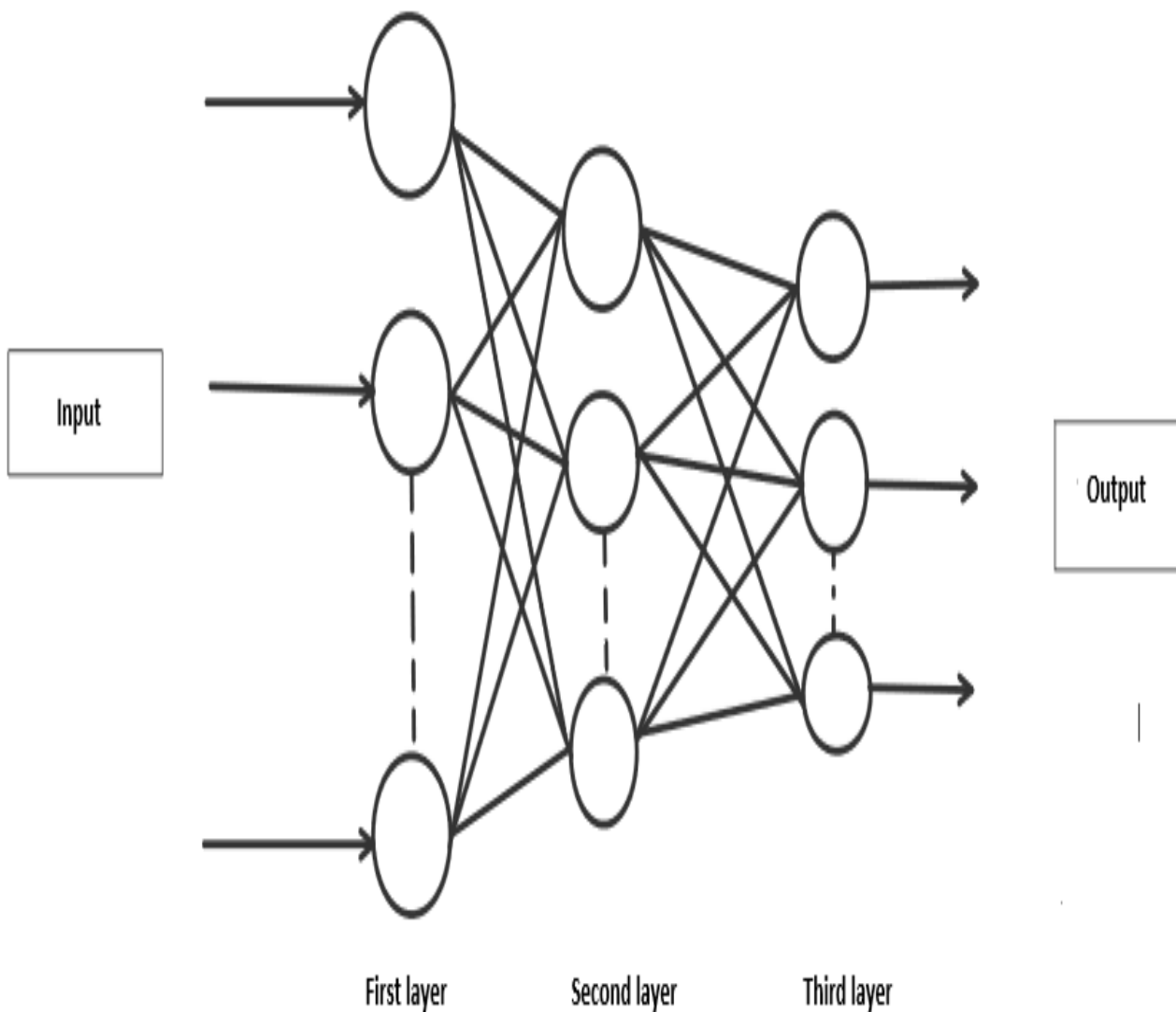
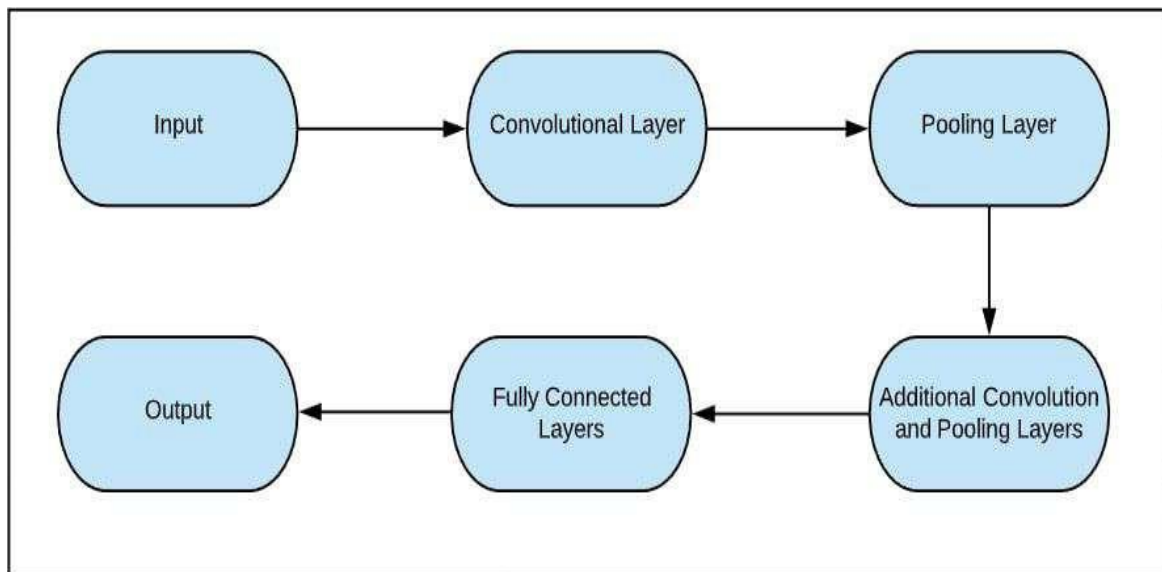


SOLUTION ARCHITECTURE

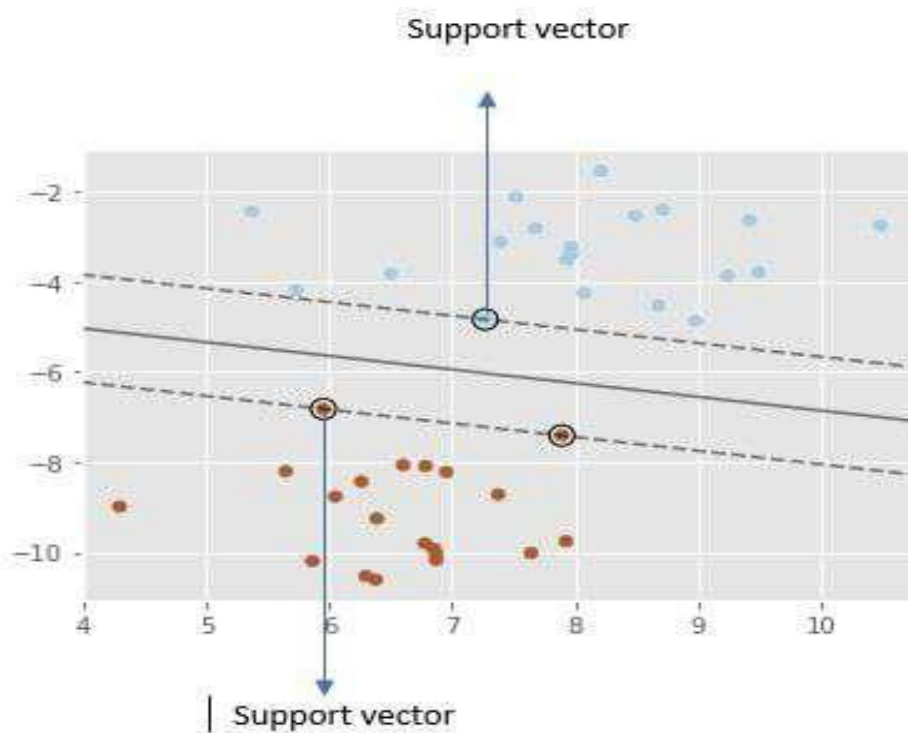


Methodology:

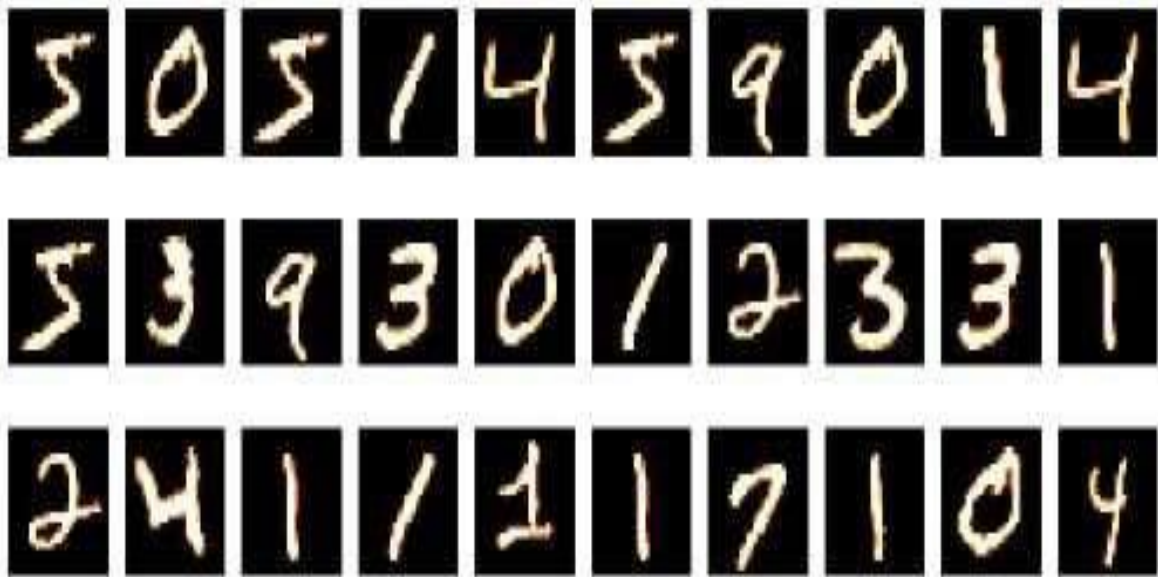
We have implemented a Neural Network with 1 hidden layer having *100* activation units (excluding bias units). The data is loaded from a *.mat* file, features(*X*) and labels(*y*) were extracted. Then features are divided by 255 to rescale them into a range of $[0,1]$ to avoid overflow during computation. Data is split up into *60,000* training and *10,000* testing examples. Feedforward is performed with the training set for calculating the hypothesis and then backpropagation is done in order to reduce the error between the layers. The regularization parameter λ is set to 0.1 to address the problem of overfitting. Optimizer is run for 70 iterations to find the best fit model.



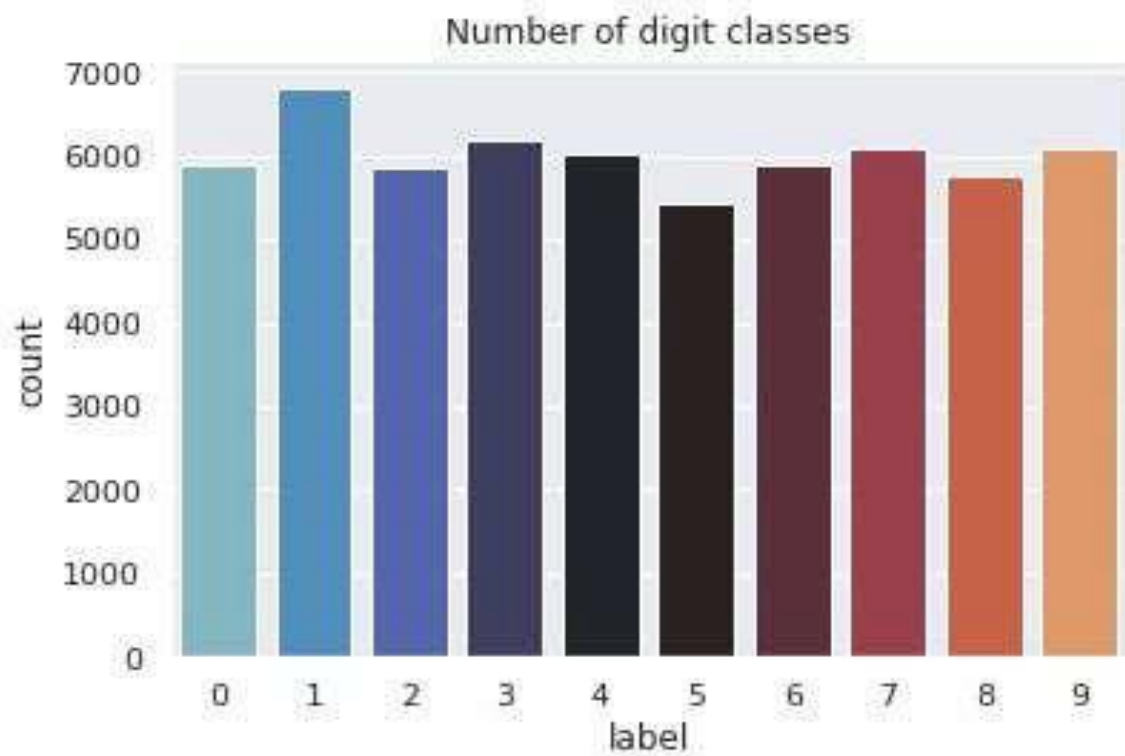
This figure shows architecture design of CNN layer in flowchart



working mechanism of SVM classification



Plotting of some random MNIST handwritten digits



Bar graph illustrating the MNIST handwritten digits training dataset