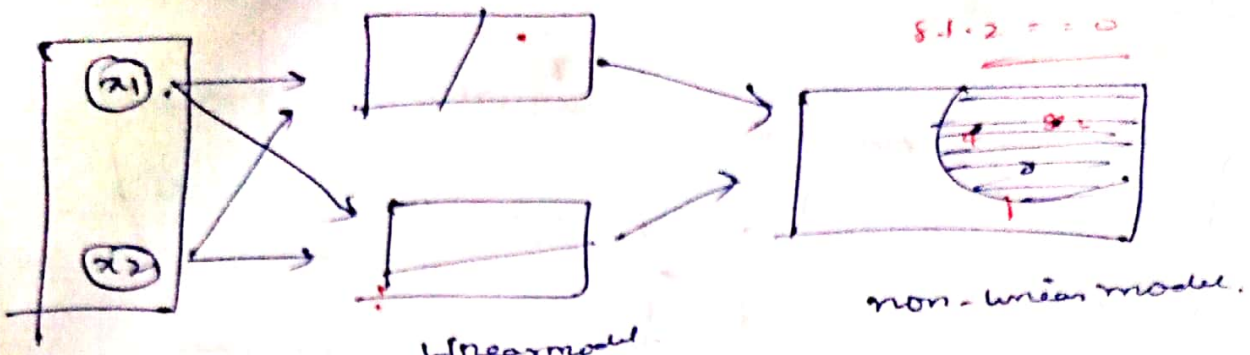
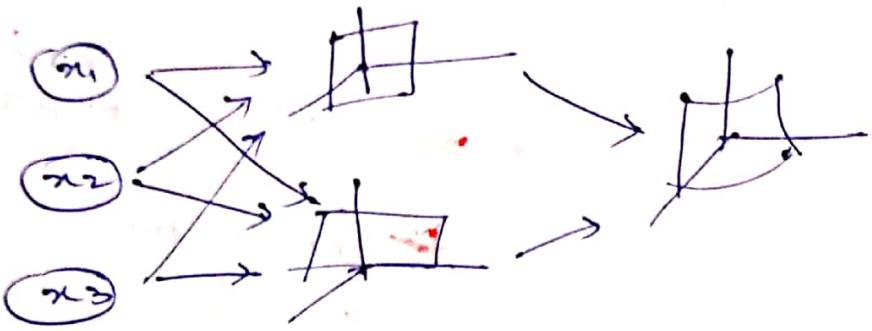
Day 5

Neural Network

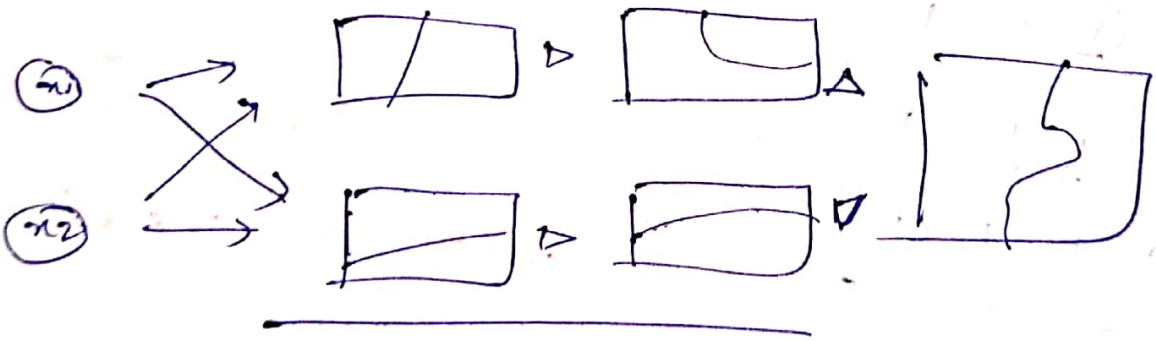




3 i/p feature

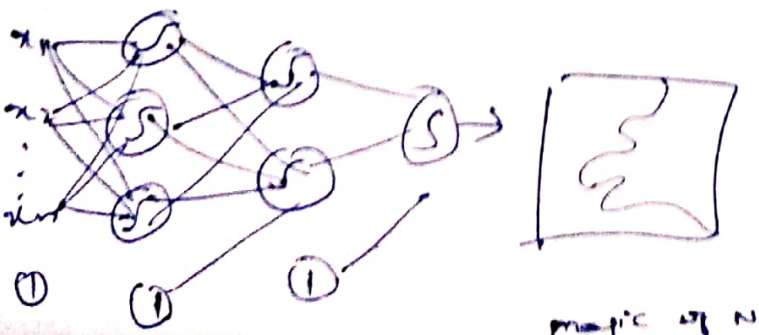
3D-space

n-nodes ⇒ n-Dimension Space.



more layers → even more non-linear model

Deep Neural Network



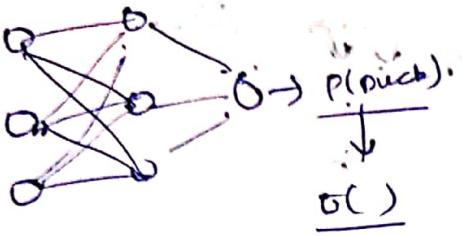
magic of NN
many hidden layers

MULTI - CLASS CLASSIFICATION

Duck → Separate model

Beaver → Separate model

Walrus → Separate model



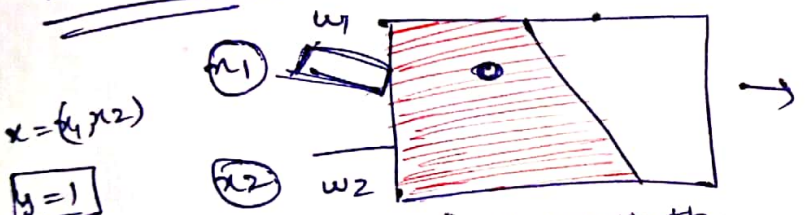
→ Same → Same.

IS IT ESSENTIALLY NEEDED FOR Separate models for each animal?

OVERKILL!

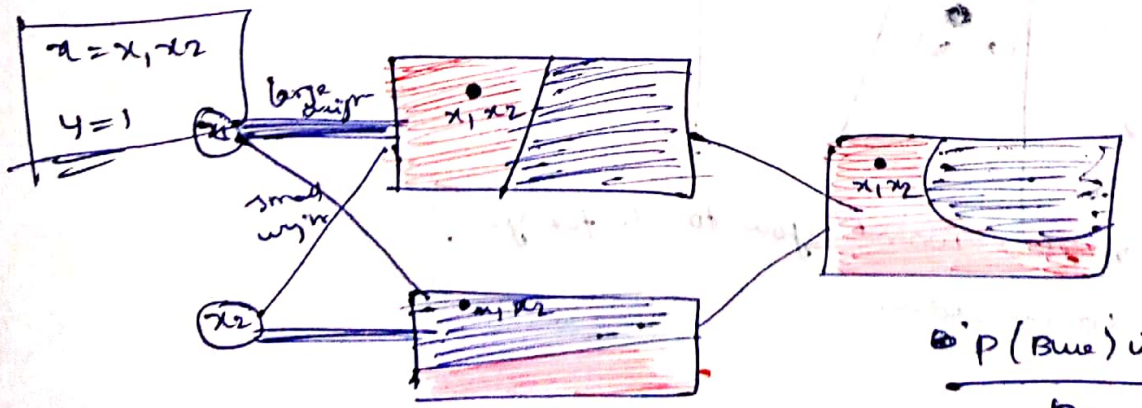
So ⇒ : Expand the class labels, train a model at once, using softmax (prob) ⇒ turn them most likely

FEEDFORWARD



Since the pt is in red area the O/P is small no (blue)

FEEDFORWARD..

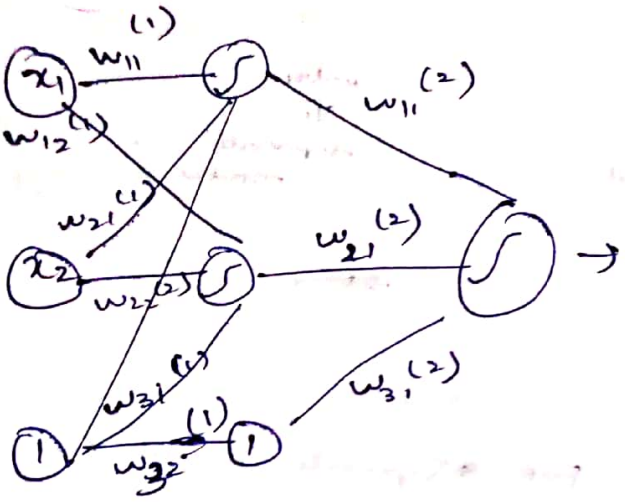


P (Blue) in red area

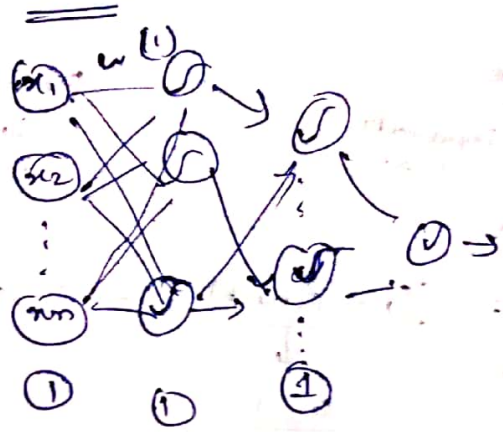
Bad model

FEEDFORWARD moving up the non linear layer

Feedforward.



MLP



$$\hat{y} = \sigma\begin{pmatrix} w_{11}^{(2)} \\ w_{21}^{(2)} \\ w_{31}^{(2)} \end{pmatrix} \sigma\begin{pmatrix} w_{11}^{(1)} & w_{12}^{(1)} \\ w_{21}^{(1)} & w_{22}^{(1)} \\ w_{31}^{(1)} & w_{32}^{(1)} \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \\ 1 \end{pmatrix}$$

$$\hat{y} = \sigma \circ w^{(2)} \circ \sigma \circ w^{(1)}(x)$$

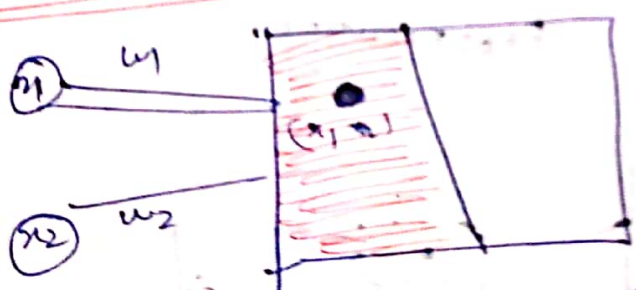
$$\hat{y} = \sigma(w^{(2)}) \circ \sigma(w^{(2)}) \sigma(w^{(1)} x_{(1)})$$

Error function

$$\hat{y} = \sigma(wx + b)$$

$$E(w) = -\frac{1}{m} \sum_{i=1}^{m} y_i \log(\hat{y_i}) + (1 - y_i) \log(1 - \hat{y_i})$$

BACKPROPAGATION



what the model want you to do for you!

come close