

Import library

```
import pandas as pd

from keras.models import Sequential
from keras.layers import Dense
```

Load Dataset from local directory

```
from google.colab import files
uploaded = files.upload()
```

Choose Files diabetes.csv

- **diabetes.csv**(text/csv) - 23873 bytes, last modified: 4/20/2023 - 100% done

Saving diab... .csv to diabetes.csv

Load dataset

```
dataset = pd.read_csv('diabetes.csv')
x = dataset.iloc[:, :-1].values
y = dataset.iloc[:, -1].values
```

```
print(x)
```

```
[[ 6.   148.   72.   ...  33.6   0.627  50.   ]
 [ 1.    85.   66.   ...  26.6   0.351  31.   ]
 [ 8.   183.   64.   ...  23.3   0.672  32.   ]
 ...
 [ 5.   121.   72.   ...  26.2   0.245  30.   ]
 [ 1.   126.   60.   ...  30.1   0.349  47.   ]
 [ 1.    93.   70.   ...  30.4   0.315  23.   ]]
```

Train the model

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

model.compile(loss='binary_crossentropy', optimizer='adam', metrics=['accuracy'])
model.fit(x, y, epochs=5, batch_size=10)
```

```
Epoch 1/5
77/77 [=====] - 1s 2ms/step - loss: 3.6555 - accuracy: 0.5898
Epoch 2/5
77/77 [=====] - 0s 2ms/step - loss: 1.1635 - accuracy: 0.5885
Epoch 3/5
77/77 [=====] - 0s 1ms/step - loss: 0.8792 - accuracy: 0.6211
Epoch 4/5
77/77 [=====] - 0s 1ms/step - loss: 0.7613 - accuracy: 0.6315
Epoch 5/5
77/77 [=====] - 0s 2ms/step - loss: 0.7151 - accuracy: 0.6615
<keras.callbacks.History at 0x7f752c247c70>
```

Accuracy score

```
_, accuracy = model.evaluate(x, y)
print('Accuracy: ', (accuracy*100))
```

```
24/24 [=====] - 0s 1ms/step - loss: 0.7020 - accuracy: 0.6224
Accuracy: 62.23958134651184
```

Save the model in disk

```
# model_json = model.to_json()
# with open("model.json", "w") as json_file:
#     json_file.write(model_json)
# model.save_weights("model.h5")
# print("Saved model to disk")
```

Load the model from the disk to test

```
from keras.saving.legacy.model_config import model_from_json
# from pandas as pd
# from keras.models import model_from_json

# load the dataset
# dataset = pd.read_csv('diabetes.csv')
# x = dataset.iloc[:, :-1].values
# y = dataset.iloc[:, -1].values

# load model
# json_file = open('model.json', 'r')
# loaded_model_json = json_file.read()
# json_file.close()

# model = model_from_json(loaded_model_json)
# model.load_weights("model.h5")
# print("Loaded model from disk")
```

Prediction

```
predictions = model.predict(x)
```

```
24/24 [=====] - 0s 982us/step
```

Testing the model

```
for i in range(5,10):
    print('%s -> %d (Original Class: %d)' % (x[i].tolist(), predictions[i], y[i]))
```

```
[5.0, 116.0, 74.0, 0.0, 0.0, 25.6, 0.201, 30.0] -> 0 (Original Class: 0)
[3.0, 78.0, 50.0, 32.0, 88.0, 31.0, 0.248, 26.0] -> 0 (Original Class: 1)
[10.0, 115.0, 0.0, 0.0, 0.0, 35.3, 0.134, 29.0] -> 0 (Original Class: 0)
[2.0, 197.0, 70.0, 45.0, 543.0, 30.5, 0.158, 53.0] -> 0 (Original Class: 1)
[8.0, 125.0, 96.0, 0.0, 0.0, 0.0, 0.232, 54.0] -> 0 (Original Class: 1)
```

✓ 0s completed at 5:59 AM

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