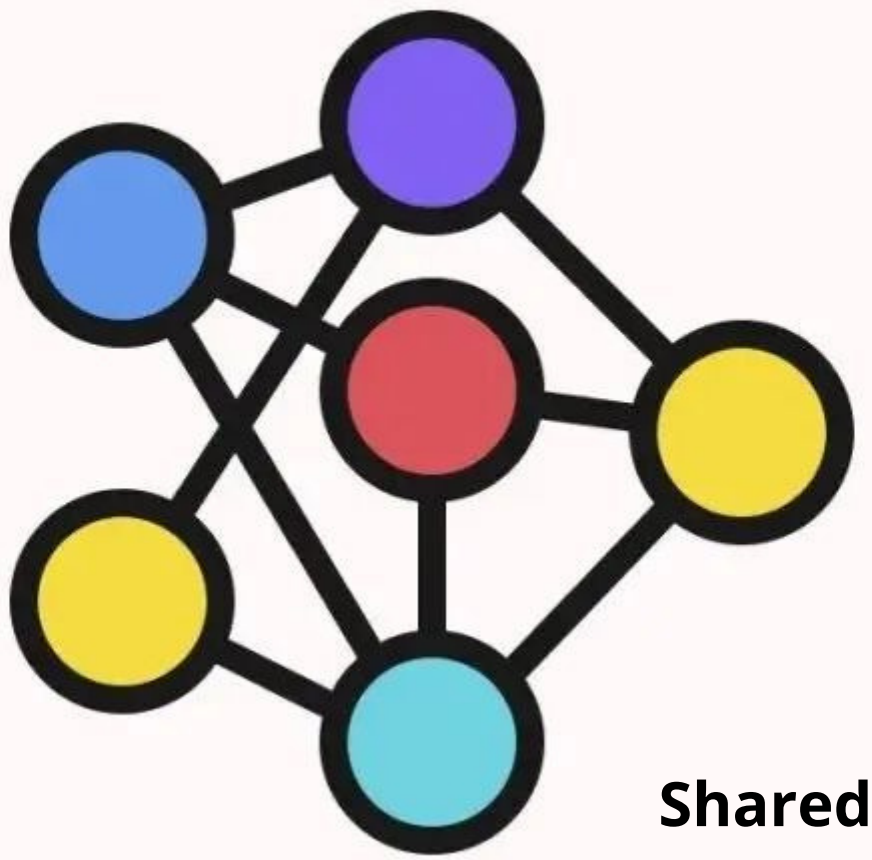
INTRODUCTION TO DEEP LEARNING



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- The artificial neural networks are built like the human brain, with neuron nodes connected together like a web.

- In a human brain there are about 100 billion neurons. Where each neuron connects with over 100000 neighbouring neurons.

- In our brains, a neuron has a body, dendrites, and an axon and transfers to the dendrites of the next neuron. That connection where the signal passes is called a synapse.

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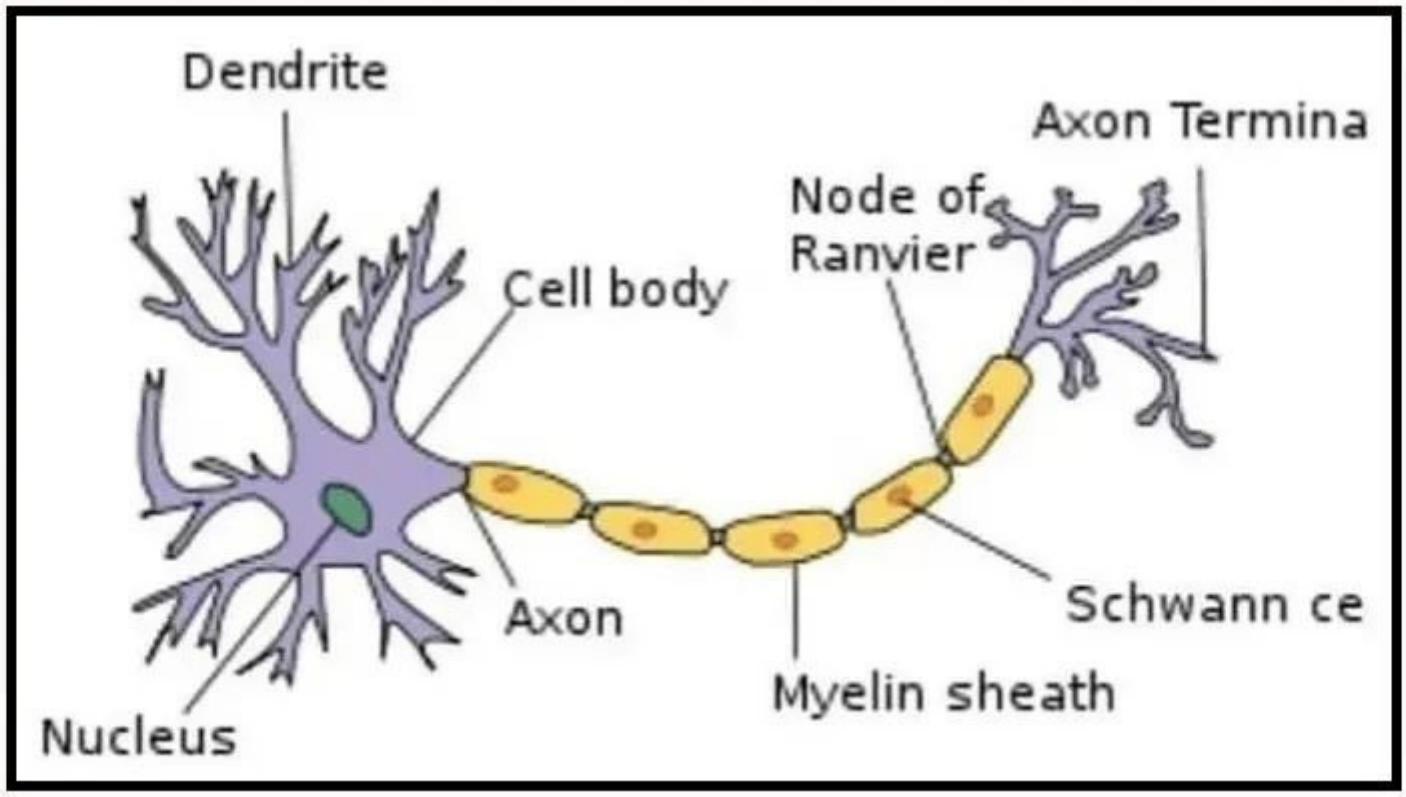
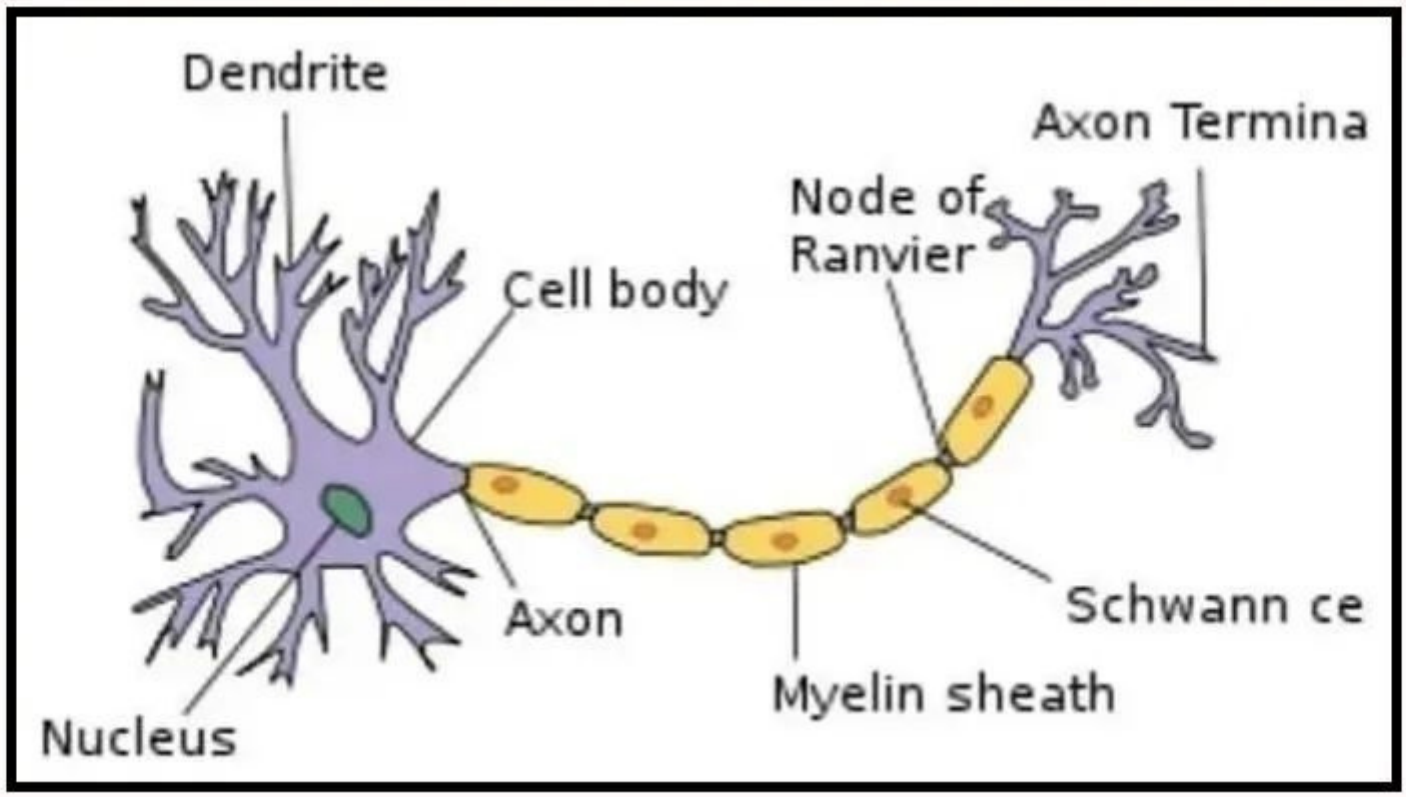


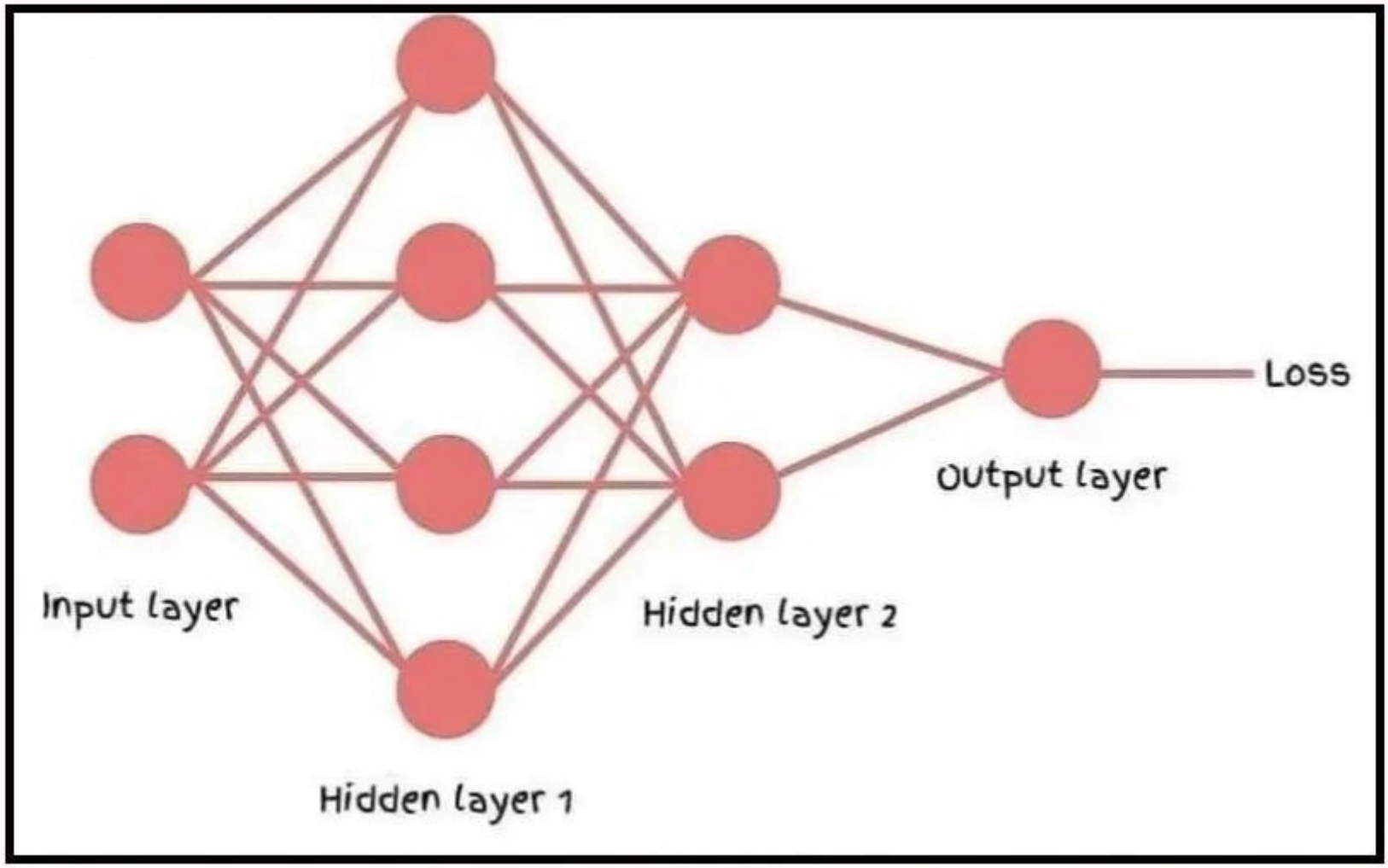
- As we already know we can achieve Artificial Intelligence through machine learning.

- Deep Learning is a subset of machine learning.

- The algorithms of Deep Learning try to imitate the working of human brain in processing data and creating patterns for use in decision making.

- Deep Learning, uses a concept of artificial neural networks to carry out the process of machine learning.

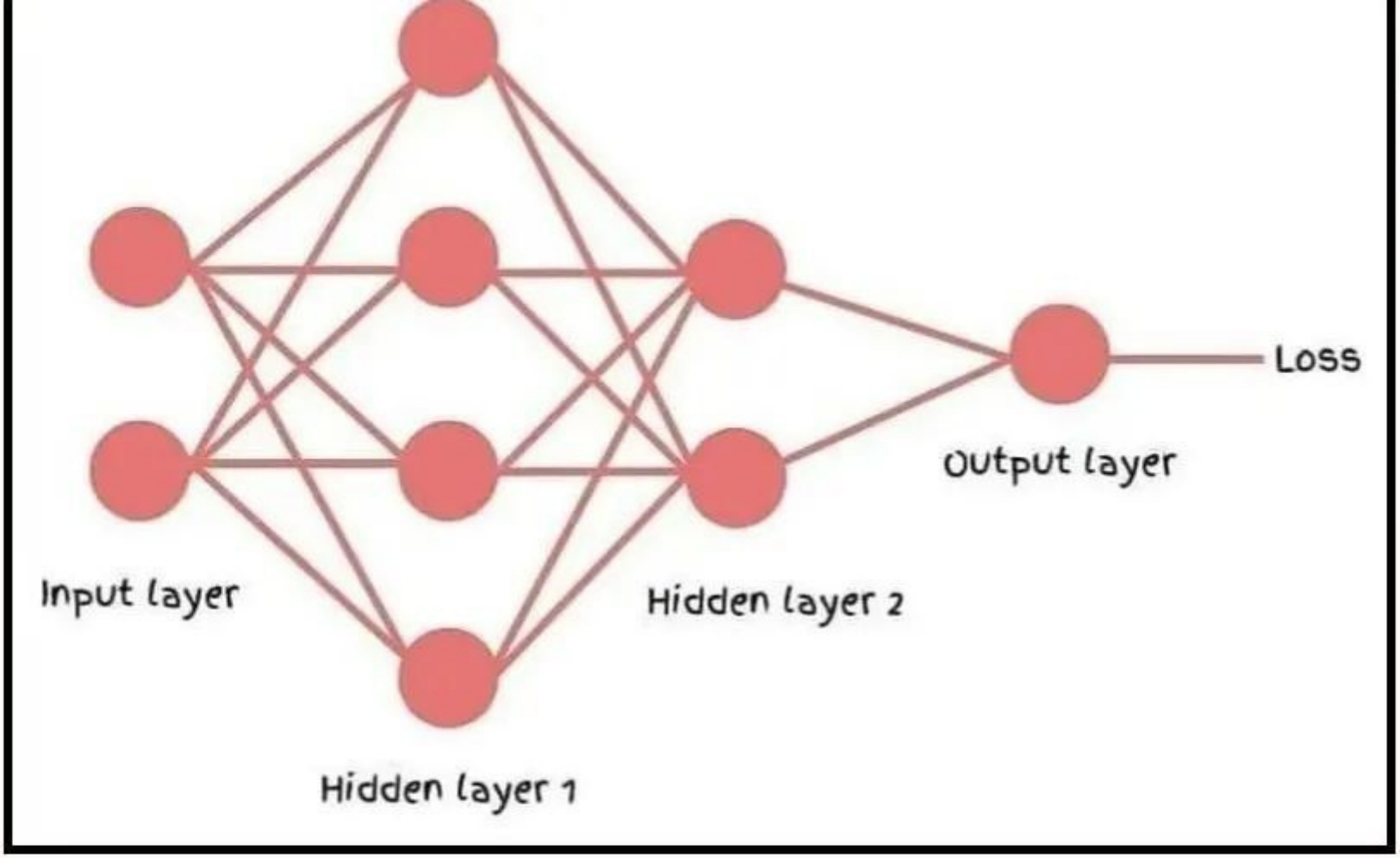




- Neurons are the main idea behind deep learning algorithms. Let's consider the above structure.

- Where we get input and pass that to the hidden layers.

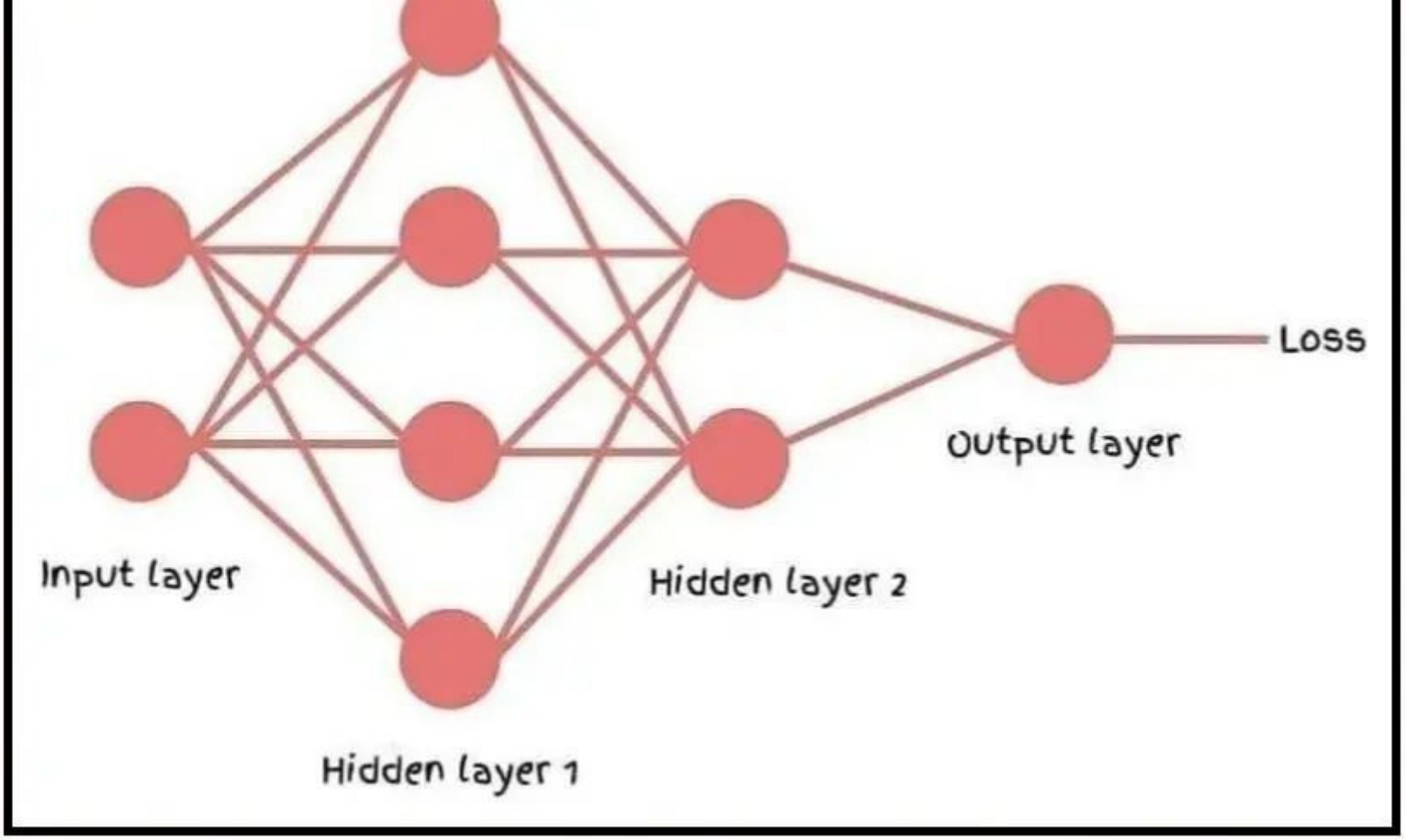
- The output generated by the hidden layer-1 are passed as a input to hidden layer-2. And this continues if we have more hidden layers.



- The biggest advantage of Deep learning is automatic feature extraction.

- It extracts lower level features at starting hidden layers and higher level features at ending layers.

- Automatically learning features at multiple levels of abstraction allow a system to learn complex functions mapping the input to the output directly from data, without depending completely on



- This example of deep learning model is the feedforward deep network or multilayer perceptron (MLP)

- The Deep in Deep learning is many layered network.

- The learning here is Hierarchical Feature Learning, where every layer learns from previous layers.