Lab Assignment 9

Big Data Analytics and Applications Lab Assignment 9

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Task 1:

TensorFlow Programming:
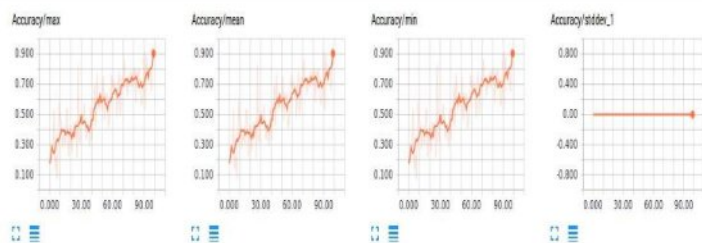
Write a TensorFlow program for the following Task.
a.Implement a CNN model for image classification for the datasets that you consider relevant to your project.
b.Report accuracy and time to build the CNN model.
c.Visualizations (Tensor Board): training, loss, weights etc
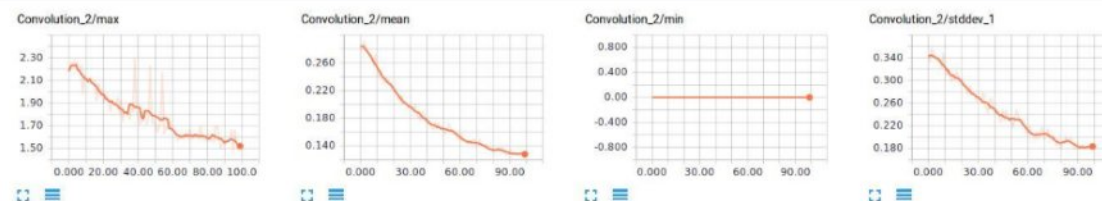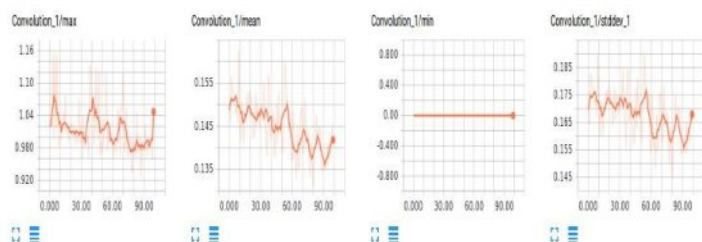
Dataset:

I have taken the some part of Caltech101 data set. My dataset contains 4 different classes. The classes are 'lamp','laptop','pyramid' and 'watch'. I have taken 201 test images and 99 train images.

Following images shows the accuracy and running duration of the program. This model has an accuracy of 90% and it ran for almost 20 minutes.
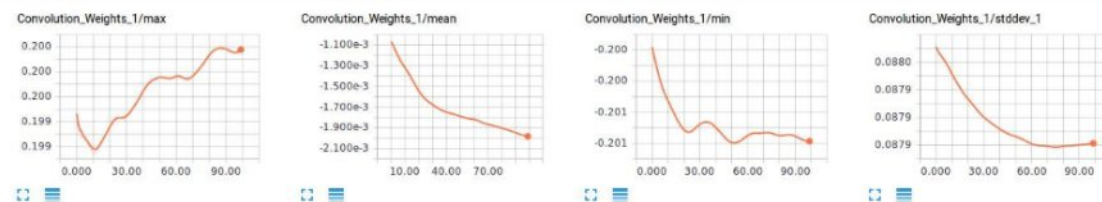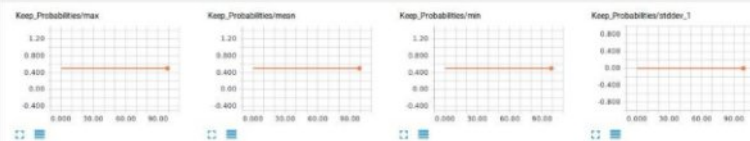
```
Run:  Lab9   Lab9
      2017-03-24 22:29:30.159196 Running Iteration 74
      2017-03-24 22:29:45.001651 Running Iteration 75
      Evalutating iteration 75, training accuracy 0.909091
      2017-03-24 22:30:00.877192 Running Iteration 76
      2017-03-24 22:30:08.050875 Running Iteration 77
      2017-03-24 22:30:14.653295 Running Iteration 78
      2017-03-24 22:30:26.034108 Running Iteration 79
      2017-03-24 22:30:33.473496 Running Iteration 80
      2017-03-24 22:30:42.085186 Running Iteration 81
      2017-03-24 22:30:49.761727 Running Iteration 82
      2017-03-24 22:30:57.513168 Running Iteration 83
      2017-03-24 22:31:03.348901 Running Iteration 84
      2017-03-24 22:31:07.868430 Running Iteration 85
      2017-03-24 22:31:16.100131 Running Iteration 86
      2017-03-24 22:31:21.989455 Running Iteration 87
      2017-03-24 22:31:27.511717 Running Iteration 88
      2017-03-24 22:31:35.812755 Running Iteration 89
      2017-03-24 22:31:47.501478 Running Iteration 90
      2017-03-24 22:31:55.895334 Running Iteration 91
      2017-03-24 22:32:06.879861 Running Iteration 92
      2017-03-24 22:32:19.721583 Running Iteration 93
      2017-03-24 22:32:29.874085 Running Iteration 94
      2017-03-24 22:32:40.959058 Running Iteration 95
      2017-03-24 22:32:49.334007 Running Iteration 96
      2017-03-24 22:32:59.123433 Running Iteration 97
      2017-03-24 22:33:06.881223 Running Iteration 98
      2017-03-24 22:33:14.779780 Running Iteration 99
      Accurcay 0.909091
      INFO:tensorflow:data/model/00000001-tmp/export is not in all_model_checkpoint_paths. Manually adding it.
      Start Time:     2017-03-24 22:19:24.036578
      End Time:  2017-03-24 22:33:22.682506
      Total Time:     0:13:58.645928

      Process finished with exit code 0
```
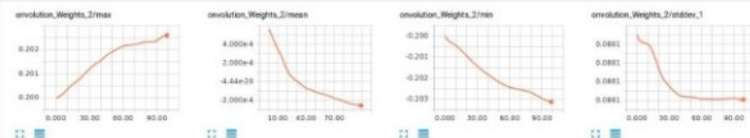
Following screenshots display the Tensorboard visualizations

Accuracy

Accuracy/max
Accuracy/mean
Accuracy/min
Accuracy/stddev_1

Convolution_1

Convolution_1/max
Convolution_1/mean
Convolution_1/min
Convolution_1/stddev_1

Convolution_2/max
Convolution_2/mean
Convolution_2/min
Convolution_2/stddev_1

Convolution_Weights_1

Convolution_Weights_1/max
Convolution_Weights_1/mean
Convolution_Weights_1/min
Convolution_Weights_1/stddev_1

Keep_Probabilities

Keep_Probabilities/max
Keep_Probabilities/mean
Keep_Probabilities/min
Keep_Probabilities/stddev_1

Convolution_weights_2

onvolution_Weights_2/max
convolution_Weights_2/mean
onvolution_Weights_2/min
onvolution_Weights_1/stddev_1

Cross_Entropy

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Task 2:

2.Google Conversation Application:

Develop a Web-based Application for Visual Question Answering that is relevant to your own project including the following features
a.Google Conversation API
b.Question answering for images
c.Connect it to Clarifai API or Spark API

Developed a basic google conversation application using conversation API and it performs question answering system on images.
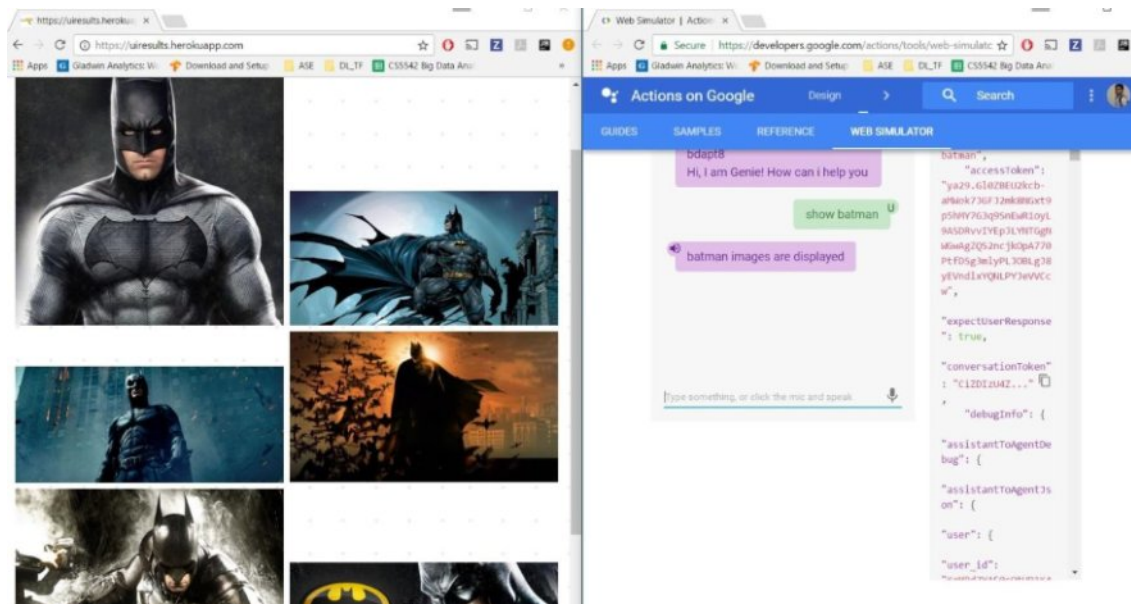
Installed applications on heroku

Redirection website before starting the conversation

data: {"data":[" "]}
data: {"data":[" "]}
data: {"data":[" "]}
data: {"data":[" "]}
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data: {"data":[" "]}
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data: {"data":[" "]}
data: {"data":[" "]}
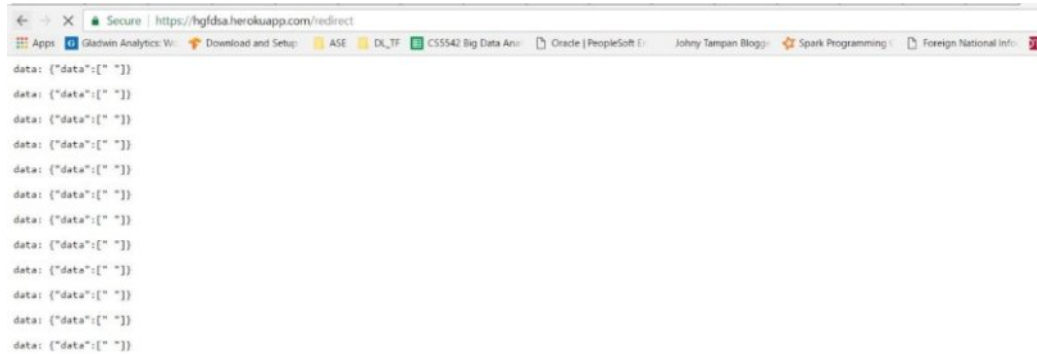
Results displayed for batman search
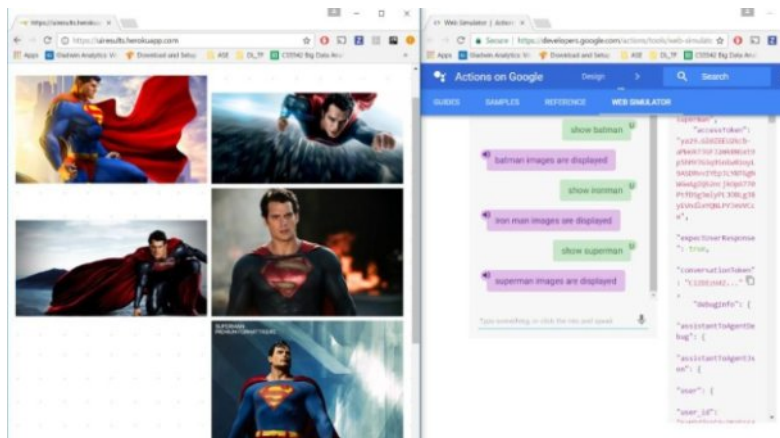

Results displayed for Ironman search
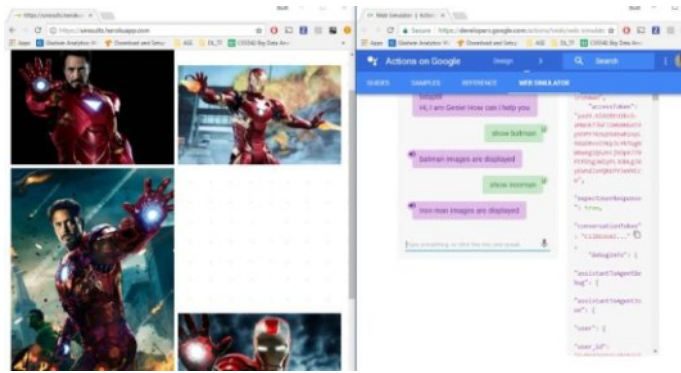
Results displayed for Superman search

Results displayed for superheroes search