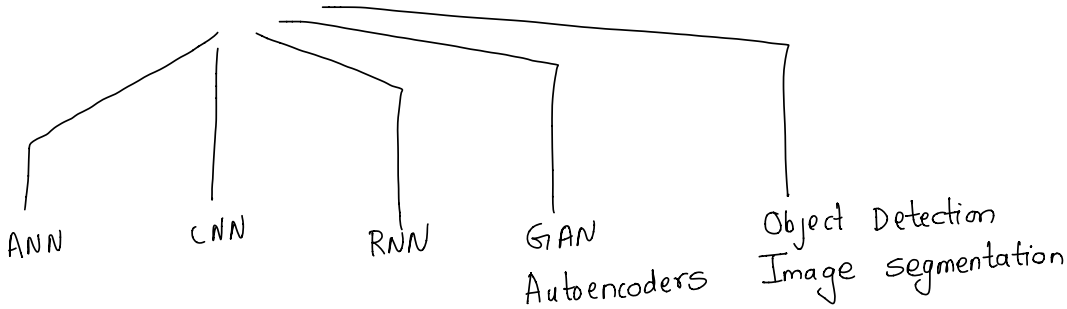
① { Curriculum }



② { Syllabus of ANN (Artificial Neural Network) }

ⓐ Basics

* What is deep learning?
* Deep learning vs machine learning
* Why DL is getting famous now?
* DL application
* DL Types
* History of DL

ⓑ Perceptron

* What is a Perceptron?
* Perceptron vs Neuron
* Prediction in a Perceptron
* Training in a Perceptron
* Problem with the Perceptron

ⓒ MLP { Multi Layer Perceptron }

* Intuition of MLP
* Prediction in MLP
* MLP Notation

(d) Training an MLP

* Gradient descent
* Backpropagation

(e) Practical with Keras

* CPU vs GPU
* Installation
* Regression using keras
* Classification using keras

(f) How to improve an ANN

* Vanishing Gradients
* Exploding Gradients
* Dropouts
* Regularization
* Weight initialization
* Optimizers
* Gradient Checking and Clipping
* Batch Normalization
* Hyperparameter Tuning

(g) { Advanced Topics }

* callbacks
* Tensorboard
* Pretrained Models
* Kera functional API
* Saving and loading a keras model
* Building a Streamlit Application.

(h) Project

* End to End Project
* AWS Deployement

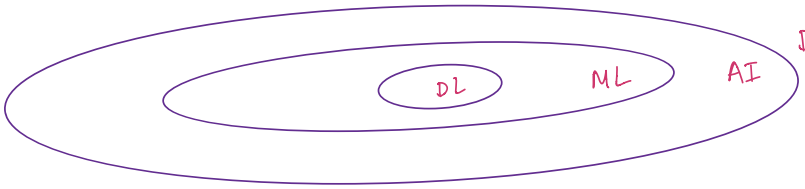
③ { Features of this course }

* Well Researched
* Easy to consume { Digestable }
* Well Structured { takes only 100 days }
* uses Tensorflow + Keras.
* Projects

④ { What is Deep Learning ? }

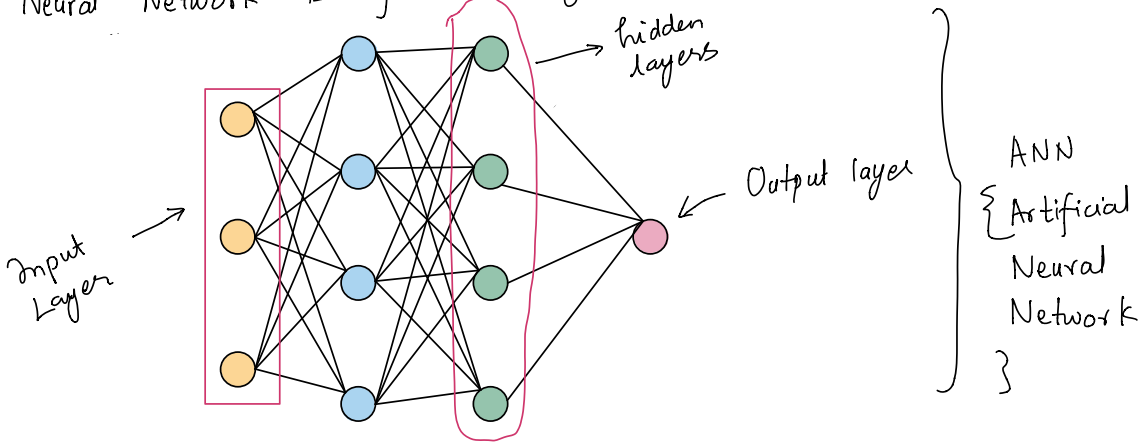
Definition I

* DL is Subfield of AI and ML that is inspired by the structure of a human brain



DL ⊆ ML ⊆ AI

* ML algorithms mostly use statistical techniques. On the other hand, DL algorithms try to use a mathematical model.
* Neural Network is just a logical structure.



* The reason we say deep learning because we have input layer, output layer and many hidden layers in between these two layers.

{ Deep } 

* We also have other types of NN :-

CNN → Convolutional Neural Network { best for Image data }

RNN → Recurrent Neural Network { best for speech / text }

GAN → generate text / images

⑤ { Why is DL getting famous ? }

* Applicability
* Performance { State of the art performance }

⑥ { What is DL ? (Def^n II) }

* DL is a part of broader family of ML methods based on artificial neural network { ANN } with representation learning.

* DL algorithms used multiple layers to progressively extract higher level features from the raw input. In ML algorithm, we need to make features manually.

{ DL में feature engineering की ज़रूरत नहीं होती }

* Every layer in a Neural network has a purpose. For example, in image processing, lower layers may identify edges, while higher layers may identify the concepts relevant to a human such as digits, letters or faces.