Watch the lecture [here](https://www.youtube.com/watch?v=ghEmQSxT6tw&t=987s) and describe the following and each one’s function in a CNN with at least 3 full sentences each:

1.Filter

* A filter is a matrix of numbers, which are weights, that is designed to detect the presence of special characteristics. They are randomly defined or defined to specific numbers. In a CNN, every network layer acts as a detection filter for the presence of specific features or patterns present in the original data.

2.Feature

* A filter corresponds to a pattern or feature that the filter is looking for. The filters learn to detect different features in the image. A feature is a visual representation of simple characteristics commonly found in the images.

3.Feature Map

* A feature map is the output activations for a given filter. It gives us the strongest features that it can detect in the image and an idea of what part of the image activates that feature very strongly. The more images that are input, the more accurate the feature map will be.

4.Pooling

* The pooling layer reduces computational time and minimizes the complexity of parameters. Pooling is repeated several times until the spatial information is pooled out of the image. A final output layer is given with a probability of all the categories that are interested in recognizing.