**Recurrent Neural Network**

It is the squashed form of ANN. It contains several loops and layers. Each layer is composed of whole ANN.

**Why we use RNN?**

ANN is short term memory powerful. RNN filled the gap of long term memory.

Example: google translator.

**Problems with RNN:**

Vanishing Gradient Problem: This problem occurs in back propagation. The nearer layers get higher values of gradient and error adjustment and becoming less effective to starting layers of RNN. Thus resulting in bad network training. This problem is solved by LSTM( Long Short Term Memory ). RNN cannot be used where long term memory assessment is required like assessment of situation of current scene in a movie.

**LSTM:**

LSTMs are a special kind of RNN, capable of learning long-term dependencies. It can learn and remember information for long period of time. The core idea of LSTMS model is the horizontal line running at the top of LSTM having gates on it so that we pass information optionally or completely. For example updating the pronoun in text predictor.