**Grid Search CV Api write up**

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1. **Grid Search CV**

Exhaustive search over specified parameter values for an estimator. The parameters of the estimator used to apply these methods are optimized by cross-validated grid-search over a parameter grid. Exhaustive search means it tries each and every possible combination and selects the best combination

**Code:-**

sklearn.model\_selection.**GridSearchCV**(*estimator*, *param\_grid*, *\**, *scoring=None*, *n\_jobs=None*, *refit=True*, *cv=None*, *verbose=0*, *pre\_dispatch='2\*n\_jobs'*, *error\_score=nan*, *return\_train\_score=False*)

**Important Parameters are:-**

**estimator**

This is assumed to implement the scikit-learn estimator interface. Either estimator needs to provide a score function, or scoring must be passed.

**param\_grid**

Dictionary with parameters names (str) as keys and lists of parameter settings to try as values, or a list of such dictionaries, in which case the grids spanned by each dictionary in the list are explored. This enables searching over any sequence of parameter settings.

**scoring**

Strategy to evaluate the performance of the cross-validated model on the test set.

**cv**

Determines the cross-validation splitting strategy.

**Important Attributes are:-**

**best\_estimator**

Estimator that was chosen by the search, i.e. estimator which gave highest score (or smallest loss if specified) on the left out data. Not available if refit=False.

See refit parameter for more information on allowed values.

**best\_score**

Mean cross-validated score of the best\_estimator

For multi-metric evaluation, this is present only if refit is specified.

This attribute is not available if refit is a function.

**best\_params**

Parameter setting that gave the best results on the hold out data.

For multi-metric evaluation, this is present only if refit is specified.

**Application:-**

**>>> from** **sklearn** **import** svm, datasets

**>>> from** **sklearn.model\_selection** **import** GridSearchCV

**>>>** iris = datasets.load\_iris()

**>>>** parameters = {'kernel':('linear', 'rbf'), 'C':[1, 10]}

**>>>** svc = svm.SVC()

**>>>** clf = GridSearchCV(svc, parameters)

**>>>** clf.fit(iris.data, iris.target)

GridSearchCV(estimator=SVC(),

param\_grid={'C': [1, 10], 'kernel': ('linear', 'rbf')})

**Important Methods : -**

Fit(X, y)- fit the linear model.

Predict(X)-predict using linear model.

Score(X,y)-returns the coefficient of determination R^2 of the prediction.