# Experiment 7 – Grid Search CV Write-up

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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.

sklearn.model_selection.**GridSearchCV**(*estimator*, *param_grid*, *, *scoring=None*, *n_job s=None*, *refit=True*, *cv=None*, *verbose=0*, *pre_dispatch='2*n_jobs'*, *error_score=nan*, *return _train_score=False*)

## Parameters

### 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.

## Attributes

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.

**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.

## 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