```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn.datasets import load_iris
from sklearn.preprocessing import StandardScaler
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LogisticRegression


ds=pd.read_csv("/kaggle/input/iris-flower-dataset/IRIS.csv")


ds.head()
```

	sepal_length	sepal_width	petal_length	petal_width	species
0	5.1	3.5	1.4	0.2	Iris-setosa
1	4.9	3.0	1.4	0.2	Iris-setosa
2	4.7	3.2	1.3	0.2	Iris-setosa
3	4.6	3.1	1.5	0.2	Iris-setosa
4	5.0	3.6	1.4	0.2	Iris-setosa

```
ds.shape
```

```
(150, 5)
```

```
ds.describe
```

```
<bound method NDFrame.describe of      sepal_length  sepal_width  petal_length  petal_width
species
0             5.1          3.5           1.4          0.2     Iris-setosa
1             4.9          3.0           1.4          0.2     Iris-setosa
2             4.7          3.2           1.3          0.2     Iris-setosa
3             4.6          3.1           1.5          0.2     Iris-setosa
4             5.0          3.6           1.4          0.2     Iris-setosa
..            ...          ...           ...          ...             ...
145           6.7          3.0           5.2          2.3  Iris-virginica
146           6.3          2.5           5.0          1.9  Iris-virginica
147           6.5          3.0           5.2          2.0  Iris-virginica
148           6.2          3.4           5.4          2.3  Iris-virginica
149           5.9          3.0           5.1          1.8  Iris-virginica

[150 rows x 5 columns]>
```

```
ds.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 150 entries, 0 to 149
Data columns (total 5 columns):
 #   Column        Non-Null Count  Dtype
---  ------        --------------  -----
 0   sepal_length  150 non-null    float64
 1   sepal_width   150 non-null    float64
 2   petal_length  150 non-null    float64
 3   petal_width   150 non-null    float64
```

```
 4   species       150 non-null    object
dtypes: float64(4), object(1)
memory usage: 6.0+ KB
```

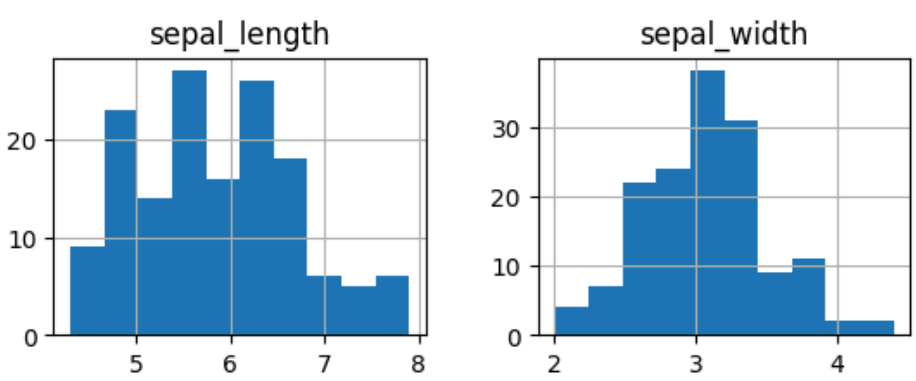
```
ds.isnull().sum()
```

```
sepal_length    0
sepal_width     0
petal_length    0
petal_width     0
species         0
dtype: int64
```

```
ds['species'].mode()
```

```
0        Iris-setosa
1    Iris-versicolor
2     Iris-virginica
Name: species, dtype: object
```

```
ds.hist()
plt.show()
```




```
sns.pairplot(ds, hue='species', markers=["o", "s", "D"])
plt.show()
```

```
/opt/conda/lib/python3.10/site-packages/seaborn/_oldcore.py:1119: FutureWarning: use_inf_as_na
  with pd.option_context('mode.use_inf_as_na', True):
/opt/conda/lib/python3.10/site-packages/seaborn/_oldcore.py:1075: FutureWarning: When grouping
  data_subset = grouped_data.get_group(pd_key)
/opt/conda/lib/python3.10/site-packages/seaborn/_oldcore.py:1075: FutureWarning: When grouping
  data_subset = grouped_data.get_group(pd_key)
/opt/conda/lib/python3.10/site-packages/seaborn/_oldcore.py:1075: FutureWarning: When grouping
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  data_subset = grouped_data.get_group(pd_key)
```
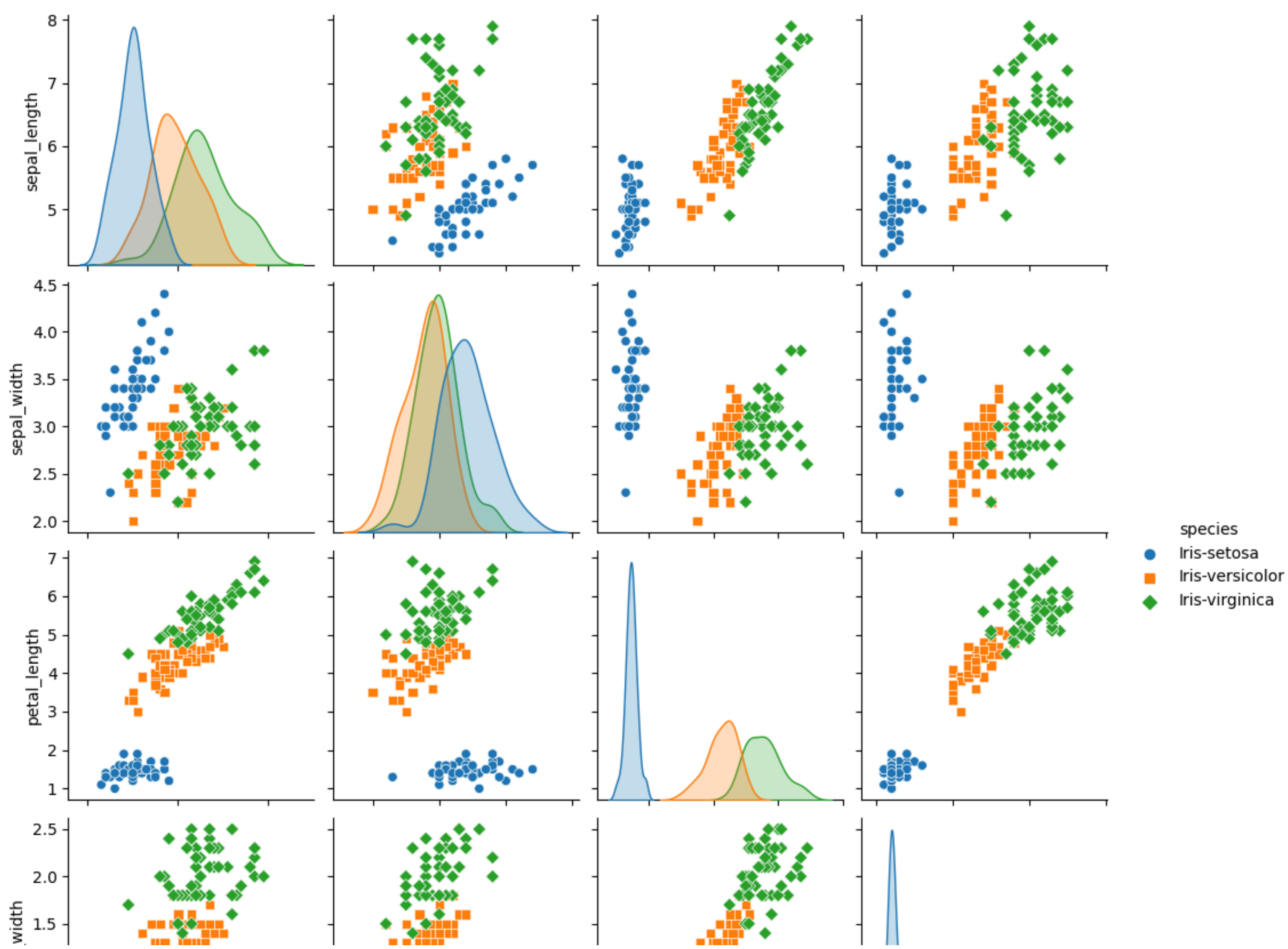
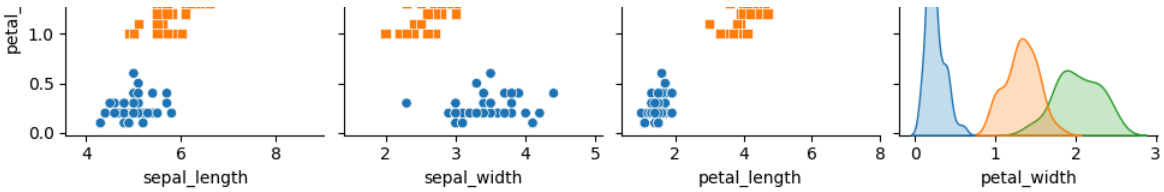
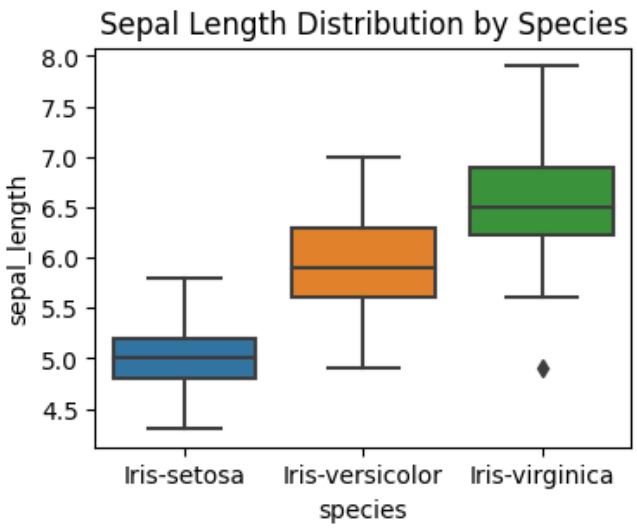




petal_
1.0
0.5
0.0
4
6
8
sepal_length
2
3
4
5
sepal_width
2
4
6
8
petal_length
0
1
2
3
petal_width

```
plt.figure(figsize=(4, 3))
sns.boxplot(x='species', y='sepal_length', data=ds)
plt.title('Sepal Length Distribution by Species')
plt.show()
```




```
X = ds.drop('species', axis=1)  # Features
y = ds['species']  # Target variable (species)


X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)



scaler = StandardScaler()

# Fit and transform the training data
X_train_scaled = scaler.fit_transform(X_train)

# Only transform the testing data
X_test_scaled = scaler.transform(X_test)


# Import LogisticRegression from sklearn
from sklearn.linear_model import LogisticRegression

#Instantiate the Logistic Regression model
log_reg = LogisticRegression()

# Train the model using the training data
log_reg.fit(X_train_scaled, y_train)
```

```
▾ LogisticRegression
LogisticRegression()
```

```
# Predict the target values for the testing se
y_pred = log_reg.predict(X_test_scaled)

#Display the predicted values
```