# Classification Using Neural Networks and Deep Learning
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In this project Convolutional Neural Network was used for visual classification task. Different layers were used in this task (Convolutional Layer, Fully Connected Layer, Pooling Layer, Activation Layer, Loss function). We created an evaluation function to evaluate the accuracy and loss of both training and testing data. The total Epoch number is 10 and the learning rate is 0.001. However, I had to run multiple times to reach a better accuracy. (Around 6 times.) Below are graphs representing the accuracy, loss as well as the results.

1. Graphs Representing Accuracy results VS Epoch
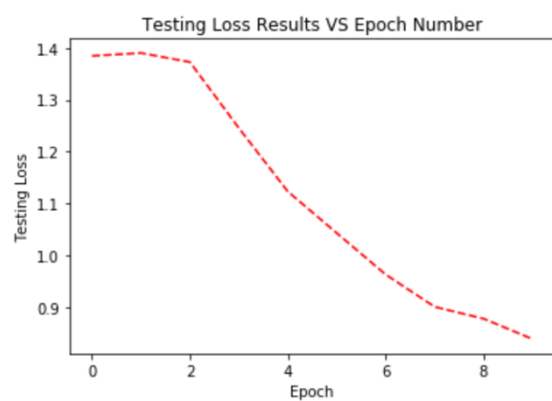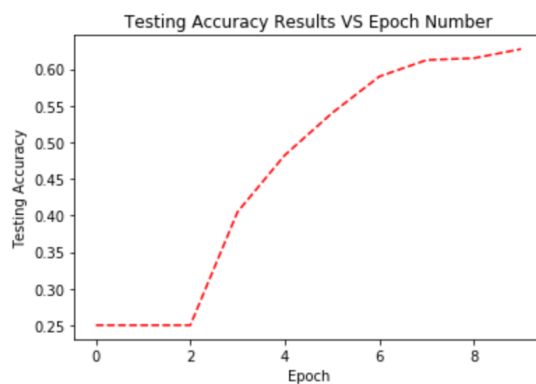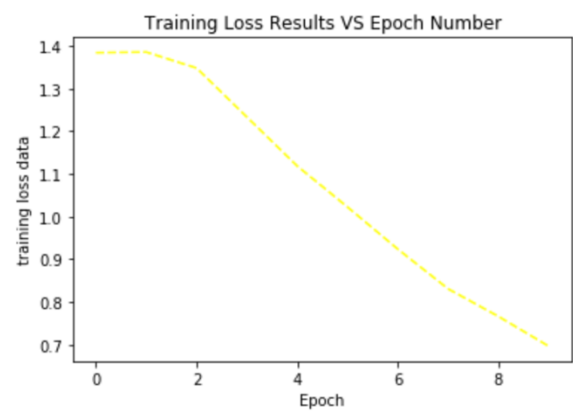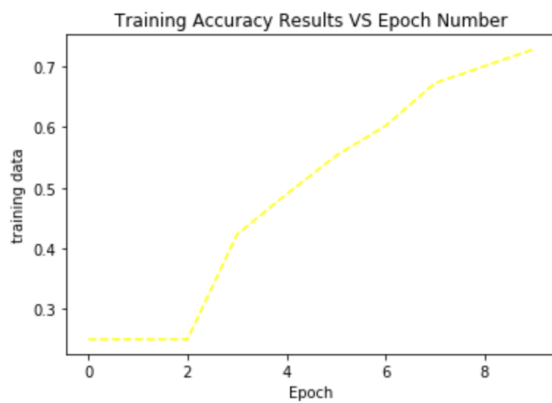
2. Results for each Epoch

Going through the 10 Epochs, the accuracy results for training and testing was incensing while the loss results for training and testing was decreasing as below:

Epoch #	1	2	3	4	5	6	7	8	9	10
Training Accuracy	0.25	0.25	0.25	0.423	0.4895	0.553	0.6025	0.673	0.701	0.729
training loss	1.384421397	1.38582	1.348283	1.233332	1.1185560	1.022180	0.923413	0.830261	0.76554341	0.6956347
testing Accuracy	0.25	0.25	0.25	0.405	0.4825	0.54	0.59	0.6125	0.615	0.6275
testing loss	1.384935	1.39058	1.3729	1.24454	1.12287	1.04258	0.96238	0.9000	0.8771	0.83778

3. Final Results

Training Accuracy Results after 10 Epoch	Training Loss Results after 10 Epoch
0.733	**0.68740597034775697**

Training Accuracy Results after 10 Epoch	Training Loss Results after 10 Epoch
0.627	**0.79768160448380288**