CSCE 479/879

Notebook 3 Question solution

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1. Submitted Job ID - Submitted batch job **44800915**
   And upon searching with sbatch abiswas3 I got this :

```
44800915     cse479 default_ abiswas3  R      0:02      1 c3306
```

2. Why isn't the difference between the number of zeros before and after applying dropout exactly equal to the dropout proportion?

Ans.   Dropout is a regularization technique used to prevent overfitting in deep neural networks. The dropout layer randomly sets a specified proportion of input units to zero during training, forcing the network to learn multiple, independent representations of the data. The dropout rate is defined as the proportion of units to drop, and this value can be adjusted to balance overfitting and underfitting. Using a smaller number of neurons in the dense layer can affect the difference between the number of zeros before and after applying dropout, but with a larger number of neurons, the difference might be closer to the dropout rate. The size of the Dense Layer we used is affecting our dropout.

Additionally, the dropout helps normalize the values of neurons in the network. This is because the average activation of a neuron during training with dropout is reduced, which can improve the stability of the network and prevent over-reliance on any single feature.