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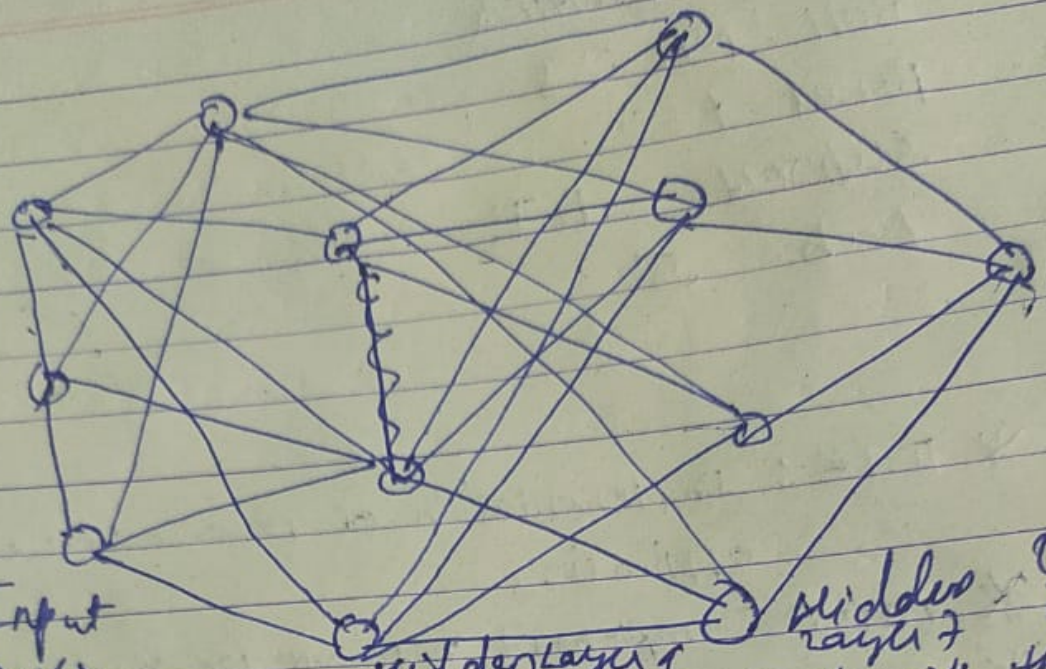
Panel 1
Subject AI
Lab 5

* TITLE : Implementation of neural network for any applications.
* AIM :- Implement network for any application
* PreOBJECTIVE :- TO study & implement neural network
* THEORY
1) Neural Network Architecture

News networks are complex structures made of artificial neurons that can take in multiple input to produce single output this is primary job of neural network

In neural network, all neurons influence each other and hence are connected the network can acknowledges observe every aspect of dataset at hand and how the different are parts of data may or may not relate to each other.




A neuron is basic unit of neural network they receive input from external source which all nodes values from point of input layer are multiplied and summated it generates value for first layer is known as hidden layer it calculates necessary activation based on i/p layer and forwards it to output layer.

2) Deep Learning framework :-

A deep learning framework is an interface library or a tool which allows us to build deep learning models more easily and quickly, without getting into details of underlying algorithms they provide a clear concise way for defining models using collection of pre-built and optimized components.

Key features

(a) optimized for performance

(b) Easy to understand and code.
(c) Good community support
(d) Parallelize the process to reduce computation
(e) Automatically compute gradients

(3) Commonly used 3 activation functions:-
(a) sigmoid or logictic activation curve looks like S-shape
b) Tanh or hyperbolic function - logistic sigmoid but better.
c) ReLu (Rectified linear unit)
uses max of values less than zero
* Platform :- Windows.

* FAQs
1) Which algorithm is used to train the neural network?
→ a) Gradient Descent used to find local minimum of function
b) Evolutionary algorithms :- Based on concept of natural selection or survival of fittest
c) Genetic algorithm : Enable most appropriate rule for the solution of problem & select it

2) How to decide no of hidden layer in neural net
→ a) Based on data i.e can expected decision boundary to seperate classes
b) To correct lines created by previous layer, a new hidden neuron.

c) Number of selected lines represent no of hidden neurons in first hidden layer.

d) To connect lines created by previous layer, a new hidden time you need to create connection among the lines in previous hidden layers.

e) Then, of hidden neurons in each new hidden layer equals the no of connections to be made

3) What is drawback of deep learning ?

a) Requires very large data in order to perform better than other techniques.

b) It is extremely expensive to train due to complex models moreovers ; deep learning requires expensive GPU and hundreds of machine

c) It's not easy to comprehend output base on learning.

d) There is no standard theory to guide you in selecting right deep learning tools as it requires knowledge of topology, training, method and other parameters.