# Lab Assignment-5

## Team 6-2:

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### Convolutional Neural Network

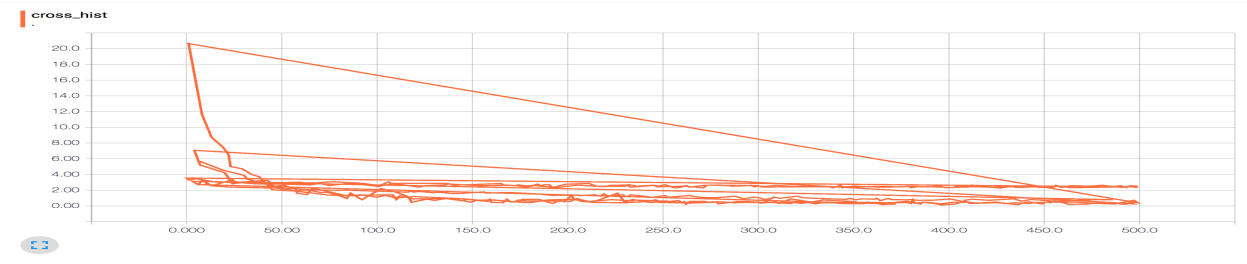
Dataset: We used MNIST dataset to build CNN model which is one dataset used for our project evaluation

## Output:

### Accuracy using Adam optimizer

```
step 0, training accuracy 0.16
step 100, training accuracy 0.56
step 200, training accuracy 0.84
step 300, training accuracy 0.8
step 400, training accuracy 0.96
test accuracy 0.9021
Time for building convnet:
46439
```

Histogram



2. Inception model

Dataset: we used a 10-class dataset that has bonsai, airplane etc... as categories

train the given dataset (given in source code) for 100 iterations using the inception model and

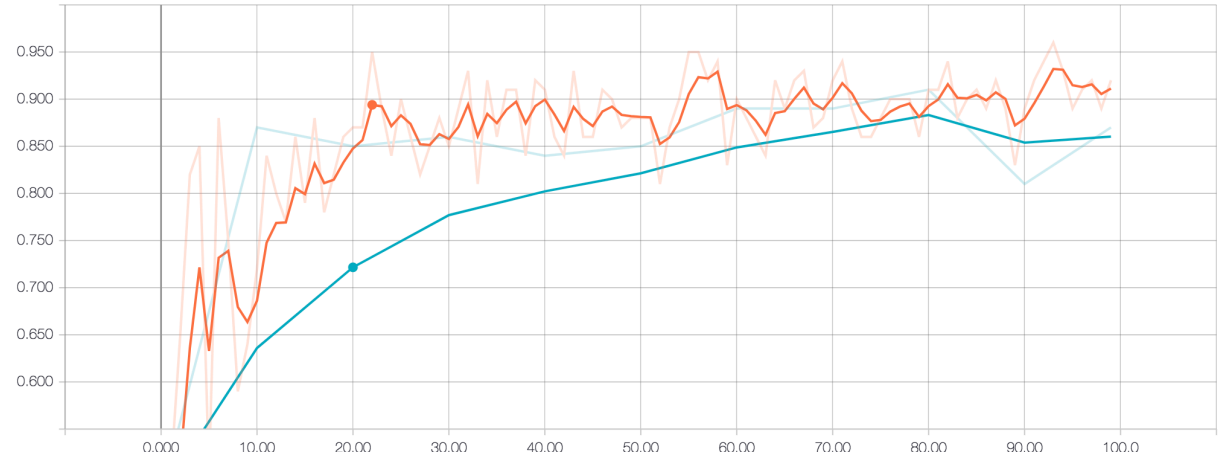
report accuracy. Provide Tensor Board visualizations for Training, weights, loss etc. and validation.

Training

```
2018-03-22 19:53:11.235837: Step 90: Validation accuracy = 90.0% (N=100)
2018-03-22 19:53:12.248726: Step 100: Train accuracy = 92.0%
2018-03-22 19:53:12.248844: Step 100: Cross entropy = 0.338091
2018-03-22 19:53:12.367931: Step 100: Validation accuracy = 98.0% (N=100)
2018-03-22 19:53:13.356234: Step 110: Train accuracy = 93.0%
2018-03-22 19:53:13.356348: Step 110: Cross entropy = 0.342057
2018-03-22 19:53:13.498774: Step 110: Validation accuracy = 91.0% (N=100)
2018-03-22 19:53:14.539982: Step 120: Train accuracy = 94.0%
2018-03-22 19:53:14.540037: Step 120: Cross entropy = 0.350233
2018-03-22 19:53:14.661305: Step 120: Validation accuracy = 89.0% (N=100)
2018-03-22 19:53:15.596808: Step 130: Train accuracy = 96.0%
2018-03-22 19:53:15.596889: Step 130: Cross entropy = 0.357237
2018-03-22 19:53:15.714815: Step 130: Validation accuracy = 87.0% (N=100)
2018-03-22 19:53:16.668959: Step 140: Train accuracy = 92.0%
2018-03-22 19:53:16.669130: Step 140: Cross entropy = 0.293403
2018-03-22 19:53:16.786611: Step 140: Validation accuracy = 90.0% (N=100)
2018-03-22 19:53:17.625961: Step 150: Train accuracy = 94.0%
2018-03-22 19:53:17.626022: Step 150: Cross entropy = 0.289935
2018-03-22 19:53:17.756268: Step 150: Validation accuracy = 89.0% (N=100)
2018-03-22 19:53:18.769160: Step 160: Train accuracy = 90.0%
2018-03-22 19:53:18.769219: Step 160: Cross entropy = 0.352528
2018-03-22 19:53:18.889094: Step 160: Validation accuracy = 86.0% (N=100)
2018-03-22 19:53:19.780354: Step 170: Train accuracy = 97.0%
2018-03-22 19:53:19.780431: Step 170: Cross entropy = 0.244631
2018-03-22 19:53:19.915222: Step 170: Validation accuracy = 97.0% (N=100)
2018-03-22 19:53:21.002330: Step 180: Train accuracy = 95.0%
2018-03-22 19:53:21.002427: Step 180: Cross entropy = 0.260477
2018-03-22 19:53:21.088353: Step 180: Validation accuracy = 87.0% (N=100)
2018-03-22 19:53:21.939913: Step 190: Train accuracy = 95.0%
2018-03-22 19:53:21.940027: Step 190: Cross entropy = 0.281408
2018-03-22 19:53:22.059077: Step 190: Validation accuracy = 88.0% (N=100)
2018-03-22 19:53:22.874565: Step 199: Train accuracy = 93.0%
2018-03-22 19:53:22.874718: Step 199: Cross entropy = 0.247687
2018-03-22 19:53:22.986746: Step 199: Validation accuracy = 95.0% (N=100)
Final test accuracy = 93.7% (N=63)
```

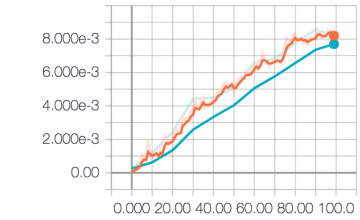
# Accuracy

accuracy_1

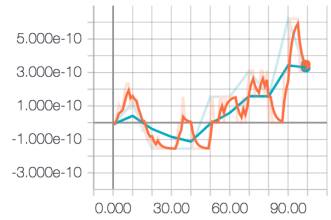



# Summaries

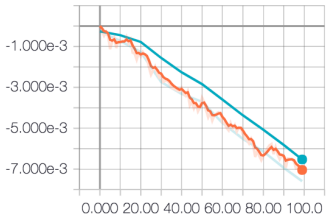
final_training_ops/biases/summaries/max



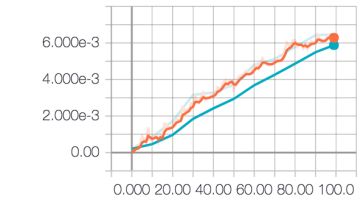

final_training_ops/biases/summaries/mean



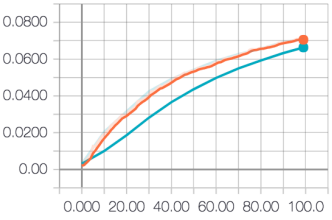

final_training_ops/biases/summaries/min



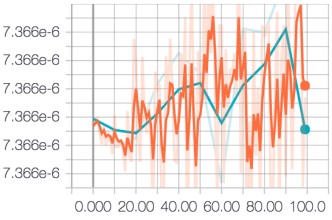

final_training_ops/biases/summaries/stddev_1



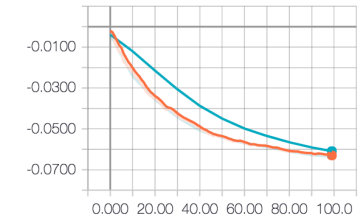

final_training_ops/weights/summaries/max



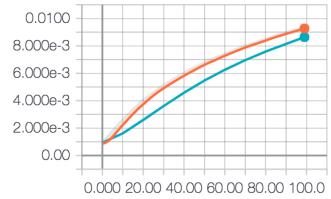

final_training_ops/weights/summaries/mean




final_training_ops/weights/summaries/min



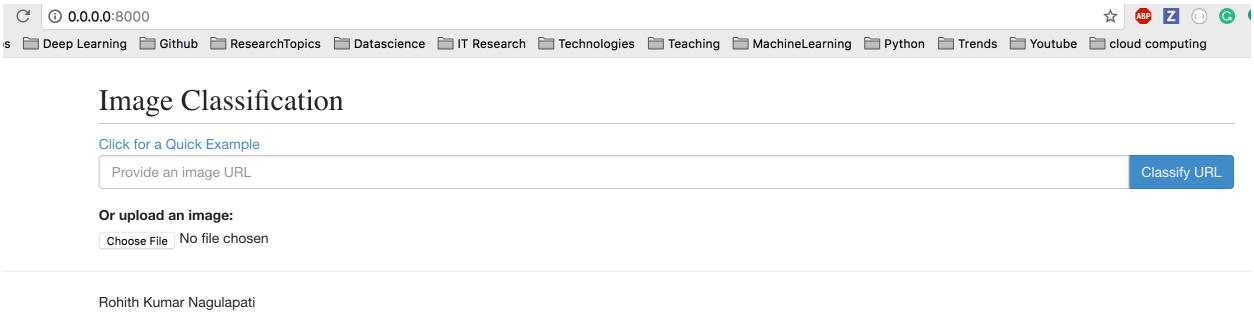

final_training_ops/weights/summaries/stddev_1



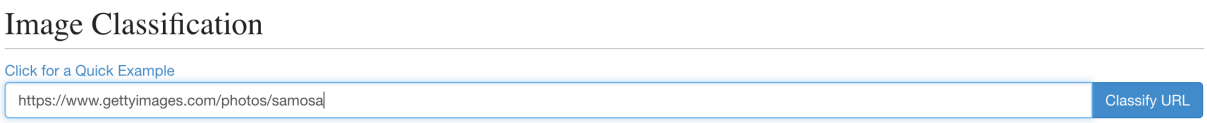
# 3. CNN-Web for Image Classification

## Dataset: We used the above-built model for image classification

## Application Screenshot




## Place to submit the link for image classification




## Displaying Prediction Results