```
import pandas as pd
import numpy as np
from sklearn.model_selection import train_test_split
from sklearn.tree import DecisionTreeClassifier
from sklearn.linear_model import LogisticRegression
from sklearn.metrics import accuracy_score, precision_score, recall_score
import matplotlib.pyplot as plt
import seaborn as sns
```

Importing Libraries

Read Dataset

```
df= pd.read_csv("Iris.csv")
```

Splitting Data

```
X = df.drop("Species", axis=1)
y = df["Species"]
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)
```

Desicion Tress

```
tree_model = DecisionTreeClassifier()
tree_model.fit(X_train, y_train)
y_pred_tree = tree_model.predict(X_test)
```

Logistic Regression

```
log_model = LogisticRegression()
log_model.fit(X_train, y_train)
y_pred_log = log_model.predict(X_test)
```

```
/usr/local/lib/python3.10/dist-packages/sklearn/linear_model/_logistic.py:458: ConvergenceWarning: lbfgs failed to converge (status=
STOP: TOTAL NO. of ITERATIONS REACHED LIMIT.

Increase the number of iterations (max_iter) or scale the data as shown in:
    https://scikit-learn.org/stable/modules/preprocessing.html
Please also refer to the documentation for alternative solver options:
    https://scikit-learn.org/stable/modules/linear_model.html#logistic-regression
  n_iter_i = _check_optimize_result(
```

Evaluate Model

```
tree_accuracy = accuracy_score(y_test, y_pred_tree)
tree_precision = precision_score(y_test, y_pred_tree, average="weighted")
tree_recall = recall_score(y_test, y_pred_tree, average="weighted")
log_accuracy = accuracy_score(y_test, y_pred_log)
log_precision = precision_score(y_test, y_pred_log, average="weighted")
log_recall = recall_score(y_test, y_pred_log, average="weighted")
print("Decision Tree Results:")
print("Accuracy:", tree_accuracy)
print("Precision:", tree_precision)
print("Recall:", tree_recall)
print("\nLogistic Regression Results:")
print("Accuracy:", log_accuracy)
print("Precision:", log_precision)
print("Recall:", log_recall)
```

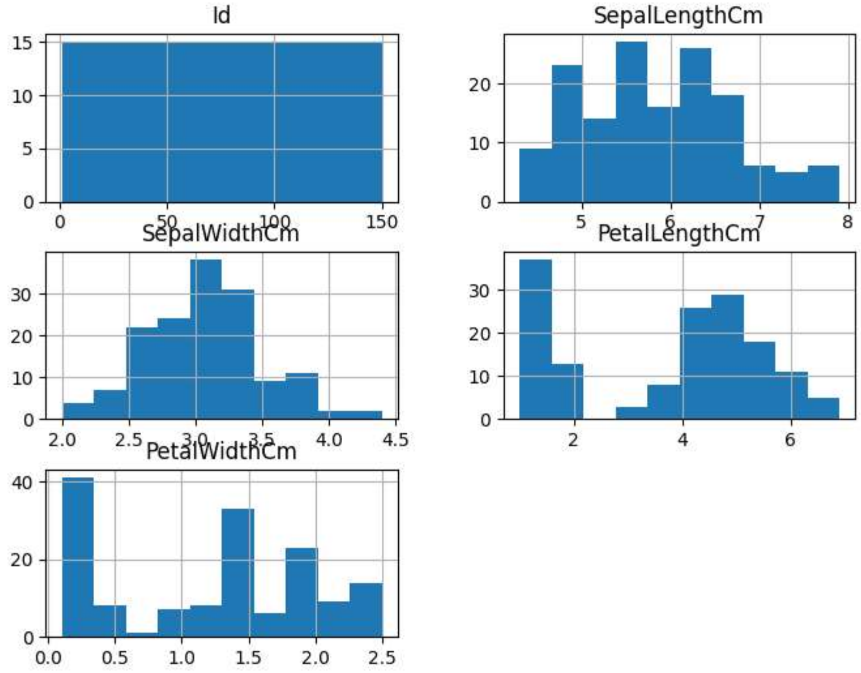
```
Decision Tree Results:
Accuracy: 1.0
Precision: 1.0
Recall: 1.0

Logistic Regression Results:
Accuracy: 1.0
Precision: 1.0
Recall: 1.0
```

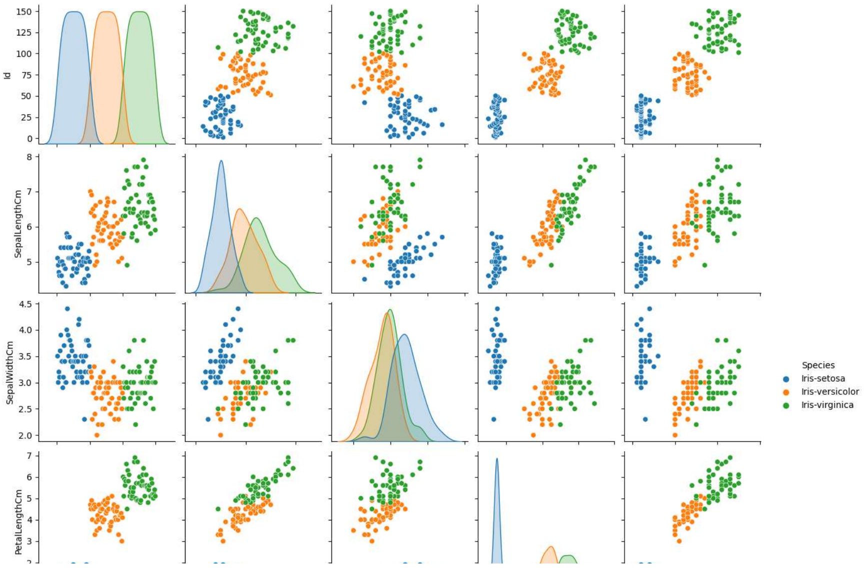
```
df.describe()
```

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
count	150.000000	150.000000	150.000000	150.000000	150.000000
mean	75.500000	5.843333	3.054000	3.758667	1.198667
std	43.445368	0.828066	0.433594	1.764420	0.763161
min	1.000000	4.300000	2.000000	1.000000	0.100000
25%	38.250000	5.100000	2.800000	1.600000	0.300000
50%	75.500000	5.800000	3.000000	4.350000	1.300000
75%	112.750000	6.400000	3.300000	5.100000	1.800000
max	150.000000	7.900000	4.400000	6.900000	2.500000

```
df.hist(figsize=(8, 6))
plt.show()
```



```
sns.pairplot(df, hue="Species")
plt.show()
```



```
df.corr()
```

```
<ipython-input-11-2f6f6606aa2c>:1: FutureWarning: The default value of numeric_only i
  df.corr()
```

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
Id	1.000000	0.716676	-0.397729	0.882747	0.899759
SepalLengthCm	0.716676	1.000000	-0.109369	0.871754	0.817954
SepalWidthCm	-0.397729	-0.109369	1.000000	-0.420516	-0.356544
PetalLengthCm	0.882747	0.871754	-0.420516	1.000000	0.962757
PetalWidthCm	0.899759	0.817954	-0.356544	0.962757	1.000000