

# SELF DRIVING CAR

□

In [ ]:

```
import tensorflow as tf
import cv2
from subprocess import call
import math
from tensorflow.core.protobuf import saver_pb2
import driving_data
import model
import tensorflow as tf
import scipy
import scipy.misc
import random
import numpy as np
from scipy import pi
from itertools import islice
from __future__ import division
import os
os.chdir('C:/Users/kingsubham27091995/Desktop/AppliedAiCouse/CASE STUDIES/Self Driving
Car/Autopilot-TensorFlow-master/Autopilot-TensorFlow-master')
```

## Performing EDA

In [34]:

```
# read images and steering angles from driving_dataset folder
DATA_FOLDER = './driving_dataset/' # change this to your folder
TRAIN_FILE = os.path.join(DATA_FOLDER, 'data.txt')

split = 0.8 #This is giving the 80% Train and 20% Test Data Split
X = []
y = []
with open(TRAIN_FILE) as fp: #Reading the file
    for line in islice(fp, None):
        path, angle = line.strip().split() #Reading the path and angle
        full_path = os.path.join(DATA_FOLDER, path)
        X.append(full_path)

        # converting angle from degrees to radians
        y.append(float(angle) * pi / 180)

y = np.array(y)
print("Completed processing data.txt")

# Now split the angles into train_y and test_y
split_index = int(len(y)*0.8)

train_y = y[:split_index] #First 80%
test_y = y[split_index:] # Last 20%
```

Completed processing data.txt

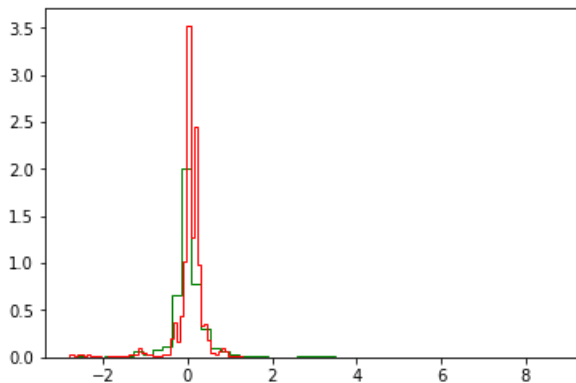
In [35]:

```
import numpy;

# PDF of train and test 'y' values.
import matplotlib.pyplot as plt
%matplotlib inline
plt.hist(train_y, bins=50, normed=1, color='green', histtype='step');
```

```
plt.hist(test_y, bins=50, normed=1, color='red', histtype='step');
plt.show()
```

C:\Users\kingsubham27091995\Anaconda3\lib\site-packages\matplotlib\axes\\_axes.py:6462:  
UserWarning: The 'normed' kwarg is deprecated, and has been replaced by the 'density' kwarg.  
warnings.warn("The 'normed' kwarg is deprecated, and has been "



## Observation:

1. The steering angles do not completely overlap which means that there is difference in train and test data in steering angles.
2. Most often the steering angle is zero degrees(driving straight)
3. Most of the steering angle lies between {-2,+2}

## Loading the data

In [ ]:

```
xs = []
ys = []

#points to the end of the last batch
train_batch_pointer = 0
val_batch_pointer = 0

#read data.txt
with open("driving_dataset/data.txt") as f:
    for line in f:
        #We split the text data(data.txt file) and line.split()[0] will give image name ,
        line.split()[1] gives angles
        xs.append("driving_dataset/" + line.split()[0]) #xs contains the path to the images.
        #the paper by Nvidia uses the inverse of the turning radius,
        #but steering wheel angle is proportional to the inverse of turning radius
        #so the steering wheel angle in radians is used as the output
        ys.append(float(line.split()[1]) * scipy.pi / 180) #ys contains the angles in radians

#get number of images
num_images = len(xs)
```

## 70:30 Train-Test Split

In [4]:

```
#Temporal split
train_xs = xs[:int(len(xs) * 0.7)]
train_ys = ys[:int(len(xs) * 0.7)]

val_xs = xs[-int(len(xs) * 0.3):]
val_ys = ys[-int(len(xs) * 0.3):]

num_train_images = len(train_xs)
num_val_images = len(val_xs)
```

```
num_val_images = len(val_xs)
```

## Creating batches of data for Train and Test

In [ ]:

```
# This function loads batch of images from training data
def LoadTrainBatch(batch_size): #batch_size will give the number of images in each batch we want to pass
    global train_batch_pointer
    x_out = []
    y_out = []
    for i in range(0, batch_size):
        # We will take the last 150 images where road is present
        '''We are cropping the image to get only the lower part we analyzed the images
        and we think like if we crop the image, we will get only road part of the image
        and it will be useful to drive'''
        x_out.append(scipy.misc.imresize(scipy.misc.imread(train_xs[(train_batch_pointer + i) % num_train_images])[-150:], [66, 200]) / 255.0)
        y_out.append([train_ys[(train_batch_pointer + i) % num_train_images]])
        train_batch_pointer += batch_size
    return x_out, y_out

# This function loads batch of images from test data
def LoadValBatch(batch_size):
    global val_batch_pointer #Take this global so that it remembers the pointer
    x_out = []
    y_out = []
    for i in range(0, batch_size):
        x_out.append(scipy.misc.imresize(scipy.misc.imread(val_xs[(val_batch_pointer + i) % num_val_images])[-150:], [66, 200]) / 255.0)
        y_out.append([val_ys[(val_batch_pointer + i) % num_val_images]])
        val_batch_pointer += batch_size
    return x_out, y_out
```

## Defining NVIDIA's End to End CNN architecture

In [29]:

```
def weight_variable(shape):
    initial = tf.truncated_normal(shape, stddev=0.1)
    return tf.Variable(initial)

def bias_variable(shape):
    initial = tf.constant(0.1, shape=shape)
    return tf.Variable(initial)

def conv2d(x, W, stride):
    return tf.nn.conv2d(x, W, strides=[1, stride, stride, 1], padding='VALID')

x = tf.placeholder(tf.float32, shape=[None, 66, 200, 3]) # For Input variables
y_ = tf.placeholder(tf.float32, shape=[None, 1])

x_image = x #Image dimension

#first convolutional layer
W_conv1 = weight_variable([5, 5, 3, 24]) # (5*5) kernels, 24 kernels
b_conv1 = bias_variable([24])

h_conv1 = tf.nn.relu(conv2d(x_image, W_conv1, 2) + b_conv1)

#second convolutional layer
W_conv2 = weight_variable([5, 5, 24, 36]) # (5*5) kernels, 36 kernels
b_conv2 = bias_variable([36])

h_conv2 = tf.nn.relu(conv2d(h_conv1, W_conv2, 2) + b_conv2)

#third convolutional layer
W_conv3 = weight_variable([5, 5, 36, 48]) # (5*5) kernels, 48 kernels
b_conv3 = bias_variable([48])

h_conv3 = tf.nn.relu(conv2d(h_conv2, W_conv3, 2) + b_conv3)
```

```

#fourth convolutional layer
W_conv4 = weight_variable([3, 3, 48, 64]) # (3*3) kernels, 64 kernels
b_conv4 = bias_variable([64])

h_conv4 = tf.nn.relu(conv2d(h_conv3, W_conv4, 1) + b_conv4)

#fifth convolutional layer
W_conv5 = weight_variable([3, 3, 64, 64]) # (3*3) kernels, 64 kernels
b_conv5 = bias_variable([64])

h_conv5 = tf.nn.relu(conv2d(h_conv4, W_conv5, 1) + b_conv5)

#FCL 1
W_fc1 = weight_variable([1152, 1164])
b_fc1 = bias_variable([1164])

h_conv5_flat = tf.reshape(h_conv5, [-1, 1152]) # Flatten
h_fc1 = tf.nn.relu(tf.matmul(h_conv5_flat, W_fc1) + b_fc1)

keep_prob = tf.placeholder(tf.float32)
h_fc1_drop = tf.nn.dropout(h_fc1, keep_prob)

#FCL 2
W_fc2 = weight_variable([1164, 100])
b_fc2 = bias_variable([100])

h_fc2 = tf.nn.relu(tf.matmul(h_fc1_drop, W_fc2) + b_fc2)

h_fc2_drop = tf.nn.dropout(h_fc2, keep_prob)

#FCL 3
W_fc3 = weight_variable([100, 50])
b_fc3 = bias_variable([50])

h_fc3 = tf.nn.relu(tf.matmul(h_fc2_drop, W_fc3) + b_fc3)

h_fc3_drop = tf.nn.dropout(h_fc3, keep_prob)

#FCL 3
W_fc4 = weight_variable([50, 10])
b_fc4 = bias_variable([10])

h_fc4 = tf.nn.relu(tf.matmul(h_fc3_drop, W_fc4) + b_fc4)

h_fc4_drop = tf.nn.dropout(h_fc4, keep_prob)

#Output
W_fc5 = weight_variable([10, 1])
b_fc5 = bias_variable([1])

y = tf.identity(tf.matmul(h_fc4_drop, W_fc5) + b_fc5)
#y = tf.multiply(tf.identity(tf.matmul(h_fc4_drop, W_fc5) + b_fc5), 2)

# atan works better than 'linear' here.

```

## Training

In [30]:

```

LOGDIR = './save_assignment2'

sess = tf.InteractiveSession()

L2NormConst = 0.001 # Lambda of L2-Regularisation

train_vars = tf.trainable_variables()

#!st Part is the Loss (MeanSquaredError or Reduced_mean)
#2nd part is the Regularisation part
loss = tf.reduce_mean(tf.square(tf.subtract(model.y_, model.y))) + tf.add_n([tf.nn.l2_loss(v) for v
in train_vars]) * L2NormConst
train_step = tf.train.AdamOptimizer(1e-4).minimize(loss) #Learning Rate Default =10^-3
sess.run(tf.initialize_all_variables())

```

```

# create a summary to monitor cost tensor
tf.summary.scalar("loss", loss)
# merge all summaries into a single op
merged_summary_op = tf.summary.merge_all()

saver = tf.train.Saver(write_version = saver_pb2.SaverDef.V1)

# op to write logs to Tensorboard
logs_path = './logs'
summary_writer = tf.summary.FileWriter(logs_path, graph=tf.get_default_graph())

epochs = 30
batch_size = 100

# train over the dataset about 30 times
for epoch in range(epochs):
    for i in range(int(driving_data.num_images/batch_size)):
        xs, ys = driving_data.LoadTrainBatch(batch_size)
        train_step.run(feed_dict={model.x: xs, model.y_: ys, model.keep_prob: 0.5}) #keep_prob=0.5
means , dropout=0.5
#After every 10 steps we will print the Epochs and Loss
    if i % 10 == 0:
        xs, ys = driving_data.LoadValBatch(batch_size)
        loss_value = loss.eval(feed_dict={model.x:xs, model.y_: ys, model.keep_prob: 1.0})
        print("Epoch: %d, Step: %d, Loss: %g" % (epoch, epoch * batch_size + i, loss_value))

    # write logs at every iteration
    summary = merged_summary_op.eval(feed_dict={model.x:xs, model.y_: ys, model.keep_prob: 1.0})

    summary_writer.add_summary(summary, epoch * driving_data.num_images/batch_size + i)

    if i % batch_size == 0:
        if not os.path.exists(LOGDIR):
            os.makedirs(LOGDIR)
        checkpoint_path = os.path.join(LOGDIR, "model.ckpt")
        filename = saver.save(sess, checkpoint_path)
        print("Model saved in file: %s" % filename)

print("Run the command line:\n" \
      "--> tensorboard --logdir=./logs " \
      "\nThen open http://0.0.0.0:6006/ into your web browser")

```

C:\Users\kingsubham27091995\Anaconda3\lib\site-packages\tensorflow\python\client\session.py:1702: UserWarning: An interactive session is already active. This can cause out-of-memory errors in some cases. You must explicitly call `InteractiveSession.close()` to release resources held by the other session(s).

warnings.warn('An interactive session is already active. This can '

```

Epoch: 0, Step: 0, Loss: 62.141
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 0, Step: 10, Loss: 60.868
Epoch: 0, Step: 20, Loss: 59.8293
Epoch: 0, Step: 30, Loss: 58.8119
Epoch: 0, Step: 40, Loss: 57.5123
Epoch: 0, Step: 50, Loss: 56.4577
Epoch: 0, Step: 60, Loss: 55.4984
Epoch: 0, Step: 70, Loss: 54.6252
Epoch: 0, Step: 80, Loss: 54.0038
Epoch: 0, Step: 90, Loss: 54.4305
Epoch: 0, Step: 100, Loss: 52.9877
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 0, Step: 110, Loss: 50.9059
Epoch: 0, Step: 120, Loss: 50.024
Epoch: 0, Step: 130, Loss: 49.1687
Epoch: 0, Step: 140, Loss: 48.3397

```

```
Epoch: 0, Step: 150, Loss: 47.5021
Epoch: 0, Step: 160, Loss: 46.7609
Epoch: 0, Step: 170, Loss: 46.0305
Epoch: 0, Step: 180, Loss: 45.1239
Epoch: 0, Step: 190, Loss: 44.3693
Epoch: 0, Step: 200, Loss: 43.6895
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow:  `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 0, Step: 210, Loss: 43.1158
Epoch: 0, Step: 220, Loss: 42.2329
Epoch: 0, Step: 230, Loss: 41.4071
Epoch: 0, Step: 240, Loss: 40.7029
Epoch: 0, Step: 250, Loss: 40.0164
Epoch: 0, Step: 260, Loss: 39.3414
Epoch: 0, Step: 270, Loss: 38.6786
Epoch: 0, Step: 280, Loss: 38.9137
Epoch: 0, Step: 290, Loss: 42.7207
Epoch: 0, Step: 300, Loss: 36.816
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow:  `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 0, Step: 310, Loss: 36.1538
Epoch: 0, Step: 320, Loss: 35.5398
Epoch: 0, Step: 330, Loss: 34.9372
Epoch: 0, Step: 340, Loss: 34.3625
Epoch: 0, Step: 350, Loss: 33.7843
Epoch: 0, Step: 360, Loss: 33.2412
Epoch: 0, Step: 370, Loss: 32.6809
Epoch: 0, Step: 380, Loss: 32.137
Epoch: 0, Step: 390, Loss: 31.5946
Epoch: 0, Step: 400, Loss: 31.0695
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow:  `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 0, Step: 410, Loss: 30.5229
Epoch: 0, Step: 420, Loss: 30.0123
Epoch: 0, Step: 430, Loss: 29.5295
Epoch: 0, Step: 440, Loss: 29.0404
Epoch: 0, Step: 450, Loss: 28.5515
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 1, Step: 100, Loss: 28.3627
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow:  `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 1, Step: 110, Loss: 27.8924
Epoch: 1, Step: 120, Loss: 27.4264
Epoch: 1, Step: 130, Loss: 26.9694
Epoch: 1, Step: 140, Loss: 26.5178
Epoch: 1, Step: 150, Loss: 26.0806
Epoch: 1, Step: 160, Loss: 25.6444
Epoch: 1, Step: 170, Loss: 25.2201
Epoch: 1, Step: 180, Loss: 24.8016
Epoch: 1, Step: 190, Loss: 24.3909
Epoch: 1, Step: 200, Loss: 23.9818
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow:  `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 1, Step: 210, Loss: 23.5879
Epoch: 1, Step: 220, Loss: 23.2292
Epoch: 1, Step: 230, Loss: 22.8534
Epoch: 1, Step: 240, Loss: 25.7852
```

```
Epoch: 1, Step: 250, Loss: 24.8082
Epoch: 1, Step: 260, Loss: 21.7052
Epoch: 1, Step: 270, Loss: 21.3434
Epoch: 1, Step: 280, Loss: 20.9791
Epoch: 1, Step: 290, Loss: 20.6386
Epoch: 1, Step: 300, Loss: 20.2985
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 1, Step: 310, Loss: 20.0682
Epoch: 1, Step: 320, Loss: 19.8243
Epoch: 1, Step: 330, Loss: 19.3088
Epoch: 1, Step: 340, Loss: 19.0524
Epoch: 1, Step: 350, Loss: 18.7112
Epoch: 1, Step: 360, Loss: 18.3846
Epoch: 1, Step: 370, Loss: 18.09
Epoch: 1, Step: 380, Loss: 17.8084
Epoch: 1, Step: 390, Loss: 17.5102
Epoch: 1, Step: 400, Loss: 17.3703
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 1, Step: 410, Loss: 17.1143
Epoch: 1, Step: 420, Loss: 16.634
Epoch: 1, Step: 430, Loss: 16.3525
Epoch: 1, Step: 440, Loss: 16.0835
Epoch: 1, Step: 450, Loss: 15.8199
Epoch: 1, Step: 460, Loss: 15.5615
Epoch: 1, Step: 470, Loss: 15.308
Epoch: 1, Step: 480, Loss: 15.0583
Epoch: 1, Step: 490, Loss: 14.813
Epoch: 1, Step: 500, Loss: 14.5775
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 1, Step: 510, Loss: 14.337
Epoch: 1, Step: 520, Loss: 14.1065
Epoch: 1, Step: 530, Loss: 13.8881
Epoch: 1, Step: 540, Loss: 13.6585
Epoch: 1, Step: 550, Loss: 13.4591
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 2, Step: 200, Loss: 13.3892
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 2, Step: 210, Loss: 13.5548
Epoch: 2, Step: 220, Loss: 13.2516
Epoch: 2, Step: 230, Loss: 12.7717
Epoch: 2, Step: 240, Loss: 12.5081
Epoch: 2, Step: 250, Loss: 12.3191
Epoch: 2, Step: 260, Loss: 12.221
Epoch: 2, Step: 270, Loss: 12.4873
Epoch: 2, Step: 280, Loss: 13.4601
Epoch: 2, Step: 290, Loss: 12.364
Epoch: 2, Step: 300, Loss: 11.397
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 2, Step: 310, Loss: 11.1804
Epoch: 2, Step: 320, Loss: 11.0114
Epoch: 2, Step: 330, Loss: 10.8303
Epoch: 2, Step: 340, Loss: 10.6549
```

```
Epoch: 2, Step: 350, Loss: 10.5534
Epoch: 2, Step: 360, Loss: 10.4222
Epoch: 2, Step: 370, Loss: 10.1571
Epoch: 2, Step: 380, Loss: 10.0304
Epoch: 2, Step: 390, Loss: 9.95195
Epoch: 2, Step: 400, Loss: 9.94301
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 2, Step: 410, Loss: 9.66138
Epoch: 2, Step: 420, Loss: 9.36528
Epoch: 2, Step: 430, Loss: 9.21705
Epoch: 2, Step: 440, Loss: 9.07277
Epoch: 2, Step: 450, Loss: 8.93077
Epoch: 2, Step: 460, Loss: 8.79281
Epoch: 2, Step: 470, Loss: 10.751
Epoch: 2, Step: 480, Loss: 12.3616
Epoch: 2, Step: 490, Loss: 8.39923
Epoch: 2, Step: 500, Loss: 8.26345
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 2, Step: 510, Loss: 8.13181
Epoch: 2, Step: 520, Loss: 8.00452
Epoch: 2, Step: 530, Loss: 7.88729
Epoch: 2, Step: 540, Loss: 7.769
Epoch: 2, Step: 550, Loss: 7.65708
Epoch: 2, Step: 560, Loss: 7.5424
Epoch: 2, Step: 570, Loss: 7.42822
Epoch: 2, Step: 580, Loss: 7.31018
Epoch: 2, Step: 590, Loss: 7.20366
Epoch: 2, Step: 600, Loss: 7.08788
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 2, Step: 610, Loss: 6.97944
Epoch: 2, Step: 620, Loss: 6.8848
Epoch: 2, Step: 630, Loss: 6.77509
Epoch: 2, Step: 640, Loss: 6.67687
Epoch: 2, Step: 650, Loss: 6.57587
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 3, Step: 300, Loss: 6.53931
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 3, Step: 310, Loss: 6.44565
Epoch: 3, Step: 320, Loss: 6.34165
Epoch: 3, Step: 330, Loss: 6.25083
Epoch: 3, Step: 340, Loss: 6.16425
Epoch: 3, Step: 350, Loss: 6.06777
Epoch: 3, Step: 360, Loss: 5.98406
Epoch: 3, Step: 370, Loss: 5.89365
Epoch: 3, Step: 380, Loss: 5.80832
Epoch: 3, Step: 390, Loss: 5.72273
Epoch: 3, Step: 400, Loss: 5.64176
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 3, Step: 410, Loss: 5.61549
Epoch: 3, Step: 420, Loss: 5.4929
Epoch: 3, Step: 430, Loss: 9.87174
Epoch: 3, Step: 440, Loss: 6.76516
```



```
Epoch: 3, Step: 450, Loss: 5.24738
Epoch: 3, Step: 460, Loss: 5.17471
Epoch: 3, Step: 470, Loss: 5.11405
Epoch: 3, Step: 480, Loss: 5.05682
Epoch: 3, Step: 490, Loss: 4.95502
Epoch: 3, Step: 500, Loss: 4.99796
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 3, Step: 510, Loss: 4.94137
Epoch: 3, Step: 520, Loss: 4.7461
Epoch: 3, Step: 530, Loss: 4.74907
Epoch: 3, Step: 540, Loss: 4.62545
Epoch: 3, Step: 550, Loss: 4.57614
Epoch: 3, Step: 560, Loss: 4.49642
Epoch: 3, Step: 570, Loss: 4.51125
Epoch: 3, Step: 580, Loss: 4.40301
Epoch: 3, Step: 590, Loss: 4.49293
Epoch: 3, Step: 600, Loss: 4.39319
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 3, Step: 610, Loss: 4.20247
Epoch: 3, Step: 620, Loss: 4.13847
Epoch: 3, Step: 630, Loss: 4.08413
Epoch: 3, Step: 640, Loss: 4.02957
Epoch: 3, Step: 650, Loss: 3.97672
Epoch: 3, Step: 660, Loss: 3.92513
Epoch: 3, Step: 670, Loss: 3.87432
Epoch: 3, Step: 680, Loss: 3.8239
Epoch: 3, Step: 690, Loss: 3.7828
Epoch: 3, Step: 700, Loss: 3.73219
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 3, Step: 710, Loss: 3.6844
Epoch: 3, Step: 720, Loss: 3.64323
Epoch: 3, Step: 730, Loss: 3.61501
Epoch: 3, Step: 740, Loss: 3.57042
Epoch: 3, Step: 750, Loss: 3.66314
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 4, Step: 400, Loss: 3.96973
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 4, Step: 410, Loss: 3.72295
Epoch: 4, Step: 420, Loss: 3.46898
Epoch: 4, Step: 430, Loss: 3.37179
Epoch: 4, Step: 440, Loss: 3.32988
Epoch: 4, Step: 450, Loss: 3.40037
Epoch: 4, Step: 460, Loss: 3.97223
Epoch: 4, Step: 470, Loss: 4.80673
Epoch: 4, Step: 480, Loss: 3.61767
Epoch: 4, Step: 490, Loss: 3.19857
Epoch: 4, Step: 500, Loss: 3.08858
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 4, Step: 510, Loss: 3.06216
Epoch: 4, Step: 520, Loss: 3.02448
Epoch: 4, Step: 530, Loss: 2.98983
Epoch: 4, Step: 540, Loss: 3.00761
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Epoch: 4, Step: 550, Loss: 2.98574
Epoch: 4, Step: 560, Loss: 2.8896
Epoch: 4, Step: 570, Loss: 2.91936
Epoch: 4, Step: 580, Loss: 3.11723
Epoch: 4, Step: 590, Loss: 2.89392
Epoch: 4, Step: 600, Loss: 2.90734
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 4, Step: 610, Loss: 2.71942
Epoch: 4, Step: 620, Loss: 2.68959
Epoch: 4, Step: 630, Loss: 2.66085
Epoch: 4, Step: 640, Loss: 2.63216
Epoch: 4, Step: 650, Loss: 2.60743
Epoch: 4, Step: 660, Loss: 6.2063
Epoch: 4, Step: 670, Loss: 4.82151
Epoch: 4, Step: 680, Loss: 2.52865
Epoch: 4, Step: 690, Loss: 2.50116
Epoch: 4, Step: 700, Loss: 2.47185
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 4, Step: 710, Loss: 2.44761
Epoch: 4, Step: 720, Loss: 2.42509
Epoch: 4, Step: 730, Loss: 2.40754
Epoch: 4, Step: 740, Loss: 2.38006
Epoch: 4, Step: 750, Loss: 2.35861
Epoch: 4, Step: 760, Loss: 2.33343
Epoch: 4, Step: 770, Loss: 2.30817
Epoch: 4, Step: 780, Loss: 2.29064
Epoch: 4, Step: 790, Loss: 2.28043
Epoch: 4, Step: 800, Loss: 2.25426
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 4, Step: 810, Loss: 2.22287
Epoch: 4, Step: 820, Loss: 2.19647
Epoch: 4, Step: 830, Loss: 2.18121
Epoch: 4, Step: 840, Loss: 2.15787
Epoch: 4, Step: 850, Loss: 2.13493
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 5, Step: 500, Loss: 2.13205
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 5, Step: 510, Loss: 2.10634
Epoch: 5, Step: 520, Loss: 2.09151
Epoch: 5, Step: 530, Loss: 2.07926
Epoch: 5, Step: 540, Loss: 2.05569
Epoch: 5, Step: 550, Loss: 2.03929
Epoch: 5, Step: 560, Loss: 2.01676
Epoch: 5, Step: 570, Loss: 2.00015
Epoch: 5, Step: 580, Loss: 1.98349
Epoch: 5, Step: 590, Loss: 1.97077
Epoch: 5, Step: 600, Loss: 2.00385
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 5, Step: 610, Loss: 1.9569
Epoch: 5, Step: 620, Loss: 7.50794
Epoch: 5, Step: 630, Loss: 2.14893
Epoch: 5, Step: 640, Loss: 1.88838
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Epoch: 4, Step: 650, Loss: 1.87966
Epoch: 5, Step: 650, Loss: 1.87966
Epoch: 5, Step: 660, Loss: 1.87914
Epoch: 5, Step: 670, Loss: 1.87088
Epoch: 5, Step: 680, Loss: 1.82545
Epoch: 5, Step: 690, Loss: 1.96019
Epoch: 5, Step: 700, Loss: 1.89068
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 5, Step: 710, Loss: 1.78084
Epoch: 5, Step: 720, Loss: 1.8343
Epoch: 5, Step: 730, Loss: 1.7524
Epoch: 5, Step: 740, Loss: 1.7628
Epoch: 5, Step: 750, Loss: 1.73367
Epoch: 5, Step: 760, Loss: 1.81991
Epoch: 5, Step: 770, Loss: 1.7324
Epoch: 5, Step: 780, Loss: 1.83872
Epoch: 5, Step: 790, Loss: 1.7536
Epoch: 5, Step: 800, Loss: 1.67511
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 5, Step: 810, Loss: 1.65183
Epoch: 5, Step: 820, Loss: 1.63759
Epoch: 5, Step: 830, Loss: 1.62512
Epoch: 5, Step: 840, Loss: 1.61335
Epoch: 5, Step: 850, Loss: 1.60276
Epoch: 5, Step: 860, Loss: 1.59257
Epoch: 5, Step: 870, Loss: 1.57897
Epoch: 5, Step: 880, Loss: 1.57691
Epoch: 5, Step: 890, Loss: 1.56647
Epoch: 5, Step: 900, Loss: 1.54882
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 5, Step: 910, Loss: 1.54067
Epoch: 5, Step: 920, Loss: 1.56448
Epoch: 5, Step: 930, Loss: 1.52799
Epoch: 5, Step: 940, Loss: 1.73735
Epoch: 5, Step: 950, Loss: 1.99548
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 6, Step: 600, Loss: 1.7
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 6, Step: 610, Loss: 1.54173
Epoch: 6, Step: 620, Loss: 1.48456
Epoch: 6, Step: 630, Loss: 1.49093
Epoch: 6, Step: 640, Loss: 1.61418
Epoch: 6, Step: 650, Loss: 2.42323
Epoch: 6, Step: 660, Loss: 3.07727
Epoch: 6, Step: 670, Loss: 1.65649
Epoch: 6, Step: 680, Loss: 1.48561
Epoch: 6, Step: 690, Loss: 1.41065
Epoch: 6, Step: 700, Loss: 1.41869
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 6, Step: 710, Loss: 1.40208
Epoch: 6, Step: 720, Loss: 1.40091
Epoch: 6, Step: 730, Loss: 1.42617
Epoch: 6, Step: 740, Loss: 1.42714
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Epoch: 5, Step: 710, Loss: 1.12711
Epoch: 6, Step: 750, Loss: 1.37301
Epoch: 6, Step: 760, Loss: 1.42718
Epoch: 6, Step: 770, Loss: 1.73075
Epoch: 6, Step: 780, Loss: 1.41319
Epoch: 6, Step: 790, Loss: 1.4755
Epoch: 6, Step: 800, Loss: 1.31722
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 6, Step: 810, Loss: 1.3085
Epoch: 6, Step: 820, Loss: 1.30097
Epoch: 6, Step: 830, Loss: 1.29316
Epoch: 6, Step: 840, Loss: 1.29584
Epoch: 6, Step: 850, Loss: 6.15514
Epoch: 6, Step: 860, Loss: 2.02485
Epoch: 6, Step: 870, Loss: 1.26935
Epoch: 6, Step: 880, Loss: 1.25507
Epoch: 6, Step: 890, Loss: 1.247
Epoch: 6, Step: 900, Loss: 1.24364
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 6, Step: 910, Loss: 1.23594
Epoch: 6, Step: 920, Loss: 1.2411
Epoch: 6, Step: 930, Loss: 1.22583
Epoch: 6, Step: 940, Loss: 1.21995
Epoch: 6, Step: 950, Loss: 1.22335
Epoch: 6, Step: 960, Loss: 1.22883
Epoch: 6, Step: 970, Loss: 1.19776
Epoch: 6, Step: 980, Loss: 1.20284
Epoch: 6, Step: 990, Loss: 1.18903
Epoch: 6, Step: 1000, Loss: 1.18481
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 6, Step: 1010, Loss: 1.17148
Epoch: 6, Step: 1020, Loss: 1.18017
Epoch: 6, Step: 1030, Loss: 1.16745
Epoch: 6, Step: 1040, Loss: 1.15919
Epoch: 6, Step: 1050, Loss: 1.1627
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 7, Step: 700, Loss: 1.15164
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 7, Step: 710, Loss: 1.14968
Epoch: 7, Step: 720, Loss: 1.14961
Epoch: 7, Step: 730, Loss: 1.13708
Epoch: 7, Step: 740, Loss: 1.12967
Epoch: 7, Step: 750, Loss: 1.12416
Epoch: 7, Step: 760, Loss: 1.11968
Epoch: 7, Step: 770, Loss: 1.11031
Epoch: 7, Step: 780, Loss: 1.10368
Epoch: 7, Step: 790, Loss: 1.15794
Epoch: 7, Step: 800, Loss: 1.48137
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 7, Step: 810, Loss: 6.50013
Epoch: 7, Step: 820, Loss: 1.09694
Epoch: 7, Step: 830, Loss: 1.06951
Epoch: 7, Step: 840, Loss: 1.08317
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Epoch: 7, Step: 870, Loss: 1.00017
Epoch: 7, Step: 850, Loss: 1.09015
Epoch: 7, Step: 860, Loss: 1.08896
Epoch: 7, Step: 870, Loss: 1.05253
Epoch: 7, Step: 880, Loss: 1.1989
Epoch: 7, Step: 890, Loss: 1.06931
Epoch: 7, Step: 900, Loss: 1.03105
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 7, Step: 910, Loss: 1.08587
Epoch: 7, Step: 920, Loss: 1.02618
Epoch: 7, Step: 930, Loss: 1.01829
Epoch: 7, Step: 940, Loss: 1.03953
Epoch: 7, Step: 950, Loss: 1.06809
Epoch: 7, Step: 960, Loss: 1.04125
Epoch: 7, Step: 970, Loss: 1.01759
Epoch: 7, Step: 980, Loss: 1.01112
Epoch: 7, Step: 990, Loss: 0.994795
Epoch: 7, Step: 1000, Loss: 0.983553
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 7, Step: 1010, Loss: 0.974952
Epoch: 7, Step: 1020, Loss: 0.974662
Epoch: 7, Step: 1030, Loss: 0.965655
Epoch: 7, Step: 1040, Loss: 0.961979
Epoch: 7, Step: 1050, Loss: 0.958982
Epoch: 7, Step: 1060, Loss: 0.95515
Epoch: 7, Step: 1070, Loss: 0.947627
Epoch: 7, Step: 1080, Loss: 0.946297
Epoch: 7, Step: 1090, Loss: 0.944249
Epoch: 7, Step: 1100, Loss: 0.946809
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 7, Step: 1110, Loss: 0.959029
Epoch: 7, Step: 1120, Loss: 0.942718
Epoch: 7, Step: 1130, Loss: 1.24222
Epoch: 7, Step: 1140, Loss: 1.4812
Epoch: 7, Step: 1150, Loss: 1.12518
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 8, Step: 800, Loss: 0.956814
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 8, Step: 810, Loss: 0.933619
Epoch: 8, Step: 820, Loss: 0.925185
Epoch: 8, Step: 830, Loss: 1.04916
Epoch: 8, Step: 840, Loss: 1.99491
Epoch: 8, Step: 850, Loss: 2.21738
Epoch: 8, Step: 860, Loss: 0.956189
Epoch: 8, Step: 870, Loss: 0.963014
Epoch: 8, Step: 880, Loss: 0.874707
Epoch: 8, Step: 890, Loss: 0.878733
Epoch: 8, Step: 900, Loss: 0.872196
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 8, Step: 910, Loss: 0.868826
Epoch: 8, Step: 920, Loss: 0.906937
Epoch: 8, Step: 930, Loss: 0.905417
Epoch: 8, Step: 940, Loss: 0.867944
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Epoch: 8, Step: 940, Loss: 0.88174
Epoch: 8, Step: 950, Loss: 0.948385
Epoch: 8, Step: 960, Loss: 1.26072
Epoch: 8, Step: 970, Loss: 1.18552
Epoch: 8, Step: 980, Loss: 1.03025
Epoch: 8, Step: 990, Loss: 0.86012
Epoch: 8, Step: 1000, Loss: 0.835029
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 8, Step: 1010, Loss: 0.838512
Epoch: 8, Step: 1020, Loss: 0.818684
Epoch: 8, Step: 1030, Loss: 0.890823
Epoch: 8, Step: 1040, Loss: 6.65683
Epoch: 8, Step: 1050, Loss: 0.993118
Epoch: 8, Step: 1060, Loss: 0.810271
Epoch: 8, Step: 1070, Loss: 0.800649
Epoch: 8, Step: 1080, Loss: 0.795555
Epoch: 8, Step: 1090, Loss: 0.797964
Epoch: 8, Step: 1100, Loss: 0.789817
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 8, Step: 1110, Loss: 0.787053
Epoch: 8, Step: 1120, Loss: 0.799123
Epoch: 8, Step: 1130, Loss: 0.795562
Epoch: 8, Step: 1140, Loss: 0.792738
Epoch: 8, Step: 1150, Loss: 0.789831
Epoch: 8, Step: 1160, Loss: 0.773668
Epoch: 8, Step: 1170, Loss: 0.779234
Epoch: 8, Step: 1180, Loss: 0.771565
Epoch: 8, Step: 1190, Loss: 0.76485
Epoch: 8, Step: 1200, Loss: 0.755464
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 8, Step: 1210, Loss: 0.757493
Epoch: 8, Step: 1220, Loss: 0.751475
Epoch: 8, Step: 1230, Loss: 0.745227
Epoch: 8, Step: 1240, Loss: 0.747039
Epoch: 8, Step: 1250, Loss: 0.740273
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 9, Step: 900, Loss: 0.749808
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 9, Step: 910, Loss: 0.749644
Epoch: 9, Step: 920, Loss: 0.749593
Epoch: 9, Step: 930, Loss: 0.73845
Epoch: 9, Step: 940, Loss: 0.737586
Epoch: 9, Step: 950, Loss: 0.724425
Epoch: 9, Step: 960, Loss: 0.725452
Epoch: 9, Step: 970, Loss: 0.737536
Epoch: 9, Step: 980, Loss: 0.823336
Epoch: 9, Step: 990, Loss: 2.59104
Epoch: 9, Step: 1000, Loss: 5.18455
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 9, Step: 1010, Loss: 0.796562
Epoch: 9, Step: 1020, Loss: 0.776624
Epoch: 9, Step: 1030, Loss: 0.707454
Epoch: 9, Step: 1040, Loss: 0.70275
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Epoch: 9, Step: 1040, Loss: 0.70273
Epoch: 9, Step: 1050, Loss: 0.703472
Epoch: 9, Step: 1060, Loss: 0.724911
Epoch: 9, Step: 1070, Loss: 0.857539
Epoch: 9, Step: 1080, Loss: 0.701774
Epoch: 9, Step: 1090, Loss: 0.697818
Epoch: 9, Step: 1100, Loss: 0.729215
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 9, Step: 1110, Loss: 0.676369
Epoch: 9, Step: 1120, Loss: 0.677883
Epoch: 9, Step: 1130, Loss: 0.710061
Epoch: 9, Step: 1140, Loss: 0.72493
Epoch: 9, Step: 1150, Loss: 0.737363
Epoch: 9, Step: 1160, Loss: 0.787162
Epoch: 9, Step: 1170, Loss: 0.672702
Epoch: 9, Step: 1180, Loss: 0.67471
Epoch: 9, Step: 1190, Loss: 0.655102
Epoch: 9, Step: 1200, Loss: 0.64906
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 9, Step: 1210, Loss: 0.64723
Epoch: 9, Step: 1220, Loss: 0.64361
Epoch: 9, Step: 1230, Loss: 0.639468
Epoch: 9, Step: 1240, Loss: 0.635286
Epoch: 9, Step: 1250, Loss: 0.635499
Epoch: 9, Step: 1260, Loss: 0.624704
Epoch: 9, Step: 1270, Loss: 0.626704
Epoch: 9, Step: 1280, Loss: 0.643877
Epoch: 9, Step: 1290, Loss: 0.617443
Epoch: 9, Step: 1300, Loss: 0.627396
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 9, Step: 1310, Loss: 0.643612
Epoch: 9, Step: 1320, Loss: 0.908718
Epoch: 9, Step: 1330, Loss: 1.03256
Epoch: 9, Step: 1340, Loss: 0.685222
Epoch: 9, Step: 1350, Loss: 0.603811
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 10, Step: 1000, Loss: 0.62091
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 10, Step: 1010, Loss: 0.641081
Epoch: 10, Step: 1020, Loss: 0.688861
Epoch: 10, Step: 1030, Loss: 1.65976
Epoch: 10, Step: 1040, Loss: 1.48763
Epoch: 10, Step: 1050, Loss: 0.609921
Epoch: 10, Step: 1060, Loss: 0.601411
Epoch: 10, Step: 1070, Loss: 0.589952
Epoch: 10, Step: 1080, Loss: 0.591654
Epoch: 10, Step: 1090, Loss: 0.58934
Epoch: 10, Step: 1100, Loss: 0.607546
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 10, Step: 1110, Loss: 0.652739
Epoch: 10, Step: 1120, Loss: 0.576376
Epoch: 10, Step: 1130, Loss: 0.588111
Epoch: 10, Step: 1140, Loss: 0.605075
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Epoch: 10, Step: 1140, Loss: 0.685875
Epoch: 10, Step: 1150, Loss: 0.941989
Epoch: 10, Step: 1160, Loss: 0.768177
Epoch: 10, Step: 1170, Loss: 0.571032
Epoch: 10, Step: 1180, Loss: 0.563969
Epoch: 10, Step: 1190, Loss: 0.561697
Epoch: 10, Step: 1200, Loss: 0.558174
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 10, Step: 1210, Loss: 0.555759
Epoch: 10, Step: 1220, Loss: 1.06781
Epoch: 10, Step: 1230, Loss: 5.47231
Epoch: 10, Step: 1240, Loss: 0.584089
Epoch: 10, Step: 1250, Loss: 0.544851
Epoch: 10, Step: 1260, Loss: 0.540923
Epoch: 10, Step: 1270, Loss: 0.544859
Epoch: 10, Step: 1280, Loss: 0.544536
Epoch: 10, Step: 1290, Loss: 0.570309
Epoch: 10, Step: 1300, Loss: 0.539243
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 10, Step: 1310, Loss: 0.526989
Epoch: 10, Step: 1320, Loss: 0.534984
Epoch: 10, Step: 1330, Loss: 0.540201
Epoch: 10, Step: 1340, Loss: 0.57617
Epoch: 10, Step: 1350, Loss: 0.526613
Epoch: 10, Step: 1360, Loss: 0.533076
Epoch: 10, Step: 1370, Loss: 0.558517
Epoch: 10, Step: 1380, Loss: 0.53238
Epoch: 10, Step: 1390, Loss: 0.655891
Epoch: 10, Step: 1400, Loss: 0.574524
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 10, Step: 1410, Loss: 0.572651
Epoch: 10, Step: 1420, Loss: 0.540918
Epoch: 10, Step: 1430, Loss: 0.525259
Epoch: 10, Step: 1440, Loss: 0.517933
Epoch: 10, Step: 1450, Loss: 0.530195
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 11, Step: 1100, Loss: 0.53658
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 11, Step: 1110, Loss: 0.520673
Epoch: 11, Step: 1120, Loss: 0.508643
Epoch: 11, Step: 1130, Loss: 0.498044
Epoch: 11, Step: 1140, Loss: 0.488218
Epoch: 11, Step: 1150, Loss: 0.489666
Epoch: 11, Step: 1160, Loss: 0.511554
Epoch: 11, Step: 1170, Loss: 0.550961
Epoch: 11, Step: 1180, Loss: 3.20372
Epoch: 11, Step: 1190, Loss: 3.18727
Epoch: 11, Step: 1200, Loss: 0.478843
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 11, Step: 1210, Loss: 0.475475
Epoch: 11, Step: 1220, Loss: 0.528121
Epoch: 11, Step: 1230, Loss: 0.53284
Epoch: 11, Step: 1240, Loss: 0.514005
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Epoch: 11, Step: 1240, Loss: 0.514925
Epoch: 11, Step: 1250, Loss: 0.519839
Epoch: 11, Step: 1260, Loss: 0.577766
Epoch: 11, Step: 1270, Loss: 0.465678
Epoch: 11, Step: 1280, Loss: 0.482748
Epoch: 11, Step: 1290, Loss: 0.478219
Epoch: 11, Step: 1300, Loss: 0.485534
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 11, Step: 1310, Loss: 0.459256
Epoch: 11, Step: 1320, Loss: 0.495284
Epoch: 11, Step: 1330, Loss: 0.476625
Epoch: 11, Step: 1340, Loss: 0.46535
Epoch: 11, Step: 1350, Loss: 0.456268
Epoch: 11, Step: 1360, Loss: 0.470384
Epoch: 11, Step: 1370, Loss: 0.468619
Epoch: 11, Step: 1380, Loss: 0.446518
Epoch: 11, Step: 1390, Loss: 0.458008
Epoch: 11, Step: 1400, Loss: 0.509071
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 11, Step: 1410, Loss: 0.440988
Epoch: 11, Step: 1420, Loss: 0.439689
Epoch: 11, Step: 1430, Loss: 0.437931
Epoch: 11, Step: 1440, Loss: 0.437993
Epoch: 11, Step: 1450, Loss: 0.443351
Epoch: 11, Step: 1460, Loss: 0.436381
Epoch: 11, Step: 1470, Loss: 0.449806
Epoch: 11, Step: 1480, Loss: 0.435236
Epoch: 11, Step: 1490, Loss: 0.482119
Epoch: 11, Step: 1500, Loss: 0.474155
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 11, Step: 1510, Loss: 1.00723
Epoch: 11, Step: 1520, Loss: 0.833398
Epoch: 11, Step: 1530, Loss: 0.512078
Epoch: 11, Step: 1540, Loss: 0.427627
Epoch: 11, Step: 1550, Loss: 0.430446
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 12, Step: 1200, Loss: 0.457177
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 12, Step: 1210, Loss: 0.715009
Epoch: 12, Step: 1220, Loss: 1.6513
Epoch: 12, Step: 1230, Loss: 1.022
Epoch: 12, Step: 1240, Loss: 0.495824
Epoch: 12, Step: 1250, Loss: 0.441967
Epoch: 12, Step: 1260, Loss: 0.410857
Epoch: 12, Step: 1270, Loss: 0.40493
Epoch: 12, Step: 1280, Loss: 0.411149
Epoch: 12, Step: 1290, Loss: 0.416499
Epoch: 12, Step: 1300, Loss: 0.471014
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 12, Step: 1310, Loss: 0.486013
Epoch: 12, Step: 1320, Loss: 0.467302
Epoch: 12, Step: 1330, Loss: 0.519831
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Epoch: 12, Step: 1340, Loss: 0.78301
Epoch: 12, Step: 1350, Loss: 0.995359
Epoch: 12, Step: 1360, Loss: 0.607935
Epoch: 12, Step: 1370, Loss: 0.472476
Epoch: 12, Step: 1380, Loss: 0.482523
Epoch: 12, Step: 1390, Loss: 0.462404
Epoch: 12, Step: 1400, Loss: 0.42866
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 12, Step: 1410, Loss: 3.11924
Epoch: 12, Step: 1420, Loss: 4.65728
Epoch: 12, Step: 1430, Loss: 0.408578
Epoch: 12, Step: 1440, Loss: 0.414088
Epoch: 12, Step: 1450, Loss: 0.409165
Epoch: 12, Step: 1460, Loss: 0.385861
Epoch: 12, Step: 1470, Loss: 0.431451
Epoch: 12, Step: 1480, Loss: 0.43429
Epoch: 12, Step: 1490, Loss: 0.406771
Epoch: 12, Step: 1500, Loss: 0.37455
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 12, Step: 1510, Loss: 0.379474
Epoch: 12, Step: 1520, Loss: 0.379424
Epoch: 12, Step: 1530, Loss: 0.419907
Epoch: 12, Step: 1540, Loss: 0.376312
Epoch: 12, Step: 1550, Loss: 0.38331
Epoch: 12, Step: 1560, Loss: 0.373327
Epoch: 12, Step: 1570, Loss: 0.363528
Epoch: 12, Step: 1580, Loss: 0.362544
Epoch: 12, Step: 1590, Loss: 0.361952
Epoch: 12, Step: 1600, Loss: 0.362538
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 12, Step: 1610, Loss: 0.358667
Epoch: 12, Step: 1620, Loss: 0.357202
Epoch: 12, Step: 1630, Loss: 0.358536
Epoch: 12, Step: 1640, Loss: 0.364884
Epoch: 12, Step: 1650, Loss: 0.361284
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 13, Step: 1300, Loss: 0.359406
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 13, Step: 1310, Loss: 0.353913
Epoch: 13, Step: 1320, Loss: 0.377882
Epoch: 13, Step: 1330, Loss: 0.368971
Epoch: 13, Step: 1340, Loss: 0.35206
Epoch: 13, Step: 1350, Loss: 0.452786
Epoch: 13, Step: 1360, Loss: 0.48475
Epoch: 13, Step: 1370, Loss: 4.6567
Epoch: 13, Step: 1380, Loss: 1.85991
Epoch: 13, Step: 1390, Loss: 0.385744
Epoch: 13, Step: 1400, Loss: 0.354768
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 13, Step: 1410, Loss: 0.34602
Epoch: 13, Step: 1420, Loss: 0.453759
Epoch: 13, Step: 1430, Loss: 0.354027
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Epoch: 13, Step: 1440, Loss: 0.401362
Epoch: 13, Step: 1450, Loss: 0.491584
Epoch: 13, Step: 1460, Loss: 0.350041
Epoch: 13, Step: 1470, Loss: 0.412405
Epoch: 13, Step: 1480, Loss: 0.354694
Epoch: 13, Step: 1490, Loss: 0.352369
Epoch: 13, Step: 1500, Loss: 0.345523
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 13, Step: 1510, Loss: 0.383426
Epoch: 13, Step: 1520, Loss: 0.360479
Epoch: 13, Step: 1530, Loss: 0.422738
Epoch: 13, Step: 1540, Loss: 0.408629
Epoch: 13, Step: 1550, Loss: 0.35197
Epoch: 13, Step: 1560, Loss: 0.335974
Epoch: 13, Step: 1570, Loss: 0.339005
Epoch: 13, Step: 1580, Loss: 0.332908
Epoch: 13, Step: 1590, Loss: 0.330553
Epoch: 13, Step: 1600, Loss: 0.327765
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 13, Step: 1610, Loss: 0.326702
Epoch: 13, Step: 1620, Loss: 0.321676
Epoch: 13, Step: 1630, Loss: 0.327171
Epoch: 13, Step: 1640, Loss: 0.327691
Epoch: 13, Step: 1650, Loss: 0.320981
Epoch: 13, Step: 1660, Loss: 0.340133
Epoch: 13, Step: 1670, Loss: 0.335086
Epoch: 13, Step: 1680, Loss: 0.359175
Epoch: 13, Step: 1690, Loss: 0.424034
Epoch: 13, Step: 1700, Loss: 0.643313
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 13, Step: 1710, Loss: 0.449353
Epoch: 13, Step: 1720, Loss: 0.329959
Epoch: 13, Step: 1730, Loss: 0.315021
Epoch: 13, Step: 1740, Loss: 0.336093
Epoch: 13, Step: 1750, Loss: 0.411579
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 14, Step: 1400, Loss: 0.336221
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 14, Step: 1410, Loss: 0.356505
Epoch: 14, Step: 1420, Loss: 0.515831
Epoch: 14, Step: 1430, Loss: 0.484808
Epoch: 14, Step: 1440, Loss: 0.305716
Epoch: 14, Step: 1450, Loss: 0.324853
Epoch: 14, Step: 1460, Loss: 0.319274
Epoch: 14, Step: 1470, Loss: 0.31468
Epoch: 14, Step: 1480, Loss: 0.326813
Epoch: 14, Step: 1490, Loss: 0.39886
Epoch: 14, Step: 1500, Loss: 0.312692
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 14, Step: 1510, Loss: 0.36156
Epoch: 14, Step: 1520, Loss: 0.561902
Epoch: 14, Step: 1530, Loss: 0.517351
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Epoch: 14, Step: 1540, Loss: 0.57597
Epoch: 14, Step: 1550, Loss: 0.318077
Epoch: 14, Step: 1560, Loss: 0.317322
Epoch: 14, Step: 1570, Loss: 0.322058
Epoch: 14, Step: 1580, Loss: 0.316154
Epoch: 14, Step: 1590, Loss: 0.324521
Epoch: 14, Step: 1600, Loss: 3.41049
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 14, Step: 1610, Loss: 2.77447
Epoch: 14, Step: 1620, Loss: 0.293075
Epoch: 14, Step: 1630, Loss: 0.288655
Epoch: 14, Step: 1640, Loss: 0.29153
Epoch: 14, Step: 1650, Loss: 0.298409
Epoch: 14, Step: 1660, Loss: 0.297159
Epoch: 14, Step: 1670, Loss: 0.371422
Epoch: 14, Step: 1680, Loss: 0.392669
Epoch: 14, Step: 1690, Loss: 0.344404
Epoch: 14, Step: 1700, Loss: 0.347646
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 14, Step: 1710, Loss: 0.310634
Epoch: 14, Step: 1720, Loss: 0.374273
Epoch: 14, Step: 1730, Loss: 0.28688
Epoch: 14, Step: 1740, Loss: 0.304574
Epoch: 14, Step: 1750, Loss: 0.345601
Epoch: 14, Step: 1760, Loss: 0.288645
Epoch: 14, Step: 1770, Loss: 0.281738
Epoch: 14, Step: 1780, Loss: 0.309071
Epoch: 14, Step: 1790, Loss: 0.641774
Epoch: 14, Step: 1800, Loss: 0.301401
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 14, Step: 1810, Loss: 0.30661
Epoch: 14, Step: 1820, Loss: 0.337246
Epoch: 14, Step: 1830, Loss: 0.355309
Epoch: 14, Step: 1840, Loss: 0.320218
Epoch: 14, Step: 1850, Loss: 0.305385
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 15, Step: 1500, Loss: 0.302119
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 15, Step: 1510, Loss: 0.298191
Epoch: 15, Step: 1520, Loss: 0.285374
Epoch: 15, Step: 1530, Loss: 0.271187
Epoch: 15, Step: 1540, Loss: 0.338555
Epoch: 15, Step: 1550, Loss: 0.304039
Epoch: 15, Step: 1560, Loss: 5.53814
Epoch: 15, Step: 1570, Loss: 0.66991
Epoch: 15, Step: 1580, Loss: 0.271495
Epoch: 15, Step: 1590, Loss: 0.278895
Epoch: 15, Step: 1600, Loss: 0.282092
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 15, Step: 1610, Loss: 0.305387
Epoch: 15, Step: 1620, Loss: 0.268754
Epoch: 15, Step: 1630, Loss: 0.349065
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Epoch: 15, Step: 1640, Loss: 0.345277
Epoch: 15, Step: 1650, Loss: 0.266961
Epoch: 15, Step: 1660, Loss: 0.33816
Epoch: 15, Step: 1670, Loss: 0.267185
Epoch: 15, Step: 1680, Loss: 0.273094
Epoch: 15, Step: 1690, Loss: 0.263706
Epoch: 15, Step: 1700, Loss: 0.271179
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 15, Step: 1710, Loss: 0.273763
Epoch: 15, Step: 1720, Loss: 0.352799
Epoch: 15, Step: 1730, Loss: 0.311681
Epoch: 15, Step: 1740, Loss: 0.277505
Epoch: 15, Step: 1750, Loss: 0.25973
Epoch: 15, Step: 1760, Loss: 0.263883
Epoch: 15, Step: 1770, Loss: 0.279544
Epoch: 15, Step: 1780, Loss: 0.301076
Epoch: 15, Step: 1790, Loss: 0.328487
Epoch: 15, Step: 1800, Loss: 0.485536
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 15, Step: 1810, Loss: 0.387472
Epoch: 15, Step: 1820, Loss: 0.254985
Epoch: 15, Step: 1830, Loss: 0.261966
Epoch: 15, Step: 1840, Loss: 0.265044
Epoch: 15, Step: 1850, Loss: 0.264737
Epoch: 15, Step: 1860, Loss: 0.271404
Epoch: 15, Step: 1870, Loss: 0.275085
Epoch: 15, Step: 1880, Loss: 0.416683
Epoch: 15, Step: 1890, Loss: 0.635878
Epoch: 15, Step: 1900, Loss: 0.432025
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 15, Step: 1910, Loss: 0.267979
Epoch: 15, Step: 1920, Loss: 0.260485
Epoch: 15, Step: 1930, Loss: 0.26415
Epoch: 15, Step: 1940, Loss: 0.320927
Epoch: 15, Step: 1950, Loss: 0.377432
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 16, Step: 1600, Loss: 0.306246
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 16, Step: 1610, Loss: 0.361609
Epoch: 16, Step: 1620, Loss: 0.345652
Epoch: 16, Step: 1630, Loss: 0.246364
Epoch: 16, Step: 1640, Loss: 0.256209
Epoch: 16, Step: 1650, Loss: 0.249054
Epoch: 16, Step: 1660, Loss: 0.254608
Epoch: 16, Step: 1670, Loss: 0.276461
Epoch: 16, Step: 1680, Loss: 0.346316
Epoch: 16, Step: 1690, Loss: 0.269836
Epoch: 16, Step: 1700, Loss: 0.2725
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 16, Step: 1710, Loss: 0.578854
Epoch: 16, Step: 1720, Loss: 0.336628
Epoch: 16, Step: 1730, Loss: 0.524565
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Epoch: 16, Step: 1740, Loss: 0.280108
Epoch: 16, Step: 1750, Loss: 0.280153
Epoch: 16, Step: 1760, Loss: 0.277059
Epoch: 16, Step: 1770, Loss: 0.271892
Epoch: 16, Step: 1780, Loss: 0.279694
Epoch: 16, Step: 1790, Loss: 5.52103
Epoch: 16, Step: 1800, Loss: 1.03106
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 16, Step: 1810, Loss: 0.705804
Epoch: 16, Step: 1820, Loss: 0.524381
Epoch: 16, Step: 1830, Loss: 0.370318
Epoch: 16, Step: 1840, Loss: 0.253156
Epoch: 16, Step: 1850, Loss: 0.278904
Epoch: 16, Step: 1860, Loss: 0.278886
Epoch: 16, Step: 1870, Loss: 0.270242
Epoch: 16, Step: 1880, Loss: 0.282494
Epoch: 16, Step: 1890, Loss: 0.257783
Epoch: 16, Step: 1900, Loss: 0.255871
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 16, Step: 1910, Loss: 0.280956
Epoch: 16, Step: 1920, Loss: 0.272057
Epoch: 16, Step: 1930, Loss: 0.291094
Epoch: 16, Step: 1940, Loss: 0.24402
Epoch: 16, Step: 1950, Loss: 0.237592
Epoch: 16, Step: 1960, Loss: 0.230176
Epoch: 16, Step: 1970, Loss: 0.23455
Epoch: 16, Step: 1980, Loss: 0.232756
Epoch: 16, Step: 1990, Loss: 0.229802
Epoch: 16, Step: 2000, Loss: 0.233302
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 16, Step: 2010, Loss: 0.232949
Epoch: 16, Step: 2020, Loss: 0.235723
Epoch: 16, Step: 2030, Loss: 0.238158
Epoch: 16, Step: 2040, Loss: 0.226925
Epoch: 16, Step: 2050, Loss: 0.240773
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 17, Step: 1700, Loss: 0.590329
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 17, Step: 1710, Loss: 0.402902
Epoch: 17, Step: 1720, Loss: 0.379103
Epoch: 17, Step: 1730, Loss: 0.343899
Epoch: 17, Step: 1740, Loss: 0.461195
Epoch: 17, Step: 1750, Loss: 5.98459
Epoch: 17, Step: 1760, Loss: 0.249961
Epoch: 17, Step: 1770, Loss: 0.224825
Epoch: 17, Step: 1780, Loss: 0.23663
Epoch: 17, Step: 1790, Loss: 0.224527
Epoch: 17, Step: 1800, Loss: 0.246793
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 17, Step: 1810, Loss: 0.245908
Epoch: 17, Step: 1820, Loss: 0.711545
Epoch: 17, Step: 1830, Loss: 0.298047
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Epoch: 17, Step: 1840, Loss: 0.233252
Epoch: 17, Step: 1850, Loss: 0.373678
Epoch: 17, Step: 1860, Loss: 0.230129
Epoch: 17, Step: 1870, Loss: 0.287333
Epoch: 17, Step: 1880, Loss: 0.250205
Epoch: 17, Step: 1890, Loss: 0.242183
Epoch: 17, Step: 1900, Loss: 0.25899
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 17, Step: 1910, Loss: 0.330531
Epoch: 17, Step: 1920, Loss: 0.262407
Epoch: 17, Step: 1930, Loss: 0.259457
Epoch: 17, Step: 1940, Loss: 0.230099
Epoch: 17, Step: 1950, Loss: 0.226585
Epoch: 17, Step: 1960, Loss: 0.237674
Epoch: 17, Step: 1970, Loss: 0.239023
Epoch: 17, Step: 1980, Loss: 0.235437
Epoch: 17, Step: 1990, Loss: 0.232295
Epoch: 17, Step: 2000, Loss: 0.219996
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 17, Step: 2010, Loss: 0.222792
Epoch: 17, Step: 2020, Loss: 0.234381
Epoch: 17, Step: 2030, Loss: 0.233158
Epoch: 17, Step: 2040, Loss: 0.22249
Epoch: 17, Step: 2050, Loss: 0.241327
Epoch: 17, Step: 2060, Loss: 0.288348
Epoch: 17, Step: 2070, Loss: 0.32256
Epoch: 17, Step: 2080, Loss: 0.363672
Epoch: 17, Step: 2090, Loss: 0.306863
Epoch: 17, Step: 2100, Loss: 0.249091
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 17, Step: 2110, Loss: 0.246564
Epoch: 17, Step: 2120, Loss: 0.218323
Epoch: 17, Step: 2130, Loss: 0.268302
Epoch: 17, Step: 2140, Loss: 0.315433
Epoch: 17, Step: 2150, Loss: 0.289139
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 18, Step: 1800, Loss: 0.248275
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 18, Step: 1810, Loss: 0.233923
Epoch: 18, Step: 1820, Loss: 0.230213
Epoch: 18, Step: 1830, Loss: 0.412462
Epoch: 18, Step: 1840, Loss: 0.25314
Epoch: 18, Step: 1850, Loss: 0.243182
Epoch: 18, Step: 1860, Loss: 0.266072
Epoch: 18, Step: 1870, Loss: 0.257105
Epoch: 18, Step: 1880, Loss: 0.234423
Epoch: 18, Step: 1890, Loss: 0.249281
Epoch: 18, Step: 1900, Loss: 0.503818
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 18, Step: 1910, Loss: 0.309172
Epoch: 18, Step: 1920, Loss: 0.370633
Epoch: 18, Step: 1930, Loss: 0.254526
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Epoch: 18, Step: 1940, Loss: 0.257052
Epoch: 18, Step: 1950, Loss: 0.25193
Epoch: 18, Step: 1960, Loss: 0.258387
Epoch: 18, Step: 1970, Loss: 0.263918
Epoch: 18, Step: 1980, Loss: 5.18657
Epoch: 18, Step: 1990, Loss: 0.39873
Epoch: 18, Step: 2000, Loss: 0.206988
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 18, Step: 2010, Loss: 0.208438
Epoch: 18, Step: 2020, Loss: 0.209734
Epoch: 18, Step: 2030, Loss: 0.215258
Epoch: 18, Step: 2040, Loss: 0.217041
Epoch: 18, Step: 2050, Loss: 0.267832
Epoch: 18, Step: 2060, Loss: 0.369776
Epoch: 18, Step: 2070, Loss: 0.538243
Epoch: 18, Step: 2080, Loss: 0.635413
Epoch: 18, Step: 2090, Loss: 0.560095
Epoch: 18, Step: 2100, Loss: 0.337044
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 18, Step: 2110, Loss: 0.267575
Epoch: 18, Step: 2120, Loss: 0.258729
Epoch: 18, Step: 2130, Loss: 0.210122
Epoch: 18, Step: 2140, Loss: 0.203747
Epoch: 18, Step: 2150, Loss: 0.204643
Epoch: 18, Step: 2160, Loss: 0.229192
Epoch: 18, Step: 2170, Loss: 0.203523
Epoch: 18, Step: 2180, Loss: 0.307167
Epoch: 18, Step: 2190, Loss: 0.36634
Epoch: 18, Step: 2200, Loss: 0.321029
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 18, Step: 2210, Loss: 0.326737
Epoch: 18, Step: 2220, Loss: 0.346531
Epoch: 18, Step: 2230, Loss: 0.235673
Epoch: 18, Step: 2240, Loss: 0.225381
Epoch: 18, Step: 2250, Loss: 0.231594
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 19, Step: 1900, Loss: 0.240783
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 19, Step: 1910, Loss: 0.236807
Epoch: 19, Step: 1920, Loss: 0.3068
Epoch: 19, Step: 1930, Loss: 1.37633
Epoch: 19, Step: 1940, Loss: 3.78243
Epoch: 19, Step: 1950, Loss: 0.203626
Epoch: 19, Step: 1960, Loss: 0.20555
Epoch: 19, Step: 1970, Loss: 0.218333
Epoch: 19, Step: 1980, Loss: 0.214791
Epoch: 19, Step: 1990, Loss: 0.256659
Epoch: 19, Step: 2000, Loss: 0.204579
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 19, Step: 2010, Loss: 0.308362
Epoch: 19, Step: 2020, Loss: 0.213019
Epoch: 19, Step: 2030, Loss: 0.202319
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Epoch: 19, Step: 2040, Loss: 0.240803
Epoch: 19, Step: 2050, Loss: 0.201733
Epoch: 19, Step: 2060, Loss: 0.210888
Epoch: 19, Step: 2070, Loss: 0.206842
Epoch: 19, Step: 2080, Loss: 0.199737
Epoch: 19, Step: 2090, Loss: 0.232237
Epoch: 19, Step: 2100, Loss: 0.227762
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 19, Step: 2110, Loss: 0.214397
Epoch: 19, Step: 2120, Loss: 0.220993
Epoch: 19, Step: 2130, Loss: 0.208343
Epoch: 19, Step: 2140, Loss: 0.198927
Epoch: 19, Step: 2150, Loss: 0.208551
Epoch: 19, Step: 2160, Loss: 0.211116
Epoch: 19, Step: 2170, Loss: 0.207839
Epoch: 19, Step: 2180, Loss: 0.202179
Epoch: 19, Step: 2190, Loss: 0.350361
Epoch: 19, Step: 2200, Loss: 0.238627
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 19, Step: 2210, Loss: 0.227817
Epoch: 19, Step: 2220, Loss: 0.288707
Epoch: 19, Step: 2230, Loss: 0.202551
Epoch: 19, Step: 2240, Loss: 0.273101
Epoch: 19, Step: 2250, Loss: 0.207904
Epoch: 19, Step: 2260, Loss: 0.403388
Epoch: 19, Step: 2270, Loss: 0.329822
Epoch: 19, Step: 2280, Loss: 0.216653
Epoch: 19, Step: 2290, Loss: 0.205781
Epoch: 19, Step: 2300, Loss: 0.194194
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 19, Step: 2310, Loss: 0.207742
Epoch: 19, Step: 2320, Loss: 0.346307
Epoch: 19, Step: 2330, Loss: 0.372799
Epoch: 19, Step: 2340, Loss: 0.299361
Epoch: 19, Step: 2350, Loss: 0.216732
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 20, Step: 2000, Loss: 0.236693
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 20, Step: 2010, Loss: 0.195431
Epoch: 20, Step: 2020, Loss: 0.19097
Epoch: 20, Step: 2030, Loss: 0.194458
Epoch: 20, Step: 2040, Loss: 0.199561
Epoch: 20, Step: 2050, Loss: 0.246616
Epoch: 20, Step: 2060, Loss: 0.19982
Epoch: 20, Step: 2070, Loss: 0.196912
Epoch: 20, Step: 2080, Loss: 0.279359
Epoch: 20, Step: 2090, Loss: 0.37735
Epoch: 20, Step: 2100, Loss: 0.514152
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 20, Step: 2110, Loss: 0.497073
Epoch: 20, Step: 2120, Loss: 0.44261
Epoch: 20, Step: 2130, Loss: 0.39731
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Epoch: 20, Step: 2140, Loss: 0.333129
Epoch: 20, Step: 2150, Loss: 0.258309
Epoch: 20, Step: 2160, Loss: 0.436409
Epoch: 20, Step: 2170, Loss: 5.6365
Epoch: 20, Step: 2180, Loss: 0.268009
Epoch: 20, Step: 2190, Loss: 0.237674
Epoch: 20, Step: 2200, Loss: 0.433303
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 20, Step: 2210, Loss: 0.861968
Epoch: 20, Step: 2220, Loss: 0.906081
Epoch: 20, Step: 2230, Loss: 1.75513
Epoch: 20, Step: 2240, Loss: 2.28665
Epoch: 20, Step: 2250, Loss: 0.218977
Epoch: 20, Step: 2260, Loss: 0.186014
Epoch: 20, Step: 2270, Loss: 0.194125
Epoch: 20, Step: 2280, Loss: 0.222321
Epoch: 20, Step: 2290, Loss: 0.193359
Epoch: 20, Step: 2300, Loss: 0.198756
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 20, Step: 2310, Loss: 0.195461
Epoch: 20, Step: 2320, Loss: 0.181224
Epoch: 20, Step: 2330, Loss: 0.184256
Epoch: 20, Step: 2340, Loss: 0.18033
Epoch: 20, Step: 2350, Loss: 0.192365
Epoch: 20, Step: 2360, Loss: 0.179531
Epoch: 20, Step: 2370, Loss: 0.179973
Epoch: 20, Step: 2380, Loss: 0.180007
Epoch: 20, Step: 2390, Loss: 0.181506
Epoch: 20, Step: 2400, Loss: 0.186797
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 20, Step: 2410, Loss: 0.190284
Epoch: 20, Step: 2420, Loss: 0.181152
Epoch: 20, Step: 2430, Loss: 0.180573
Epoch: 20, Step: 2440, Loss: 0.177448
Epoch: 20, Step: 2450, Loss: 0.207422
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 21, Step: 2100, Loss: 0.201118
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 21, Step: 2110, Loss: 0.65905
Epoch: 21, Step: 2120, Loss: 5.31918
Epoch: 21, Step: 2130, Loss: 3.91159
Epoch: 21, Step: 2140, Loss: 0.384423
Epoch: 21, Step: 2150, Loss: 0.180147
Epoch: 21, Step: 2160, Loss: 0.220422
Epoch: 21, Step: 2170, Loss: 0.213092
Epoch: 21, Step: 2180, Loss: 0.204542
Epoch: 21, Step: 2190, Loss: 0.200126
Epoch: 21, Step: 2200, Loss: 0.255983
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 21, Step: 2210, Loss: 0.223847
Epoch: 21, Step: 2220, Loss: 0.234729
Epoch: 21, Step: 2230, Loss: 0.211434
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Epoch: 21, Step: 2240, Loss: 0.188671
Epoch: 21, Step: 2250, Loss: 0.190972
Epoch: 21, Step: 2260, Loss: 0.222916
Epoch: 21, Step: 2270, Loss: 0.254289
Epoch: 21, Step: 2280, Loss: 0.28564
Epoch: 21, Step: 2290, Loss: 0.33821
Epoch: 21, Step: 2300, Loss: 0.187291
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 21, Step: 2310, Loss: 0.199498
Epoch: 21, Step: 2320, Loss: 0.210921
Epoch: 21, Step: 2330, Loss: 0.188
Epoch: 21, Step: 2340, Loss: 0.185858
Epoch: 21, Step: 2350, Loss: 0.186979
Epoch: 21, Step: 2360, Loss: 0.188275
Epoch: 21, Step: 2370, Loss: 0.18877
Epoch: 21, Step: 2380, Loss: 0.201832
Epoch: 21, Step: 2390, Loss: 0.19525
Epoch: 21, Step: 2400, Loss: 0.195017
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 21, Step: 2410, Loss: 0.17709
Epoch: 21, Step: 2420, Loss: 0.20787
Epoch: 21, Step: 2430, Loss: 0.256273
Epoch: 21, Step: 2440, Loss: 0.19791
Epoch: 21, Step: 2450, Loss: 0.695484
Epoch: 21, Step: 2460, Loss: 0.496955
Epoch: 21, Step: 2470, Loss: 0.234322
Epoch: 21, Step: 2480, Loss: 0.177103
Epoch: 21, Step: 2490, Loss: 0.185414
Epoch: 21, Step: 2500, Loss: 0.207905
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 21, Step: 2510, Loss: 0.256784
Epoch: 21, Step: 2520, Loss: 0.195789
Epoch: 21, Step: 2530, Loss: 0.272916
Epoch: 21, Step: 2540, Loss: 0.181537
Epoch: 21, Step: 2550, Loss: 0.187814
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 22, Step: 2200, Loss: 0.230662
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 22, Step: 2210, Loss: 0.20099
Epoch: 22, Step: 2220, Loss: 0.209792
Epoch: 22, Step: 2230, Loss: 0.184329
Epoch: 22, Step: 2240, Loss: 0.267988
Epoch: 22, Step: 2250, Loss: 0.170696
Epoch: 22, Step: 2260, Loss: 0.659756
Epoch: 22, Step: 2270, Loss: 0.317808
Epoch: 22, Step: 2280, Loss: 0.375427
Epoch: 22, Step: 2290, Loss: 0.350978
Epoch: 22, Step: 2300, Loss: 0.1863
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 22, Step: 2310, Loss: 0.181309
Epoch: 22, Step: 2320, Loss: 0.191978
Epoch: 22, Step: 2330, Loss: 0.229677
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Epoch: 22, Step: 2340, Loss: 0.187424
Epoch: 22, Step: 2350, Loss: 1.46364
Epoch: 22, Step: 2360, Loss: 4.30634
Epoch: 22, Step: 2370, Loss: 0.18485
Epoch: 22, Step: 2380, Loss: 0.174096
Epoch: 22, Step: 2390, Loss: 0.174271
Epoch: 22, Step: 2400, Loss: 0.179102
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 22, Step: 2410, Loss: 0.173091
Epoch: 22, Step: 2420, Loss: 0.172744
Epoch: 22, Step: 2430, Loss: 0.171131
Epoch: 22, Step: 2440, Loss: 0.170155
Epoch: 22, Step: 2450, Loss: 0.171236
Epoch: 22, Step: 2460, Loss: 0.16818
Epoch: 22, Step: 2470, Loss: 0.173333
Epoch: 22, Step: 2480, Loss: 0.20634
Epoch: 22, Step: 2490, Loss: 0.169391
Epoch: 22, Step: 2500, Loss: 0.194638
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 22, Step: 2510, Loss: 0.176822
Epoch: 22, Step: 2520, Loss: 0.174338
Epoch: 22, Step: 2530, Loss: 0.210924
Epoch: 22, Step: 2540, Loss: 0.193934
Epoch: 22, Step: 2550, Loss: 0.172731
Epoch: 22, Step: 2560, Loss: 0.336771
Epoch: 22, Step: 2570, Loss: 0.183536
Epoch: 22, Step: 2580, Loss: 0.534854
Epoch: 22, Step: 2590, Loss: 1.3246
Epoch: 22, Step: 2600, Loss: 0.632674
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 22, Step: 2610, Loss: 0.238261
Epoch: 22, Step: 2620, Loss: 0.415083
Epoch: 22, Step: 2630, Loss: 0.201155
Epoch: 22, Step: 2640, Loss: 0.176926
Epoch: 22, Step: 2650, Loss: 0.242553
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 23, Step: 2300, Loss: 0.206807
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 23, Step: 2310, Loss: 3.93503
Epoch: 23, Step: 2320, Loss: 2.07368
Epoch: 23, Step: 2330, Loss: 0.166856
Epoch: 23, Step: 2340, Loss: 0.169802
Epoch: 23, Step: 2350, Loss: 0.210696
Epoch: 23, Step: 2360, Loss: 0.212707
Epoch: 23, Step: 2370, Loss: 0.194982
Epoch: 23, Step: 2380, Loss: 0.215482
Epoch: 23, Step: 2390, Loss: 0.244143
Epoch: 23, Step: 2400, Loss: 0.165412
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 23, Step: 2410, Loss: 0.198202
Epoch: 23, Step: 2420, Loss: 0.17975
Epoch: 23, Step: 2430, Loss: 0.177264
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Epoch: 23, Step: 2390, Loss: 0.177201
Epoch: 23, Step: 2440, Loss: 0.169821
Epoch: 23, Step: 2450, Loss: 0.201776
Epoch: 23, Step: 2460, Loss: 0.200316
Epoch: 23, Step: 2470, Loss: 0.255677
Epoch: 23, Step: 2480, Loss: 0.217039
Epoch: 23, Step: 2490, Loss: 0.187322
Epoch: 23, Step: 2500, Loss: 0.20291
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 23, Step: 2510, Loss: 0.230837
Epoch: 23, Step: 2520, Loss: 0.339518
Epoch: 23, Step: 2530, Loss: 0.189507
Epoch: 23, Step: 2540, Loss: 0.171128
Epoch: 23, Step: 2550, Loss: 0.174606
Epoch: 23, Step: 2560, Loss: 0.18864
Epoch: 23, Step: 2570, Loss: 0.208292
Epoch: 23, Step: 2580, Loss: 0.166511
Epoch: 23, Step: 2590, Loss: 0.185204
Epoch: 23, Step: 2600, Loss: 0.239263
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 23, Step: 2610, Loss: 0.171497
Epoch: 23, Step: 2620, Loss: 0.176047
Epoch: 23, Step: 2630, Loss: 0.560597
Epoch: 23, Step: 2640, Loss: 0.461068
Epoch: 23, Step: 2650, Loss: 0.214251
Epoch: 23, Step: 2660, Loss: 0.175913
Epoch: 23, Step: 2670, Loss: 0.292443
Epoch: 23, Step: 2680, Loss: 0.167099
Epoch: 23, Step: 2690, Loss: 0.21243
Epoch: 23, Step: 2700, Loss: 0.219385
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 23, Step: 2710, Loss: 0.180944
Epoch: 23, Step: 2720, Loss: 0.296193
Epoch: 23, Step: 2730, Loss: 0.200067
Epoch: 23, Step: 2740, Loss: 0.167676
Epoch: 23, Step: 2750, Loss: 0.171761
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 24, Step: 2400, Loss: 0.159922
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 24, Step: 2410, Loss: 0.175269
Epoch: 24, Step: 2420, Loss: 0.183144
Epoch: 24, Step: 2430, Loss: 0.237169
Epoch: 24, Step: 2440, Loss: 0.161564
Epoch: 24, Step: 2450, Loss: 0.206506
Epoch: 24, Step: 2460, Loss: 0.323083
Epoch: 24, Step: 2470, Loss: 0.302323
Epoch: 24, Step: 2480, Loss: 0.400615
Epoch: 24, Step: 2490, Loss: 0.226273
Epoch: 24, Step: 2500, Loss: 0.237014
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 24, Step: 2510, Loss: 0.235823
Epoch: 24, Step: 2520, Loss: 0.229324
Epoch: 24, Step: 2530, Loss: 0.208895
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Epoch: 24, Step: 2500, Loss: 0.200000
Epoch: 24, Step: 2540, Loss: 3.64659
Epoch: 24, Step: 2550, Loss: 1.96176
Epoch: 24, Step: 2560, Loss: 0.175129
Epoch: 24, Step: 2570, Loss: 0.16904
Epoch: 24, Step: 2580, Loss: 0.18217
Epoch: 24, Step: 2590, Loss: 0.168582
Epoch: 24, Step: 2600, Loss: 0.267209
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 24, Step: 2610, Loss: 1.41813
Epoch: 24, Step: 2620, Loss: 1.49166
Epoch: 24, Step: 2630, Loss: 0.612159
Epoch: 24, Step: 2640, Loss: 1.1793
Epoch: 24, Step: 2650, Loss: 0.297856
Epoch: 24, Step: 2660, Loss: 1.11987
Epoch: 24, Step: 2670, Loss: 0.185728
Epoch: 24, Step: 2680, Loss: 0.333531
Epoch: 24, Step: 2690, Loss: 0.165434
Epoch: 24, Step: 2700, Loss: 0.15556
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 24, Step: 2710, Loss: 0.155426
Epoch: 24, Step: 2720, Loss: 0.15603
Epoch: 24, Step: 2730, Loss: 0.156985
Epoch: 24, Step: 2740, Loss: 0.156553
Epoch: 24, Step: 2750, Loss: 0.155598
Epoch: 24, Step: 2760, Loss: 0.160891
Epoch: 24, Step: 2770, Loss: 0.172416
Epoch: 24, Step: 2780, Loss: 0.163951
Epoch: 24, Step: 2790, Loss: 0.170377
Epoch: 24, Step: 2800, Loss: 0.15859
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 24, Step: 2810, Loss: 0.156088
Epoch: 24, Step: 2820, Loss: 0.158642
Epoch: 24, Step: 2830, Loss: 0.157062
Epoch: 24, Step: 2840, Loss: 0.219736
Epoch: 24, Step: 2850, Loss: 0.167664
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 25, Step: 2500, Loss: 5.54435
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 25, Step: 2510, Loss: 0.349721
Epoch: 25, Step: 2520, Loss: 0.183614
Epoch: 25, Step: 2530, Loss: 0.205895
Epoch: 25, Step: 2540, Loss: 0.156323
Epoch: 25, Step: 2550, Loss: 0.201696
Epoch: 25, Step: 2560, Loss: 0.170047
Epoch: 25, Step: 2570, Loss: 0.183602
Epoch: 25, Step: 2580, Loss: 0.21252
Epoch: 25, Step: 2590, Loss: 0.177651
Epoch: 25, Step: 2600, Loss: 0.226012
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 25, Step: 2610, Loss: 0.179759
Epoch: 25, Step: 2620, Loss: 0.24208
Epoch: 25, Step: 2630, Loss: 0.188899
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Epoch: 25, Step: 2650, Loss: 0.185329
Epoch: 25, Step: 2660, Loss: 0.329216
Epoch: 25, Step: 2670, Loss: 0.269388
Epoch: 25, Step: 2680, Loss: 0.168201
Epoch: 25, Step: 2690, Loss: 0.197574
Epoch: 25, Step: 2700, Loss: 0.162137
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 25, Step: 2710, Loss: 0.159657
Epoch: 25, Step: 2720, Loss: 0.17123
Epoch: 25, Step: 2730, Loss: 0.162912
Epoch: 25, Step: 2740, Loss: 0.156073
Epoch: 25, Step: 2750, Loss: 0.158844
Epoch: 25, Step: 2760, Loss: 0.153935
Epoch: 25, Step: 2770, Loss: 0.176589
Epoch: 25, Step: 2780, Loss: 0.160746
Epoch: 25, Step: 2790, Loss: 0.165082
Epoch: 25, Step: 2800, Loss: 0.181343
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 25, Step: 2810, Loss: 0.194143
Epoch: 25, Step: 2820, Loss: 0.315233
Epoch: 25, Step: 2830, Loss: 0.297327
Epoch: 25, Step: 2840, Loss: 0.332115
Epoch: 25, Step: 2850, Loss: 0.188587
Epoch: 25, Step: 2860, Loss: 0.22549
Epoch: 25, Step: 2870, Loss: 0.169961
Epoch: 25, Step: 2880, Loss: 0.226362
Epoch: 25, Step: 2890, Loss: 0.268142
Epoch: 25, Step: 2900, Loss: 0.271914
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 25, Step: 2910, Loss: 0.267245
Epoch: 25, Step: 2920, Loss: 0.198801
Epoch: 25, Step: 2930, Loss: 0.195769
Epoch: 25, Step: 2940, Loss: 0.162481
Epoch: 25, Step: 2950, Loss: 0.1504
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 26, Step: 2600, Loss: 0.188323
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 26, Step: 2610, Loss: 0.172861
Epoch: 26, Step: 2620, Loss: 0.250113
Epoch: 26, Step: 2630, Loss: 0.169703
Epoch: 26, Step: 2640, Loss: 0.269384
Epoch: 26, Step: 2650, Loss: 0.386519
Epoch: 26, Step: 2660, Loss: 0.196524
Epoch: 26, Step: 2670, Loss: 0.383978
Epoch: 26, Step: 2680, Loss: 0.186338
Epoch: 26, Step: 2690, Loss: 0.174477
Epoch: 26, Step: 2700, Loss: 0.172613
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 26, Step: 2710, Loss: 0.172698
Epoch: 26, Step: 2720, Loss: 0.174871
Epoch: 26, Step: 2730, Loss: 0.150632
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Epoch: 26, Step: 2730, Loss: 0.150063
Epoch: 26, Step: 2740, Loss: 0.924156
Epoch: 26, Step: 2750, Loss: 0.155999
Epoch: 26, Step: 2760, Loss: 0.151239
Epoch: 26, Step: 2770, Loss: 0.152819
Epoch: 26, Step: 2780, Loss: 0.171268
Epoch: 26, Step: 2790, Loss: 0.167351
Epoch: 26, Step: 2800, Loss: 0.184892
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 26, Step: 2810, Loss: 0.205535
Epoch: 26, Step: 2820, Loss: 0.152432
Epoch: 26, Step: 2830, Loss: 0.186351
Epoch: 26, Step: 2840, Loss: 0.150812
Epoch: 26, Step: 2850, Loss: 0.215667
Epoch: 26, Step: 2860, Loss: 0.189723
Epoch: 26, Step: 2870, Loss: 0.202072
Epoch: 26, Step: 2880, Loss: 0.169365
Epoch: 26, Step: 2890, Loss: 0.1555
Epoch: 26, Step: 2900, Loss: 0.160809
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 26, Step: 2910, Loss: 0.179305
Epoch: 26, Step: 2920, Loss: 0.148884
Epoch: 26, Step: 2930, Loss: 0.148114
Epoch: 26, Step: 2940, Loss: 0.157292
Epoch: 26, Step: 2950, Loss: 0.149193
Epoch: 26, Step: 2960, Loss: 0.202515
Epoch: 26, Step: 2970, Loss: 0.205704
Epoch: 26, Step: 2980, Loss: 0.157767
Epoch: 26, Step: 2990, Loss: 0.187489
Epoch: 26, Step: 3000, Loss: 0.236587
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 26, Step: 3010, Loss: 0.172656
Epoch: 26, Step: 3020, Loss: 0.152264
Epoch: 26, Step: 3030, Loss: 0.375193
Epoch: 26, Step: 3040, Loss: 0.241541
Epoch: 26, Step: 3050, Loss: 6.47978
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 27, Step: 2700, Loss: 0.229406
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 27, Step: 2710, Loss: 0.158035
Epoch: 27, Step: 2720, Loss: 0.164395
Epoch: 27, Step: 2730, Loss: 0.151574
Epoch: 27, Step: 2740, Loss: 0.208244
Epoch: 27, Step: 2750, Loss: 0.150495
Epoch: 27, Step: 2760, Loss: 0.263171
Epoch: 27, Step: 2770, Loss: 0.208338
Epoch: 27, Step: 2780, Loss: 0.146701
Epoch: 27, Step: 2790, Loss: 0.198485
Epoch: 27, Step: 2800, Loss: 0.150686
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 27, Step: 2810, Loss: 0.184933
Epoch: 27, Step: 2820, Loss: 0.168374
Epoch: 27, Step: 2830, Loss: 0.160660
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Epoch: 26, Step: 2830, Loss: 0.16968
Epoch: 27, Step: 2840, Loss: 0.183917
Epoch: 27, Step: 2850, Loss: 0.291852
Epoch: 27, Step: 2860, Loss: 0.234297
Epoch: 27, Step: 2870, Loss: 0.153182
Epoch: 27, Step: 2880, Loss: 0.153267
Epoch: 27, Step: 2890, Loss: 0.159722
Epoch: 27, Step: 2900, Loss: 0.157382
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 27, Step: 2910, Loss: 0.170766
Epoch: 27, Step: 2920, Loss: 0.15971
Epoch: 27, Step: 2930, Loss: 0.148301
Epoch: 27, Step: 2940, Loss: 0.148328
Epoch: 27, Step: 2950, Loss: 0.14571
Epoch: 27, Step: 2960, Loss: 0.150952
Epoch: 27, Step: 2970, Loss: 0.192743
Epoch: 27, Step: 2980, Loss: 0.194578
Epoch: 27, Step: 2990, Loss: 0.174559
Epoch: 27, Step: 3000, Loss: 0.396934
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 27, Step: 3010, Loss: 0.247719
Epoch: 27, Step: 3020, Loss: 0.491192
Epoch: 27, Step: 3030, Loss: 0.20502
Epoch: 27, Step: 3040, Loss: 0.222903
Epoch: 27, Step: 3050, Loss: 0.228254
Epoch: 27, Step: 3060, Loss: 0.261663
Epoch: 27, Step: 3070, Loss: 0.26302
Epoch: 27, Step: 3080, Loss: 0.492932
Epoch: 27, Step: 3090, Loss: 0.524845
Epoch: 27, Step: 3100, Loss: 0.22266
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 27, Step: 3110, Loss: 0.226349
Epoch: 27, Step: 3120, Loss: 0.14917
Epoch: 27, Step: 3130, Loss: 0.148248
Epoch: 27, Step: 3140, Loss: 0.147335
Epoch: 27, Step: 3150, Loss: 0.167518
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 28, Step: 2800, Loss: 0.165201
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 28, Step: 2810, Loss: 0.176378
Epoch: 28, Step: 2820, Loss: 0.151413
Epoch: 28, Step: 2830, Loss: 0.182681
Epoch: 28, Step: 2840, Loss: 0.312319
Epoch: 28, Step: 2850, Loss: 0.221766
Epoch: 28, Step: 2860, Loss: 0.312921
Epoch: 28, Step: 2870, Loss: 0.16403
Epoch: 28, Step: 2880, Loss: 0.171585
Epoch: 28, Step: 2890, Loss: 0.192744
Epoch: 28, Step: 2900, Loss: 0.200814
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 28, Step: 2910, Loss: 0.21182
Epoch: 28, Step: 2920, Loss: 8.88335
Epoch: 28, Step: 2930, Loss: 0.226655
```

```
Epoch: 28, Step: 2930, Loss: 0.286855
Epoch: 28, Step: 2940, Loss: 0.158715
Epoch: 28, Step: 2950, Loss: 0.163204
Epoch: 28, Step: 2960, Loss: 0.145862
Epoch: 28, Step: 2970, Loss: 0.148304
Epoch: 28, Step: 2980, Loss: 0.222687
Epoch: 28, Step: 2990, Loss: 0.314248
Epoch: 28, Step: 3000, Loss: 0.477788
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 28, Step: 3010, Loss: 0.554049
Epoch: 28, Step: 3020, Loss: 0.569896
Epoch: 28, Step: 3030, Loss: 0.952701
Epoch: 28, Step: 3040, Loss: 0.548005
Epoch: 28, Step: 3050, Loss: 0.20874
Epoch: 28, Step: 3060, Loss: 0.192964
Epoch: 28, Step: 3070, Loss: 0.179726
Epoch: 28, Step: 3080, Loss: 0.145983
Epoch: 28, Step: 3090, Loss: 0.142776
Epoch: 28, Step: 3100, Loss: 0.147878
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 28, Step: 3110, Loss: 0.140563
Epoch: 28, Step: 3120, Loss: 0.147683
Epoch: 28, Step: 3130, Loss: 0.142643
Epoch: 28, Step: 3140, Loss: 0.156719
Epoch: 28, Step: 3150, Loss: 0.146894
Epoch: 28, Step: 3160, Loss: 0.149089
Epoch: 28, Step: 3170, Loss: 0.140814
Epoch: 28, Step: 3180, Loss: 0.141809
Epoch: 28, Step: 3190, Loss: 0.140553
Epoch: 28, Step: 3200, Loss: 0.141952
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 28, Step: 3210, Loss: 0.145199
Epoch: 28, Step: 3220, Loss: 0.203128
Epoch: 28, Step: 3230, Loss: 1.06006
Epoch: 28, Step: 3240, Loss: 4.7711
Epoch: 28, Step: 3250, Loss: 0.158825
Model saved in file: ./save_assignment2\model.ckpt
Epoch: 29, Step: 2900, Loss: 0.142964
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 29, Step: 2910, Loss: 0.177731
Epoch: 29, Step: 2920, Loss: 0.144619
Epoch: 29, Step: 2930, Loss: 0.169424
Epoch: 29, Step: 2940, Loss: 0.142863
Epoch: 29, Step: 2950, Loss: 0.191972
Epoch: 29, Step: 2960, Loss: 0.151483
Epoch: 29, Step: 2970, Loss: 0.139877
Epoch: 29, Step: 2980, Loss: 0.156025
Epoch: 29, Step: 2990, Loss: 0.144856
Epoch: 29, Step: 3000, Loss: 0.181698
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 29, Step: 3010, Loss: 0.269284
Epoch: 29, Step: 3020, Loss: 0.27035
```

```

Epoch: 29, Step: 3030, Loss: 0.213744
Epoch: 29, Step: 3040, Loss: 0.247019
Epoch: 29, Step: 3050, Loss: 0.190111
Epoch: 29, Step: 3060, Loss: 0.308186
Epoch: 29, Step: 3070, Loss: 0.164486
Epoch: 29, Step: 3080, Loss: 0.364997
Epoch: 29, Step: 3090, Loss: 0.247163
Epoch: 29, Step: 3100, Loss: 0.175397
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 29, Step: 3110, Loss: 0.16338
Epoch: 29, Step: 3120, Loss: 0.147859
Epoch: 29, Step: 3130, Loss: 0.160657
Epoch: 29, Step: 3140, Loss: 0.143481
Epoch: 29, Step: 3150, Loss: 0.153561
Epoch: 29, Step: 3160, Loss: 0.149441
Epoch: 29, Step: 3170, Loss: 0.153628
Epoch: 29, Step: 3180, Loss: 0.187752
Epoch: 29, Step: 3190, Loss: 0.271968
Epoch: 29, Step: 3200, Loss: 0.369613
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 29, Step: 3210, Loss: 0.353967
Epoch: 29, Step: 3220, Loss: 0.279196
Epoch: 29, Step: 3230, Loss: 0.19727
Epoch: 29, Step: 3240, Loss: 0.155979
Epoch: 29, Step: 3250, Loss: 0.15503
Epoch: 29, Step: 3260, Loss: 0.189708
Epoch: 29, Step: 3270, Loss: 0.255625
Epoch: 29, Step: 3280, Loss: 0.209091
Epoch: 29, Step: 3290, Loss: 0.177581
Epoch: 29, Step: 3300, Loss: 0.202497
WARNING:tensorflow:*****
WARNING:tensorflow:TensorFlow's V1 checkpoint format has been deprecated.
WARNING:tensorflow:Consider switching to the more efficient V2 format:
WARNING:tensorflow: `tf.train.Saver(write_version=tf.train.SaverDef.V2)`
WARNING:tensorflow:now on by default.
WARNING:tensorflow:*****
Epoch: 29, Step: 3310, Loss: 0.145429
Epoch: 29, Step: 3320, Loss: 0.140889
Epoch: 29, Step: 3330, Loss: 0.14066
Epoch: 29, Step: 3340, Loss: 0.148274
Epoch: 29, Step: 3350, Loss: 0.185525
Model saved in file: ./save_assignment2\model.ckpt
Run the command line:
--> tensorboard --logdir=./logs
Then open http://0.0.0.0:6006/ into your web browser

```

## Testing

In [32]:

```

sess = tf.InteractiveSession()
saver = tf.train.Saver()
saver.restore(sess, "save_assignment2/model.ckpt")

img = cv2.imread('steering_wheel_image.jpg',0)
rows,cols = img.shape

smoothed_angle = 0

#read data.txt
xs = []
ys = []
with open("driving_dataset/data.txt") as f:
    for line in f:

```

```

for line in 1:
    xs.append("driving_dataset/" + line.split()[0])
    #the paper by Nvidia uses the inverse of the turning radius,
    #but steering wheel angle is proportional to the inverse of turning radius
    #so the steering wheel angle in radians is used as the output
    ys.append(float(line.split()[1]) * scipy.pi / 180)

#get number of images
num_images = len(xs)

i = math.ceil(num_images*0.7)
print("Starting frameofvideo:" +str(i))

while(cv2.waitKey(10) != ord('q')): ## keep running this with 10ms delay untill 'q' is pressed
    full_image = scipy.misc.imread("driving_dataset/" + str(i) + ".jpg", mode="RGB")
    image = scipy.misc.imresize(full_image[-150:], [66, 200]) / 255.0
    degrees = model.y.eval(feed_dict={model.x: [image], model.keep_prob: 1.0})[0][0] * 180.0 /
    scipy.pi
    #call("clear")
    #print("Predicted Steering angle: " + str(degrees))
    print("Steering angle: " + str(degrees) + " (pred)\t" + str(ys[i]*180/scipy.pi) + " (actual)")
    cv2.imshow("frame", cv2.cvtColor(full_image, cv2.COLOR_RGB2BGR)) # This shows the Road Image
    #make smooth angle transitions by turning the steering wheel based on the difference of the cu
    rrent angle
    #and the predicted angle
    smoothed_angle += 0.2 * pow(abs((degrees - smoothed_angle)), 2.0 / 3.0) * (degrees -
    smoothed_angle) / abs(degrees - smoothed_angle)
    M = cv2.getRotationMatrix2D((cols/2,rows/2),-smoothed_angle,1) #Rotation of steering Wheel
    dst = cv2.warpAffine(img,M,(cols,rows))
    cv2.imshow("steering wheel", dst) # This shows the Steering Wheel
    i += 1

cv2.destroyAllWindows()

```

C:\Users\kingsubham27091995\Anaconda3\lib\site-packages\tensorflow\python\client\session.py:1702:  
 UserWarning: An interactive session is already active. This can cause out-of-memory errors in some  
 cases. You must explicitly call `InteractiveSession.close()` to release resources held by the  
 other session(s).  
 warnings.warn('An interactive session is already active. This can '

INFO:tensorflow:Restoring parameters from save\_assignment2/model.ckpt  
 Starting frameofvideo:31785

C:\Users\kingsubham27091995\Anaconda3\lib\site-packages\ipykernel\_launcher.py:38:  
 DeprecationWarning: `imread` is deprecated!  
 `imread` is deprecated in SciPy 1.0.0, and will be removed in 1.2.0.  
 Use ``imageio.imread`` instead.  
 C:\Users\kingsubham27091995\Anaconda3\lib\site-packages\ipykernel\_launcher.py:39:  
 DeprecationWarning: `imresize` is deprecated!  
 `imresize` is deprecated in SciPy 1.0.0, and will be removed in 1.2.0.  
 Use ``skimage.transform.resize`` instead.

Steering angle: -10.780633982164726 (pred) -28.34 (actual)  
 Steering angle: -10.704752288033177 (pred) -28.840000000000003 (actual)  
 Steering angle: -8.266373046791331 (pred) -29.75 (actual)  
 Steering angle: -10.81868667357816 (pred) -31.06 (actual)  
 Steering angle: -7.686705137216105 (pred) -32.27 (actual)  
 Steering angle: -8.16941680397571 (pred) -33.48 (actual)  
 Steering angle: -6.063728820129192 (pred) -34.39 (actual)  
 Steering angle: -7.7152587430413435 (pred) -35.599999999999994 (actual)  
 Steering angle: -9.205242312364822 (pred) -36.5 (actual)  
 Steering angle: -12.624620279754442 (pred) -37.61 (actual)  
 Steering angle: -16.611969457765642 (pred) -38.62 (actual)  
 Steering angle: -17.28344877016418 (pred) -39.63 (actual)  
 Steering angle: -20.599145319726652 (pred) -39.930000000000001 (actual)  
 Steering angle: -16.447676087470157 (pred) -40.030000000000001 (actual)  
 Steering angle: -10.937802611382244 (pred) -40.030000000000001 (actual)  
 Steering angle: -10.299307136259342 (pred) -40.030000000000001 (actual)  
 Steering angle: -7.59080842749548 (pred) -40.030000000000001 (actual)  
 Steering angle: 3.479862067254433 (pred) -40.030000000000001 (actual)  
 Steering angle: -5.440682379135214 (pred) -40.030000000000001 (actual)  
 Steering angle: 3.3571325324925896 (pred) -40.030000000000001 (actual)  
 Steering angle: -4.390346987628054 (pred) -40.030000000000001 (actual)  
 Steering angle: -3.8980000583836785 (pred) -40.24 (actual)

Steering angle: 21.57144494619277 (pred) -40.93999999999999 (actual)  
Steering angle: 22.515185844191773 (pred) -41.14 (actual)  
Steering angle: -5.320579905882886 (pred) -41.14 (actual)  
Steering angle: 9.634709239449592 (pred) -41.14 (actual)  
Steering angle: -5.810884181678605 (pred) -41.34 (actual)  
Steering angle: -4.6537404263649025 (pred) -41.45 (actual)  
Steering angle: 11.555492476519639 (pred) -41.45 (actual)  
Steering angle: -4.530285184003745 (pred) -41.45 (actual)  
Steering angle: -7.804150239994474 (pred) -41.45 (actual)  
Steering angle: -9.80791259151736 (pred) -41.45 (actual)  
Steering angle: -9.811685417260145 (pred) -41.45 (actual)  
Steering angle: -10.623799178442892 (pred) -41.45 (actual)  
Steering angle: -11.71523181818602 (pred) -41.45 (actual)  
Steering angle: -11.080451965971605 (pred) -41.45 (actual)  
Steering angle: -9.822732394468995 (pred) -40.93999999999999 (actual)  
Steering angle: -9.120454051555576 (pred) -40.74000000000001 (actual)  
Steering angle: -9.074871076582204 (pred) -40.74000000000001 (actual)  
Steering angle: -10.755831857741118 (pred) -40.74000000000001 (actual)  
Steering angle: -10.866639724193526 (pred) -40.54 (actual)  
Steering angle: -10.69139499933757 (pred) -39.13 (actual)  
Steering angle: -10.223630347802894 (pred) -39.33 (actual)  
Steering angle: -10.429444438062887 (pred) -38.81999999999999 (actual)  
Steering angle: -10.393613265677 (pred) -38.02 (actual)  
Steering angle: -10.570944613324396 (pred) -37.61 (actual)  
Steering angle: -9.816382879861822 (pred) 0.0 (actual)  
Steering angle: -10.00160992618975 (pred) -36.400000000000006 (actual)  
Steering angle: -10.238204263944409 (pred) -35.599999999999994 (actual)  
Steering angle: -10.081880870636681 (pred) -34.49 (actual)  
Steering angle: -9.138325241518915 (pred) -34.18 (actual)  
Steering angle: -9.04818894258955 (pred) -33.78 (actual)  
Steering angle: -8.564943667301039 (pred) -33.28 (actual)  
Steering angle: -9.428337634998595 (pred) -32.57 (actual)  
Steering angle: -8.714043281787832 (pred) -31.26 (actual)  
Steering angle: -6.828750134531994 (pred) -30.149999999999995 (actual)  
Steering angle: -7.181952450004871 (pred) -28.740000000000002 (actual)  
Steering angle: -5.2397616925287105 (pred) -27.63 (actual)  
Steering angle: -5.036571675570471 (pred) -27.130000000000003 (actual)  
Steering angle: -4.336830747933712 (pred) -26.22 (actual)  
Steering angle: -3.615240045142082 (pred) -25.210000000000004 (actual)  
Steering angle: -3.5271045647527073 (pred) -24.4 (actual)  
Steering angle: -3.1957671789169226 (pred) -23.5 (actual)  
Steering angle: -3.03802972300759 (pred) -23.09 (actual)  
Steering angle: -2.1360061263551455 (pred) -23.09 (actual)  
Steering angle: -2.4016900263414747 (pred) -23.09 (actual)  
Steering angle: -1.971431864530042 (pred) -22.99 (actual)  
Steering angle: -1.378464616145448 (pred) -22.49 (actual)  
Steering angle: -1.304930586097679 (pred) -21.68 (actual)  
Steering angle: -0.6985523679994708 (pred) -20.27 (actual)  
Steering angle: -0.9482066677774266 (pred) -19.36 (actual)  
Steering angle: 0.651033834809193 (pred) -18.45 (actual)  
Steering angle: 1.6567441320132212 (pred) -16.84 (actual)  
Steering angle: 1.2229202912899244 (pred) -15.730000000000002 (actual)  
Steering angle: 0.06068963920004169 (pred) -14.32 (actual)  
Steering angle: 0.005348891893766235 (pred) -13.01 (actual)  
Steering angle: -1.1310631048548327 (pred) -11.089999999999998 (actual)  
Steering angle: -0.9650871601459957 (pred) -9.08 (actual)  
Steering angle: 1.5301284330570522 (pred) -7.87 (actual)  
Steering angle: 1.8523737698904919 (pred) -7.36 (actual)  
Steering angle: 2.504346062019474 (pred) -7.26 (actual)  
Steering angle: 2.455931546748308 (pred) -6.45 (actual)  
Steering angle: 2.0904453494965756 (pred) -5.55 (actual)  
Steering angle: 3.121507014383017 (pred) -4.64 (actual)  
Steering angle: 3.419210200868131 (pred) -4.03 (actual)  
Steering angle: 3.3592415668422424 (pred) -3.13 (actual)  
Steering angle: 3.1309811270920593 (pred) -2.02 (actual)  
Steering angle: 1.9298983379608408 (pred) -1.11 (actual)  
Steering angle: 1.5892651713863746 (pred) -0.61 (actual)  
Steering angle: -0.6256015720737976 (pred) -0.2 (actual)  
Steering angle: -0.9254243583574375 (pred) 0.1 (actual)  
Steering angle: -2.079767415946318 (pred) 0.5 (actual)  
Steering angle: -2.242757927657625 (pred) 0.71 (actual)  
Steering angle: -2.4838454626690925 (pred) 0.71 (actual)  
Steering angle: -2.636612675296771 (pred) 0.5 (actual)  
Steering angle: -2.504748829737093 (pred) 0.0 (actual)  
Steering angle: -2.1878124708794573 (pred) -1.11 (actual)  
Steering angle: -2.2429935691839904 (pred) -2.22 (actual)  
Steering angle: -2.7131295770211312 (pred) -3.23 (actual)

Steering angle: -2.636876277910051 (pred) -5.139999999999999 (actual)  
Steering angle: -3.019163459859546 (pred) -6.050000000000001 (actual)  
Steering angle: -2.9976351304824886 (pred) -6.96 (actual)  
Steering angle: -2.33136319699585 (pred) -7.26 (actual)  
Steering angle: -3.0769043849989526 (pred) -7.26 (actual)  
Steering angle: -3.104878278518386 (pred) -7.26 (actual)  
Steering angle: -4.011654833059514 (pred) -7.26 (actual)  
Steering angle: -5.357987571306577 (pred) -7.460000000000001 (actual)  
Steering angle: -6.723879836902441 (pred) -7.559999999999999 (actual)  
Steering angle: -6.6128495624151835 (pred) -7.559999999999999 (actual)  
Steering angle: -4.287038241997496 (pred) -7.559999999999999 (actual)  
Steering angle: -3.490953654136299 (pred) -7.559999999999999 (actual)  
Steering angle: -3.0481578263296614 (pred) -7.559999999999999 (actual)  
Steering angle: -2.152992806820967 (pred) -7.460000000000001 (actual)  
Steering angle: -1.9045201297694236 (pred) -7.26 (actual)  
Steering angle: -0.4324291747917185 (pred) 0.0 (actual)  
Steering angle: -1.0865591930486165 (pred) -6.96 (actual)  
Steering angle: -2.0593756727358334 (pred) -6.96 (actual)  
Steering angle: -2.1374067420218212 (pred) -6.860000000000001 (actual)  
Steering angle: -2.3628661638820647 (pred) -6.860000000000001 (actual)  
Steering angle: -3.652044946371519 (pred) -6.860000000000001 (actual)  
Steering angle: -4.195593108068426 (pred) -6.860000000000001 (actual)  
Steering angle: -4.594115009344806 (pred) 0.0 (actual)  
Steering angle: -4.422999133842123 (pred) -6.96 (actual)  
Steering angle: -4.724058931417476 (pred) -6.96 (actual)  
Steering angle: -6.7458892677291615 (pred) -6.96 (actual)  
Steering angle: -7.61571727362487 (pred) -6.96 (actual)  
Steering angle: -6.701087495642109 (pred) -6.96 (actual)  
Steering angle: -7.231432901673381 (pred) -6.96 (actual)  
Steering angle: -4.8637448376806995 (pred) -6.150000000000001 (actual)  
Steering angle: -0.1346887024106466 (pred) -5.04 (actual)  
Steering angle: 1.3210200571829962 (pred) -3.829999999999999 (actual)  
Steering angle: 1.6026826511240415 (pred) -2.62 (actual)  
Steering angle: 2.4283838997217657 (pred) -2.22 (actual)  
Steering angle: 2.7854392956601752 (pred) -1.82 (actual)  
Steering angle: 3.2213462373586204 (pred) -1.11 (actual)  
Steering angle: 3.314808838413782 (pred) -0.61 (actual)  
Steering angle: 2.8426252679295185 (pred) -0.61 (actual)  
Steering angle: 3.2094062129157916 (pred) -0.61 (actual)  
Steering angle: 3.0737351772240666 (pred) -0.61 (actual)  
Steering angle: 3.351938173628795 (pred) -0.61 (actual)  
Steering angle: 5.369435822129165 (pred) -0.61 (actual)  
Steering angle: 5.66773323507207 (pred) -0.61 (actual)  
Steering angle: 6.248711260307471 (pred) -0.5 (actual)  
Steering angle: 3.7988850489035078 (pred) -0.3 (actual)  
Steering angle: 3.0454720678819656 (pred) 0.2 (actual)  
Steering angle: 3.5480028091788305 (pred) 0.3 (actual)  
Steering angle: 5.211218331987228 (pred) 0.4 (actual)  
Steering angle: 5.057655615764654 (pred) 0.5 (actual)  
Steering angle: 4.579794663976228 (pred) 1.01 (actual)  
Steering angle: 3.991903206640306 (pred) 1.6100000000000003 (actual)  
Steering angle: 4.116816694389261 (pred) 2.12 (actual)  
Steering angle: 2.754356598851328 (pred) 2.52 (actual)  
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Steering angle: 6.136156146088007 (pred) 4.94 (actual)  
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Steering angle: 43.656434740605874 (pred) 65.24 (actual)  
Steering angle: 42.88247185480588 (pred) 65.24 (actual)  
Steering angle: 42.17803687966203 (pred) 65.34 (actual)  
Steering angle: 37.02776347186518 (pred) 66.35 (actual)  
Steering angle: 38.91230145633091 (pred) 67.56 (actual)  
Steering angle: 31.666491860228298 (pred) 70.18000000000002 (actual)  
Steering angle: 50.49927342096149 (pred) 72.71 (actual)  
Steering angle: 53.15015863030265 (pred) 74.82 (actual)  
Steering angle: 85.52215780537449 (pred) 76.54000000000002 (actual)  
Steering angle: 94.73921122236156 (pred) 77.34 (actual)  
Steering angle: 103.17229552641456 (pred) 78.15 (actual)  
Steering angle: 103.77591349431444 (pred) 78.95999999999998 (actual)  
Steering angle: 84.34757700399656 (pred) 79.46 (actual)  
Steering angle: 78.09545406419868 (pred) 80.07 (actual)  
Steering angle: 71.25111274222566 (pred) 80.27 (actual)  
Steering angle: 65.76810325391705 (pred) 80.27 (actual)  
Steering angle: 58.43459061377689 (pred) 80.27 (actual)  
Steering angle: 52.745695318222005 (pred) 80.27 (actual)  
Steering angle: 44.85390350589251 (pred) 80.27 (actual)  
Steering angle: 30.40887644911053 (pred) 80.17 (actual)  
Steering angle: 19.41143177212209 (pred) 80.17 (actual)  
Steering angle: 20.092439198412794 (pred) 79.87 (actual)  
Steering angle: 24.17372652940012 (pred) 79.26 (actual)  
Steering angle: 19.804389630545845 (pred) 78.05 (actual)  
Steering angle: 37.29473507595347 (pred) 77.04 (actual)  
Steering angle: 58.07173681411996 (pred) 76.03 (actual)  
Steering angle: 69.06321190577381 (pred) 74.72000000000001 (actual)  
Steering angle: 60.59515020298117 (pred) 73.81999999999998 (actual)  
Steering angle: 78.13003531196645 (pred) 72.91 (actual)  
Steering angle: 71.02344887681079 (pred) 71.29 (actual)  
Steering angle: 88.21877113120888 (pred) 68.77 (actual)  
Steering angle: 89.19073437085838 (pred) 64.84000000000002 (actual)  
Steering angle: 72.64790691806077 (pred) 63.93000000000001 (actual)  
Steering angle: 71.65954439421408 (pred) 63.62999999999995 (actual)  
Steering angle: 72.94187142974896 (pred) 63.62999999999995 (actual)  
Steering angle: 78.2403087161163 (pred) 63.62999999999995 (actual)  
Steering angle: 21.262604282492305 (pred) 63.32999999999999 (actual)  
Steering angle: 15.104259839998688 (pred) 62.81999999999999 (actual)  
Steering angle: 9.437432031878467 (pred) 62.12 (actual)  
Steering angle: 5.761515147470931 (pred) 60.910000000000004 (actual)

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Steering angle: 9.399805373514512 (pred) 59.29 (actual)
Steering angle: 9.51191439100381 (pred) 57.68000000000001 (actual)
Steering angle: 12.2019690276877 (pred) 55.56 (actual)
Steering angle: 11.362689042854873 (pred) 53.95 (actual)
Steering angle: 13.439090456200844 (pred) 51.93 (actual)
Steering angle: 10.9274147474283 (pred) 49.92 (actual)
Steering angle: 16.796833650293916 (pred) 47.39 (actual)
Steering angle: 14.60889866289622 (pred) 45.279999999999994 (actual)
Steering angle: 15.167702052104351 (pred) 0.0 (actual)
Steering angle: 57.132380897568105 (pred) 40.44 (actual)
Steering angle: 42.77666539437321 (pred) 0.0 (actual)
Steering angle: 38.27042076870062 (pred) 34.29 (actual)
Steering angle: 47.474913467804036 (pred) 31.26 (actual)
Steering angle: 63.40468021617422 (pred) 29.14 (actual)
Steering angle: 67.79369830512188 (pred) 26.22 (actual)
Steering angle: 13.727023910851901 (pred) 24.810000000000002 (actual)
Steering angle: 11.3366489466442 (pred) 23.7 (actual)
Steering angle: 8.136543103500438 (pred) 23.189999999999998 (actual)
Steering angle: -5.2099718224637 (pred) 22.89 (actual)
Steering angle: -0.8724680874533304 (pred) 22.49 (actual)
Steering angle: 0.16793800992941577 (pred) 21.68 (actual)
Steering angle: -0.44026841768989483 (pred) 20.27 (actual)
Steering angle: 2.0390398516991786 (pred) 19.16 (actual)
Steering angle: -2.488442606867334 (pred) 18.25 (actual)
Steering angle: 2.540566768631463 (pred) 16.939999999999998 (actual)
Steering angle: 5.453407021558948 (pred) 15.730000000000002 (actual)
Steering angle: 7.265966338116966 (pred) 15.43 (actual)
Steering angle: 3.756390173208627 (pred) 15.33 (actual)
Steering angle: 4.577924472804114 (pred) 0.0 (actual)
Steering angle: 8.171727115462465 (pred) 15.030000000000001 (actual)
Steering angle: 6.2286975253788635 (pred) 14.82 (actual)
Steering angle: 10.544989040704701 (pred) 14.82 (actual)
Steering angle: 6.400182231096728 (pred) 14.82 (actual)
Steering angle: 8.903774837873385 (pred) 14.62 (actual)
Steering angle: 4.063965544365349 (pred) 14.62 (actual)
Steering angle: 2.2777805764005117 (pred) 14.62 (actual)
Steering angle: -0.020827808100307633 (pred) 14.52 (actual)
Steering angle: 0.26559740204379356 (pred) 12.910000000000002 (actual)
Steering angle: 0.2908954355537423 (pred) 10.89 (actual)
Steering angle: 0.16257632477116898 (pred) 9.380000000000003 (actual)
Steering angle: 1.2855512049882374 (pred) 7.26 (actual)
Steering angle: -2.1383002161426234 (pred) 5.949999999999999 (actual)
Steering angle: -2.199891660426625 (pred) 4.74 (actual)
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## Conclusion:

1. Did 70:30 Train-Test Split
2. Used DropOut Rate=0.5
3. Used identity function for output.
4. Arctan function gave better results than Identity.