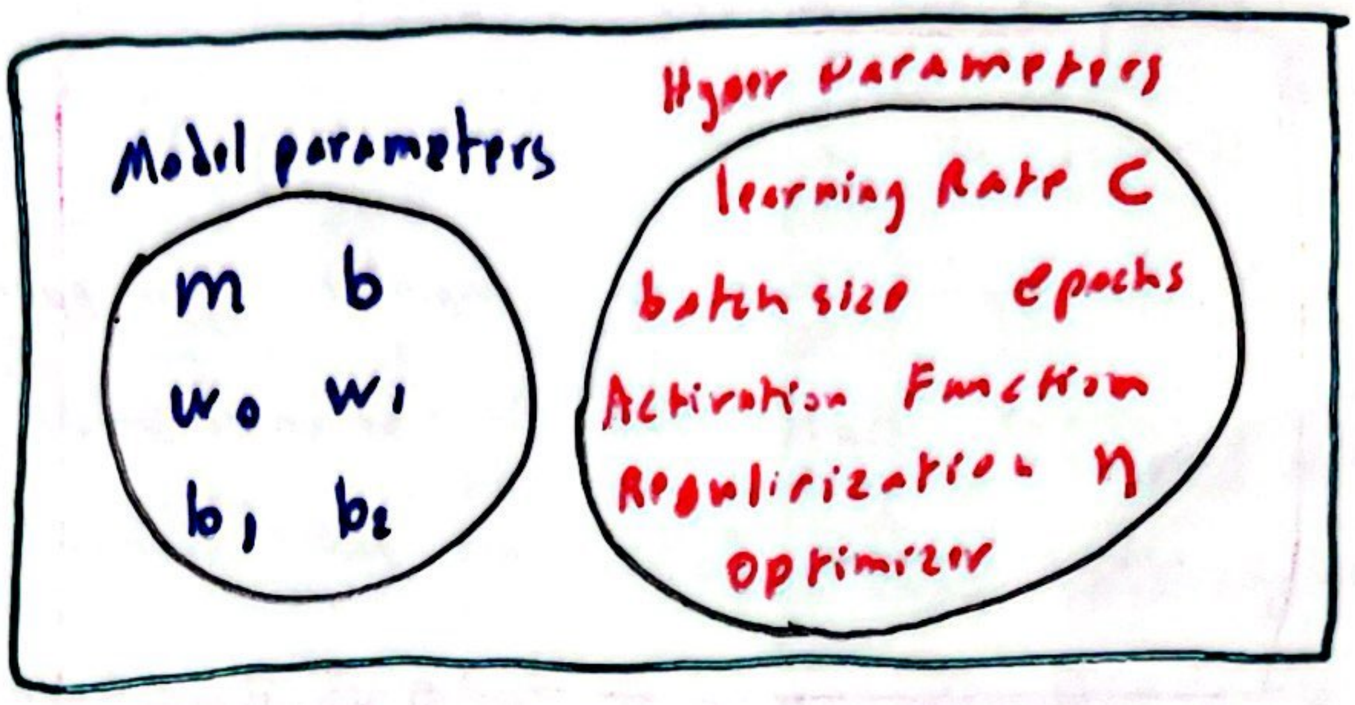
Hyper parameter

- as a configuration setting used to controll the learning process, set Before traning Begins, not like model parameters which are learned in traning. Like knobs + Dials for Model

* finding the right hyper parameters requires experimenting as optimal setting vary from problems and datasets

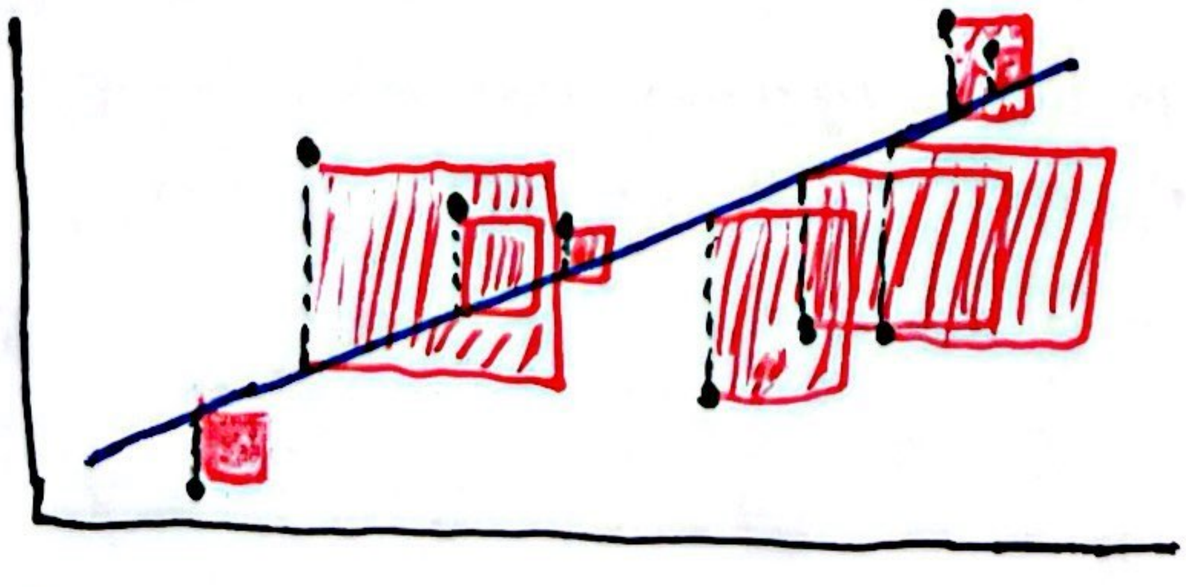


Cost function (loss function)

- is a mesure of how wrong a models predictions are compared to true values, it quantifies the cost or penalty of a incorrect predictions,

Ex: in a house price model (liner) the cost might be the avg distance between predicted and actual prices so in the Er below we use Mean squared error MSE function it is the squared vertical distances from the regretion line to data points where line is prediction and data point is true value. where that is the sum of all red square areas the further the distance & larger the error The goal of traning is to minimize this cost function (loss or error)

make result quadratic



$$MSE = \frac{1}{N}\sum_{i=1}^{N}(y_i - \hat{y}_i)^2$$

- $\frac{1}{N}$ ↓ avg over results
- y_i ↓ true y
- $\hat{y}_i$ ↘ prediction of y
- ↳ loss function for linear Regression

* The choice of loss function significantly influences how the Model learns and what kind of errors it prioritizes avoiding and is another hyperparameter