# ridge & lasso

## Regularization

Regularization is a technique used to improve models by avoiding overfitting. Since “very (unnecessary) large coefficients cause overfitting,” Regularization penalizes large coefficients.

→ It takes complexity into consideration

### Types of Regularization:

#### Ridge regression

Loss function  = OLS + alpha * (summation of coefficients)^2

→ Introduces parameters that allow influencing the strength of punishment by multiplying the lambda

→ Tends to shrink the coefficients towards zero (they don’t reach to 0)

#### Lasso regression

Loss function  = OLS + alpha * |summation of coefficients|

Lasso:

- can be used in feature selection
- shrinks the unimportant coefficients to 0
- Those not = 0 are selected by lasso

## Ridge Vs Lasso

#### Both :

→ are Regularization techniques that prevent overfetting

#### Feature selection :

→ ridge: Do not perform feature selection

→ lasso: it does perform feature selection