Blake Q's #13

July 11, 2020

These graphs

Question 1

Draw this graph by hand using the adjacency matrix (Assume that the first row represents vertex A, second row B and so on).

How many **total vertices** are there?
How many **total edges** are there?
What is the **degree of vertex C**? (3rd row or column)

$$\begin{bmatrix} 0 & 1 & 1 & 1 & 1 & 1 \\ 1 & 0 & 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 1 & 0 & 0 \\ 1 & 0 & 1 & 0 & 1 & 0 \\ 1 & 0 & 0 & 1 & 0 & 1 \\ 1 & 0 & 0 & 0 & 1 & 0 \end{bmatrix} \tag{1}$$

Question 2

Now that the boring stuff is out of the way. Lets look at a real AI neural network!

Is this graph **directed or undirected**?

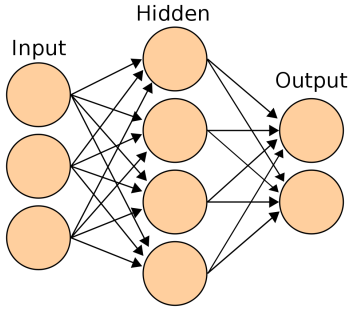

Figure 1: Example neural network

Question 3

In the example neural network, a vertex in the input layer is connected to every vertex in the hidden layer.

If there was 10 more input vertices how many more edges would there be in the neural network? (so that the new total is 13)