FASHION MNIST CLASSIFICATION

This report summarizes a various technique of machine learning models like Convolutional Neural Network with one and three layers, VGG like model and VGG like model with Batch norm which are used to determine the category of an image's clothes based on its features This project makes use of the fashion mnist dataset loaded directly from scikit learn library.

To help us come up with a panel of deep learning models, I made an 80/20 split between the original training data and the validation data. This lets us know whether we're over-fitting to the training data and if we need to slow down our training pace and put in more epochs if the validation accuracy is higher than the training accuracy, or if we should stop over-training if the training accuracy starts to creep up on the validation. Additionally, I used sparse categorical cross entropy when building the models instead of hot encoding the labels.

Observations from our models.

In this case, uniformity requires that all models undergo initial training for 10 epochs, followed by additional training for 10 epochs at a reduced learning latency. Data augmentation, which creates new training samples by rotating, shifting, and zooming on the training samples, was added after the first 10 epochs of training, and another 10 epochs of training were completed.

After training the three classification models, I observed that, By augmenting their data, all the models improved their precision. Make extensive use of data augmentation. The best results were obtained by the VGG Like Model With Batch norm, which, with the help of data augmentation, reached an accuracy of 94%.