ANN {Artificial Neural network}

→ Feature - scaling

Interview Question:

a) for which all algorithms feature scaling is required?

KNN ✓ — Anything distance based or any kind of optimizer

ANN ✓

LR ✓

Log R ✓

~~Decision Tree~~ ✗

~~Random Forest~~ ✗

Tensorflow - Open sourced by google

Pytorch - Facebook

Keras is a wrapper, after 2.0, keras and tensorflow got integrated

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~~Sequential library~~

Libraries

① Sequential :- Enables to do forward and backward propogation

② Dense :- Helps to create neurons.

③ Dropout :- Regularisation parameter

Sometimes overfitting happens i.e. Accuracy goes low for output

Black Box Model vs White Box model

Can't see internal working

Explainable AI → Becoming popular

Convolution Neural network

↳ Images, videoframes

① CNN vs Human brain → convolution, padding, stides, filters (kernals)

② Convolution operation

③ Max Pooling

④ Flattening

CNN vs Human Brain

Central cortex :- Visual cortex is Responsible for seeing and processing

V_1 → many objects

↓ → trivial

V_2 → map the mean

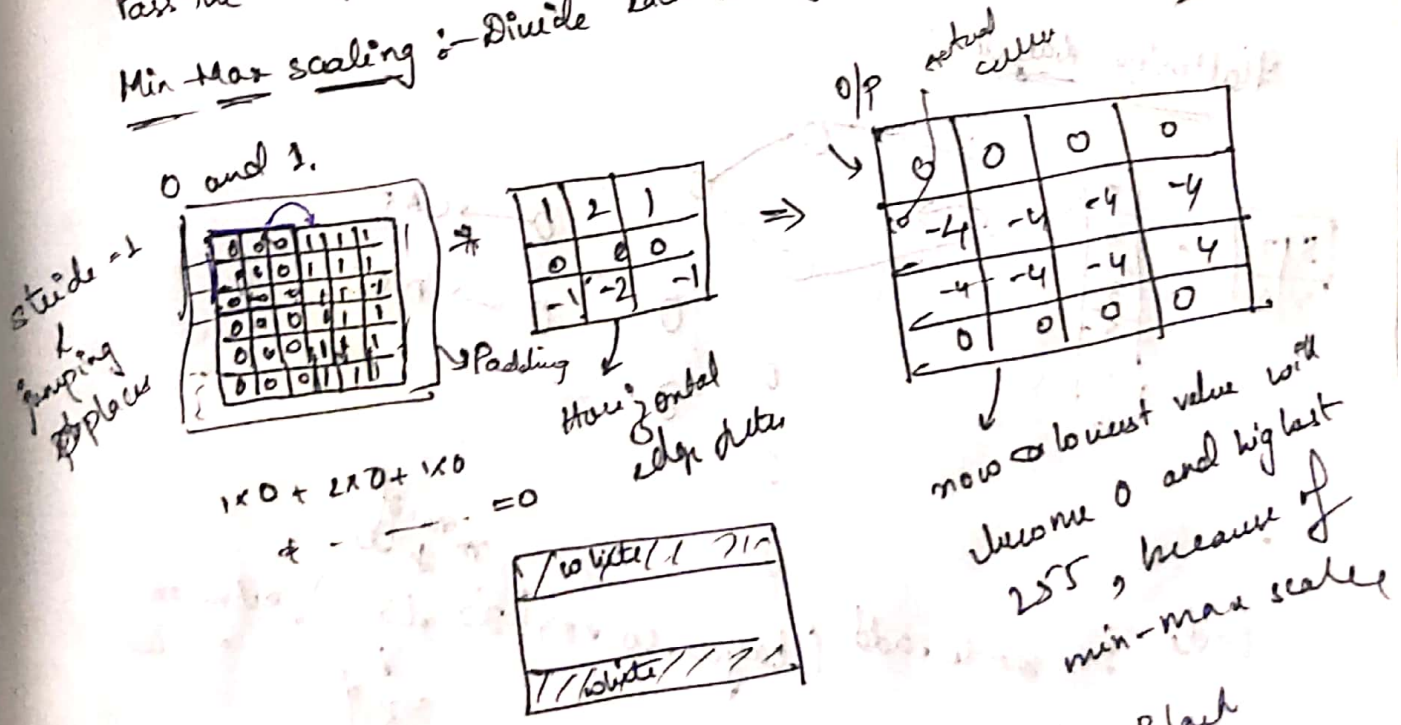
↓

V_3

Convolution :- ⓓ (*)

Pass the image through a filter / kernel

Min Max scaling :- Divide each value of pixel between 0 and 1.



$n - f + 1 = o/p$

f → filter

all are no. of pixels

Padding :- A pad around the image

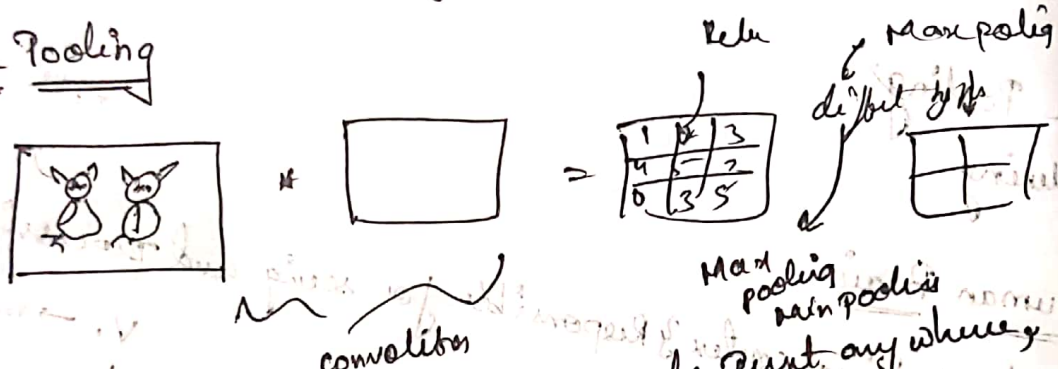
$n + 2p - f + 1$ → $\frac{n + 2p - f + 1}{s} = o/p$

→ the filter is same as the weights, through back propogation we have to update

→ Relu activation on each and every value
(max(0, x))

→ many convolution operation takes place in CNN

Max Pooling



Locant invariant :- My objects may be present anywhere in my CNN should extract most clear option

Flattening Layer

code :- model.add (layers.Conv2D(32, (3, 3), activation

32 → no. of filters

(3, 3) → size of each filter