sklearn.feature_selection.SelectPercentile

class `sklearn.feature_selection.SelectPercentile`(*score_func=<function f_classif>*, *percentile=10*) [source]

Select features according to a percentile of the highest scores.

Read more in the User Guide.

Parameters:

score_func : *callable*

Function taking two arrays X and y, and returning a pair of arrays (scores, pvalues) or a single array with scores. Default is f_classif (see below “See also”). The default function only works with classification tasks.

percentile : *int, optional, default=10*

Percent of features to keep.

Attributes:

scores_ : *array-like of shape (n_features,)*

Scores of features.

pvalues_ : *array-like of shape (n_features,)*

p-values of feature scores, None if `score_func` returned only scores.

See also:

`f_classif`

ANOVA F-value between label/feature for classification tasks.

`mutual_info_classif`

Mutual information for a discrete target.

`chi2`

Chi-squared stats of non-negative features for classification tasks.

`f_regression`

F-value between label/feature for regression tasks.

`mutual_info_regression`

Mutual information for a continuous target.

`SelectKBest`

Select features based on the k highest scores.

`SelectFpr`

Select features based on a false positive rate test.

`SelectFdr`

Select features based on an estimated false discovery rate.

`SelectFwe`

Select features based on family-wise error rate.

`GenericUnivariateSelect`

Univariate feature selector with configurable mode.

Notes

Ties between features with equal scores will be broken in an unspecified way.

Examples

```
>>> from sklearn.datasets import load_digits
>>> from sklearn.feature_selection import SelectPercentile, chi2
>>> X, y = load_digits(return_X_y=True)
>>> X.shape
(1797, 64)
>>> X_new = SelectPercentile(chi2, percentile=10).fit_transform(X, y)
>>> X_new.shape
(1797, 7)
```

Methods

`fit`(self, X, y)	Run score function on (X, y) and get the appropriate features.
`rm`(self, X[, y])	Fit to data, then transform it.

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get_params(self[, deep])	Get parameters for this estimator.
get_support(self[, indices])	Get a mask, or integer index, of the features selected
inverse_transform(self, X)	Reverse the transformation operation
set_params(self, **params)	Set the parameters of this estimator.
transform(self, X)	Reduce X to the selected features.

`__init__`(*self, score_func=<function f_classif at 0x7f4d964b6320>, percentile=10*) [source]

Initialize self. See help(type(self)) for accurate signature.

`fit`(*self, X, y*) [source]

Run score function on (X, y) and get the appropriate features.

Parameters:

X : *array-like of shape (n_samples, n_features)*
The training input samples.

y : *array-like of shape (n_samples,)*
The target values (class labels in classification, real numbers in regression).

Returns:

self : *object*

`fit_transform`(*self, X, y=None, **fit_params*) [source]

Fit to data, then transform it.

Fits transformer to X and y with optional parameters fit_params and returns a transformed version of X.

Parameters:

X : *numpy array of shape [n_samples, n_features]*
Training set.

y : *numpy array of shape [n_samples]*
Target values.

****fit_params : *dict***
Additional fit parameters.

Returns:

X_new : *numpy array of shape [n_samples, n_features_new]*
Transformed array.

`get_params`(*self, deep=True*) [source]

Get parameters for this estimator.

Parameters:

deep : *bool, default=True*
If True, will return the parameters for this estimator and contained subobjects that are estimators.

Returns:

params : *mapping of string to any*
Parameter names mapped to their values.

`get_support`(*self, indices=False*) [source]

Get a mask, or integer index, of the features selected

Parameters:

indices : *boolean (default False)*
Toggle Menu e, the return value will be an array of integers, rather than a boolean mask.

Returns:

support : *array*

An index that selects the retained features from a feature vector. If `indices` is False, this is a boolean array of shape [# input features], in which an element is True iff its corresponding feature is selected for retention. If `indices` is True, this is an integer array of shape [# output features] whose values are indices into the input feature vector.

`inverse_transform`(*self*, *X*) [source]

Reverse the transformation operation

Parameters:

X : *array of shape [n_samples, n_selected_features]*

The input samples.

Returns:

X_r : *array of shape [n_samples, n_original_features]*

`X` with columns of zeros inserted where features would have been removed by **`transform`**.

`set_params`(*self*, ***params*) [source]

Set the parameters of this estimator.

The method works on simple estimators as well as on nested objects (such as pipelines). The latter have parameters of the form `<component>__<parameter>` so that it's possible to update each component of a nested object.

Parameters:

****params : *dict***

Estimator parameters.

Returns:

self : *object*

Estimator instance.

`transform`(*self*, *X*) [source]

Reduce X to the selected features.

Parameters:

X : *array of shape [n_samples, n_features]*

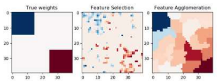
The input samples.

Returns:

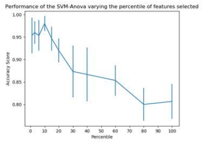
X_r : *array of shape [n_samples, n_selected_features]*

The input samples with only the selected features.

Examples using `sklearn.feature_selection.SelectPercentile`



Feature agglomeration vs. univariate selection



SVM-Anova: SVM with univariate feature selection

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