implement perceptron neural network to perform binary classification on diabities dataset

In [1]:
```
import pandas as pd
```

In [3]:
```
filepath = pd.read_csv('diabetes.csv', header=None)
df=filepath
df.sample(3)
```

Out[3]:

	0	1	2	3	4	5	6	7	8
173	1	79	60	42	48	43.5	0.678	23	0
143	10	108	66	0	0	32.4	0.272	42	1
78	0	131	0	0	0	43.2	0.270	26	1

In [6]:
```
x=df.iloc[:,:-1]
x.shape
```

Out[6]:
```
(768, 8)
```

In [7]:
```
y=df.iloc[:,-1]
y.shape
```

Out[7]:
```
(768,)
```

In [8]:
```
from sklearn.model_selection import train_test_split
```

In [9]:
```
xtrain,xtest,ytrain,ytest = train_test_split(x,y ,test_size=0.2, random_state=2)
```

In [10]:
```
xtrain.shape,xtest.shape,ytrain.shape,ytest.shape
```

Out[10]:
```
((614, 8), (154, 8), (614,), (154,))
```

In [11]:
```
from sklearn.linear_model import Perceptron
```

In [12]:
```
pm=Perceptron()
```

In [13]:
```
pm.fit(xtrain,ytrain)
```

Out[13]:
```
Perceptron()
```

In [15]:
```
pm_pred=pm.predict(xtest)
```

In [16]:
```
from sklearn.metrics import accuracy_score,confusion_matrix
```

In [17]:
```
accuracy_score(ytest,pm_pred)
```

Out[17]:
```
0.6038961038961039
```

In [18]:
```
confusion_matrix(ytest,pm_pred)
```

Out[18]:
```
array([[69, 40],
       [21, 24]], dtype=int64)
```

In [19]:
```
from sklearn.metrics import recall_score,f1_score,precision_score
```

In [20]:
```
precision_score(ytest,pm_pred)
```

Out[20]:
```
0.375
```

In [21]:
```
recall_score(ytest,pm_pred)
```

Out[21]:
```
0.5333333333333333
```

In [22]:
```
f1_score(ytest,pm_pred)
```

Out[22]:
```
0.44036697247706424
```

In [ ]:
```

```