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# Cheatsheet:Scikit Learn

Scikit-Learn is the most popular and widely used library for machine learning in Python.

learn

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Pre-Processing

Function	Description
1 sklearn.preprocessing.StandardScaler	Standardize features by removing the mean and scaling to unit variance
2 sklearn.preprocessing.Imputer	Imputation transformer for completing missing values.
3 sklearn.preprocessing.LabelBinarizer	Binarize labels in a one-vs-all fashion
4 sklearn.preprocessing.OneHotEncoder	Encode categorical integer features using a one-hot a.k.a one-of-K scheme.
5 sklearn.preprocessing.PolynomialFeatures	Generate polynomial and interaction features.

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Regression

Function	Description
1 sklearn.tree.DecisionTreeRegressor	A decision tree regressor
2 sklearn.svm.SVR	Epsilon-Support Vector Regression
3 sklearn.linear_model.LinearRegression	Ordinary least squares Linear Regression
4 sklearn.linear_model.Lasso	Linear Model trained with L1 prior as regularizer (a.k.a the Lasso)
5 sklearn.linear_model.SGDRegressor	Linear model fitted by minimizing a regularized empirical loss with SGD
6 sklearn.linear_model.ElasticNet	Linear regression with combined L1 and L2 priors as regularizer
7 sklearn.ensemble.RandomForestRegressor	A random forest regressor
8 sklearn.ensemble.GradientBoostingRegressor	Gradient Boosting for regression
9 sklearn.neural_network.MLPRegressor	Multi-layer Perceptron regressor

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Classification

Function	Description
1 sklearn.neural_network.MLPClassifier	Multi-layer Perceptron classifier
2 sklearn.tree.DecisionTreeClassifier	A decision tree classifier
3 sklearn.svm.SVC	C-Support Vector Classification
4 sklearn.linear_model.LogisticRegression	Logistic Regression (at.k.a logit, Max Ent) classifier
5 sklearn.linear_model.SGDClassifier	Linear classifiers (SVM, logistic regression, a.o.) with SGD training
6 sklearn.naive_bayes.GaussianNB	Gaussian Naïve Bayes
7 sklearn.neighbors.KNeighborsClassifier	Classifier implementing the k-nearest neighbors vote
8 sklearn.ensemble.RandomForestClassifier	A random forest classifier
9 sklearn.ensemble.GradientBoostingClassifier	Gradient Boosting for classification

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Clustering

Function	Description
1 sklearn.cluster.KMeans	K-Means clustering
2 sklearn.cluster.DBSCAN	Perform DBSCAN clustering from vector array or distance matrix
3 sklearn.cluster.AgglomerativeClustering	Agglomerative Clustering
4 sklearn.cluster.SpectralBiclustering	Spectral bi-clustering

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DimensionalityReduction

Function	Description
1 sklearn.decomposition.PCA	Principal component analysis (PCA)
2 sklearn.decomposition.LatentDirichletAllocation	Latent Dirichlet Allocation with online variational Bayes algorithm
3 sklearn.decomposition.SparseCoder	Sparse coding
4 sklearn.decomposition.DictionaryLearning	Dictionary learning

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Model Selection

Function	Description
1 sklearn.model_selection.KFold	K-Folds cross-validator
2 sklearn.model_selection.StratifiedKFold	Stratified K-Folds cross-validator
3 sklearn.model_selection.TimeSeriesSplit	Time Series cross-validator
4 sklearn.model_selection.train_test_split	Split arrays or matrices into random train and test subsets
5 sklearn.model_selection.GridSearchCV	Exhaustive search over specified parameter values for an estimator.
6 sklearn.model_selection.RandomizedSearchCV	Randomized search on hyper parameters.
7 sklearn.model_selection.cross_val_score	Evaluate a score by cross-validation

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Metric

Function	Description
1 sklearn.metrics.accuracy_score	Classification Metric: Accuracy classification score
2 sklearn.metrics.log_loss	Classification Metric: Log loss, a.k.a logistic loss or cross-entropy loss
3 sklearn.metrics.roc_auc_score	Classification Metric: Compute Receiver operating characteristic (ROC)
4 sklearn.metrics.mean_absolute_error	Regression Metric: Mean absolute error regression loss
5 sklearn.metrics.r2_score	Regression Metric: R^2 (coefficient of determination) regression score function.
6 sklearn.metrics.label_ranking_loss	Ranking Metric: Compute Ranking loss measure
7 sklearn.metrics.mutual_info_score	Clustering Metric: Mutual Information between two clusterings.

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Miscellaneous

Function	Description
1 sklearn.datasets.load_boston	Load and return the boston house-prices dataset (regression)
2 sklearn.datasets.make_classification	Generate a random n-class classification problem
3 sklearn.feature_extraction.FeatureHasher	Implements feature hashing, a.k.a the hashing trick
4 sklearn.feature_selection.SelectKBest	Select features according to the k highest scores
5 sklearn.pipeline.Pipeline	Pipeline of transforms with a final estimator
6 sklearn.semi_supervised.LabelPropagation	Label Propagation classifier for semi-supervised learning

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