

```
import numpy as np
import pandas as pd
```

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

| | | | | | | | | | |
|---|-----|-----|----|----|------|-------|-------|----|---|
| 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 |

Next steps: [Generate code with df](#) [New interactive sheet](#)

```
df.columns = ['Pregnancies', 'Glucose', 'BloodPressure', 'SkinThickness',
              'Insulin', 'BMI', 'DiabetesPedigree', 'Age', 'Outcome']
```

```
from sklearn.model_selection import train_test_split

X = df.drop('Outcome', axis=1)
y = df['Outcome']
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.25, random_state=42)
```

```
from sklearn.naive_bayes import GaussianNB
from sklearn.metrics import accuracy_score, f1_score, classification_report

gnb = GaussianNB()
gnb.fit(X_train, y_train)
y_pred_gnb = gnb.predict(X_test)
acc_gnb = accuracy_score(y_test, y_pred_gnb)
f1_gnb = f1_score(y_test, y_pred_gnb)
print("GaussianNB Results:")
print(f"Accuracy: {acc_gnb:.4f}")
print(f"F1-Score: {f1_gnb:.4f}")
print(classification_report(y_test, y_pred_gnb))
```

```
GaussianNB Results:
Accuracy: 0.7396
F1-Score: 0.6032
      precision    recall  f1-score   support
          0       0.78     0.84     0.81      124
          1       0.66     0.56     0.60       68
   accuracy                           0.74      192
  macro avg       0.72     0.70     0.70      192
weighted avg       0.73     0.74     0.73      192
```

```
from sklearn.naive_bayes import MultinomialNB

mnb = MultinomialNB()
mnb.fit(X_train, y_train)
y_pred_mnb = mnb.predict(X_test)
acc_mnb = accuracy_score(y_test, y_pred_mnb)
f1_mnb = f1_score(y_test, y_pred_mnb)
print("MultinomialNB Results:")
print(f"Accuracy: {acc_mnb:.4f}")
print(f"F1-Score: {f1_mnb:.4f}")
print(classification_report(y_test, y_pred_mnb))
```

```
MultinomialNB Results:
Accuracy: 0.5729
F1-Score: 0.4058
      precision    recall  f1-score   support
          0       0.67     0.66     0.67      124
```

| | | | | |
|--------------|------|------|------|-----|
| 1 | 0.40 | 0.41 | 0.41 | 68 |
| accuracy | | | 0.57 | 192 |
| macro avg | 0.54 | 0.54 | 0.54 | 192 |
| weighted avg | 0.58 | 0.57 | 0.57 | 192 |

```
import pandas as pd

comparison = pd.DataFrame({
    'Model': ['GaussianNB', 'MultinomialNB'],
    'Accuracy': [acc_gnb, acc_mnb],
    'F1-Score': [f1_gnb, f1_mnb]
})
print(comparison)
```

```
Model Accuracy F1-Score
0 GaussianNB 0.739583 0.603175
1 MultinomialNB 0.572917 0.405797
```