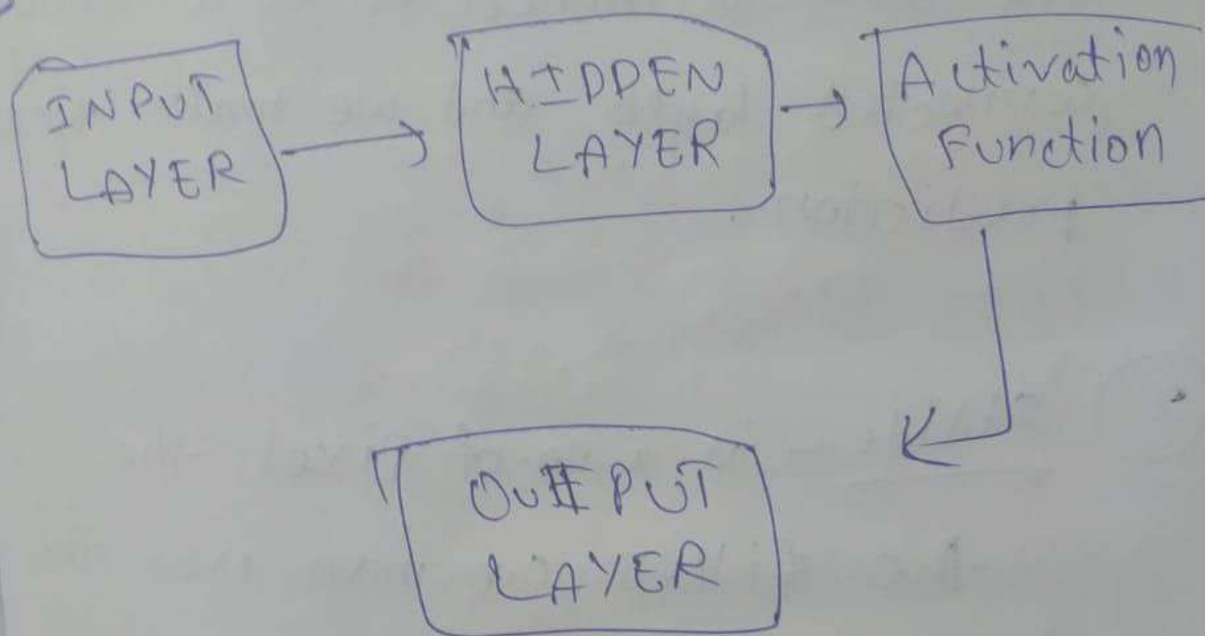


1 CNN is a Neural Network known as convolutional Neural Network. which is mostly used for Picture Recognition & classification problem.

⇒



1st it takes image and divides into small images like pixels & detects edges etc for images & it takes normal data also.

Now we have activation layer where we use functions like ReLU to add non-linearity.

⇒ Then we add Pooling layers to reduce the size of feature maps to make it more robust.

⇒ After many convolution & Pooling layers, the final step is to flatten the data & connect it to a fully connected layer and we make final prediction.

(2) Stride - is a no. of pixels the filter can move over the input image.

Padding - means adding extra zero pixels around the input image majorly at edges.

Kernel Filters - are used to detect features which are small matrices that slide over input image.

Pooling - is a layer which reduces the dimensions of the feature map.

3) Overfitting is a typical problem arises when the model is complex and performs worst in testing cases but very perfect during training phase.

And it happens due to CNN complex nature and tries to memorizes the training data.

⇒ The best & most used method to avoid overfit is Regularization.

⇒ where we do Dropouts.

⇒ Or else we need to use more sophisticated data to handle overfitting.

By using
⇒ Data Augmentation techniques we need to create modified versions of training data.

⇒ Or else we can perform Early stopping when performance starts to deteriorate to prevent overfitting.

④ Inception Net is better than VGG as -

Inception Net uses different filter sizes within the same layer which in turn reduces the parameters & computations.

⇒ Inception Net can go deeper into more layers without increasing the computational load.

⇒ Inception Net have higher accuracy due to its complex & flexible architecture.

⑤ Augmentation is a technique used to tackle overfitting problem.

⇒ Augmentation is used to expand the training dataset size by creating different versions of data by doing -

⇒ Rotating

⇒ Cropping

⇒ Changing contrast

⇒ Flipping etc.

⑤ Feature maps are the outputs produced when we apply filters to the input image.

⇒ Feature maps shows the specific features are detected in different parts of image.

⇒ Each feature map corresponds to a different filter & shows where & how ^{that} specific feature is important is present in the input.

⇒ These Feature Maps can be edges, textures (or) even colours.

⇒ The more sophisticated CNN model, the more complex & abstract features of input are recognized.