimators': 20, 'random_state': 0}	0.85	0.10	0.90	0.05					0.15	CV, wrapper -SVC, n_est = 20
93	ADA Boost	cross val= 1 , binning= 1 , bin ct= 2 ,	['sex', 'cp', 'fbs', 'exang',	['age', 'trestbps', 'chol',	{ 'algorithm': 'SAMME.R', 'base_estimator': None, 'learning_rate': 0.1, 'n_estimators': 50, 'random_state': 0}	0.85	0.06	0.92	0.04					0.36	CV, wrapper -SVC, n_est = 50

		feature selected= 1 , fs type= 4 , grid search= 0	'slope', 'ca', 'thal']	'restecg', 'thalach', 'oldpeak']											
94	ADA Boost	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'algorithm': 'SAMME.R', 'base_estimator': None, 'learning_rate': 0.1, 'n_estimators': 100, 'random_state': 0}	0.85	0.06	0.92	0.04	0.81	0.12	0.86	0.08	0.87	CV, wrapper -SVC, n_est = 100 best model
95	ADA Boost	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'algorithm': 'SAMME.R', 'base_estimator': None, 'learning_rate': 0.1, 'n_estimators': 150, 'random_state': 0}	0.85	0.06	0.91	0.04					1.05	CV, wrapper -SVC, n_est = 150
96	ADA Boost	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'algorithm': 'SAMME.R', 'base_estimator': None, 'learning_rate': 0.1, 'n_estimators': 200, 'random_state': 0}	0.84	0.06	0.91	0.04					1.36	CV, wrapper -SVC, n_est = 200
97	ADA Boost	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'algorithm': 'SAMME.R', 'base_estimator': None, 'learning_rate': 0.1, 'n_estimators': 300, 'random_state': 0}	0.84	0.06	0.91	0.04					1.91	CV, wrapper -SVC, n_est = 300

98	ADA Boost	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', , 'chol', 'restecg', 'thalach', 'oldpeak']	{'algorithm': 'SAMME.R', 'base_estimator': None, 'learning_rate': 0.1, 'n_estimators': 500, 'random_state': 0}	0.84	0.06	0.91	0.04						3.61	CV, wrapper -SVC, n_est = 500
99	ADA Boost	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', , 'chol', 'restecg', 'thalach', 'oldpeak']	{'algorithm': 'SAMME.R', 'base_estimator': None, 'learning_rate': 0.05, 'n_estimators': 100, 'random_state': 0}	0.85	0.06	0.92	0.04						0.77	CV, wrapper -SVC, n_est = 100, learning rate = 0.05
100	ADA Boost	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', , 'chol', 'restecg', 'thalach', 'oldpeak']	{'algorithm': 'SAMME.R', 'base_estimator': None, 'learning_rate': 0.15, 'n_estimators': 100, 'random_state': 0}	0.85	0.06	0.91	0.04						0.71	CV, wrapper -SVC, n_est = 100, learning rate = 0.15
101	ADA Boost	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', , 'chol', 'restecg', 'thalach', 'oldpeak']	{'algorithm': 'SAMME.R', 'base_estimator': None, 'learning_rate': 0.2, 'n_estimators': 100, 'random_state': 0}	0.84	0.06	0.91	0.04						0.64	CV, wrapper -SVC, n_est = 100, learning rate = 0.2
102	ADA Boost	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', , 'chol', 'restecg', 'thalach', 'oldpeak']	{'algorithm': 'SAMME.R', 'base_estimator__bootstrap': True, 'base_estimator__class_weight': None, 'base_estimator__criterion': 'entropy', 'base_estimator__max_depth': None, 'base_estimator__max_features': 'auto', 'base_estimator__max_leaf_nodes': None, 'base_estimator__min_impurity_decrease':	0.83	0.09	0.90	0.05						538.7 5	CV, wrapper SVC, n_est =100, learning rate =0.1, base estimator = Random Forest Classifier

					0.0, 'base_estimator__min_impurity_split': None, 'base_estimator__min_samples_leaf': 1, 'base_estimator__min_samples_split': 30, 'base_estimator__min_weight_fraction_leaf': 0.0, 'base_estimator__n_estimators': 1000, 'base_estimator__n_jobs': None, 'base_estimator__oob_score': False, 'base_estimator__random_state': None, 'base_estimator__verbose': 0, 'base_estimator__warm_start': False, 'base_estimator': RandomForestClassifier(bootstrap=True, class_weight=None, criterion='entropy', max_depth=None, max_features='auto', max_leaf_nodes=None, min_impurity_decrease=0.0, min_impurity_split=None, min_samples_leaf=1, min_samples_split=30, min_weight_fraction_leaf=0.0, n_estimators=1000, n_jobs=None, oob_score=False, random_state=None, verbose=0, warm_start=False), 'learning_rate': 0.1, 'n_estimators': 100, 'random_state': 0}										
103	ADA Boost	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 1	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{'algorithm': 'SAMME.R', 'base_estimator__bootstrap': True, 'base_estimator__class_weight': None, 'base_estimator__criterion': 'gini', 'base_estimator__max_depth': None, 'base_estimator__max_features': 'auto', 'base_estimator__max_leaf_nodes': None, 'base_estimator__min_impurity_decrease': 0.0, 'base_estimator__min_impurity_split': None, 'base_estimator__min_samples_leaf': 1, 'base_estimator__min_samples_split': 3, 'base_estimator__min_weight_fraction_leaf': 0.0, 'base_estimator__n_estimators': 100, 'base_estimator__n_jobs': None, 'base_estimator__oob_score': False, 'base_estimator__random_state': None, 'base_estimator__verbose': 0,	0.83	0.06	0.89	0.04	0.82	0.13	0.82	0.14	1557.34	grid search

					'base_estimator__warm_start': False, 'base_estimator': RandomForestClassifier(bootstrap=True, class_weight=None, criterion='gini',max_depth=None, max_features='auto', max_leaf_nodes=None,min_impurity_decrease=0.0, min_impurity_split=None,min_samples_leaf=1, min_samples_split=3,min_weight_fraction_leaf=0.0, n_estimators=100, n_jobs=None,oob_score=False, random_state=None, verbose=0,warm_start=False), learning_rate': 0.08, 'n_estimators': 90, 'random_state': 0}										
104	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', , 'chol', 'restecg', 'thalach', 'oldpeak']	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (10,),'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.79	0.09	0.90	0.05	0.75	0.16	0.80	0.14	2.80	hidden leyer (10,) adam
105	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', , 'chol', 'restecg', 'thalach', 'oldpeak']	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (100,),'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.83	0.10	0.90	0.05	0.78	0.16	0.84	0.16	2.70	hidden leyer (100,) adam
106	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 ,	['sex', 'cp', 'fbs', 'exang',	['age', 'trestbps', , 'chol',	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08,	0.84	0.10	0.90	0.05	0.80	0.18	0.86	0.14	2.80	hidden leyer (100,100) adam

		feature selected= 1 , fs type= 4 , grid search= 0	'slope', 'ca', 'thal']	'restecg', 'thalach', 'oldpeak']	'hidden_layer_sizes': (100, 100), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}										
107	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (100, 100, 100), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.84	0.08	0.90	0.06	0.79	0.18	0.86	0.10	3.80	hidden leyer (100,100,100) adam
108	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (50,), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.82	0.11	0.90	0.05	0.79	0.18	0.83	0.15	2.39	hidden leyer (50,) adam
109	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (50, 50), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver':	0.83	0.10	0.90	0.05	0.78	0.16	0.84	0.15	3.08	hidden leyer (50,50) adam

					'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}										
110	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (50, 50, 50), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.83	0.08	0.90	0.05	0.79	0.13	0.84	0.12	3.67	hidden leyer (50,50,50) adam
111	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (150,), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.83	0.10	0.90	0.05	0.78	0.16	0.84	0.15	2.87	hidden leyer (150,) adam
112	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (150, 150), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.83	0.09	0.90	0.05	0.76	0.19	0.85	0.13	3.79	hidden leyer (150,150) adam
113	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg',	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (200, 200, 200), 'learning_rate': 'constant', 'learning_rate_init':	0.84	0.10	0.90	0.06	0.77	0.18	0.88	0.12	6.41	hidden leyer (200,200,200) adam

		, fs type= 4 , grid search= 0		['thalach', 'oldpeak']	0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}										
114	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (10,), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'lbfgs', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.81	0.10	0.85	0.12	0.83	0.21	0.79	0.17	1.98	hidden leyer (10,) lbfgs
115	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (10, 10), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'lbfgs', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.81	0.08	0.82	0.15	0.79	0.15	0.80	0.15	2.78	hidden leyer (10,10) lbfgs
116	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (100,), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'lbfgs', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.80	0.10	0.83	0.09	0.81	0.10	0.77	0.15	4.72	hidden leyer (100,) lbfgs

117	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (100, 100), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'lbfgs', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.82	0.04	0.82	0.07	0.82	0.16	0.77	0.11	18.09	hidden layer (100,100) lbfgs
118	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (100, 100, 100), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'lbfgs', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.77	0.09	0.78	0.08	0.76	0.15	0.75	0.13	24.66	hidden layer (100,100,100) lbfgs
119	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{'activation': 'identity', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (100, 100), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.84	0.08	0.90	0.06	0.80	0.18	0.86	0.13	1.42	ctivation= 'identity' adam hidden layer (100,100)
120	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', 'chol', 'restecg', 'thalach', 'oldpeak']	{'activation': 'tanh', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (100, 100), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10,	0.83	0.09	0.90	0.05	0.79	0.13	0.84	0.13	1.92	'activation': 'tanh' adam hidden layer (100,100)

		, grid search= 0			'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}										
121	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'activation': 'relu', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (100, 100), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.82	0.08	0.88	0.05	0.81	0.09	0.80	0.10	5.60	activation': 'relu' adam hidden layer (100,100)
122	Neural Network	GridSearch			{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (100,), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.83	0.10	0.90	0.05	0.78	0.16	0.84	0.16	396.1 5	GridSearch [[47 11]
123	SVC	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 'scale', 'kernel': 'linear', 'max_iter': -1, 'probability': True, 'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}	0.83	0.09	0.90	0.07	0.79	0.14	0.84	0.11	0.08	kernel='linear', gamma= 'scale',
124	SVC	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 0.1, 'kernel': 'linear', 'max_iter': -1, 'probability': True, 'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}	0.83	0.09	0.90	0.07	0.79	0.14	0.84	0.11	0.06	kernel='linear', gamma= 0.1,

		, grid search= 0													
125	SVC	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', , 'chol', 'restecg', 'thalach', 'oldpeak']	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 0.01, 'kernel': 'linear', 'max_iter': -1, 'probability': True, 'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}	0.83	0.09	0.90	0.07	0.79	0.14	0.84	0.11	0.04	kernel='linear', gamma= 0.01,
126	SVC	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', , 'chol', 'restecg', 'thalach', 'oldpeak']	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 'auto', 'kernel': 'linear', 'max_iter': -1, 'probability': True, 'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}	0.83	0.09	0.90	0.07	0.79	0.14	0.84	0.11	0.07	kernel='linear', gamma= 'auto'
127	SVC	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', , 'chol', 'restecg', 'thalach', 'oldpeak']	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 'scale', 'kernel': 'poly', 'max_iter': -1, 'probability': True, 'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}	0.84	0.09	0.89	0.07	0.78	0.18	0.87	0.11	0.08	kernel='poly', gamma= 'scale'
128	SVC	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', , 'chol', 'restecg', 'thalach', 'oldpeak']	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 0.1, 'kernel': 'poly', 'max_iter': -1, 'probability': True, 'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}	0.83	0.11	0.89	0.06	0.75	0.23	0.86	0.11	0.13	kernel='poly', gamma= 0.1
129	SVC	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', , 'chol', 'restecg',	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 0.01, 'kernel': 'poly', 'max_iter': -1, 'probability': True,	0.79	0.15	0.87	0.09	0.70	0.24	0.80	0.16	0.07	kernel='poly', gamma= 0.01

		, fs type= 4 , grid search= 0		'thalach', 'oldpeak']	'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}										
130	SVC	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 'auto', 'kernel': 'poly', 'max_iter': -1, 'probability': True, 'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}	0.81	0.10	0.88	0.06	0.75	0.22	0.83	0.13	0.16	kernel='poly', gamma= 'auto'
131	SVC	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 'scale', 'kernel': 'sigmoid', 'max_iter': -1, 'probability': True, 'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}	0.23	0.06	0.14	0.10	0.11	0.05	0.12	0.04	0.22	kernel='sigmoid', gamma= 'scale'
132	SVC	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 0.1, 'kernel': 'sigmoid', 'max_iter': -1, 'probability': True, 'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}	0.24	0.07	0.14	0.10	0.09	0.06	0.11	0.03	0.15	kernel='sigmoid', gamma= 0.1
133	SVC	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 0.01, 'kernel': 'sigmoid', 'max_iter': -1, 'probability': True, 'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}	0.77	0.13	0.88	0.08	0.73	0.25	0.75	0.11	0.09	kernel='sigmoid', gamma= 0.01
134	SVC	cross val= 1 , binning= 1 , bin ct= 2 , feature	['sex', 'cp', 'fbs', 'exang',	['age', 'trestbps' , 'chol', 'restecg',	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 'auto', 'kernel': 'sigmoid', 'max_iter': -1, 'probability': True,	0.38	0.07	0.14	0.10	0.06	0.10	0.11	0.17	0.13	kernel='sigmoid', gamma= 'auto'

		selected= 1 , fs type= 4 , grid search= 0	'slope', 'ca', 'thal']	'thalach', 'oldpeak']	'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}										
135	SVC	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 'scale', 'kernel': 'rbf', 'max_iter': -1, 'probability': True, 'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}	0.83	0.12	0.90	0.05	0.78	0.16	0.84	0.15	0.07	kernel='rbf', gamma= 'scale',
136	SVC	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 'auto', 'kernel': 'rbf', 'max_iter': -1, 'probability': True, 'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}	0.83	0.13	0.90	0.04	0.78	0.16	0.84	0.17	0.07	kernel='rbf', gamma= 'auto'
137	SVC gridsearch	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'C': 4, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 'scale', 'kernel': 'rbf', 'max_iter': -1, 'probability': True, 'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}	0.83	0.10	0.90	0.05	0.79	0.14	0.84	0.13	13.11	SVC gridsearch
138	Random Forest	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps' , 'chol', 'restecg', 'thalach', 'oldpeak']	{'bootstrap': True, 'class_weight': None, 'criterion': 'entropy', 'max_depth': None, 'max_features': 'auto', 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 30, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 1000, 'n_jobs': None, 'oob_score': False, 'random_state': None, 'verbose': 0, 'warm_start': False}	0.83	0.08	0.90	0.05	0.78	0.15	0.84	0.07	6.24	feature normalization CV, Wrapper Select - SVC, entropy , 1000, min split 30 - split improved RF a by 0.04, best model so far

139	Gradient Boosting,	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', , 'chol', 'restecg', 'thalach', 'oldpeak']	{'criterion': 'friedman_mse', 'init': None, 'learning_rate': 0.05, 'loss': 'exponential', 'max_depth': 3, 'max_features': None, 'max_leaf_nodes': None, 'min_impurity_decrease': 0.0, 'min_impurity_split': None, 'min_samples_leaf': 1, 'min_samples_split': 3, 'min_weight_fraction_leaf': 0.0, 'n_estimators': 25, 'n_iter_no_change': None, 'presort': 'auto', 'random_state': 0, 'subsample': 1.0, 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0, 'warm_start': False}	0.82	0.06	0.89	0.06	0.75	0.18	0.85	0.06	0.12	feature normalization CV, Wrapper Select - SVC, exponential , tree = 25, learning rate 0.05
140	ADA Boost	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', , 'chol', 'restecg', 'thalach', 'oldpeak']	{'algorithm': 'SAMME.R', 'base_estimator': None, 'learning_rate': 0.1, 'n_estimators': 100, 'random_state': 0}	0.85	0.10	0.89	0.06	0.80	0.16	0.85	0.09	0.85	feature normalization CV, wrapper -SVC, n_est = 100
141	Neural Network	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', , 'chol', 'restecg', 'thalach', 'oldpeak']	{'activation': 'logistic', 'alpha': 0.0001, 'batch_size': 'auto', 'beta_1': 0.9, 'beta_2': 0.999, 'early_stopping': False, 'epsilon': 1e-08, 'hidden_layer_sizes': (100, 100), 'learning_rate': 'constant', 'learning_rate_init': 0.001, 'max_iter': 1000, 'momentum': 0.9, 'n_iter_no_change': 10, 'nesterovs_momentum': True, 'power_t': 0.5, 'random_state': 0, 'shuffle': True, 'solver': 'adam', 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': False, 'warm_start': False}	0.83	0.08	0.89	0.06	0.78	0.11	0.84	0.12	0.49	feature normalization hidden layer (100,100), adam
142	SVC	cross val= 1 , binning= 1 , bin ct= 2 , feature selected= 1 , fs type= 4 , grid search= 0	['sex', 'cp', 'fbs', 'exang', 'slope', 'ca', 'thal']	['age', 'trestbps', , 'chol', 'restecg', 'thalach', 'oldpeak']	{'C': 1.0, 'cache_size': 200, 'class_weight': None, 'coef0': 0.0, 'decision_function_shape': 'ovr', 'degree': 3, 'gamma': 'scale', 'kernel': 'linear', 'max_iter': -1, 'probability': True, 'random_state': 0, 'shrinking': True, 'tol': 0.001, 'verbose': False}	0.83	0.11	0.89	0.07	0.80	0.13	0.84	0.14	0.06	feature normalization kernel='linear', gamma= 'scale',

