Code Submitted By - Anush Dubey

In [45]:
```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn.model_selection import train_test_split
from sklearn.ensemble import RandomForestClassifier
from sklearn.metrics import accuracy_score
```

In [46]:
```
# Step 1: Load the Iris dataset
iris_data = pd.read_csv('C:\\Users\\anush\\OneDrive\\Desktop\\Oasis Infobyte\\Ta
```

In [47]:
```
# Step 2: Splitting features and target variables
X = iris_data.drop(['Id', 'Species'], axis=1)
y = iris_data['Species']
```

In [48]:
```
# Step 3: Split the data into training and testing sets
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_
```

In [49]:
```
# Step 4: Initialize and train the model
model = RandomForestClassifier()
model.fit(X_train, y_train)
```

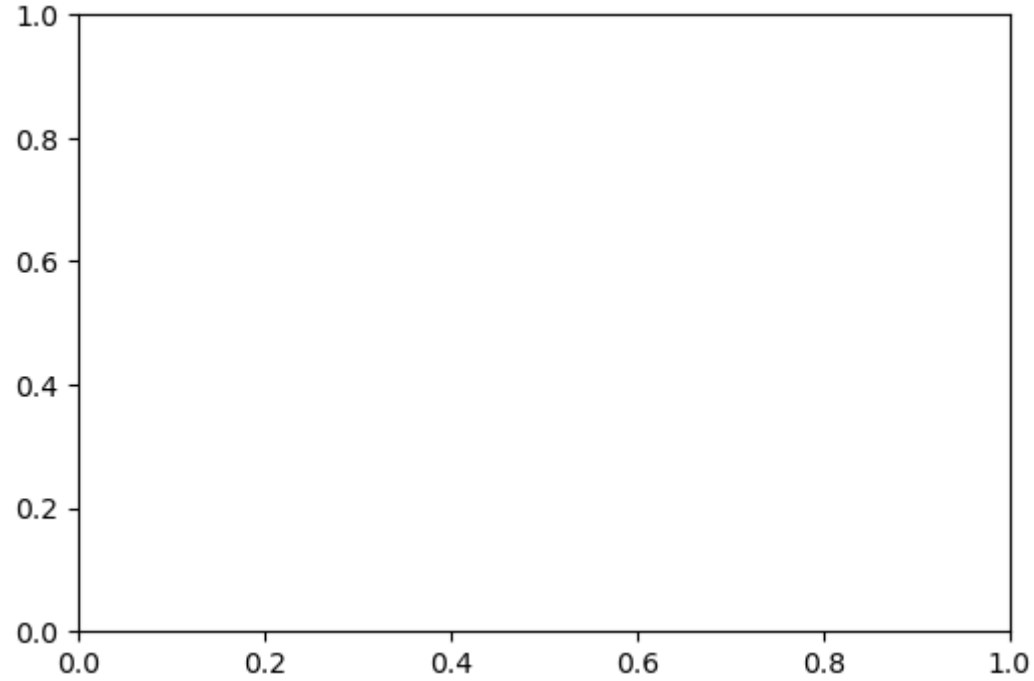
Out[49]:
```
RandomForestClassifier()
```

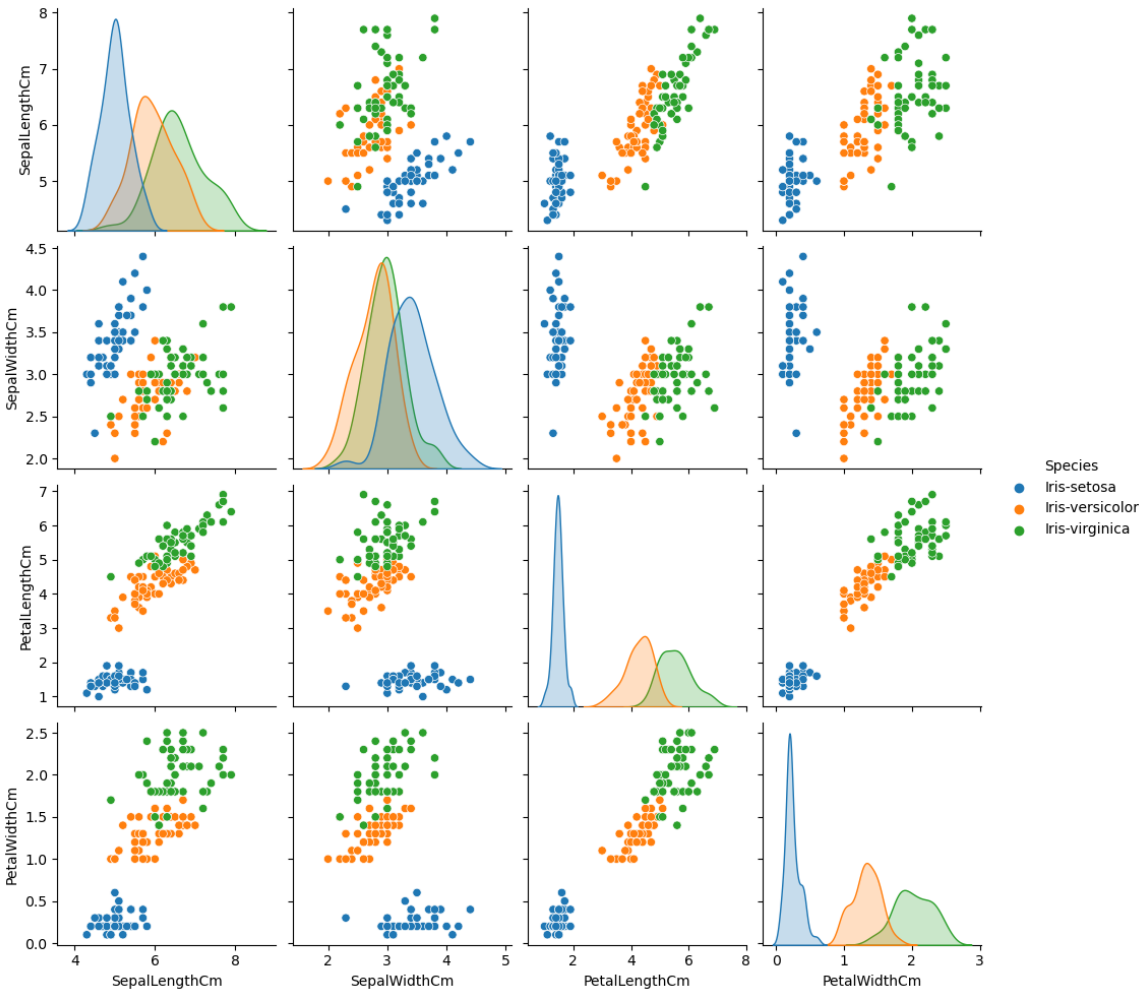
In [50]:
```
# Step 5: Make predictions on the test set
y_pred = model.predict(X_test)
```

In [51]:
```
# Step 6: Evaluate the model
accuracy = accuracy_score(y_test, y_pred)
print("Accuracy:", accuracy)
```

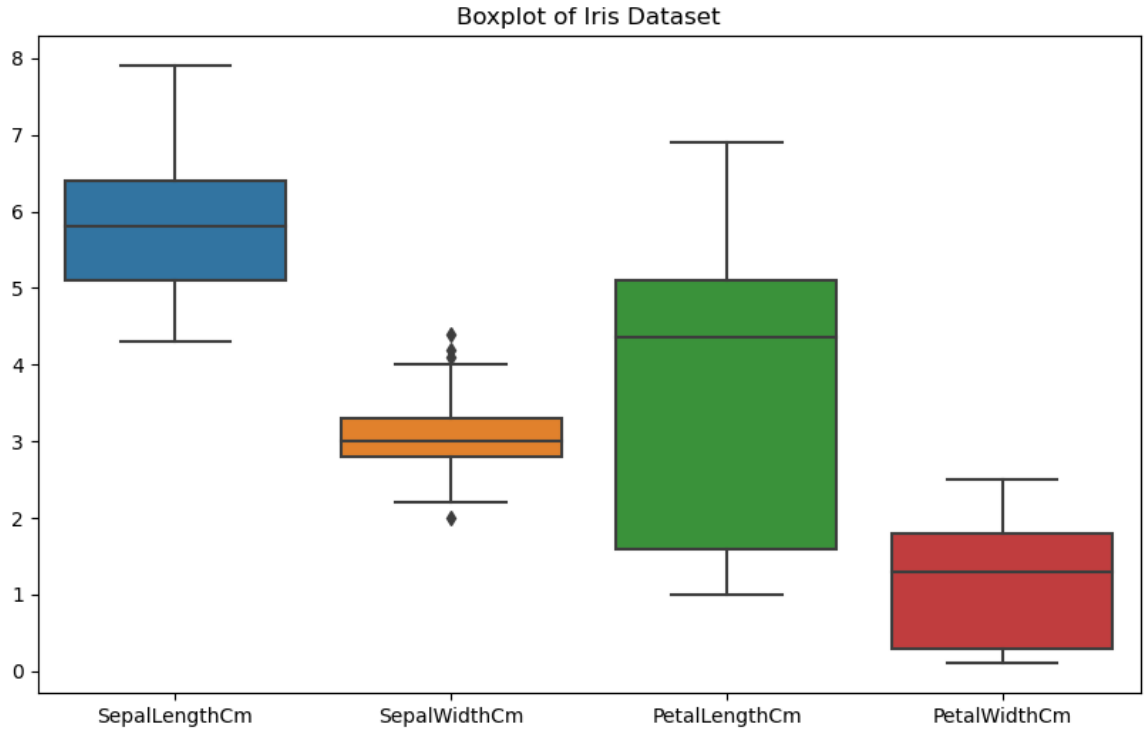
```
Accuracy: 1.0
```

In [52]:
```
# Step 7: Data Visualization
# Pairplot
sns.pairplot(iris_data.drop("Id", axis=1), hue="Species")
plt.show()
```





In [53]:
```
# Boxplot
plt.figure(figsize=(10, 6))
sns.boxplot(data=iris_data.drop("Id", axis=1))
plt.title("Boxplot of Iris Dataset")
plt.show()
```



In [54]:
```
# Correlation Heatmap
plt.figure(figsize=(8, 6))
sns.heatmap(iris_data.drop("Id", axis=1).corr(), annot=True, cmap="coolwarm")
plt.title("Correlation Heatmap of Iris Dataset")
plt.show()
```