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Parameterized Learning:-
• It is not possible to user to download a lot of images (training data) for testing, as in the case of KNN.

• So there is a need of training when output is given from input by "parameters" which were learn from training data.

• Components of Parameterized Learning:-

Data:- That is the input from where our model will learn.

Scoring Function: This accept our data as an input and map the data to class labels.

Loss function:- This is simply the difference of predicted value and actual value.

• Our main aim is to minimize the Loss function, and find it.

Weights and Bias:- Weights (w) and bias (b) are the parameters that are learned from the input data.

It is founded by the output of scoring as well as loss function.

$$\left\{ \begin{array}{l} f = \overbrace{Wx_i + b}^{\text{Weights}} \rightarrow \text{biam} \\ \downarrow \text{test case} \\ \rightarrow \text{Scoring function} \end{array} \right\}$$

Assume we have 3 labels and 9 features so we will have

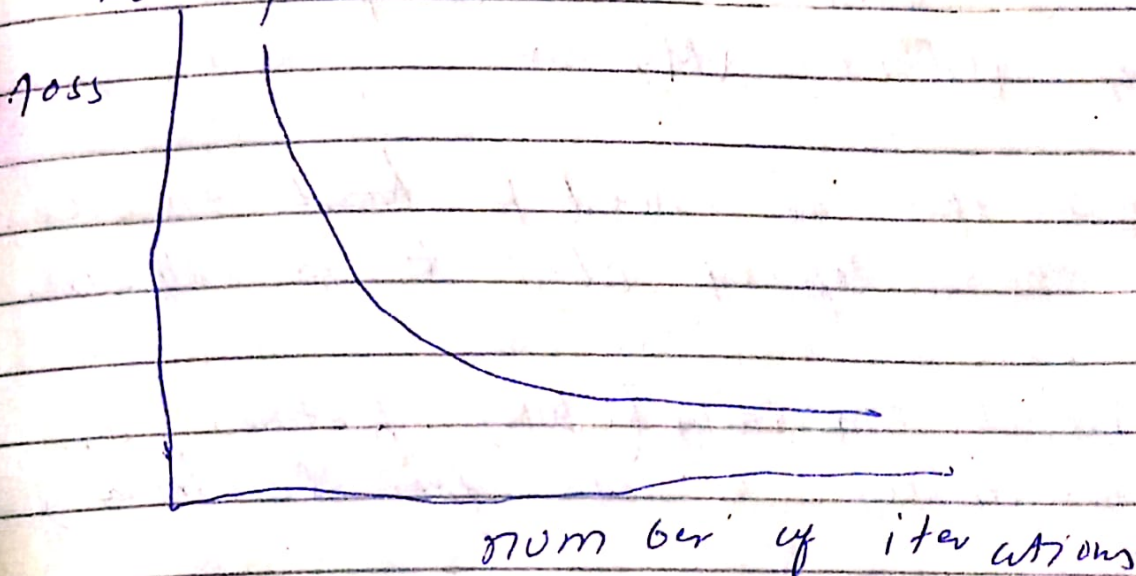
~~W~~ W shape = $(3, 9)$

$$x_i \text{ shape} = (9, 1)$$

$$b \text{ shape} = (3, 1)$$

So shape of f will be $(3, 1)$

• Loss function



(Obtained by Gradient Descent or other Algo).

"Our main aim is to minimize loss function and find the relative W & b ".