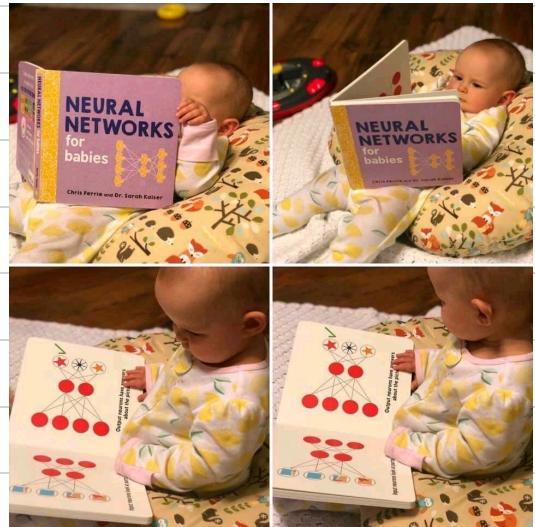


Session-11

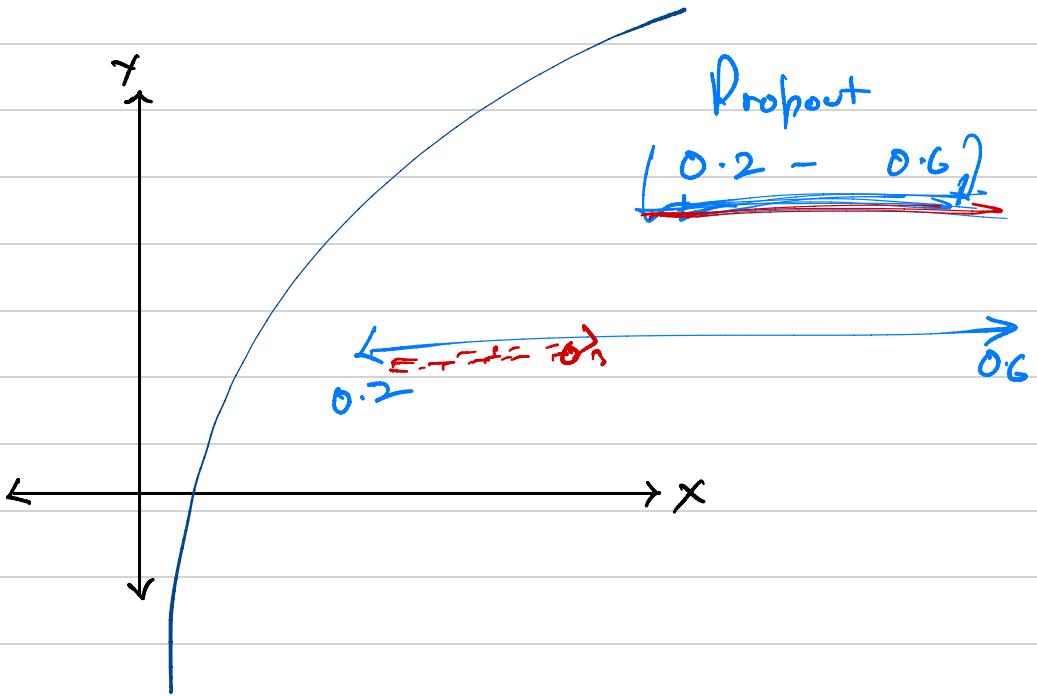
Nn - PRACTICAL ASPECTS

Mar 1, 2024



AGENDA

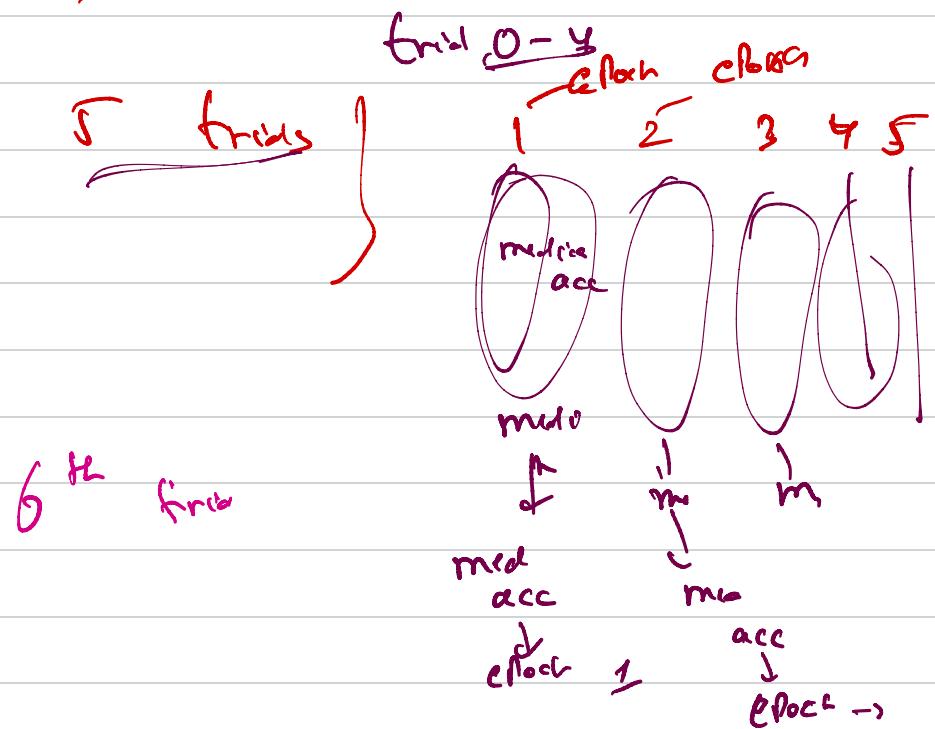
- ① Keras Tuner
- ② Optuna
- ③ Gradient Change (Not Impt \rightarrow Interview)
- ④ Neat hacks



$$\text{no_layers} = \text{hp}\cdot\text{Int} \left(\dots \right)$$

For i in range(`no_layers`)
`model.add(Dense(--))`

100 trials } 1 set of hyperparameters

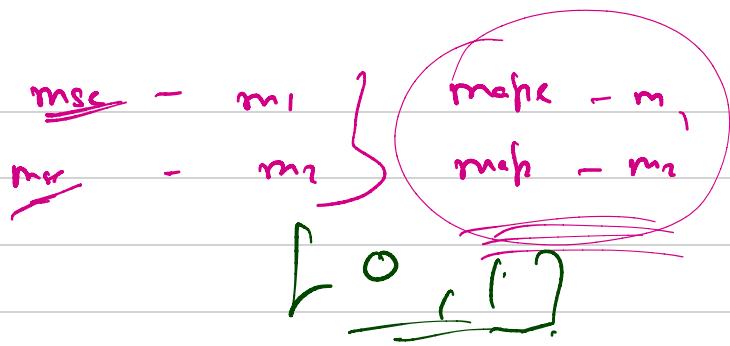


Trial 5 → don't train For test

Cat - Cross Entropy

$$-\sum y_i \times \log(\hat{p}_i)$$

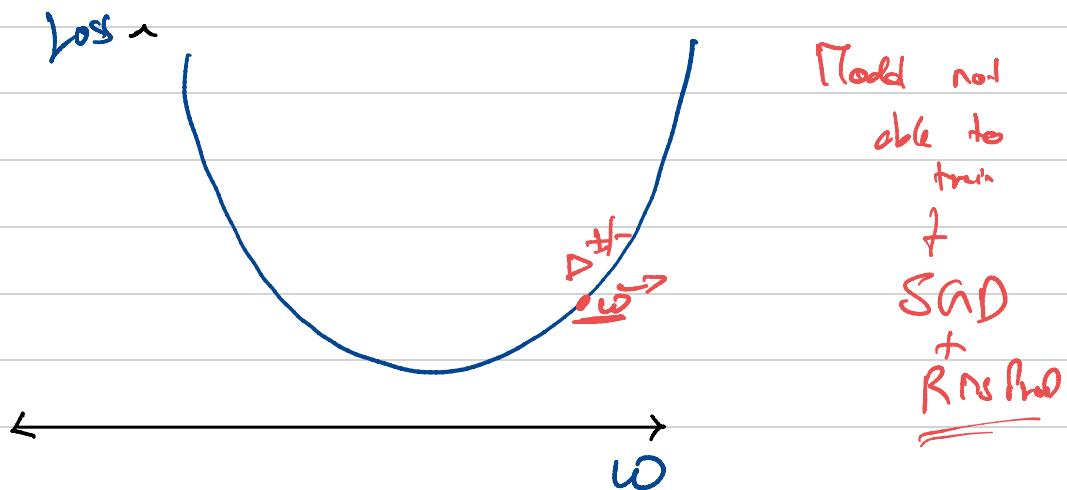
meant
For
multiclass
only



Precision

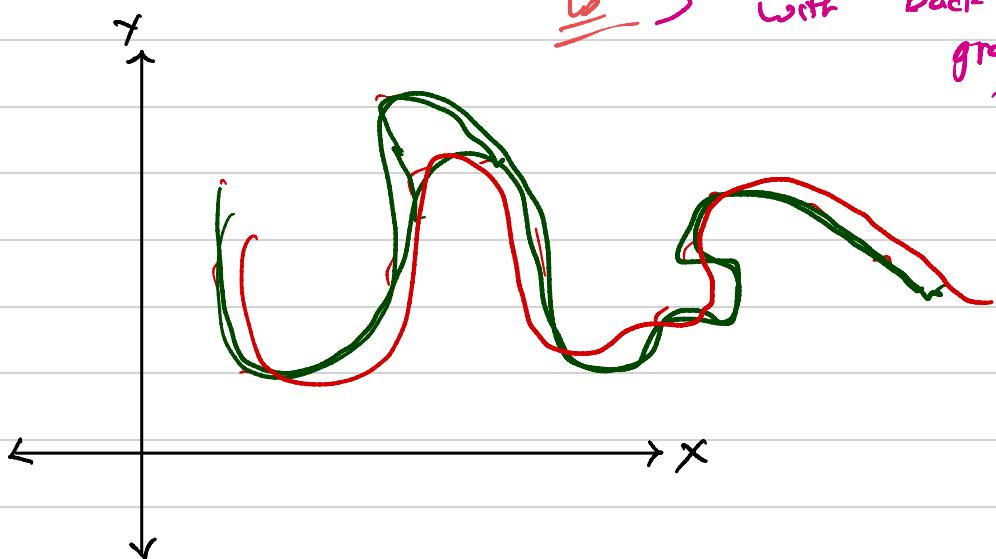
→ How to improve performance of NN

- (a) layers
 - (b) No of neurons (in each layer)
 - (c) Activation
 - (d) Dropout
 - (e) Batch size.
 - (f) Regularization.
 - (g) Optimizes
 - (h) LR
- 1 Epoch
2 Batch normalization
- Collecting Data



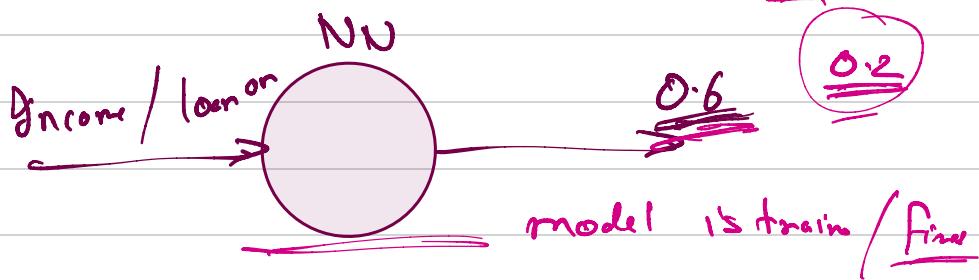
$$f(w + \Delta w) \approx f(w) + \nabla f(w) \cdot \Delta w$$

∇ is gradient wrt. w } complex gradient
with back prop gradient



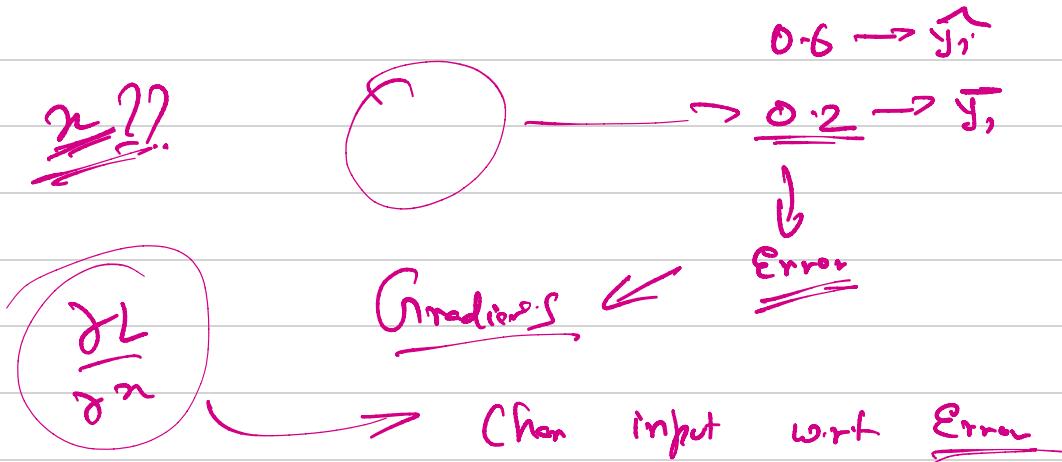
Bank \rightarrow Amis
 default

loan department \rightarrow Classify \rightarrow I/O
 or not



$$10 \text{ bank} \rightarrow \underline{\underline{0.6}} \quad \textcircled{1}$$

$$20 \text{ bank} \rightarrow \underline{\underline{0.85}}$$



$$\text{loan_net} \leq 10\%$$

$$L + \lambda(\text{loan_net} - 10)$$