

⇒ Shape Detection :

(i) Generated Data.

(ii) Test Data (Generated).

(iii) Optimizer (rms prop, SGD)

Root Mean Squared propagation.
Back propagated.
Gradients² +

(iii) Loss function : Categorical cross entropy. ✓

(iv) Relu Softmax.

(v) Metrics ⇒ "Accuracy" / Classification

Loss
↳ Mean Squared Error
Regression → Mean Absolute Error.

$$E = \frac{1}{2} (D_k - S_k)^2 \Rightarrow \frac{dE}{dw_{ij}} = (D_k - S_k).$$

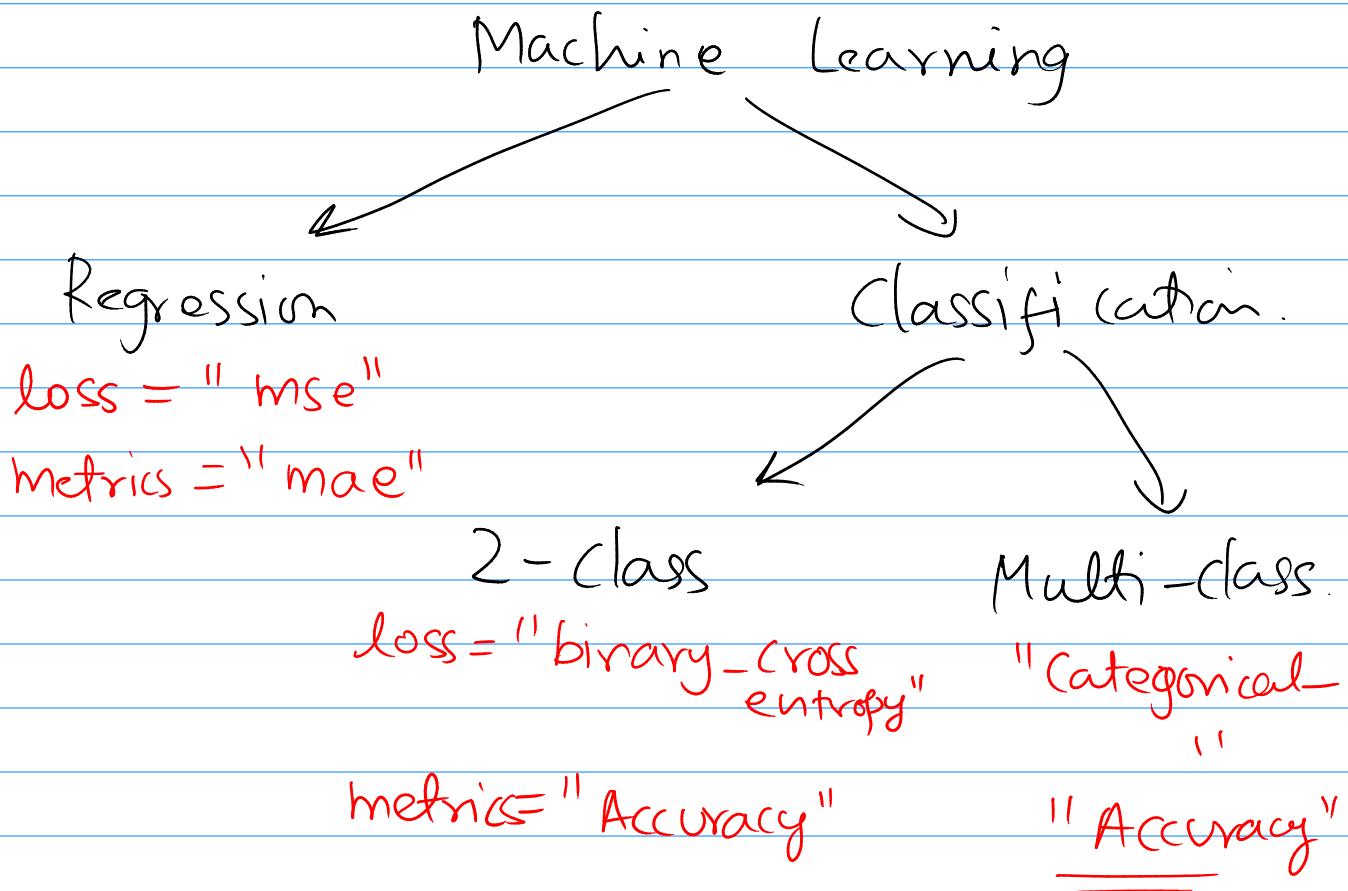
$$\Rightarrow \quad \mathcal{E} = \frac{1}{2} (D_k - \underline{S_k})^2$$

$$\frac{d\mathcal{E}}{dw_{ij}} = \frac{1}{2} \cdot \cancel{x} (D_k - S_k) \cdot \left(- \frac{dS_k}{dw_{ij}} \right)$$

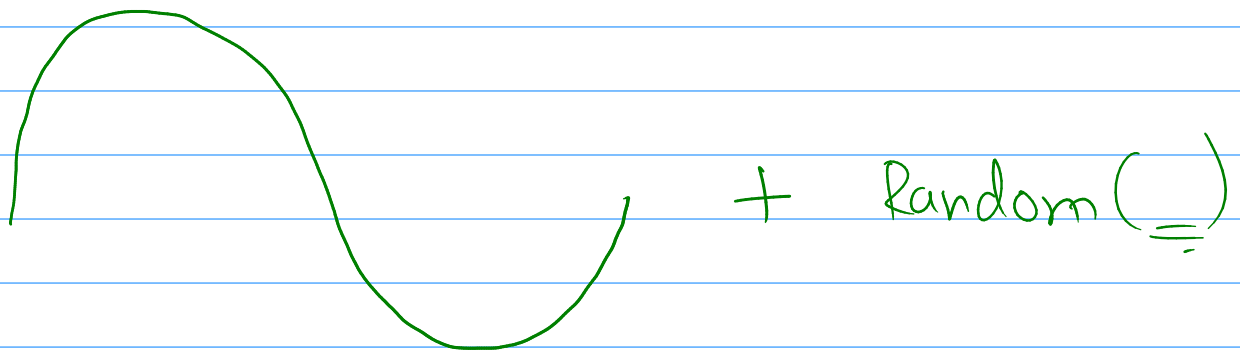
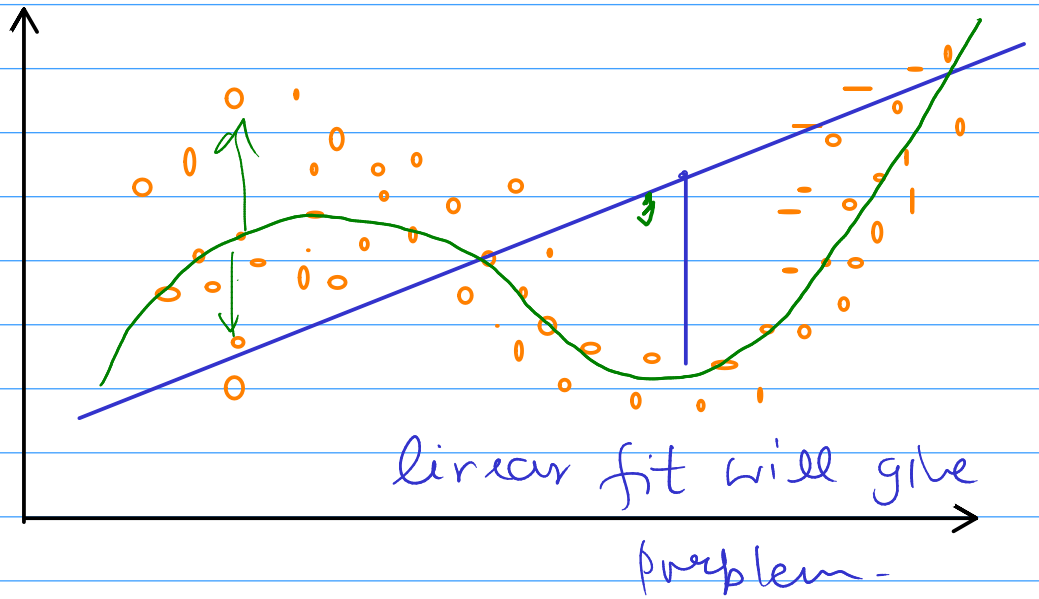
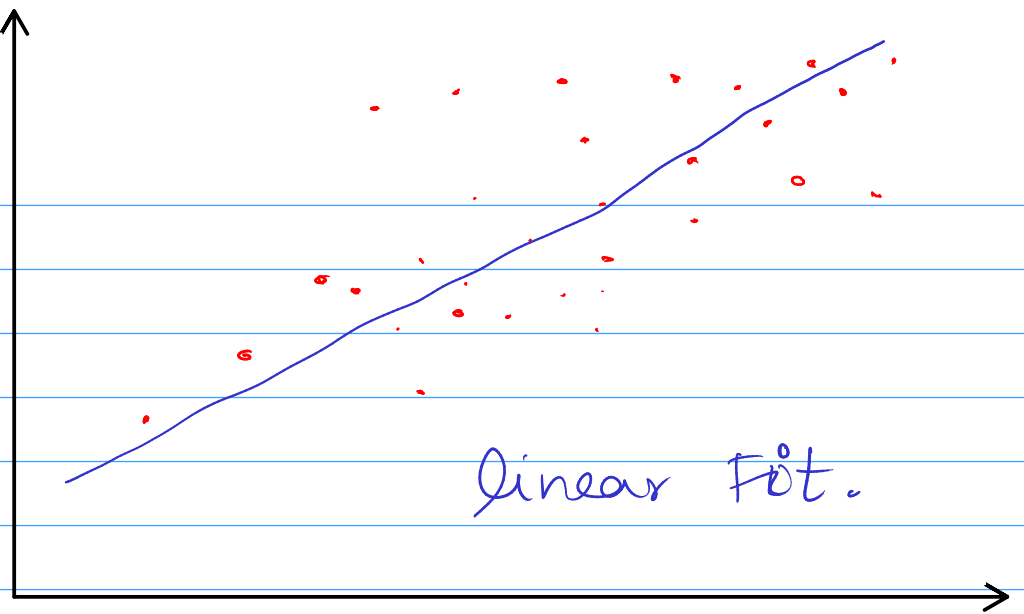
$$\frac{1}{2} x^2 \Rightarrow \underline{\underline{\cancel{x} x}}$$

$$(1 - S_k) \cdot S_k$$

\Rightarrow rmsprop \Rightarrow We'll use this optimizer.



Polynomial
Fittings



⇒ Boston Housing Price Problem

Features

Price

tax on the property
crime rate

$$\Rightarrow \text{Linear} \Rightarrow y = x_1 w_1 + \dots + w_0$$

$$f(y) = my$$

$$f(y) = 5$$

$$m = 1$$

$$\underline{\underline{\tan \theta = 45^\circ}}$$

(10 - 50) range

0. - - -

