```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from keras.models import Sequential
from keras.layers import Dense

data = pd.read_csv('Downloads/pima-indians-diabetes.data.csv')
data
```

	6	148	72	35	0	33.6	0.627	50	1
0	1	85	66	29	0	26.6	0.351	31	0
1	8	183	64	0	0	23.3	0.672	32	1
2	1	89	66	23	94	28.1	0.167	21	0
3	0	137	40	35	168	43.1	2.288	33	1
4	5	116	74	0	0	25.6	0.201	30	0
...	...	...	...	...	...	...	...	...	...
762	10	101	76	48	180	32.9	0.171	63	0
763	2	122	70	27	0	36.8	0.340	27	0
764	5	121	72	23	112	26.2	0.245	30	0
765	1	126	60	0	0	30.1	0.349	47	1
766	1	93	70	31	0	30.4	0.315	23	0

767 rows × 9 columns

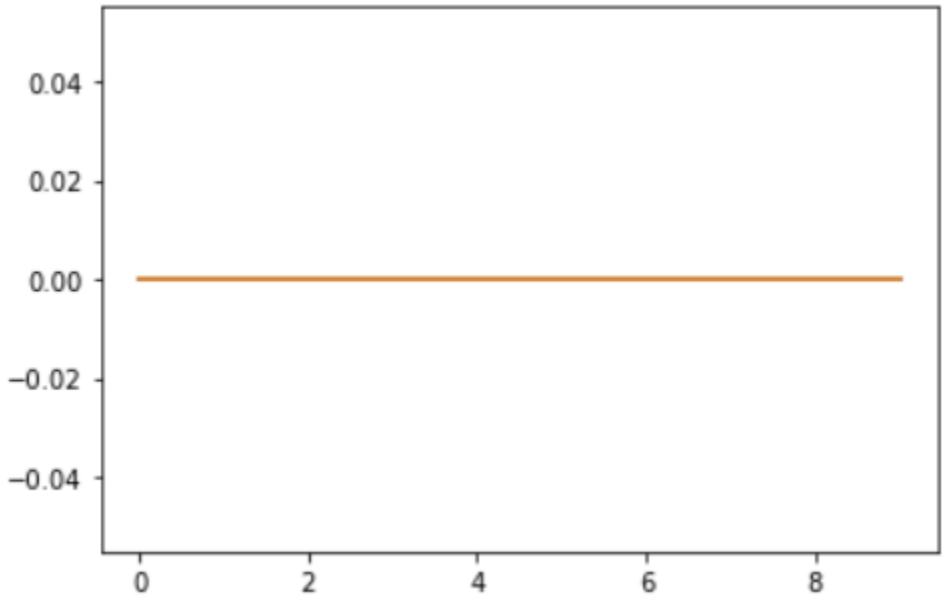
```
x=data.iloc[:,0:7]
y=data.iloc[:,7]

model = Sequential()
model.add(Dense(12,kernel_initializer='uniform',activation='relu'))
model.add(Dense(8,kernel_initializer='uniform',activation='relu'))
model.add(Dense(1,kernel_initializer='uniform',activation='sigmoid'))

model.compile(loss='binary_crossentropy',optimizer='adam',metrics='accuracy')

model.fit(x,y,validation_split=0.33,batch_size=30,epochs=10)
```

```
Epoch 1/10
18/18 [==============================] - 6s 44ms/step - loss: -0.1303 - accuracy: 0.0000e+00 - val_loss: -1.8520 - val_accurac
y: 0.0000e+00
Epoch 2/10
18/18 [==============================] - 0s 8ms/step - loss: -4.9062 - accuracy: 0.0000e+00 - val_loss: -11.2056 - val_accurac
y: 0.0000e+00
Epoch 3/10
18/18 [==============================] - 0s 7ms/step - loss: -24.3347 - accuracy: 0.0000e+00 - val_loss: -49.1540 - val_accurac
y: 0.0000e+00
Epoch 4/10
18/18 [==============================] - 0s 5ms/step - loss: -90.5731 - accuracy: 0.0000e+00 - val_loss: -166.4439 - val_accura
cy: 0.0000e+00
Epoch 5/10
18/18 [==============================] - 0s 5ms/step - loss: -270.3066 - accuracy: 0.0000e+00 - val_loss: -441.1250 - val_accur
acy: 0.0000e+00
Epoch 6/10
18/18 [==============================] - 0s 6ms/step - loss: -655.1848 - accuracy: 0.0000e+00 - val_loss: -981.1931 - val_accur
acy: 0.0000e+00
Epoch 7/10
18/18 [==============================] - 0s 5ms/step - loss: -1355.5902 - accuracy: 0.0000e+00 - val_loss: -1886.9507 - val_acc
uracy: 0.0000e+00
Epoch 8/10
18/18 [==============================] - 0s 6ms/step - loss: -2467.5205 - accuracy: 0.0000e+00 - val_loss: -3273.1008 - val_acc
uracy: 0.0000e+00
Epoch 9/10
18/18 [==============================] - 0s 5ms/step - loss: -4076.0020 - accuracy: 0.0000e+00 - val_loss: -5206.4180 - val_acc
uracy: 0.0000e+00
```

model.history.history.keys()

```
dict_keys(['loss', 'accuracy', 'val_loss', 'val_accuracy'])
```

plt.plot(model.history.history['accuracy'])
plt.plot(model.history.history['val_accuracy'])



plt.plot(model.history.history['loss'])
plt.plot(model.history.history['val_loss'])