sklearn.model_selection.ShuffleSplit

class sklearn.model_selection.**ShuffleSplit**(*n_splits=10*, ***, *test_size=None*, *train_size=None*, *random_state=None*) [source]

Random permutation cross-validator

Yields indices to split data into training and test sets.

Note: contrary to other cross-validation strategies, random splits do not guarantee that all folds will be different, although this is still very likely for sizeable datasets.

Read more in the User Guide.

Parameters:

n_splits : *int, default=10*
Number of re-shuffling & splitting iterations.

test_size : *float or int, default=None*
If float, should be between 0.0 and 1.0 and represent the proportion of the dataset to include in the test split. If int, represents the absolute number of test samples. If None, the value is set to the complement of the train size. If `train_size` is also None, it will be set to 0.1.

train_size : *float or int, default=None*
If float, should be between 0.0 and 1.0 and represent the proportion of the dataset to include in the train split. If int, represents the absolute number of train samples. If None, the value is automatically set to the complement of the test size.

random_state : *int, RandomState instance or None, default=None*
Controls the randomness of the training and testing indices produced. Pass an int for reproducible output across multiple function calls. See Glossary.

Examples

```
>>> import numpy as np
>>> from sklearn.model_selection import ShuffleSplit
>>> X = np.array([[1, 2], [3, 4], [5, 6], [7, 8], [3, 4], [5, 6]])
>>> y = np.array([1, 2, 1, 2, 1, 2])
>>> rs = ShuffleSplit(n_splits=5, test_size=.25, random_state=0)
>>> rs.get_n_splits(X)
5
>>> print(rs)
ShuffleSplit(n_splits=5, random_state=0, test_size=0.25, train_size=None)
>>> for i, (train_index, test_index) in enumerate(rs.split(X)):
...     print(f"Fold {i}:")
...     print(f"  Train: index={train_index}")
...     print(f"  Test:  index={test_index}")
Fold 0:
  Train: index=[1 3 0 4]
  Test:  index=[5 2]
Fold 1:
  Train: index=[4 0 2 5]
  Test:  index=[1 3]
Fold 2:
  Train: index=[1 2 4 0]
  Test:  index=[3 5]
Fold 3:
  Train: index=[3 4 1 0]
  Test:  index=[5 2]
Fold 4:
  Train: index=[3 5 1 0]
  Test:  index=[2 4]
>>> # Specify train and test size
>>> rs = ShuffleSplit(n_splits=5, train_size=0.5, test_size=.25,
...                   random_state=0)
>>> for i, (train_index, test_index) in enumerate(rs.split(X)):
...     print(f"Fold {i}:")
...     print(f"  Train: index={train_index}")
...     print(f"  Test:  index={test_index}")
Fold 0:
  Train: index=[1 3 0]
  Test:  index=[5 2]
Fold 1:
  Train: index=[4 0 2]
  Test:  index=[1 3]
Fold 2:
  Train: index=[1 2 4]
  Test:  index=[3 5]
Fold 3:
  Train: index=[3 4 1]
  Test:  index=[5 2]
Fold 4:
  Train: index=[3 5 1]
  Test:  index=[2 4]
```

Methods

`get_metadata_routing`()	Get metadata routing of this object.
`get_n_splits`([X, y, groups])	Returns the number of splitting iterations in the cross-validator
`split`(X[, y, groups])	Generate indices to split data into training and test set.

get_metadata_routing() [source]

Get metadata routing of this object.

Please check User Guide on how the routing mechanism works.

Returns:

routing : *MetadataRequest*

A `MetadataRequest` encapsulating routing information.

get_n_splits(*X=None, y=None, groups=None*) [source]

Returns the number of splitting iterations in the cross-validator

Parameters:

X : *object*
Always ignored, exists for compatibility.

y : *object*
Always ignored, exists for compatibility.

groups : *object*
Always ignored, exists for compatibility.

Returns:

n_splits : *int*
Returns the number of splitting iterations in the cross-validator.

`split`(*X*, *y=None*, *groups=None*) [source]

Generate indices to split data into training and test set.

Parameters:

X : *array-like of shape (n_samples, n_features)*
Training data, where `n_samples` is the number of samples and `n_features` is the number of features.

y : *array-like of shape (n_samples,)*
The target variable for supervised learning problems.

groups : *array-like of shape (n_samples,), default=None*
Group labels for the samples used while splitting the dataset into train/test set.

Yields:

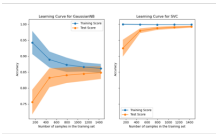
train : *ndarray*
The training set indices for that split.

test : *ndarray*
The testing set indices for that split.

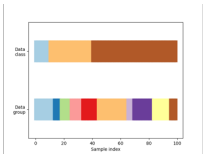
Notes

Randomized CV splitters may return different results for each call of split. You can make the results identical by setting `random_state` to an integer.

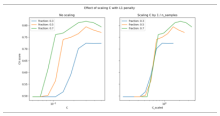
Examples using `sklearn.model_selection.ShuffleSplit`



Plotting Learning Curves and Checking Models' Scalability



Visualizing cross-validation behavior in scikit-learn



Scaling the regularization parameter for SVCs