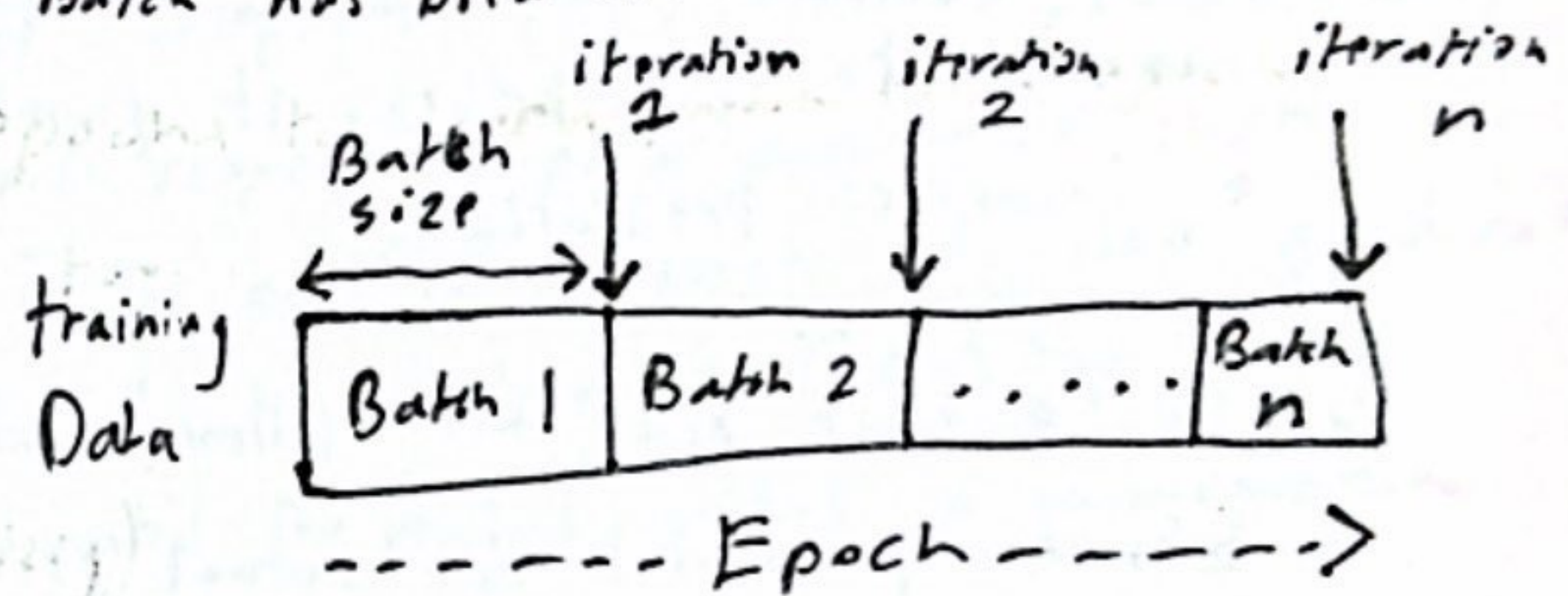


# Batch, Epoch, iteration

- a Batch is a subset of training data that is processed to gather in a single step of model training, rather than processing the entire data set at once. For ex instead of using 10k images at once a Model can do Batches of 32 images at a time i.e. evaluating 32 images and then updating parameters of model
- \* The Batch size is a important hyper parameter that affects training  
larger Batch size provide more stable parameter updates but need more memory while smaller Batches are more frequent and helps escape local minimum
- a iteration is a single pass through one Batch of data leading to an update of the parameters of a Model
- an epoch is a complete pass through the entire training data set, i.e. each Batch has been seen and learned from once

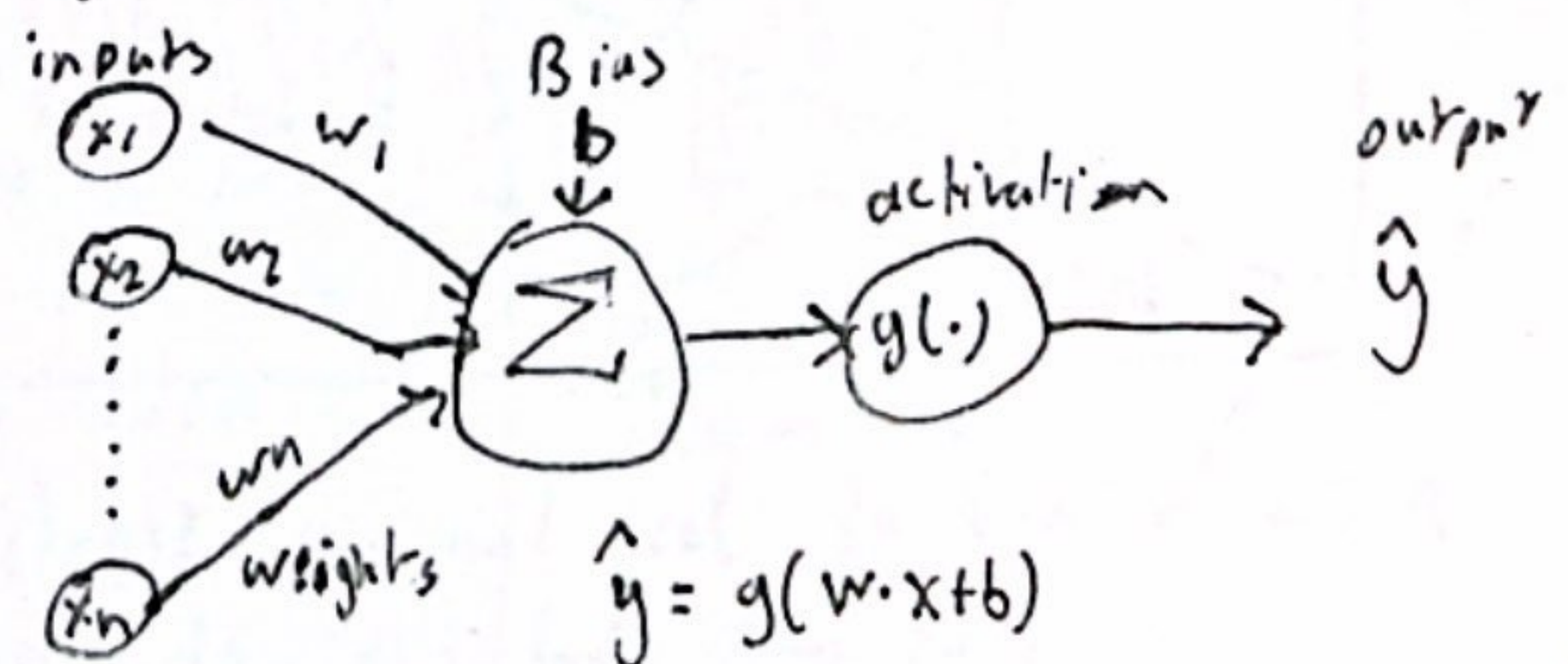
\* Models usually need many epochs to learn effectively with each pass refining its understanding. But too many epochs = overfitting (memorizing)



## Parameter

- also called Model parameter or weight is a value that the model learns during training from data, unlike hyperparameters that are set before training begins, finding the parameters is the goal of training process, Ex in linear regression slope and intercept ( $m$  and  $b$ ) are parameters the model adjust to fit the data, in NN

parameters are all the weights and Biases that are adjusted during Training to minimize prediction error. weight and Biases = slope and intercept but



NN have Millions of them unlike Regression lines with just a few parameters.