Assignment No:11

Title:How to train a neural network with Tensor Flow/Pytorch and evaluation of logistic regression using tensor flow.

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In [3]:
```
import tensorflow as tf
import numpy as np
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import StandardScaler
from sklearn.datasets import load_breast_cancer
df=load_breast_cancer()
```

In [7]:
```
X_train,X_test,y_train,y_test=train_test_split(df.data,df.target,test_size=0.20,random_state=42)
sc=StandardScaler()
X_train=sc.fit_transform(X_train)
X_test=sc.transform(X_test)
```

In [16]:
```
model=tf.keras.models.Sequential([tf.keras.layers.Dense(1,activation='sigmoid',input_shape=(X_train.shape[1],))
model.compile(optimizer='adam',loss='binary_crossentropy',metrics=['accuracy'])
```

In [18]:
```
model.fit(X_train,y_train,epochs=5)
y_pred=model.predict(X_test)
test_loss,test_accuracy=model.evaluate(X_test,y_test)
print("accuracy is",test_accuracy)
```

```
Epoch 1/5
15/15 ━━━━━━━━━━━━━━━━━━━━ 1s 4ms/step - accuracy: 0.8577 - loss: 0.4196
Epoch 2/5
15/15 ━━━━━━━━━━━━━━━━━━━━ 0s 4ms/step - accuracy: 0.8445 - loss: 0.3757
Epoch 3/5
15/15 ━━━━━━━━━━━━━━━━━━━━ 0s 5ms/step - accuracy: 0.8758 - loss: 0.3339
Epoch 4/5
15/15 ━━━━━━━━━━━━━━━━━━━━ 0s 5ms/step - accuracy: 0.9086 - loss: 0.2969
Epoch 5/5
15/15 ━━━━━━━━━━━━━━━━━━━━ 0s 6ms/step - accuracy: 0.8917 - loss: 0.3088
4/4 ━━━━━━━━━━━━━━━━━━━━ 0s 21ms/step
4/4 ━━━━━━━━━━━━━━━━━━━━ 0s 15ms/step - accuracy: 0.9610 - loss: 0.2174
accuracy is 0.9649122953414917
```

In [ ]:
```
```