SKLEARN API SUMMARY

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1) LINEAR REGRESSION:

Linear Regression is a model which assumes there's a linear relationship between the input variablesX and the single output variable y, and y can be calculated from a linear combination of X.

Fit(X, y)- fit the linear model. Predict(X)-

predict using linear model.

Score(X,y)-returns the coefficient of determination R^2 of the prediction.

CODE:

sklearn.linear_model.LinearRegression(*, fit_intercept=True, normalize=False, copy_X=True, n_jobs=None, positive=False)

2) LOGISTIC REGRESSION:

Logistic regression is used to predict a dependent variable by analyzing the relationship between agiven set of independent variables. It predicts the output of a categorical dependent variable.

Fit(X,y)-fit the model according to the given training data

Predict(x)-predict class labels

Score(X,y)-returns mean accuracy on the given test data and label

CODE:

sklearn.linear_model.LogisticRegression(penalty='l2', *, dual=False, tol=0.0001, C=1.0, fit_intercept=True, intercept_scaling=1, class_weight=None, random_state=None, solver='lbfgs', max_iter=100, m ulti_class='auto', verbose=0, warm_start=False, n_jobs=None, l1_ratio=None)

3) RIDGE:

Ridge regression penalizes the model based on the sum of squares of magnitude of the coefficients.

Alpha-Regularization strength; must be a positive float. Regularization improves the conditioning of the problem and reduces the variance of the estimates. Larger values specify stronger regularization.

$$\sum_{i=1}^{M}(y_i-\hat{y}_i)^2=\sum_{i=1}^{M}\left(y_i-\sum_{j=0}^{p}w_j\times x_{ij}\right)^2+\lambda\sum_{j=0}^{p}w_j^2 \qquad (1.3)$$

Fit(X,y)-fits the regression model training data

Predict(x)-predicting using the linear model.

CODE:

sklearn.linear_model.Ridge(alpha=1.0, *, fit_intercept=True, normalize=False, copy_X=True, max_iter=None, tol=0.001, solver='auto', random_state=None)

4) LASSO:

LASSO regression penalizes the model based on the sum of magnitude of the coefficients.Fit(X,y)-

fit model with coordinate descent

Predict(X)-predict using linear model

$$\sum_{i=1}^{M}(y_i-\hat{y}_i)^2=\sum_{i=1}^{M}\left(y_i-\sum_{j=0}^{p}w_j\times x_{ij}\right)^2+\lambda\sum_{j=0}^{p}|w_j| \qquad (1.4)$$

CODE:

sklearn.linear_model.Lasso(alpha=1.0, *, fit_intercept=True, normalize=False, precompute=False, co
py_X=True, max_iter=1000, tol=0.0001, warm_start=False, positive=False, random_state=None, sele
ction='cyclic')