```
# load the iris dataset
from sklearn.datasets import load_iris
iris = load_iris()

# store the feature matrix (X) and response vector (y)
X = iris.data
y = iris.target

# splitting X and y into training and testing sets
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.4, random_state=1)

# training the model on training set
from sklearn.naive_bayes import GaussianNB
gnb = GaussianNB()
gnb.fit(X_train, y_train)

# making predictions on the testing set
y_pred = gnb.predict(X_test)

# comparing actual response values (y_test) with predicted response values (y_pred)
from sklearn import metrics
print("Gaussian Naive Bayes model accuracy(in %):", metrics.accuracy_score(y_test, y_pred)*100)

```

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Gaussian Naive Bayes model accuracy(in %): 95.0
```

```
import numpy as np
import matplotlib.pyplot as plt
from matplotlib.colors import ListedColormap
from sklearn.datasets import make_classification
from sklearn.naive_bayes import GaussianNB

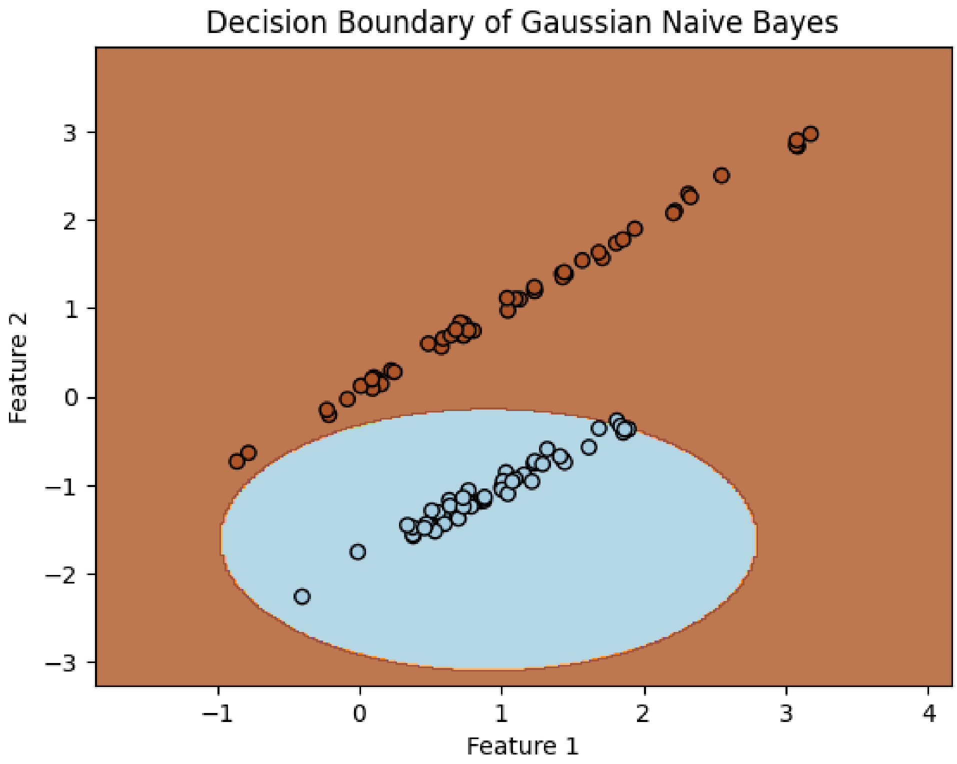
# Generate synthetic data
X, y = make_classification(n_samples=100, n_features=2, n_redundant=0, n_clusters_per_class=1,

# Create a Gaussian Naive Bayes classifier
gnb = GaussianNB()
gnb.fit(X, y)

# Plot decision boundary
h = .02  # step size in the mesh
x_min, x_max = X[:, 0].min() - 1, X[:, 0].max() + 1
y_min, y_max = X[:, 1].min() - 1, X[:, 1].max() + 1
xx, yy = np.meshgrid(np.arange(x_min, x_max, h), np.arange(y_min, y_max, h))
Z = gnb.predict(np.c_[xx.ravel(), yy.ravel()])

# Put the result into a color plot
Z = Z.reshape(xx.shape)
plt.figure()
plt.contourf(xx, yy, Z, alpha=0.8, cmap=plt.cm.Paired)

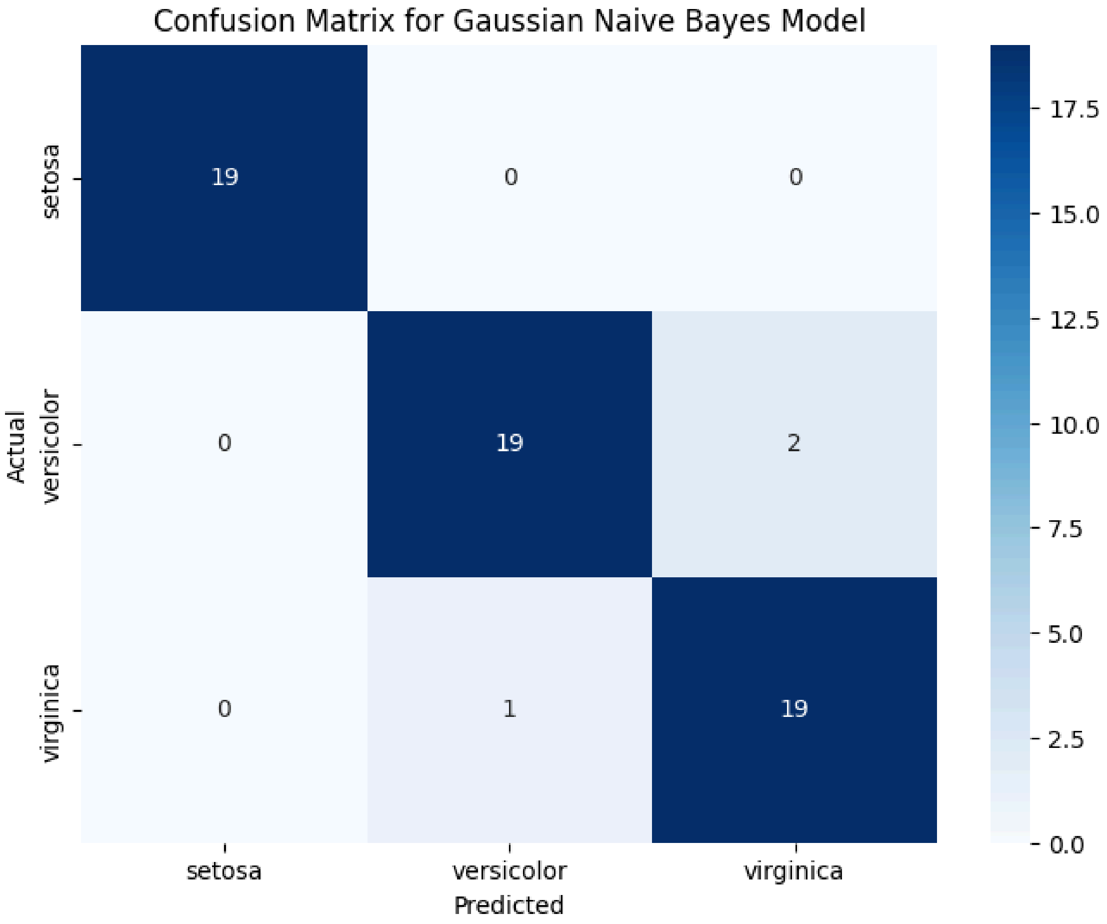
# Plot the training points
plt.scatter(X[:, 0], X[:, 1], c=y, cmap=plt.cm.Paired, edgecolors='k')
plt.xlabel('Feature 1')
plt.ylabel('Feature 2')
plt.title('Decision Boundary of Gaussian Naive Bayes')
plt.show()
```



```python
import matplotlib.pyplot as plt
import seaborn as sns

# Generate confusion matrix
conf_matrix = metrics.confusion_matrix(y_test, y_pred)

# Plot confusion matrix
plt.figure(figsize=(8, 6))
sns.heatmap(conf_matrix, annot=True, fmt='d', cmap="Blues", xticklabels=iris.target_names, ytic
plt.xlabel('Predicted')
plt.ylabel('Actual')
plt.title('Confusion Matrix for Gaussian Naive Bayes Model')
plt.show()
```


Confusion Matrix for Gaussian Naive Bayes Model