Putting The Pieces Together

In the following videos we use subscripts as well as superscript as a numeric notation for the weight matrix.

For example:

- W_k is weight matrix k
- $W_{k_{ij}}$ is the ij element of weight matrix k

Notice that the video introduces a concept we have't mentioned yet, the **activation function**. No worries, you will learn all about it in the next lesson (Introduction to Neural Networks).

When working with neural networks we have 2 primary phases:

- Training

and

- Evaluation.

During the training phase, we take the data set (also called the training set), which includes many pairs of inputs and their corresponding targets (outputs). Our goal is to find a set of weights that would best map the inputs to the desired outputs.

In the evaluation phase, we use the network that was created in the training phase, apply our new inputs and expect to obtain the desired outputs.

The training phase will include two steps:

- Feedforward

and

- Backpropagation

We will repeat these steps as many times as we need until we decide that our system has reached the best set of weights, giving us the best possible outputs.

To show you how relevant Linear Algebra is here, we will focus on the **feedforward** process. And again, focus on the mathematical calculations. All of these new definitions (training, evaluation, feedforward, backpropagation, etc will be emphasized very soon!)