**Hold-out set in practice I: Classification**

You will now practice evaluating a model with tuned hyperparameters on a hold-out set. The feature array and target variable array from the diabetes dataset have been pre-loaded as X and y.

In addition to CC, logistic regression has a 'penalty' hyperparameter which specifies whether to use 'l1' or 'l2' regularization. Your job in this exercise is to create a hold-out set, tune the 'C' and 'penalty'hyperparameters of a logistic regression classifier using GridSearchCV on the training set, and then evaluate its performance against the hold-out set.

**Hold-out set in practice II: Regression**

Remember lasso and ridge regression from the previous chapter? Lasso used the L1L1 penalty to regularize, while ridge used the L2L2 penalty. There is another type of regularized regression known as the elastic net. In elastic net regularization, the penalty term is a linear combination of the L1L1 and L2L2penalties:

a∗L1+b∗L2a∗L1+b∗L2

In scikit-learn, this term is represented by the 'l1\_ratio' parameter: An 'l1\_ratio' of 1 corresponds to an L1L1 penalty, and anything lower is a combination of L1L1 and L2L2.

In this exercise, you will GridSearchCV to tune the 'l1\_ratio' of an elastic net model trained on the Gapminder data. As in the previous exercise, use a hold-out set to evaluate your model's performance.