DummyRegressor

class sklearn.dummy.DummyRegressor(*, *strategy='mean'*, *constant=None*, *quantile=None*) [source]

Regressor that makes predictions using simple rules.

This regressor is useful as a simple baseline to compare with other (real) regressors. Do not use it for real problems.

Read more in the User Guide.

> *Added in version 0.13.*

Parameters:

strategy : *{"mean", "median", "quantile", "constant"}, default="mean"*

Strategy to use to generate predictions.

- "mean": always predicts the mean of the training set
- "median": always predicts the median of the training set
- "quantile": always predicts a specified quantile of the training set, provided with the quantile parameter.
- "constant": always predicts a constant value that is provided by the user.

constant : *int or float or array-like of shape (n_outputs,), default=None*

The explicit constant as predicted by the "constant" strategy. This parameter is useful only for the "constant" strategy.

quantile : *float in [0.0, 1.0], default=None*

The quantile to predict using the "quantile" strategy. A quantile of 0.5 corresponds to the median, while 0.0 to the minimum and 1.0 to the maximum.

Attributes:

constant_ : *ndarray of shape (1, n_outputs)*

Mean or median or quantile of the training targets or constant value given by the user.

n_features_in_ : *int*

Number of features seen during fit.

feature_names_in_ : *ndarray of shape (`n_features_in_`,)*

Names of features seen during fit. Defined only when `X` has feature names that are all strings.

n_outputs_ : *int*

Number of outputs.

See also

`DummyClassifier`

Classifier that makes predictions using simple rules.

Examples

```
>>> import numpy as np
>>> from sklearn.dummy import DummyRegressor
>>> X = np.array([1.0, 2.0, 3.0, 4.0])
>>> y = np.array([2.0, 3.0, 5.0, 10.0])
>>> dummy_regr = DummyRegressor(strategy="mean")
>>> dummy_regr.fit(X, y)
DummyRegressor()
>>> dummy_regr.predict(X)
array([5., 5., 5., 5.])
>>> dummy_regr.score(X, y)
0.0
```

fit(*X*, *y*, *sample_weight=None*) [source]

Fit the baseline regressor.

Parameters:

X : *array-like of shape (n_samples, n_features)*

Training data.

y : *array-like of shape (n_samples,) or (n_samples, n_outputs)*

Target values.

sample_weight : *array-like of shape (n_samples,), default=None*

Sample weights.

Returns:

self : *object*

Fitted estimator.

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_params(*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 : *dict*

Parameter names mapped to their values.

predict(*X, return_std=False*) [source]

Perform classification on test vectors X.

Parameters:

X : *array-like of shape (n_samples, n_features)*

Test data.

return_std : *bool, default=False*

Whether to return the standard deviation of posterior prediction. All zeros in this case.

> ***Added in version 0.20.***

Returns:

y : *array-like of shape (n_samples,) or (n_samples, n_outputs)*

Predicted target values for X.

y_std : *array-like of shape (n_samples,) or (n_samples, n_outputs)*

Standard deviation of predictive distribution of query points.

score(*X, y, sample_weight=None*) [source]

Return the coefficient of determination R^2 of the prediction.

The coefficient R^2 is defined as `(1 - u/v)`, where `u` is the residual sum of squares `((y_true - y_pred) ** 2).sum()` and `v` is the total sum of squares `((y_true - y_true.mean()) ** 2).sum()`. The best possible score is 1.0 and it can be negative (because the model can be arbitrarily worse). A constant model that always predicts the expected value of y, disregarding the input features, would get a R^2 score of 0.0.

Parameters:

X : *None or array-like of shape (n_samples, n_features)*

Test samples. Passing None as test samples gives the same result as passing real test samples, since `DummyRegressor` operates independently of the sampled observations.

y : *array-like of shape (n_samples,) or (n_samples, n_outputs)*

True values for X.

sample_weight : *array-like of shape (n_samples,), default=None*

Sample weights.

Returns:

score : *float*

R^2 of `self.predict(X)` w.r.t. y.

set_fit_request(*, sample_weight: bool | None | str = '$UNCHANGED$') → DummyRegressor [source]

Request metadata passed to the `fit` method.

Note that this method is only relevant if `enable_metadata_routing=True` (see `sklearn.set_config`). Please see User Guide on how the routing mechanism works.

The options for each parameter are:

- `True`: metadata is requested, and passed to `fit` if provided. The request is ignored if metadata is not provided.
- `False`: metadata is not requested and the meta-estimator will not pass it to `fit`.
- `None`: metadata is not requested, and the meta-estimator will raise an error if the user provides it.
- `str`: metadata should be passed to the meta-estimator with this given alias instead of the original name.

The default (`sklearn.utils.metadata_routing.UNCHANGED`) retains the existing request. This allows you to change the request for some parameters and not others.

Added in version 1.3.

Note

This method is only relevant if this estimator is used as a sub-estimator of a meta-estimator, e.g. used inside a `Pipeline`. Otherwise it has no effect.

Parameters:

sample_weight : *str, True, False, or None, default=sklearn.utils.metadata_routing.UNCHANGED*

Metadata routing for `sample_weight` parameter in `fit`.

Returns:

self : *object*

The updated object.

`set_params(**params)` [source]

Set the parameters of this estimator.

The method works on simple estimators as well as on nested objects (such as `Pipeline`). 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 : *estimator instance*

Estimator instance.

`set_predict_request(*, return_std: bool | None | str = '$UNCHANGED$') → DummyRegressor` [source]

Request metadata passed to the `predict` method.

Note that this method is only relevant if `enable_metadata_routing=True` (see `sklearn.set_config`). Please see User Guide on how the routing mechanism works.

The options for each parameter are:

- `True`: metadata is requested, and passed to `predict` if provided. The request is ignored if metadata is not provided.
- `False`: metadata is not requested and the meta-estimator will not pass it to `predict`.
- `None`: metadata is not requested, and the meta-estimator will raise an error if the user provides it.
- `str`: metadata should be passed to the meta-estimator with this given alias instead of the original name.

The default (`sklearn.utils.metadata_routing.UNCHANGED`) retains the existing request. This allows you to change the request for some parameters and not others.

Added in version 1.3.

Note

This method is only relevant if this estimator is used as a sub-estimator of a meta-estimator, e.g. used inside a `Pipeline`. Otherwise it has no effect.

Parameters:

return_std : *str, True, False, or None, default=sklearn.utils.metadata_routing.UNCHANGED*

Metadata routing for `return_std` parameter in `predict`.

Returns:

self : *object*

The updated object.

set_score_request(*, *sample_weight: bool | None | str = '$UNCHANGED$'*) → DummyRegressor [source]

Request metadata passed to the `score` method.

Note that this method is only relevant if `enable_metadata_routing=True` (see `sklearn.set_config`). Please see User Guide on how the routing mechanism works.

The options for each parameter are:

- `True`: metadata is requested, and passed to `score` if provided. The request is ignored if metadata is not provided.
- `False`: metadata is not requested and the meta-estimator will not pass it to `score`.
- `None`: metadata is not requested, and the meta-estimator will raise an error if the user provides it.
- `str`: metadata should be passed to the meta-estimator with this given alias instead of the original name.

The default (`sklearn.utils.metadata_routing.UNCHANGED`) retains the existing request. This allows you to change the request for some parameters and not others.

Added in version 1.3.

Note

This method is only relevant if this estimator is used as a sub-estimator of a meta-estimator, e.g. used inside a `Pipeline`. Otherwise it has no effect.

Parameters:

sample_weight : *str, True, False, or None, default=sklearn.utils.metadata_routing.UNCHANGED*

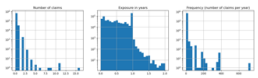
Metadata routing for `sample_weight` parameter in `score`.

Returns:

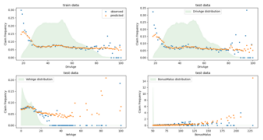
self : *object*

The updated object.

Gallery examples



Poisson regression and non-normal loss



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