The Power of Review,
The Passion of Learning!

There is an old saying in China:
"Each time when you review what you have learned,
you will learn more and deeper"

TRUE!

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The Passion of Learning!

Yesterday, Alice was showing me Tensorflow Playground, during the data training, some lines were showing stronger thickness. Then I suddenly realized, oh, I forgot the relationship between EACH neuron and weights.

Today! I could not wait to review Deep Learning Fundamentals after I got up. Last year, I quickly went through it since I thought it was too basic.

It's a real good tutorial! My concept has become more clear now after reading it carefully!

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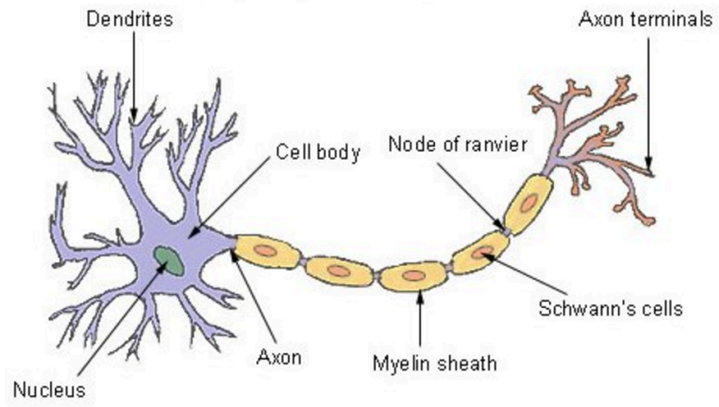
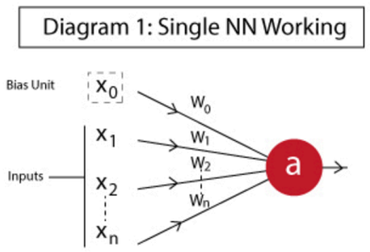
These images are so beautiful, aren't they?!



The major components are:

- **Dendrites-** It takes input from other neurons in form of an electrical impulse
- **Cell Body**– It generate inferences from those inputs and decide what action to take
- **Axon terminals**– It transmit outputs in form of electrical impulse

Happy Review!
Happy Learning!



The different components are:

1. $x_1, x_2, ..., x_N$: Inputs to the neuron. These can either be the actual observations from input layer or an intermediate value from one of the hidden layers.
2. x_0: Bias unit. This is a constant value added to the input of the activation function. It works similar to an intercept term and typically has +1 value.
3. $w_0, w_1, w_2, ..., w_N$: Weights on each input. Note that even bias unit has a weight.
4. **a:** Output of the neuron which is calculated as:

$$a = f(\sum_{i=0}^{N} w_i x_i)$$

The error for layer L-1 should be determined first using the following:

$$e_{L-1}^{(i)} = \left(\sum_{k=1}^{N_L} W_{ik}^{(L-1)} . e_L^{(i)} \right) * f'(x)^{(i)}$$