Deep Learning Lab 2019

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Report for Assignment 2 Due date: 7 November 2019, 23:55
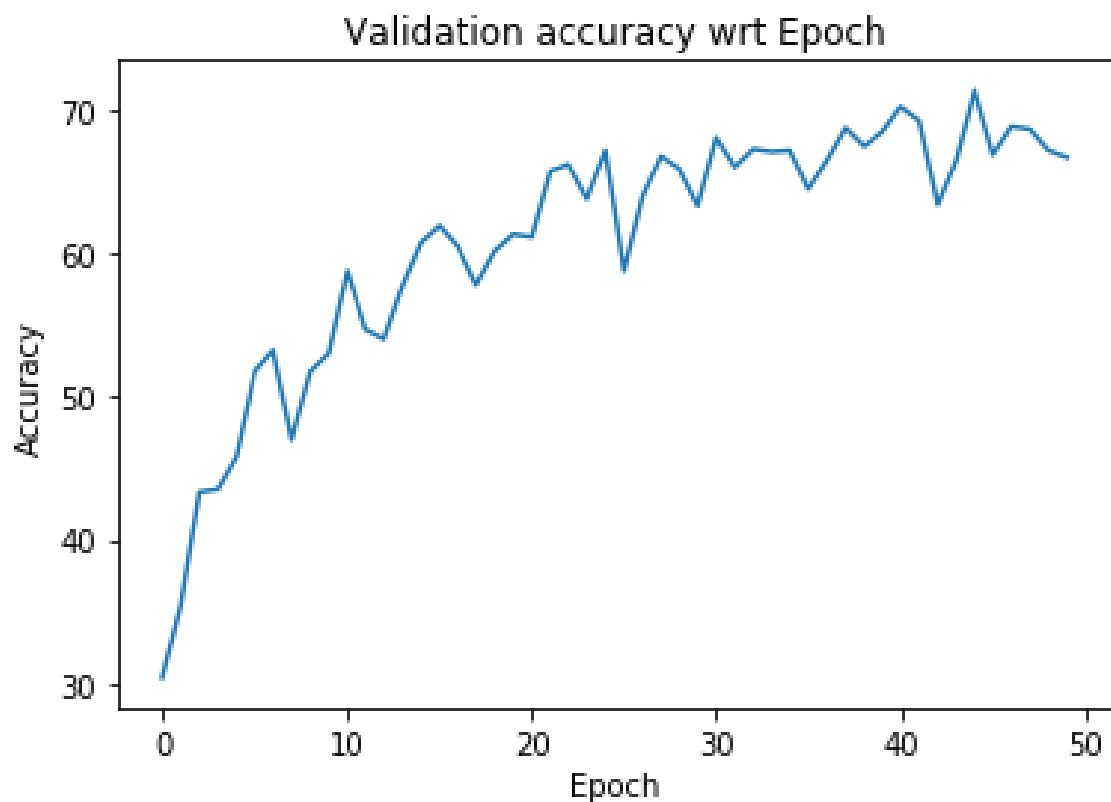
Answer 1 Hyperparameters are:

learning rate = .001, epoch=50, batch_size = 32

Below is the plot of Validation Accuracy vs Epoch.

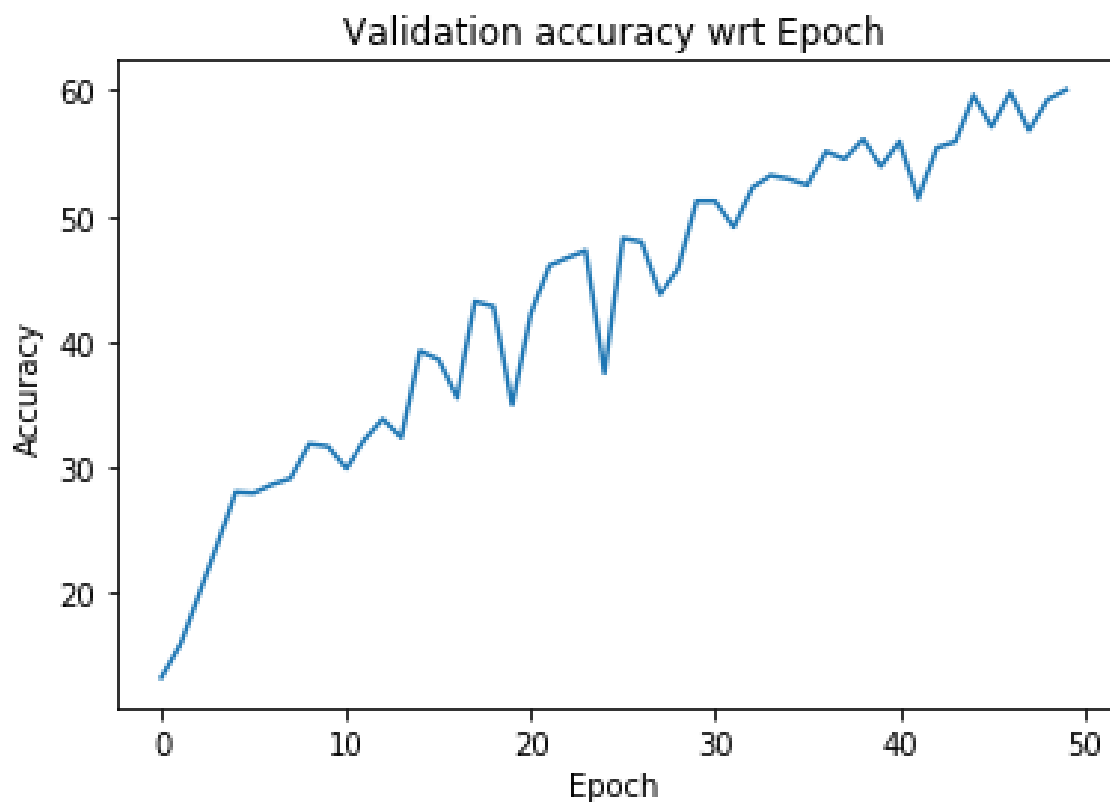The Maximum achieved Validation accuracy for above mentioned hyperparameter was 68.84%

Answer 2 Hyperparameters are:

learning rate = .001, epoch=50, batch_size = 32, keep_prob=0.5(for dropout layer) and 1 during validation.

Below is the plot of Validation Accuracy vs Epoch with dropout layer as mentioned in the question. The Maximum validation accuracy achieved in this case was 60.05 %

For the hyperparameter chosen we can see in the plot that our overall accuracy has decreased from previously. The main reason is that dropout is a regularisation term which prevents overfitting by decreasing the capacity of model also we are not training our model to our full potential(i.e less number of epochs) and have also set a high probability(.5) because of which our performance has worsened relative to previously, in the next answer i will change these Hyperparameters mentioned here to show how much better this model can perform.

Validation accuracy wrt Epoch

Answer 3 If we increase the number of epochs to 200 and change the probability to .75 from .5 we will see an increase in overall validation accuracy of our model. The maximum validation accuracy achieved in this case was 80.66 % Below is the plot of Validation Accuracy vs Epoch. for the above mentioned Hyperparameters

Validation accuracy wrt Epoch
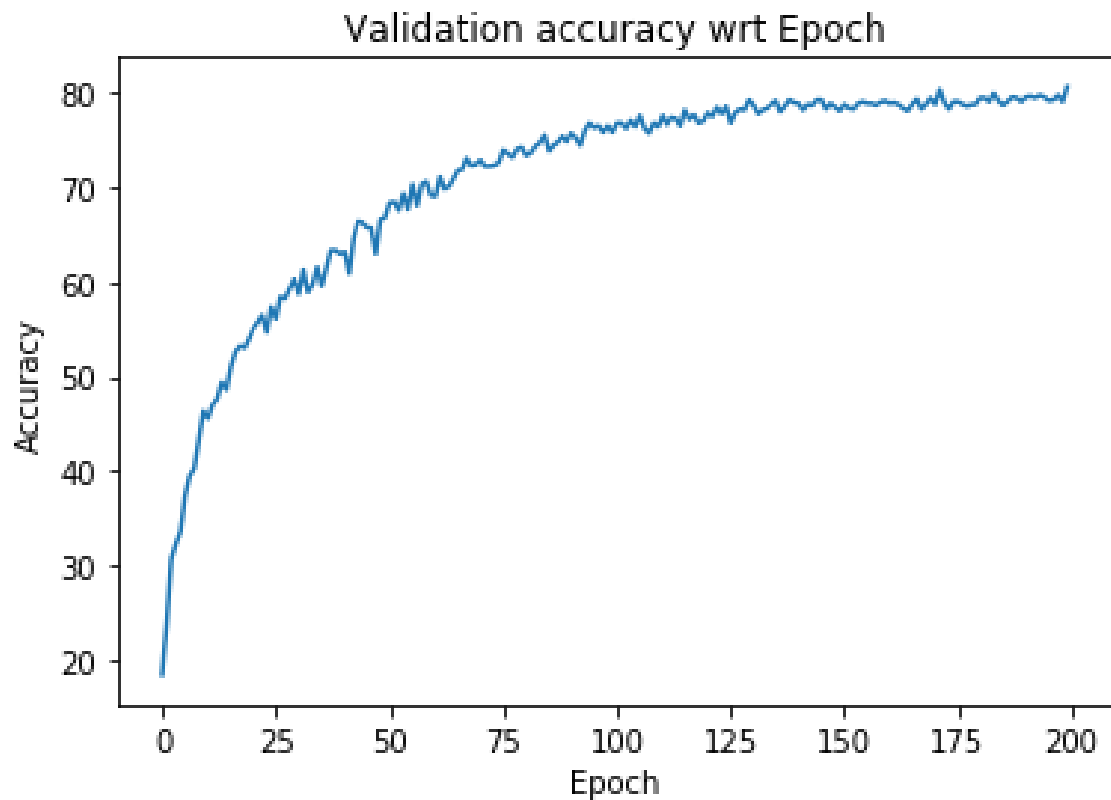
Answer 4 Hyperparameters are: learning rate = .001, epoch=200, batch_size = 32, keep_prob=0.75(for dropout layer) and 1 during validation.

After fixing our Hyperparameters in this problem i have trained the model on both the train and validation dataset and made a plot of test accuracy with epoch.

Below is the plot for train accuracy with number of epochs. The Maximum test accuracy is 77.12 %

test accuracy wrt Epoch