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In [9]: #EXP_10
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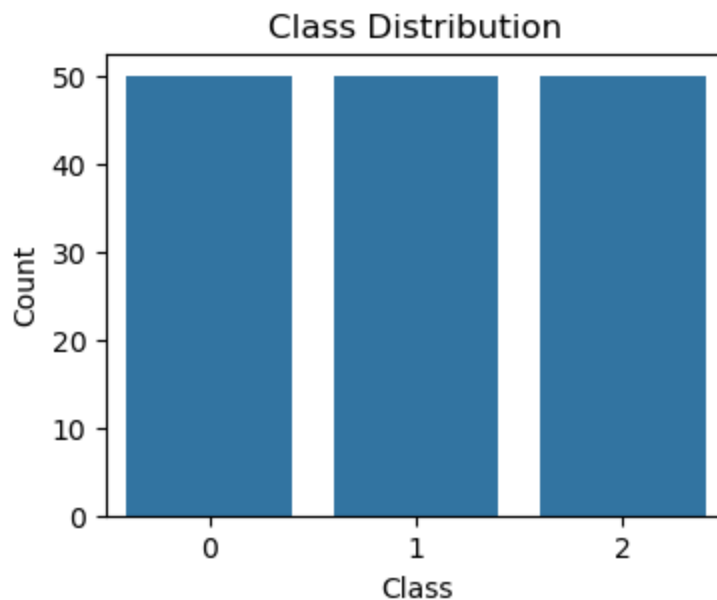
```
In [10]: #Aim:Support Vector Machine (SVM)
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#Subject:ET-1  
#Date:18/09/25
```

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In [12]: import matplotlib.pyplot as plt  
import seaborn as sns  
from sklearn import svm  
from sklearn.metrics import accuracy_score, confusion_matrix, ConfusionMatrix  
from sklearn.datasets import load_iris  
from sklearn.model_selection import train_test_split  
import pandas as pd
```

```
In [13]: # Load sample data (replace with your own dataset if needed)  
data = load_iris()  
X = pd.DataFrame(data.data, columns=data.feature_names)  
y = pd.Series(data.target)
```

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In [14]: # Visualize class distribution  
plt.figure(figsize=(4, 3))  
sns.countplot(x=y)  
plt.title("Class Distribution")  
plt.xlabel("Class")  
plt.ylabel("Count")  
plt.show()
```



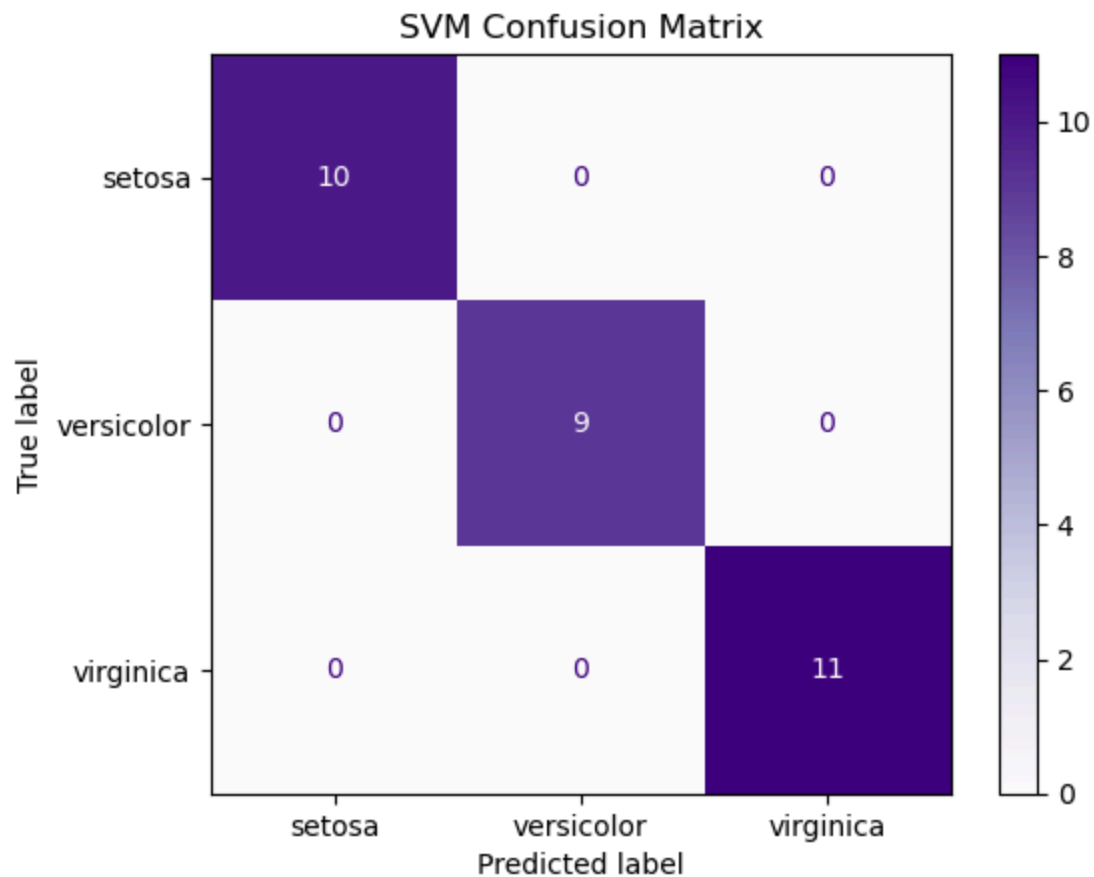
```
In [15]: # Split data  
x_train, x_test, y_train, y_test = train_test_split(X, y, test_size=0.2, ran
```

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In [16]: # Train SVM model
svm_model = svm.SVC(kernel='linear') # You can also try 'rbf', 'poly'
svm_model.fit(x_train, y_train)
y_pred3 = svm_model.predict(x_test)
```

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In [17]: # Accuracy
accuracy = accuracy_score(y_test, y_pred3)
print("Accuracy:", accuracy)
```

Accuracy: 1.0

```
In [18]: # Confusion matrix
cm = confusion_matrix(y_test, y_pred3)
disp = ConfusionMatrixDisplay(confusion_matrix=cm, display_labels=data.target_names)
disp.plot(cmap='Purples')
plt.title("SVM Confusion Matrix")
plt.show()
```



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In [ ]:
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