


```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

```
df = pd.read_csv('pima-indians-diabetes.csv')
```

```
df
```



	pregnant	no	plasma conc	Blood pressure	triceps thickness	serum insulin	bmi	Diabetes function	Age	Target
0	6	148	72	35	0	33.6	0.627	50	1	
1	1	85	66	29	0	26.6	0.351	31	0	
2	8	183	64	0	0	23.3	0.672	32	1	
3	1	89	66	23	94	28.1	0.167	21	0	
4	0	137	40	35	168	43.1	2.288	33	1	
...	
763	10	101	76	48	180	32.9	0.171	63	0	
764	2	122	70	27	0	36.8	0.340	27	0	
765	5	121	72	23	112	26.2	0.245	30	0	
766	1	126	60	0	0	30.1	0.349	47	1	
767	1	93	70	31	0	30.4	0.315	23	0	

768 rows × 9 columns

```
df.isnull().sum()
```

```
pregnant no      0
plasma conc      0
Blood pressure    0
triceps thickness 0
serum insulin     0
bmi               0
Diabetes function 0
Age               0
Target            0
dtype: int64
```

```
x=df
```

```
y=df[['Target']]
```

```
x = x.drop('Target',axis=1)
```

```
y.shape
```

```
(768, 1)
```

```
x.shape
```

```
(768, 8)
```

```
from sklearn.model_selection import train_test_split
```

```
xtrain,xtest,ytrain,ytest = train_test_split(x,y,random_state=0,test_size=0.25)
```

```
from sklearn.tree import DecisionTreeClassifier
```

```
classifier = DecisionTreeClassifier(random_state=0)
```

```
classifier.fit(xtrain,ytrain)
```

```
ypred = classifier.predict(xtest)

ytest = ytest.values

ytest.shape

(192, 1)

ytest = ytest.reshape(192,)

res = pd.DataFrame({'Actual':ytest, 'Predicted':ypred})
```

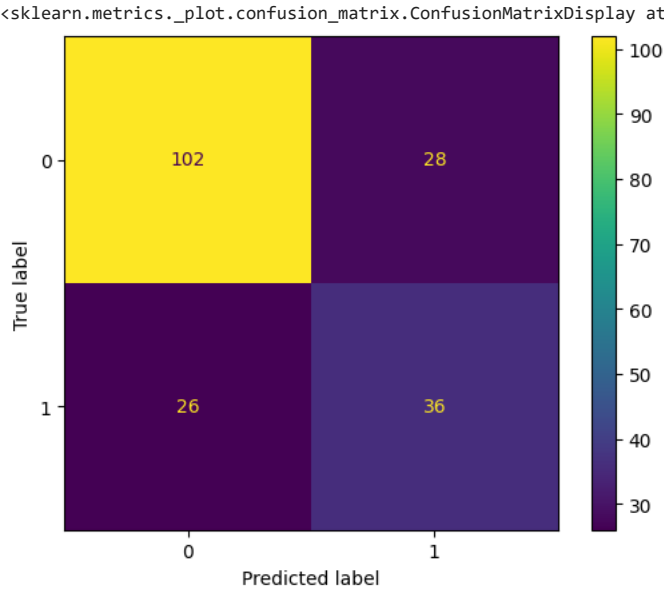
res

	Actual	Predicted
0	1	1
1	0	0
2	0	0
3	1	0
4	0	0
...
187	1	0
188	1	1
189	0	1
190	0	0
191	0	0

192 rows × 2 columns

```
from sklearn.metrics import accuracy_score,mean_absolute_error,mean_squared_error,r2_score,ConfusionMatrixDisplay,classification_report

ConfusionMatrixDisplay.from_predictions(ytest,ypred)
```



```
print(classification_report(ytest,ypred))
```

	precision	recall	f1-score	support
0	0.80	0.78	0.79	130
1	0.56	0.58	0.57	62
accuracy			0.72	192
macro avg	0.68	0.68	0.68	192
weighted avg	0.72	0.72	0.72	192

