

## Supervised Learning

Algorithm	Sklearn class	Parameters	Type	Evaluation Metrics
Linear Regression	LinearRegression	--	Regression	MAE, MSE, R2
Ridge	Ridge	alpha	Regression	MAE, MSE, R2
Lasso	Lasso	alpha	Regression	MAE, MSE, R2
Elastic Net	ElasticNet	alpha, l1_ratio	Regression	MAE, MSE, R2
Logistic Regression	LogisticRegression	penalty, C, l1_ratio	Classification	Accuracy Score, Recall, Precision, F1-Score, ROC-AUC, Log Loss
K-NN Classifier	KNeighborsClassifier	n-neighbors	Classification	Accuracy Score, Recall, Precision, F1-Score, ROC-AUC, Log Loss
K-NN Regressor	KNeighborsRegressor	n-neighbors	Regression	MAE, MSE, R2
Naïve Bayes with categorical features	BernoulliNB		Classification	Accuracy Score, Recall, Precision, F1-Score, ROC-AUC, Log Loss
Naïve Bayes with numerical features	GaussianNB		Classification	Accuracy Score, Recall, Precision, F1-Score, ROC-AUC, Log Loss
Discriminant Analysis	LinearDiscriminant QuadraticDiscriminant		Classification	Accuracy Score, Recall, Precision, F1-Score, ROC-AUC, Log Loss
Support Vector Machines Classifier	SVC	kernel, C, gamma, degree, coef0	Classification	Accuracy Score, Recall, Precision, F1-Score, ROC-AUC, Log Loss
Decision Trees Classifier	DecisionTreeClassifier	max_depth, min_samples_split, min_samples_leaf	Classification	Accuracy Score, Recall, Precision, F1-Score, ROC-AUC, Log Loss
Decision Trees Regressor	DecisionTreeRegressor	max_depth, min_samples_split, min_samples_leaf	Regression	MAE, MSE, R2
Bagging Classifier	BaggingClassifier	estimator, n_estimators	Classification	Accuracy Score, Recall, Precision, F1-Score, ROC-AUC, Log Loss
Bagging Regressor	BaggingRegressor	estimator, n_estimators	Regression	MAE, MSE, R2
Random Forest	RandomForestClassifier	max_features	Classification	Accuracy Score, Recall, Precision, F1-Score, ROC-AUC, Log Loss

Classifier				
Random Forest Regressor	RandomForestRegressor	max_features	Regression	MAE, MSE, R2
Boosting Classifiers	sklearn: GradientBoostingClassifier XGB: XGBClassifier lightGBM: LGBMClassifier Cat Boost: CatBoostClassifier	learning_rate, n_trees, max_depth	Classification	Accuracy Score, Recall, Precision, F1-Score, ROC-AUC, Log Loss
Boosting Regressors	sklearn: GradientBoostingRegressor XGB: XGBRegressor lightGBM: LGBMRegressor Cat Boost: CatBoostRegressor	learning_rate, n_trees, max_depth	Regression	MAE, MSE, R2
Stacking Classifier	StackingClassifier	estimators, passthrough	Classification	Accuracy Score, Recall, Precision, F1-Score, ROC-AUC, Log Loss
Stacking Regressor	StackingRegressor	estimators, passthrough	Regression	MAE, MSE, R2
Time Series			Regression	MAE, MSE, R2

## Unsupervised Learning

Algorithm	Function	Purpose	Finding/Evaluation
Agglomerative Clustering	AgglomerativeClustering	Cluster the data	Silhouette score
K-means clustering	Kmeans	Cluster the data	Silhouette score
Principal Component Analysis	PCA	Feature extraction and reduction	Variation explained
Association Rules Mining	Mlxtend.associationrules	Rules Extraction	Confidence, Lift Ratio
Recommender Systems	Surprise.KNNBasic & surprise.prediction_algorithms.matrix_factorization.SVD	Recommendation engine	Recommendations