**Metodi di cross-validation in Scikit-learn:**

**HOLD\_OUT:**

sklearn.model\_selection.**train\_test\_split**(\*arrays, \*\*options)

**K-FOLD CV**

sklearn.model\_selection.**cross\_val\_score**(estimator, X, y=None, groups=None, scoring=None, cv=None, n\_jobs=1, verbose=0, fit\_params=None, pre\_dispatch='2\*n\_jobs')

sklearn.model\_selection.**cross\_val\_predict**(estimator, X, y=None, groups=None, cv=None, n\_jobs=1, verbose=0, fit\_params=None, pre\_dispatch='2\*n\_jobs', method='predict')

When the cv argument is an integer, [**cross\_val\_score**](http://scikit-learn.org/stable/modules/generated/sklearn.model_selection.cross_val_score.html#sklearn.model_selection.cross_val_score) uses the  [**KFold**](http://scikit-learn.org/stable/modules/generated/sklearn.model_selection.KFold.html#sklearn.model_selection.KFold)  or

[**StratifiedKFold**](http://scikit-learn.org/stable/modules/generated/sklearn.model_selection.StratifiedKFold.html#sklearn.model_selection.StratifiedKFold)  strategies by default, the latter being used if the estimator is a classifier

**Cross-validation generators (genera solo gli indici per effettuare la CV)**

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| [**KFold**](http://scikit-learn.org/stable/modules/generated/sklearn.model_selection.KFold.html#sklearn.model_selection.KFold) **(n\_splits, shuffle, random\_state)** | [**StratifiedKFold**](http://scikit-learn.org/stable/modules/generated/sklearn.model_selection.StratifiedKFold.html#sklearn.model_selection.StratifiedKFold) **(n\_iter, test\_size, train\_size, random\_state)** | [**GroupKFold**](http://scikit-learn.org/stable/modules/generated/sklearn.model_selection.GroupKFold.html#sklearn.model_selection.GroupKFold) **(n\_splits, shuffle, random\_state)** |
| Splits it into K folds, trains on K-1 and then tests on the left-out. | Same as K-Fold but preserves the class distribution within each fold. | Ensures that the same group is not in both testing and training sets. |

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| [**ShuffleSplit**](http://scikit-learn.org/stable/modules/generated/sklearn.model_selection.ShuffleSplit.html#sklearn.model_selection.ShuffleSplit) **(n\_iter, test\_size, train\_size, random\_state)** | [**StratifiedShuffleSplit**](http://scikit-learn.org/stable/modules/generated/sklearn.model_selection.StratifiedShuffleSplit.html#sklearn.model_selection.StratifiedShuffleSplit) | [**GroupShuffleSplit**](http://scikit-learn.org/stable/modules/generated/sklearn.model_selection.GroupShuffleSplit.html#sklearn.model_selection.GroupShuffleSplit) |
| Generates train/test indices based on random permutation. | Same as shuffle split but preserves the class distribution within each iteration. | Ensures that the same group is not in both testing and training sets. |

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| [**LeaveOneGroupOut**](http://scikit-learn.org/stable/modules/generated/sklearn.model_selection.LeaveOneGroupOut.html#sklearn.model_selection.LeaveOneGroupOut) **()** | [**LeavePGroupsOut**](http://scikit-learn.org/stable/modules/generated/sklearn.model_selection.LeavePGroupsOut.html#sklearn.model_selection.LeavePGroupsOut) **(p)** | [**LeaveOneOut**](http://scikit-learn.org/stable/modules/generated/sklearn.model_selection.LeaveOneOut.html#sklearn.model_selection.LeaveOneOut) **()** |
| Takes a group array to group observations. | Leave P groups out. | Leave one observation out. |

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| [**LeavePOut**](http://scikit-learn.org/stable/modules/generated/sklearn.model_selection.LeavePOut.html#sklearn.model_selection.LeavePOut) **(p)** | [**PredefinedSplit**](http://scikit-learn.org/stable/modules/generated/sklearn.model_selection.PredefinedSplit.html#sklearn.model_selection.PredefinedSplit) |
| Leave P observations out. | Generates train/test indices based on predefined splits. |