In [1]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

In [2]:
```
file_path = "C:\\Users\\saswa\\OneDrive\\Desktop\\Pinaki-Iris-flower-classificat
```

In [3]:
```
file_path
```

Out[3]:
```
'C:\\Users\\saswa\\OneDrive\\Desktop\\Pinaki-Iris-flower-classification\\datase
ts\\iris.data1.csv'
```

In [4]:
```
iris_df=pd.read_csv(file_path)
```

In [5]:
```
iris_df.head()
```

Out[5]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

In [6]:
```
iris_df.columns
```

Out[6]:
```
Index(['Id', 'SepalLengthCm', 'SepalWidthCm', 'PetalLengthCm', 'PetalWidthCm',
       'Species'],
      dtype='object')
```

In [7]:
```
iris_df.columns=['id', 'sepal_length','sepal_width','petal_length','petal_width'
```

In [8]:
```
iris_df.head()
```

Out[8]:

	id	sepal_length	sepal_width	petal_length	petal_width	species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

In [9]:
```
iris_df.shape
```

Out[9]:
```
(150, 6)
```

In [10]:
```
iris_df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 150 entries, 0 to 149
Data columns (total 6 columns):
 #   Column        Non-Null Count  Dtype
---  ------        --------------  -----
 0   id            150 non-null    int64
 1   sepal_length  150 non-null    float64
 2   sepal_width   150 non-null    float64
 3   petal_length  150 non-null    float64
 4   petal_width   150 non-null    float64
 5   species       150 non-null    object
dtypes: float64(4), int64(1), object(1)
memory usage: 7.2+ KB
```

In [11]:
```
iris_df.describe()
```

Out[11]:

	id	sepal_length	sepal_width	petal_length	petal_width
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

In [12]:
```
iris_df.isnull()
```

Out[12]:

	id	sepal_length	sepal_width	petal_length	petal_width	species
0	False	False	False	False	False	False
1	False	False	False	False	False	False
2	False	False	False	False	False	False
3	False	False	False	False	False	False
4	False	False	False	False	False	False
...	...	...	...	...	...	...
145	False	False	False	False	False	False
146	False	False	False	False	False	False
147	False	False	False	False	False	False
148	False	False	False	False	False	False
149	False	False	False	False	False	False

150 rows × 6 columns

In [13]:
```
iris_df.isnull().sum()
```

Out[13]:
```
id              0
sepal_length    0
sepal_width     0
petal_length    0
petal_width     0
species         0
dtype: int64
```

In [14]:
```
species_counts=iris_df['species'].value_counts()
print("Count of the species column of the dataset : ")
print(species_counts)
```

```
Count of the species column of the dataset :
Iris-setosa        50
Iris-versicolor    50
Iris-virginica     50
Name: species, dtype: int64
```

In [15]:
```
iris_df.head()
```

Out[15]:

	id	sepal_length	sepal_width	petal_length	petal_width	species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

In [16]:
```
mean_sepal_length=iris_df.groupby('species')['sepal_length'].mean()
print("Mean of the sepal length of each species : ")
print(mean_sepal_length)
```

```
Mean of the sepal length of each species :
species
Iris-setosa        5.006
Iris-versicolor    5.936
Iris-virginica     6.588
Name: sepal_length, dtype: float64
```

In [17]:
```
iris_df.head()
```

Out[17]:

	id	sepal_length	sepal_width	petal_length	petal_width	species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

In [18]:
```
median_petal_width=iris_df.groupby('species')['petal_width'].median()
```

```
print("Median of the petal width of each species : ")
print(median_petal_width)
```

```
Median of the petal width of each species :
species
Iris-setosa        0.2
Iris-versicolor    1.3
Iris-virginica     2.0
Name: petal_width, dtype: float64
```

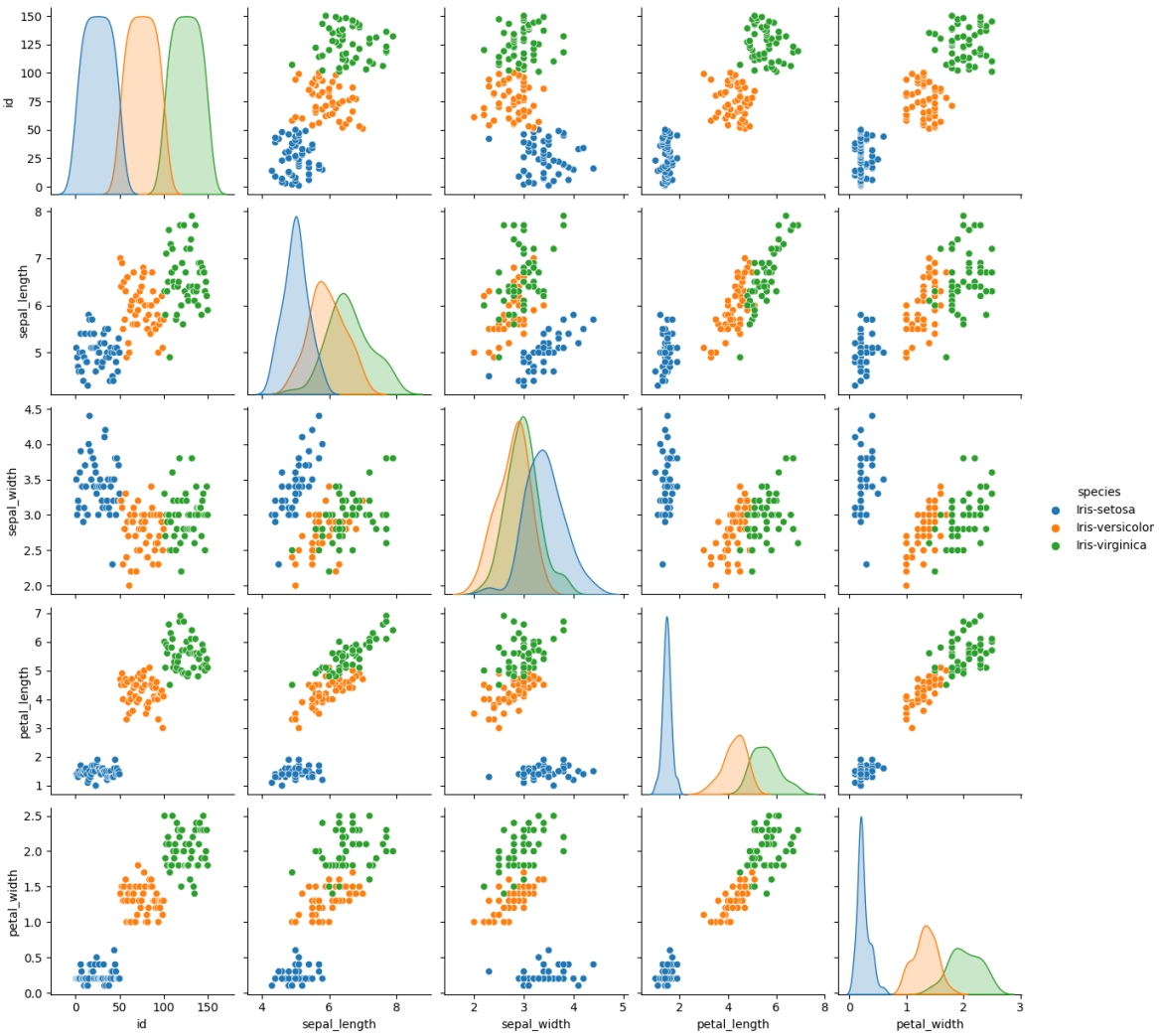
In [19]:
```
iris_df.head()
```

Out[19]:

	id	sepal_length	sepal_width	petal_length	petal_width	species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

In [20]:
```
plt.figure(figsize=(7,7))
sns.pairplot(iris_df,hue='species')
plt.show()
```

```
<Figure size 700x700 with 0 Axes>
```



In [21]:
```
iris_df.head()
```

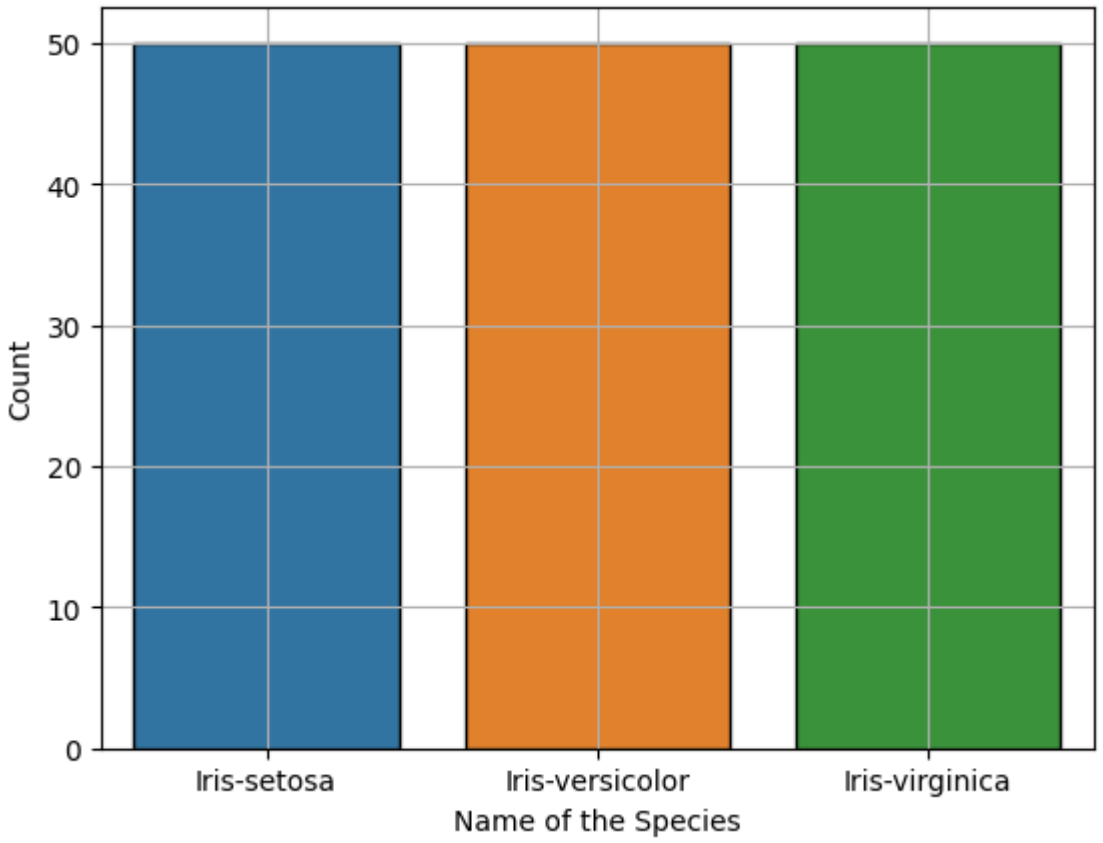
Out[21]:

	id	sepal_length	sepal_width	petal_length	petal_width	species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

In [22]:
```
iris_df['species'].value_counts()
```

Out[22]:
```
Iris-setosa        50
Iris-versicolor    50
Iris-virginica     50
Name: species, dtype: int64
```

In [23]:
```
sns.countplot(data=iris_df,x='species',ec='black')
plt.xlabel("Name of the Species")
plt.ylabel("Count")
plt.grid(True)
plt.show()
```



In [24]:
```
iris_df.head()
```

Out[24]:

	id	sepal_length	sepal_width	petal_length	petal_width	species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

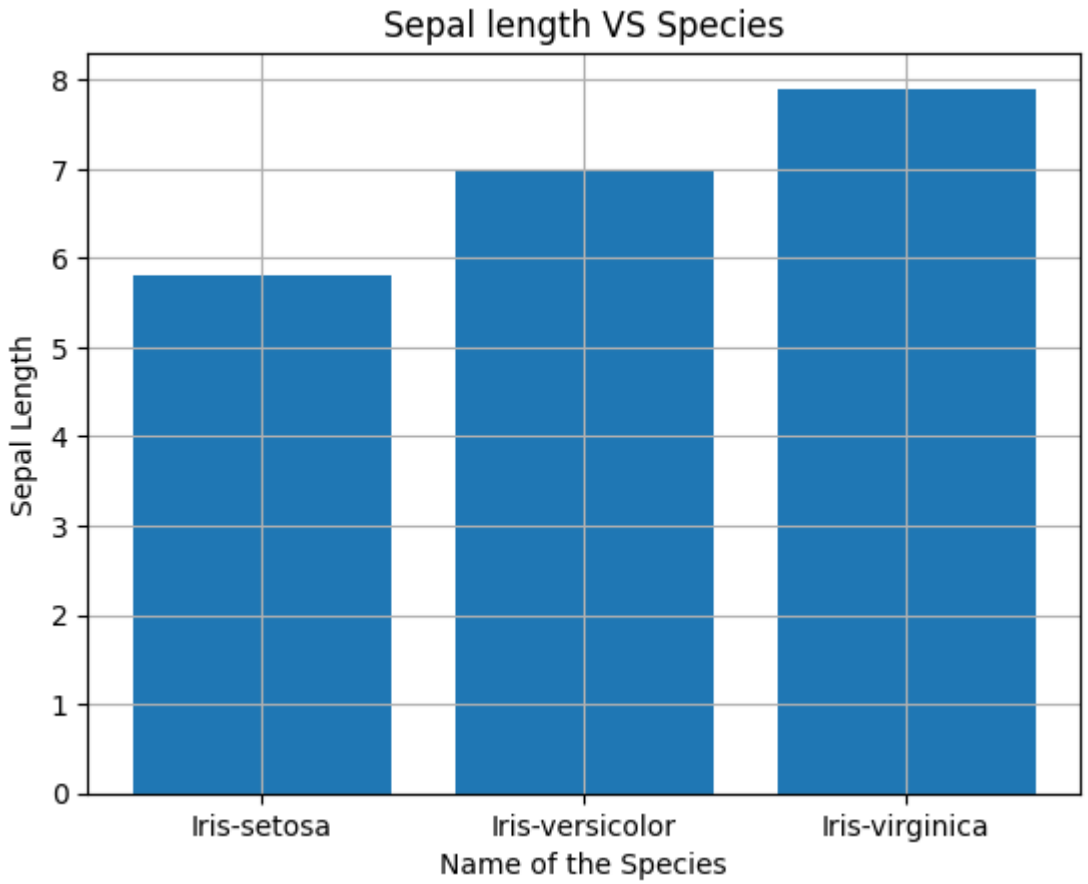
In [25]:
```
iris_df['species']
```

Out[25]:
```
0         Iris-setosa
1         Iris-setosa
2         Iris-setosa
3         Iris-setosa
4         Iris-setosa
             ...
145    Iris-virginica
146    Iris-virginica
147    Iris-virginica
148    Iris-virginica
149    Iris-virginica
Name: species, Length: 150, dtype: object
```

In [26]:
```
iris_df['sepal_length']
```

Out[26]:
```
0      5.1
1      4.9
2      4.7
3      4.6
4      5.0
      ...
145    6.7
146    6.3
147    6.5
148    6.2
149    5.9
Name: sepal_length, Length: 150, dtype: float64
```

In [27]:
```
plt.bar(iris_df['species'],iris_df['sepal_length'])
plt.title("Sepal length VS Species")
plt.xlabel("Name of the Species")
plt.ylabel("Sepal Length")
plt.grid(True)
plt.show()
```



In [28]:
```
iris_df.head()
```

Out[28]:

	id	sepal_length	sepal_width	petal_length	petal_width	species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

In [29]:
```
iris_df['species']
```

Out[29]:
```
0         Iris-setosa
1         Iris-setosa
2         Iris-setosa
3         Iris-setosa
4         Iris-setosa
             ...
145    Iris-virginica
146    Iris-virginica
147    Iris-virginica
148    Iris-virginica
149    Iris-virginica
Name: species, Length: 150, dtype: object
```

In [30]:
```
iris_df['sepal_width']
```

Out[30]:
```
0      3.5
1      3.0
2      3.2
3      3.1
4      3.6
      ...
145    3.0
146    2.5
147    3.0
148    3.4
149    3.0
Name: sepal_width, Length: 150, dtype: float64
```

In [31]:
```
plt.bar(iris_df['species'],iris_df['sepal_width'])
plt.title("Sepal Width VS Species")
plt.xlabel("Name of the Species")
plt.ylabel("Sepal Width")
plt.grid(True)
plt.show()
```

In [32]:
```
iris_df.head()
```

Out[32]:

	id	sepal_length	sepal_width	petal_length	petal_width	species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

In [33]:
```
iris_df['petal_length']
```

Out[33]:
```
0      1.4
1      1.4
2      1.3
3      1.5
4      1.4
      ...
145    5.2
146    5.0
147    5.2
148    5.4
149    5.1
Name: petal_length, Length: 150, dtype: float64
```

In [34]:
```
iris_df['species']
```

Out[34]:
```
0         Iris-setosa
1         Iris-setosa
2         Iris-setosa
3         Iris-setosa
4         Iris-setosa
             ...
145    Iris-virginica
146    Iris-virginica
147    Iris-virginica
148    Iris-virginica
149    Iris-virginica
Name: species, Length: 150, dtype: object
```

In [35]:
```
plt.bar(iris_df['species'],iris_df['petal_length'])
plt.title("Petal Length VS Species")
plt.xlabel("Name of the Species")
plt.ylabel("Petal Length")
plt.grid(True)
plt.show()
```

In [36]:
```
iris_df.head()
```

Out[36]:

	id	sepal_length	sepal_width	petal_length	petal_width	species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

In [37]:
```
iris_df['petal_width']
```

Out[37]:
```
0      0.2
1      0.2
2      0.2
3      0.2
4      0.2
      ...
145    2.3
146    1.9
147    2.0
148    2.3
149    1.8
Name: petal_width, Length: 150, dtype: float64
```

In [38]:
```
iris_df['species']
```

Out[38]:
```
0         Iris-setosa
1         Iris-setosa
2         Iris-setosa
3         Iris-setosa
4         Iris-setosa
             ...
145    Iris-virginica
146    Iris-virginica
147    Iris-virginica
148    Iris-virginica
149    Iris-virginica
Name: species, Length: 150, dtype: object
```

In [39]:
```
plt.bar(iris_df['species'],iris_df['petal_width'])
plt.title("Petal Width VS Spcies")
plt.xlabel("Name of the Species")
plt.ylabel("Petal Width")
plt.grid(True)
plt.show()
```

In [40]:
```
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression, LogisticRegression
from sklearn.metrics import accuracy_score, classification_report, mean_absolute
from sklearn.preprocessing import StandardScaler
from sklearn.svm import SVC
X=iris_df.drop('species',axis=1)
X.head()
```

Out[40]:

	id	sepal_length	sepal_width	petal_length	petal_width
0	1	5.1	3.5	1.4	0.2
1	2	4.9	3.0	1.4	0.2
2	3	4.7	3.2	1.3	0.2
3	4	4.6	3.1	1.5	0.2
4	5	5.0	3.6	1.4	0.2

In [41]:
```
type(X)
```

Out[41]:
```
pandas.core.frame.DataFrame
```

In [42]:
```
Y=iris_df['species']
```

In [43]:
```
Y
```

Out[43]:
```
0          Iris-setosa
1          Iris-setosa
2          Iris-setosa
3          Iris-setosa
4          Iris-setosa
             ...
145    Iris-virginica
146    Iris-virginica
147    Iris-virginica
148    Iris-virginica
149    Iris-virginica
Name: species, Length: 150, dtype: object
```

In [44]:
```
type(Y)
```

Out[44]:
```
pandas.core.series.Series
```

In [45]:
```
X_train,X_test,Y_train,Y_test=train_test_split(X,Y,test_size=0.24,random_state=2
X_train.head()
```

Out[45]:

	id	sepal_length	sepal_width	petal_length	petal_width
85	86	6.0	3.4	4.5	1.6
1	2	4.9	3.0	1.4	0.2
51	52	6.4	3.2	4.5	1.5
130	131	7.4	2.8	6.1	1.9
55	56	5.7	2.8	4.5	1.3

In [46]:
```
X_train.shape
```

Out[46]:
```
(114, 5)
```

In [47]:
```
type(X_train)
```

Out[47]: pandas.core.frame.DataFrame

In [48]:
```
X_test.head()
```

Out[48]:

	id	sepal_length	sepal_width	petal_length	petal_width
47	48	4.6	3.2	1.4	0.2
73	74	6.1	2.8	4.7	1.2
74	75	6.4	2.9	4.3	1.3
129	130	7.2	3.0	5.8	1.6
67	68	5.8	2.7	4.1	1.0

In [49]:
```
X_test.shape
```

Out[49]: (36, 5)

In [50]:
```
type(X_test)
```

Out[50]: pandas.core.frame.DataFrame

In [51]:
```
Y_train.head()
```

Out[51]:
```
85     Iris-versicolor
1          Iris-setosa
51     Iris-versicolor
130     Iris-virginica
55     Iris-versicolor
Name: species, dtype: object
```

In [52]:
```
Y_train.shape
```

Out[52]: (114,)

In [53]:
```
type(Y_train)
```

Out[53]: pandas.core.series.Series

In [54]:
```
Y_test.head()
```

Out[54]:
```
47         Iris-setosa
73     Iris-versicolor
74     Iris-versicolor
129     Iris-virginica
67     Iris-versicolor
Name: species, dtype: object
```

In [55]:
```
Y_test.shape
```

Out[55]: (36,)

In [56]:
```
type(Y_test)
```

Out[56]: pandas.core.series.Series

In [57]:
```
scaler=StandardScaler()
X_train=scaler.fit_transform(X_train)
X_train
```

Out[57]:
```
array([[ 0.25058993,  0.16782396,  0.69731669,  0.41803027,  0.49149268],
       [-1.67683912, -1.16414597, -0.20346634, -1.32614799, -1.315932  ],
       [-0.52955992,  0.65217667,  0.24692517,  0.41803027,  0.36239091],
       [ 1.28314121,  1.86305843, -0.65385786,  1.31825131,  0.87879796],
       [-0.43777759, -0.19544056, -0.65385786,  0.41803027,  0.10418739],
       [ 1.37492354,  0.28891214, -1.10424937,  1.03693224,  0.23328915],
       [-0.8507981 , -1.16414597,  0.02172942, -1.26988417, -1.44503377],
       [-0.20832175,  1.01544119,  0.02172942,  0.36176646,  0.23328915],
       [-0.414832  ,  0.53108849,  0.47212093,  0.5305579 ,  0.49149268],
       [-1.65389354, -1.40632232,  0.24692517, -1.3824118 , -1.315932  ],
       [-1.58505679, -0.55870509,  1.82329547, -1.15735654, -1.05772848],
       [-0.57545109, -1.0430578 ,  0.47212093, -1.32614799, -1.315932  ],
       [ 0.89306628, -0.19544056, -1.32944513,  0.69934935,  1.00789973],
       [-0.69017901, -0.92196962,  1.59809971, -1.04482891, -1.05772848],
       [ 1.32903238,  0.65217667, -0.65385786,  1.03693224,  1.26610325],
       [ 1.69616172,  0.41000031,  0.69731669,  0.92440461,  1.39520502],
       [-0.9884716 , -0.55870509,  0.69731669, -1.26988417, -1.05772848],
       [ 0.59477369,  0.53108849,  0.47212093,  1.2619875 ,  1.65340854],
       [-0.2771585 ,  0.16782396, -2.0050324 ,  0.1367112 , -0.2831179 ],
       [-0.23126733, -0.31652874, -0.4286621 , -0.08834406,  0.10418739],
       [-0.18537617, -0.31652874, -0.20346634,  0.41803027,  0.36239091],
       [-0.75901576, -1.64849868, -1.77983664, -1.3824118 , -1.18683024],
       [-0.80490693, -0.92196962,  0.69731669, -1.26988417, -1.315932  ],
       [ 0.13586201, -0.43761692, -1.55464088,  0.02418357, -0.15401614],
       [ 0.52593694,  0.41000031, -0.4286621 ,  0.30550264,  0.10418739],
       [ 0.41120902, -0.07435239, -1.10424937,  0.1367112 , -0.02491438],
       [-0.11653941, -0.31652874, -1.32944513,  0.08044738, -0.15401614],
       [ 0.27353551,  1.01544119,  0.02172942,  0.5305579 ,  0.36239091],
       [-0.46072317,  0.77326484, -0.65385786,  0.47429409,  0.36239091],
       [ 0.50299135, -0.19544056, -0.4286621 ,  0.24923883,  0.10418739],
       [-1.17203627, -0.92196962,  0.47212093, -1.15735654, -0.92862672],
       [-0.139485  ,  0.41000031, -2.0050324 ,  0.41803027,  0.36239091],
       [ 0.2964811 ,  0.53108849, -1.77983664,  0.36176646,  0.10418739],
       [-1.49327445, -1.16414597,  0.02172942, -1.26988417, -1.44503377],
       [-0.82785252, -1.76958685, -0.20346634, -1.3824118 , -1.315932  ],
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       [-0.87374368, -0.43761692,  0.92251244, -1.3824118 , -1.315932  ],
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```

```
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[ 0.57182811, -0.19544056, -0.65385786,  0.19297501,  0.10418739]])
```

In [58]:
```
X_train.shape
```

Out[58]: (114, 5)

In [59]:
```
type(X_train)
X_test=scaler.fit_transform(X_test)
X_test
```

Out[59]:
```
array([[-0.68050667, -1.44478718,  0.70734698, -1.39251151, -1.31338208],
       [-0.0668706 ,  0.38234415, -0.37624839,  0.5514411 ,  0.09381301],
       [-0.04326921,  0.74777041, -0.10534955,  0.31581048,  0.23453251],
       [ 1.25480709,  1.72224045,  0.16554929,  1.1994253 ,  0.65669104],
       [-0.20847892,  0.01691788, -0.64714724,  0.19799517, -0.18762601],
       [ 0.3107516 , -0.34850838, -1.18894492,  0.13908752,  0.23453251],
       [ 1.58522652,  1.23500543,  0.70734698,  1.25833296,  1.6417276 ],
       [-1.29414274, -0.8357434 ,  2.0618412 , -1.33360385, -1.03194307],
       [ 0.75917796,  1.11319668, -1.18894492,  1.1994253 ,  0.93813006],
       [-1.50655522, -1.20116967,  0.16554929, -1.39251151, -1.45410159],
       [ 1.67963207,  0.86957917,  0.16554929,  0.84597938,  1.21956908],
       [ 0.00393356,  1.23500543, -0.37624839,  0.61034876,  0.37525202],
       [ 1.01879322,  0.26053539, -2.00164146,  0.72816407,  0.51597153],
       [-0.96372332, -0.95755216,  0.70734698, -1.51032681, -1.31338208],
       [-1.12893303, -0.71393465,  1.24914467, -1.39251151, -1.31338208],
       [ 1.08959738,  2.33128423, -0.37624839,  1.7295942 ,  1.21956908],
       [-1.48295384, -1.81021344,  0.16554929, -1.56923447, -1.45410159],
       [-0.42089141,  0.99138792, -0.10534955,  0.49253345,  0.23453251],
       [ 0.90078628,  0.01691788, -0.37624839,  0.78707172,  1.78244711],
       [-0.44449279, -1.07936091, -1.45984377, -0.27326607, -0.18762601],
       [-0.60970251,  1.47862294,  0.70734698,  0.5514411 ,  0.37525202],
       [ 1.72683484,  0.13872664,  0.16554929,  0.78707172,  0.93813006],
       [ 0.82998212,  0.74777041, -0.64714724,  0.90488703,  1.07884957],
       [-1.31774413, -0.47031714,  1.24914467, -1.21578854, -1.31338208],
       [-0.09047198,  0.62596166, -1.18894492,  0.66925641,  0.51597153],
       [ 0.1219405 , -0.34850838, -1.45984377, -0.03763545, -0.18762601],
       [ 0.52316409, -0.8357434 , -1.18894492, -0.44998903, -0.0469065 ],
       [-0.9873247 , -1.07936091,  0.43644814, -1.33360385, -1.45410159],
       [ 0.66477241,  0.86957917,  0.16554929,  1.1994253 ,  1.5010081 ],
       [ 1.34921264,  0.62596166, -0.37624839,  0.78707172,  0.51597153],
       [ 0.45235992, -0.10489087,  0.16554929,  0.25690283,  0.09381301],
       [ 0.28715021, -0.22669963,  0.16554929,  0.19799517,  0.23453251],
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       [-0.70410806, -0.8357434 ,  2.33274004, -1.2746962 , -1.31338208],
       [-1.53015661, -1.20116967,  1.24914467, -1.2746962 , -1.31338208],
       [ 0.71197518, -1.07936091, -1.18894492,  0.43362579,  0.79741055]])
```

In [60]:
```
X_test.shape
```

Out[60]:
```
(36, 5)
```

In [61]:
```
type(X_train)
print(X_train.shape)
print(X_test.shape)
print(Y_test.shape)
print(Y_train.shape)
```

```
(114, 5)
(36, 5)
(36,)
(114,)
```

In [62]:
```
model=LogisticRegression()
model.fit(X_train,Y_train)
```

Out[62]:
```
LogisticRegression
LogisticRegression()
```

In [63]:
```
y_pred=model.predict(X_test)
y_pred
```

Out[63]:
```
array(['Iris-setosa', 'Iris-versicolor', 'Iris-versicolor',
       'Iris-virginica', 'Iris-versicolor', 'Iris-versicolor',
       'Iris-virginica', 'Iris-setosa', 'Iris-virginica', 'Iris-setosa',
       'Iris-virginica', 'Iris-versicolor', 'Iris-virginica',
       'Iris-setosa', 'Iris-setosa', 'Iris-virginica', 'Iris-setosa',
       'Iris-versicolor', 'Iris-virginica', 'Iris-versicolor',
       'Iris-versicolor', 'Iris-virginica', 'Iris-virginica',
       'Iris-setosa', 'Iris-versicolor', 'Iris-versicolor',
       'Iris-versicolor', 'Iris-setosa', 'Iris-virginica',
       'Iris-virginica', 'Iris-versicolor', 'Iris-versicolor',
       'Iris-setosa', 'Iris-setosa', 'Iris-setosa', 'Iris-versicolor'],
      dtype=object)
```

In [64]:
```
print(X_test.shape)
print(y_pred.shape)
```

```
(36, 5)
(36,)
```

In [65]:
```
train_accuracy=model.score(X_train,Y_train)
print("The training accuracy is",train_accuracy)
```

```
The training accuracy is 1.0
```

In [66]:
```
test_accuracy=model.score(X_test,Y_test)
print("The testing accuracy is",test_accuracy)
```

```
The testing accuracy is 0.9722222222222222
```

In [67]:
```
Final conclusion
The training accuarcy is 0.97 which is slightly less than testing accuracy.This
Overall model exhibits high accuracy on the training and testing data, which is
```

```
  Cell In[67], line 1
    Final conclusion
          ^
SyntaxError: invalid syntax
```

In [ ]:

In [ ]: