**SCIKIT-LEARN (sklearn) – METHODS, CLASSES, AND FUNCTIONS**

**Dataset Loading**

• sklearn.datasets.load\_iris(): Loads the Iris dataset.

• sklearn.datasets.load\_boston(): Loads the Boston housing dataset (deprecated).

• sklearn.datasets.load\_digits(): Loads handwritten digits dataset.

• sklearn.datasets.load\_diabetes(): Loads the diabetes dataset.

• sklearn.datasets.fetch\_openml(): Loads dataset from OpenML.

**Data Preprocessing**

• sklearn.preprocessing.StandardScaler(): Standardizes features by removing mean and scaling to unit variance.

• sklearn.preprocessing.MinMaxScaler(): Scales features to a given range.

• sklearn.preprocessing.RobustScaler(): Scales using statistics that are robust to outliers.

• sklearn.preprocessing.LabelEncoder(): Encodes labels with a value between 0 and n\_classes-1.

• sklearn.preprocessing.OneHotEncoder(): Encodes categorical integer features as one-hot numeric arrays.

• sklearn.impute.SimpleImputer(): Imputes missing values with mean, median, or most frequent value.

**Model Selection**

• sklearn.model\_selection.train\_test\_split(): Splits arrays or matrices into random train and test subsets.

• sklearn.model\_selection.cross\_val\_score(): Evaluates a score by cross-validation.

• sklearn.model\_selection.GridSearchCV(): Performs exhaustive search over specified parameter values.

• sklearn.model\_selection.RandomizedSearchCV(): Randomized search on hyperparameters.

**Classification Algorithms**

• sklearn.linear\_model.LogisticRegression(): Logistic regression classifier.

• sklearn.neighbors.KNeighborsClassifier(): k-Nearest Neighbors classifier.

• sklearn.tree.DecisionTreeClassifier(): Decision Tree classifier.

• sklearn.ensemble.RandomForestClassifier(): Random Forest classifier.

• sklearn.svm.SVC(): Support Vector Classifier.

**Regression Algorithms**

• sklearn.linear\_model.LinearRegression(): Linear regression model.

• sklearn.tree.DecisionTreeRegressor(): Decision Tree regressor.

• sklearn.ensemble.RandomForestRegressor(): Random Forest regressor.

• sklearn.linear\_model.Ridge(): Ridge regression.

• sklearn.linear\_model.Lasso(): Lasso regression.

**Clustering**

• sklearn.cluster.KMeans(): K-Means clustering.

• sklearn.cluster.AgglomerativeClustering(): Agglomerative hierarchical clustering.

• sklearn.cluster.DBSCAN(): Density-based spatial clustering.

**Dimensionality Reduction**

• sklearn.decomposition.PCA(): Principal Component Analysis.

• sklearn.decomposition.TruncatedSVD(): Truncated SVD.

**Model Evaluation Metrics**

• sklearn.metrics.accuracy\_score(): Accuracy classification score.

• sklearn.metrics.precision\_score(): Precision score.

• sklearn.metrics.recall\_score(): Recall score.

• sklearn.metrics.f1\_score(): F1 score.

• sklearn.metrics.confusion\_matrix(): Confusion matrix.

• sklearn.metrics.classification\_report(): Build a text report showing the main classification metrics.

• sklearn.metrics.mean\_squared\_error(): Mean squared error regression loss.

• sklearn.metrics.r2\_score(): R² (coefficient of determination) regression score function.

**Utilities**

• sklearn.pipeline.Pipeline(): Helps automate machine learning workflows.

• sklearn.base.BaseEstimator: Base class for all estimators.

• sklearn.utils.shuffle(): Shuffle arrays or sparse matrices.