In [52]:
```
import pandas as pd
import matplotlib.pyplot as plt
import numpy as np
import seaborn as sns
import sklearn
from sklearn import preprocessing
```

In [53]:
```
csv_url  =  'https://archive.ics.uci.edu/ml/machine-learning-databases/iris/iris.dat
```

In [54]:
```
dataframe1=pd.read_csv(csv_url,header=None)
```

In [55]:
```
print(dataframe1)
```

```
       0    1    2    3               4
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]
```

In [56]:
```
col_names  =  ['Sepal_Length','Sepal_Width','Petal_Length','Petal_Width','Species']
```

In [57]:
```
 iris = pd.read_csv(csv_url, names = col_names)
```

In [58]:
```
dataframe1=pd.read_csv(csv_url,  names  =  col_names)
```

In [59]:
```
print(dataframe1)
```

```
     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]
```

In [60]:
```
dataframe1=dataframe1.isnull()
```

In [61]:
```
print(dataframe1)
```

```
     Sepal_Length  Sepal_Width  Petal_Length  Petal_Width  Species
0           False        False         False        False    False
1           False        False         False        False    False
2           False        False         False        False    False
3           False        False         False        False    False
4           False        False         False        False    False
..            ...          ...           ...          ...      ...
145         False        False         False        False    False
146         False        False         False        False    False
147         False        False         False        False    False
148         False        False         False        False    False
149         False        False         False        False    False

[150 rows x 5 columns]
```

In [62]:
```
dataframe1=  dataframe1.isnull().any()
```

In [63]:
```
print(dataframe1)
```

```
Sepal_Length    False
Sepal_Width     False
Petal_Length    False
Petal_Width  False
Species         False
dtype: bool
```

In [64]:
```
dataframe1=  dataframe1.isnull().sum().sum()
```

In [65]:
```
print(dataframe1)
```

```
0
```

In [66]:
```
from sklearn.datasets import load_iris
```

In [67]:
```
iris=load_iris()
```

In [68]:
```
df  =  pd.DataFrame(iris.data,columns=iris.feature_names)
```

In [69]:
```
df.head()
```

Out[69]:

	sepal length (cm)	sepal width (cm)	petal length (cm)	petal width (cm)
0	5.1	3.5	1.4	0.2
1	4.9	3.0	1.4	0.2
2	4.7	3.2	1.3	0.2
3	4.6	3.1	1.5	0.2
4	5.0	3.6	1.4	0.2

In [70]:
```
x=df[['sepal  length  (cm)']].values.astype(float)
```

In [71]:
```
min_max_scaler  =  preprocessing.MinMaxScaler()
```

In [72]:
```
x_scaled  =  min_max_scaler.fit_transform(x)
```

In [73]:
```
df_normalized  =  pd.DataFrame(x_scaled)
```

In [74]:
```
df_normalized
```

Out[74]:

	0
0	0.222222
1	0.166667
2	0.111111
3	0.083333
4	0.194444
...	...
145	0.666667
146	0.555556
147	0.611111
148	0.527778
149	0.444444

In [75]:
```
print(x)
```

```
[4.4]
[5. ]
[5.1]
[4.8]
[5.1]
[4.6]
[5.3]
[5.5]
[6.5]
[5.7]
[6.3]
[5. ]
[5.6]
[5.7]
[5.7]
[6.2]
[5.1]
[5.7]
[6.3]
[5.8]
[7.1]
[6.3]
[6.5]
[7.6]
[4.9]
[7.3]
[6.7]
[7.2]
[6.5]
[6.4]
[6.8]
[5.7]
[6.7]
[6.3]
[6.5]
[6.2]
[5.9]]
```

In [76]:
```
df=pd.read_csv(csv_url,header=None)
```

In [79]:
```
col_names  =  ['Sepal_Length','Sepal_Width','Petal_Length','Petal_Width','Species']
```

In [80]:
```
 iris = pd.read_csv(csv_url, names = col_names)
```

In [81]:
```
dataframe1=pd.read_csv(csv_url,  names  =  col_names)
```

In [82]:
```
print(dataframe1)
```

```
     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]
```

In [83]:
```
dataframe1=df
```

In [86]:
```
label_encoder  =  preprocessing.LabelEncoder()
```

In [101…
```
csv_url  =  'https://archive.ics.uci.edu/ml/machine-learning-databases/iris/iris.dat
```

In [102…
```
df=pd.read_csv(csv_url,header=None)
```

In [103…
```
print(df)
```

```
       0    1    2    3               4
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]
```

In [104…
```
col_names  =  ['Sepal_Length','Sepal_Width','Petal_Length','Petal_Width','Species']
```

In [105…
```
 iris = pd.read_csv(csv_url, names = col_names)
```

In [107…
```
df=pd.read_csv(csv_url,  names  =  col_names)
```

In [108…
```
print(df)
```

```
     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]
```

In [109…
```
df['Species'].unique()
```

Out[109]:
```
array(['Iris-setosa',  'Iris-versicolor',  'Iris-virginica'],  dtype=object)
```

In [110…
```
label_encoder  =  preprocessing.LabelEncoder()
```

In [111…
```
df['Species']=  label_encoder.fit_transform(df['Species'])
```

In [121…
```
df['Species'].unique()
```

Out[121]:
```
array([0, 1, 2])
```

In [122…
```
df['Species'].unique()
```

Out[122]:
```
array([0, 1, 2])
```

In [123…
```
enc  =  preprocessing.OneHotEncoder()
```

In [127…
```
one_hot_df  =  pd.get_dummies(df,  prefix="Species",columns=['Species'],  drop_first=F
```

In [128…
```
one_hot_df
```

Out[128]:

	Sepal_Length	Sepal_Width	Petal_Length	Petal_Width	Species_0	Species_1	Species_2
0	5.1	3.5	1.4	0.2	1	0	0
1	4.9	3.0	1.4	0.2	1	0	0
2	4.7	3.2	1.3	0.2	1	0	0
3	4.6	3.1	1.5	0.2	1	0	0
4	5.0	3.6	1.4	0.2	1	0	0
...	...	...	...	...	...	...	...
145	6.7	3.0	5.2	2.3	0	0	1
146	6.3	2.5	5.0	1.9	0	0	1
147	6.5	3.0	5.2	2.0	0	0	1
148	6.2	3.4	5.4	2.3	0	0	1
149	5.9	3.0	5.1	1.8	0	0	1

150 rows × 7 columns