Assignment 5

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Convolution Neural Network [10 Marks]

Consider the problem for classifying the MNIST Handwritten Digit Classification Dataset. Apply a CNN-based architecture with a SoftMax layer to classify the dataset into respective classes. Use nine filters of size 3×3 and stride of 1 without padding for the convolution layer, and a 2×2 kernel with a stride of 2 for the maxpooling.

1.Classify the dataset using CNN-based multiclass classification algorithm and calculate the training set accuracy for the model. [8 Marks]
2.Apply the trained model algorithm on the test dataset and predict the testing accuracy of the model. [1Mark]

Final Accuracy of model on training data and test data

```
--- Testing the CNN on Training Data---
Train Loss: 0.3683294644018886
Train Accuracy: 0.905

--- Testing the CNN for Test data ---
Test Loss: 0.5676114491576532
Test Accuracy: 0.828
```

Plotting some test images and labels along with final predicted labels