Machine Learning 7

Logistic Regression

behzad.amanpour

Logistic Regression

- Predicts the probability of a categorical dependent variable.
- The dependent variable is a binary variable that contains data coded as 1 (yes) or 0 (no).
- Logistic regression model predicts P(Y=1) as a function of X.

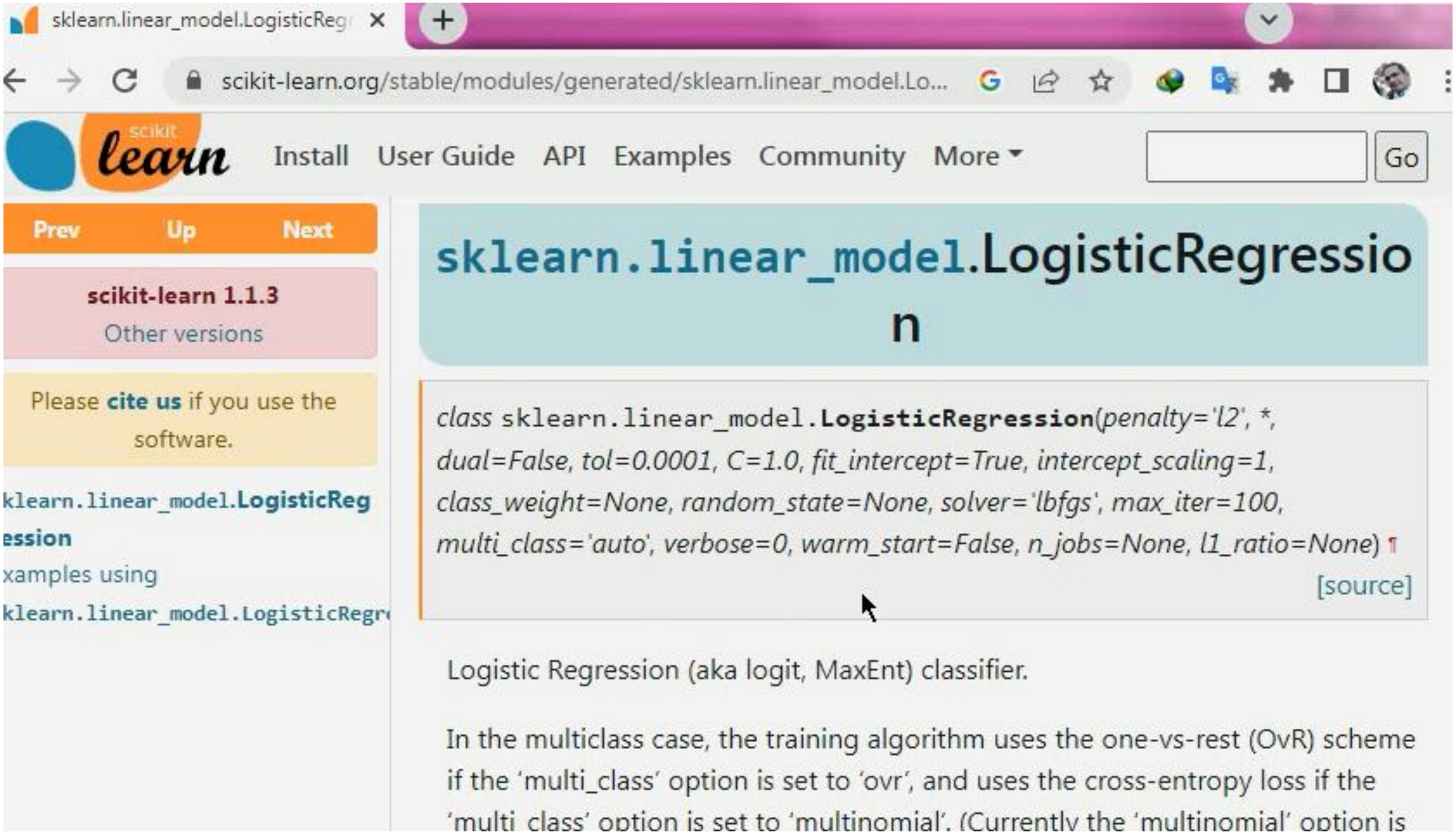
$$Ln\left(\frac{P}{1-P}\right)=\beta_0+\beta_1X_1+\beta_2X_2+\ldots+\beta_kX_k$$

Linear Regression: $Y=\beta_0+\beta_1X_1+\beta_2X_2$

https://towardsdatascience.com/building-a-logistic-regression-in-python-step-by-step-becd4d56c9c8

https://www.theanalysisfactor.com/what-is-logit-function/

Sklearn Logistic Regression


sklearn.linear_model.LogisticReg
scikit-learn.org/stable/modules/generated/sklearn.linear_model.Lo...
scikit
learn
Install
User Guide
API
Examples
Community
More
Go
Prev
Up
Next
scikit-learn 1.1.3
Other versions
Please cite us if you use the software.
klearn.linear_model.LogisticReg
ession
xamples using
klearn.linear_model.LogisticRegr

sklearn.linear_model.LogisticRegression

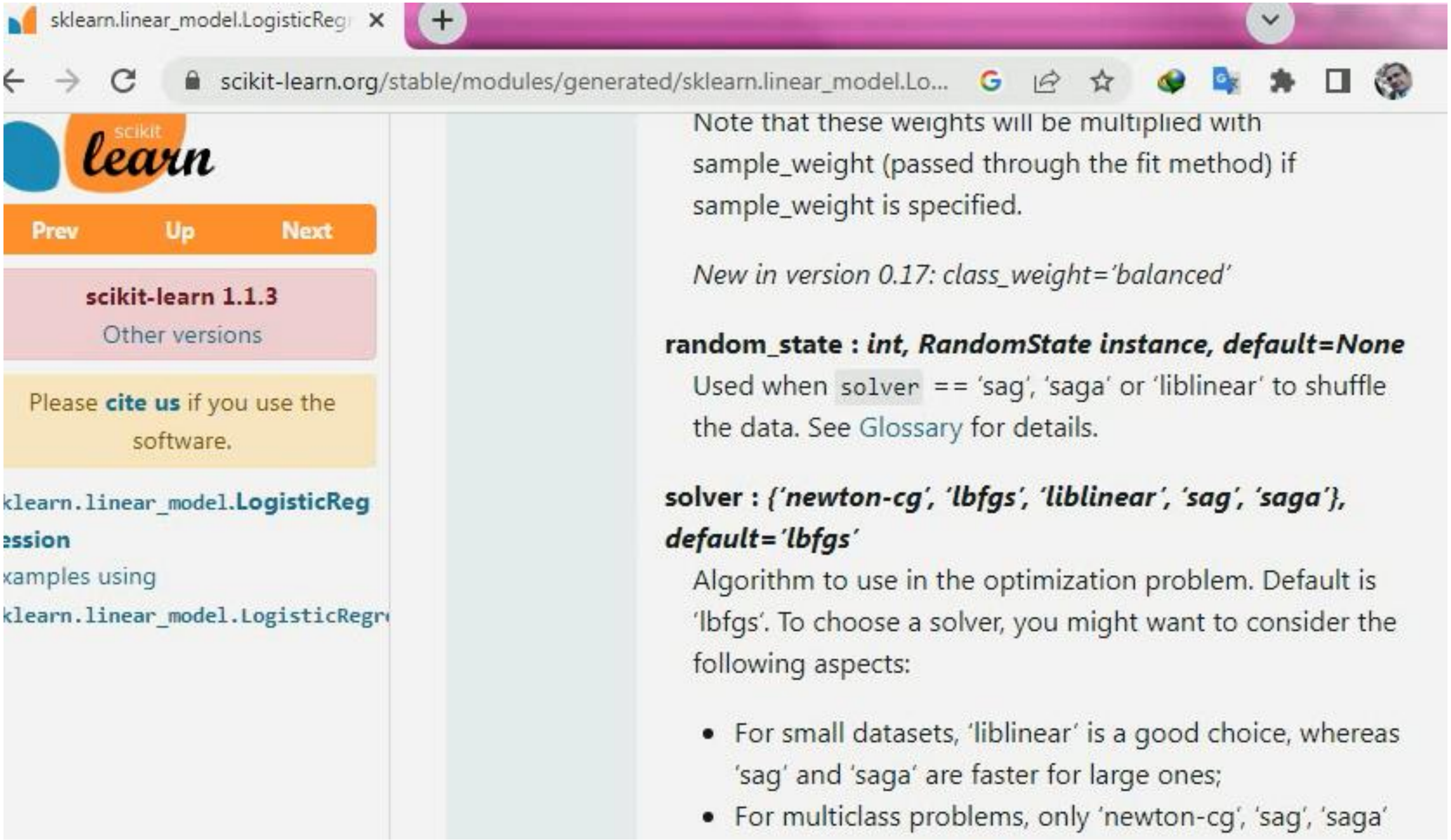
class sklearn.linear_model.**LogisticRegression**(*penalty='l2', *, dual=False, tol=0.0001, C=1.0, fit_intercept=True, intercept_scaling=1, class_weight=None, random_state=None, solver='lbfgs', max_iter=100, multi_class='auto', verbose=0, warm_start=False, n_jobs=None, l1_ratio=None*) ¶

[source]

Logistic Regression (aka logit, MaxEnt) classifier.

In the multiclass case, the training algorithm uses the one-vs-rest (OvR) scheme if the 'multi_class' option is set to 'ovr', and uses the cross-entropy loss if the 'multi_class' option is set to 'multinomial'. (Currently the 'multinomial' option is

Sklearn Logistic Regression


sklearn.linear_model.LogisticReg
scikit-learn.org/stable/modules/generated/sklearn.linear_model.Lo...
scikit learn
Prev
Up
Next

scikit-learn 1.1.3

Other versions

Please **cite us** if you use the software.

klearn.linear_model.LogisticRegression

xamples using sklearn.linear_model.LogisticRegr

Note that these weights will be multiplied with sample_weight (passed through the fit method) if sample_weight is specified.

New in version 0.17: class_weight='balanced'

random_state : *int, RandomState instance, default=None*

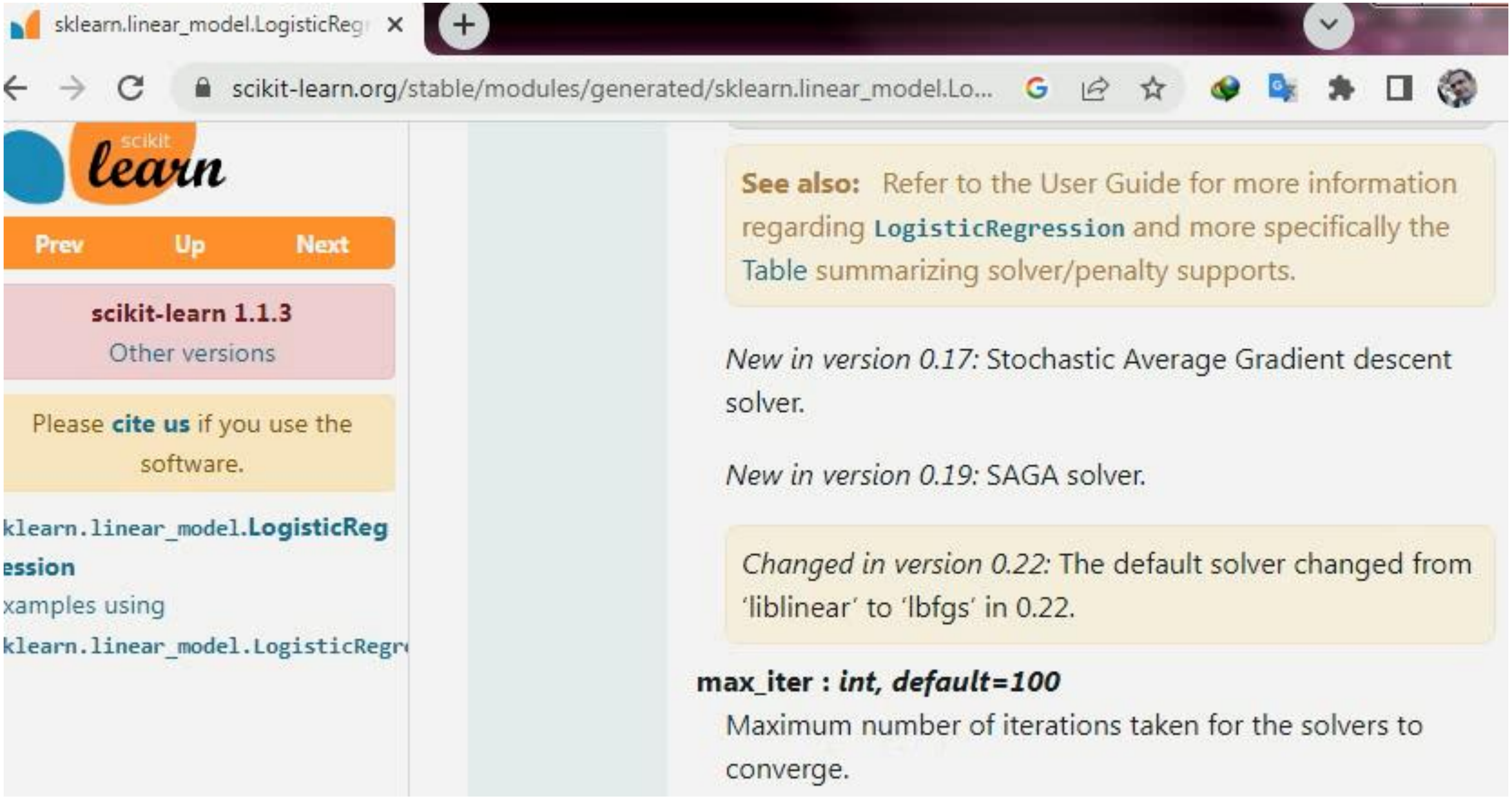
Used when `solver` == 'sag', 'saga' or 'liblinear' to shuffle the data. See Glossary for details.

solver : *{'newton-cg', 'lbfgs', 'liblinear', 'sag', 'saga'}, default='lbfgs'*

Algorithm to use in the optimization problem. Default is 'lbfgs'. To choose a solver, you might want to consider the following aspects:

- For small datasets, 'liblinear' is a good choice, whereas 'sag' and 'saga' are faster for large ones;
- For multiclass problems, only 'newton-cg', 'sag', 'saga'

Sklearn Logistic Regression


sklearn.linear_model.LogisticReg
scikit-learn.org/stable/modules/generated/sklearn.linear_model.Lo...
scikit
learn
Prev
Up
Next

scikit-learn 1.1.3

Other versions

Please **cite us** if you use the software.

klearn.linear_model.**LogisticRegession**

xamples using

klearn.linear_model.LogisticRegr

See also: Refer to the User Guide for more information regarding `LogisticRegression` and more specifically the Table summarizing solver/penalty supports.

New in version 0.17: Stochastic Average Gradient descent solver.

New in version 0.19: SAGA solver.

Changed in version 0.22: The default solver changed from 'liblinear' to 'lbfgs' in 0.22.

max_iter : *int, default=100*

Maximum number of iterations taken for the solvers to converge.