

9. Deep Learning – Visualize model training history

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9. Deep Learning – Visualize model training history

1. Visualize the model accuracy and loss

- ✓ We can create plots from the collected history data.
- ✓ We can plot the neural network to model for the Pima Indians onset of diabetes binary classification problem
- ✓ The example collects the history and create two charts
 - A plot of accuracy on the training and validation datasets over training epochs
 - A plot of loss on the training and validation datasets over training epochs

Program Name	Visualize model training history
Input file	demo1.py
	pima-indians-diabetes.csv

```
# importing required libraries
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Dense
import matplotlib.pyplot as plt
import numpy as np

# load pima Indians dataset
dataset = np.loadtxt("pima-indians-diabetes.csv", delimiter=",")

# split into input (X) and output (Y) variables
X = dataset[:,0:8]
Y = dataset[:,8]

# create model
model = Sequential()

model.add(Dense(12, input_shape=(8,), activation='relu'))
model.add(Dense(8, activation='relu'))
model.add(Dense(1, activation='sigmoid'))

# Compile model
model.compile(loss='binary_crossentropy', optimizer='adam',
metrics=['accuracy'])

# Fit the model
history = model.fit(X, Y, validation_split=0.33, epochs=150, batch_size=10,
verbose=0)

# list all data in history
print(history.history.keys())

# summarize history for ACCURACY
plt.plot(history.history['accuracy'])
plt.plot(history.history['val_accuracy'])

plt.title('model accuracy')
plt.ylabel('accuracy')
plt.xlabel('epoch')

plt.legend(['train', 'test'], loc='upper left')
```

```
plt.show()

# summarize history for LOSS
plt.plot(history.history['loss'])
plt.plot(history.history['val_loss'])

plt.title('model loss')
plt.ylabel('loss')
plt.xlabel('epoch')

plt.legend(['train', 'test'], loc='upper left')
plt.show()

print("Done")
```

Output



