EXPERIMENT 1

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A PYTHON PROGRAM TO IMPLEMENT UNIVARIATE ,BIVARIATE AND MULTIVARIATE REGRESSION

AIM:

TO IMPLEMENT A PYTHON PROGRAM TO IMPLEMENT UNIVARIATE ,BIVARIATE AND MULTIVARIATE REGRESSION

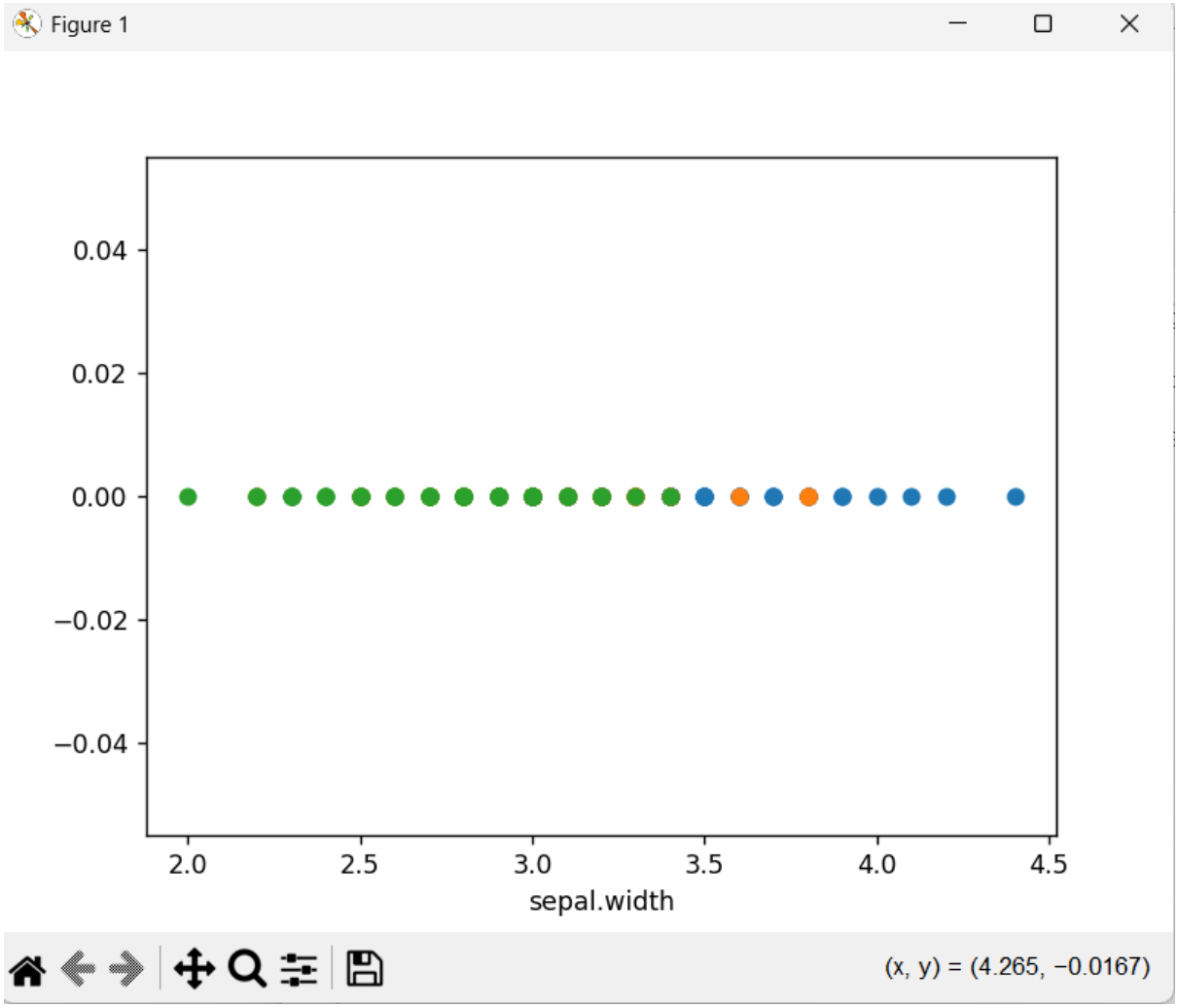
CODE:

```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import numpy as np
df = pd.read_csv('../input/iris-dataset/iris.csv') df.head(150)
df.shape (150,5)

#univariate for sepal width
df.loc[df['variety']=='Setosa'] df_Setosa=df.loc[df['variety']=='Setosa']
df_Virginica=df.loc[df['variety']=='Virginica']
df_Versicolor=df.loc[df['variety']=='Versicolor']
plt.scatter(df_Setosa['sepal.width'],np.zeros_like(df_Setosa['sepal.widt
h']))
plt.scatter(df_Virginica['sepal.width'],np.zeros_like(df_Virginica['sepal.
width']))
plt.scatter(df_Versicolor['sepal.width'],np.zeros_like(df_Versicolor['sep
al.width']))
plt.xlabel('sepal.width')
plt.show()

#univariate for sepal length
df.loc[df['variety']=='Setosa']
df_Setosa=df.loc[df['variety']=='Setosa']
```

```
df_Virginica=df.loc[df['variety']=='Virginica']
df_Versicolor=df.loc[df['variety']=='Versicolor']
plt.scatter(df_Setosa['sepal.length'],np.zeros_like(df_Setosa['sepal.length']))
plt.scatter(df_Virginica['sepal.length'],np.zeros_like(df_Virginica['sepal.length']))
plt.scatter(df_Versicolor['sepal.length'],np.zeros_like(df_Versicolor['sepal.length'])) plt.xlabel('sepal.length')
plt.show()

#univariate for petal width
df.loc[df['variety']=='Setosa']
df_Setosa=df.loc[df['variety']=='Setosa']
df_Virginica=df.loc[df['variety']=='Virginica']
df_Versicolor=df.loc[df['variety']=='Versicolor']
plt.scatter(df_Setosa['petal.width'],np.zeros_like(df_Setosa['petal.width']))
plt.scatter(df_Virginica['petal.width'],np.zeros_like(df_Virginica['petal.width']))
plt.scatter(df_Versicolor['petal.width'],np.zeros_like(df_Versicolor['petal.width']))
plt.xlabel('petal.width')
plt.show()


#univariate for petal length
df.loc[df['variety']=='Setosa'] df_Setosa=df.loc[df['variety']=='Setosa']
df_Virginica=df.loc[df['variety']=='Virginica']
df_Versicolor=df.loc[df['variety']=='Versicolor']
plt.scatter(df_Setosa['petal.length'],np.zeros_like(df_Setosa['petal.length']))
plt.scatter(df_Virginica['petal.length'],np.zeros_like(df_Virginica['petal.length']))
plt.scatter(df_Versicolor['petal.length'],np.zeros_like(df_Versicolor['petal.length'])) plt.xlabel('petal.length')
plt.show()
```

```
#bivariate sepal.width vs petal.width
sns.FacetGrid(df,hue='variety',height=5).map(plt.scatter,"sepal.width","
petal.width").add_legend();
plt.show()

#bivariate sepal.length vs petal.length
sns.FacetGrid(df,hue='variety',height=5).map(plt.scatter,"sepal.length",
"petal.length").add_legend();
plt.show()

#multivariate all the features
sns.pairplot(df,hue="variety",size=2)
```

OUTPUT:



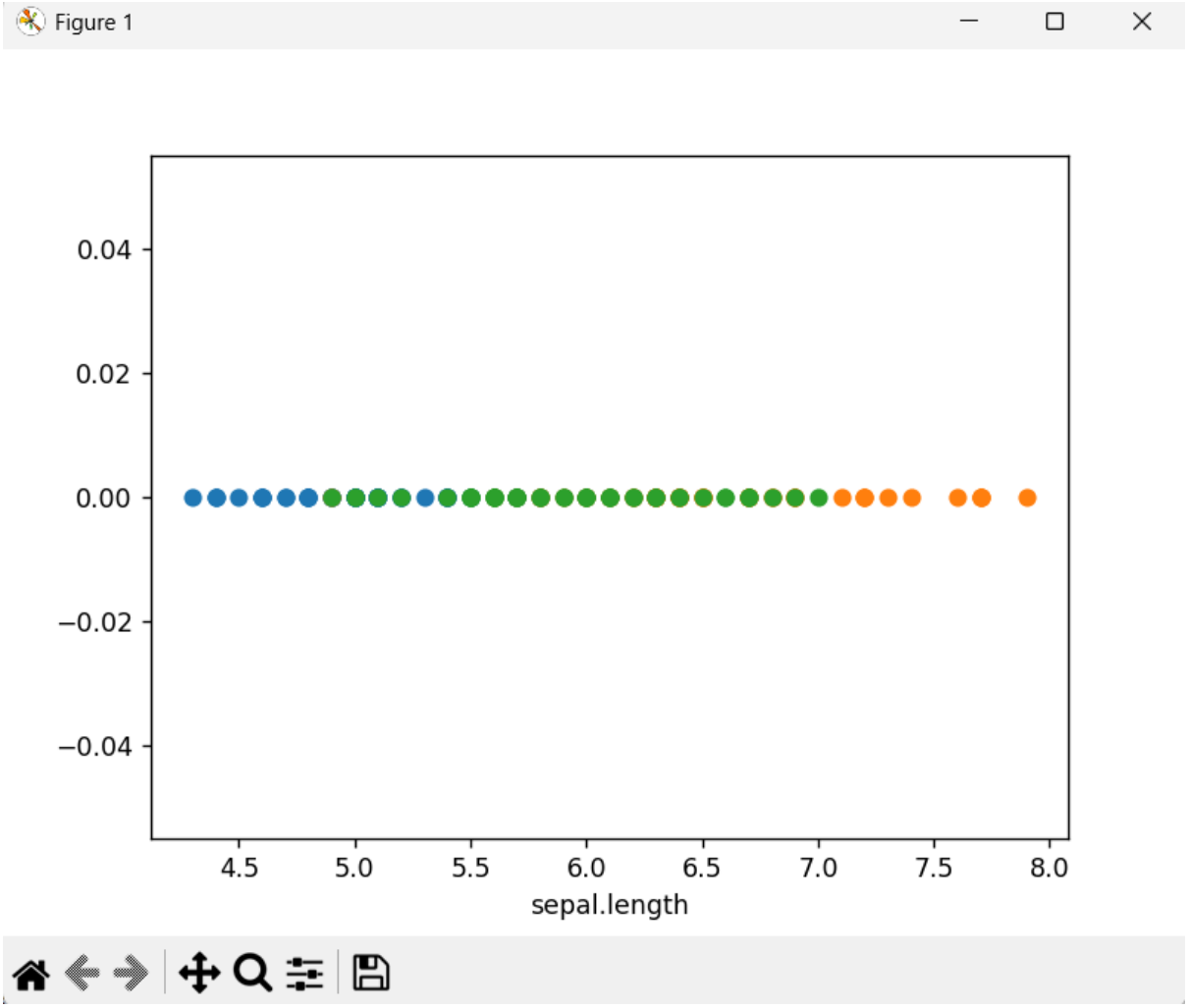


Figure 1
0.04
0.02
0.00
−0.02
−0.04
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
sepal.length

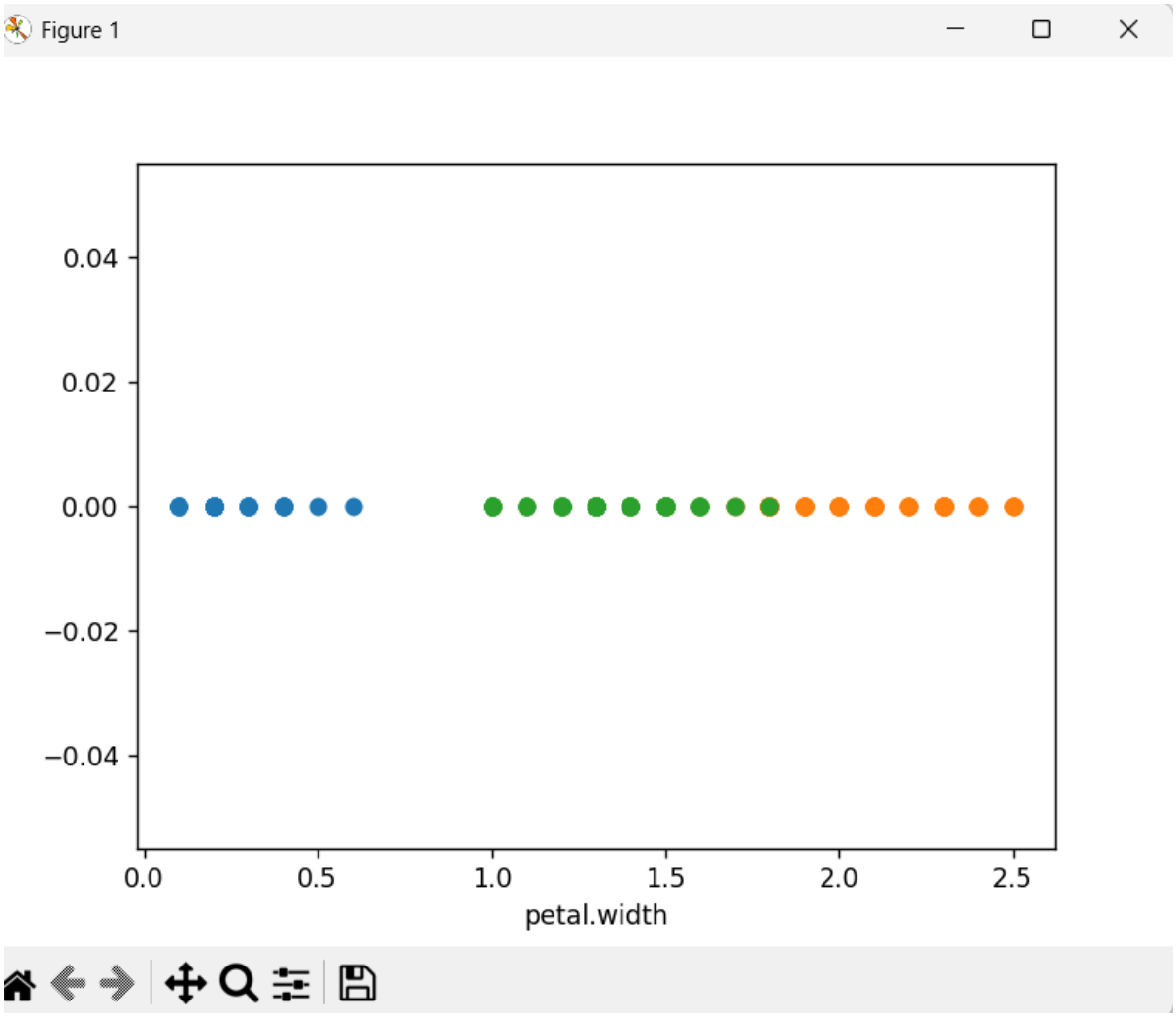


Figure 1
0.04
0.02
0.00
−0.02
−0.04
0.0
0.5
1.0
1.5
2.0
2.5
petal.width

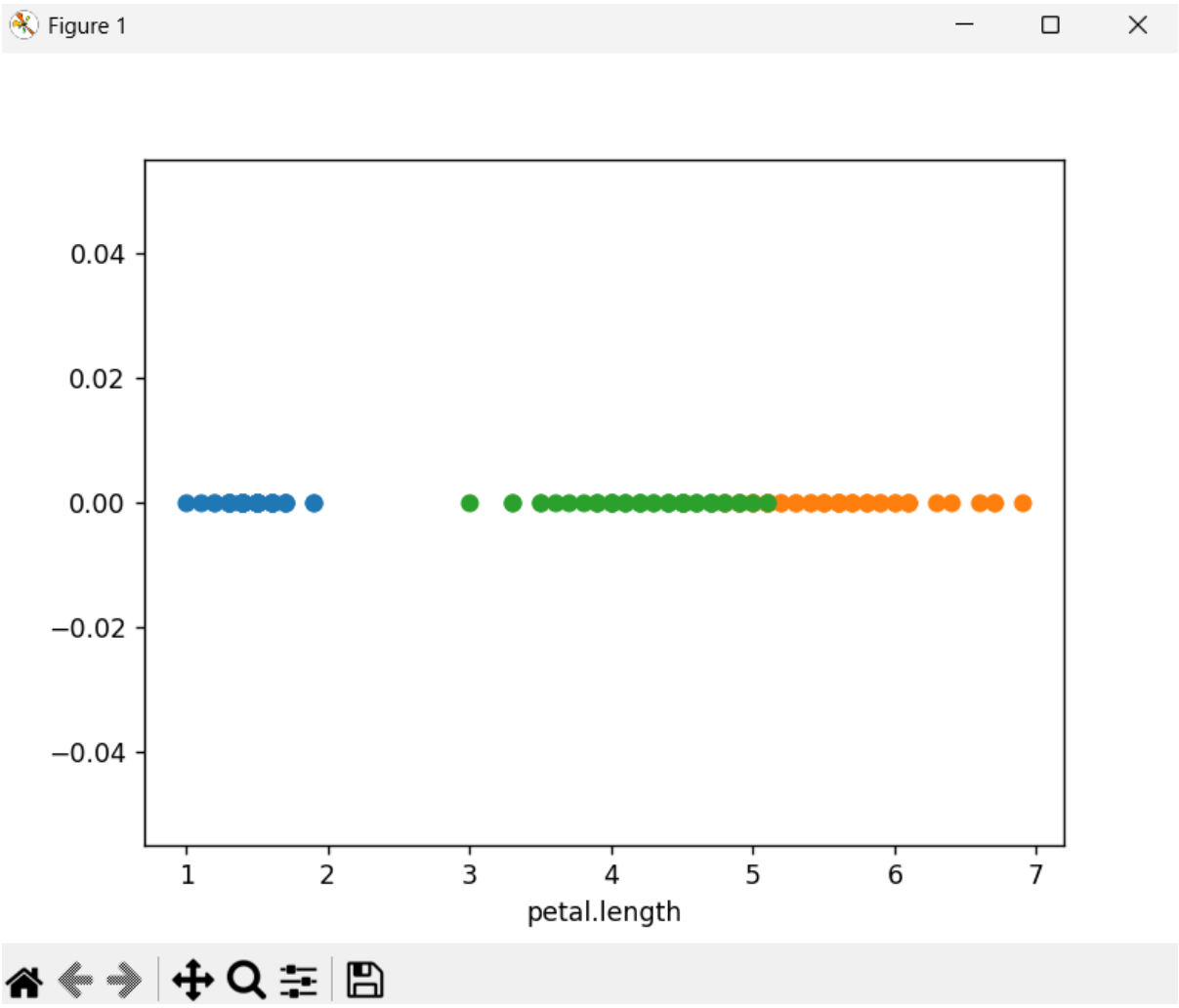


Figure 1
0.04
0.02
0.00
−0.02
−0.04
1
2
3
4
5
6
7
petal.length

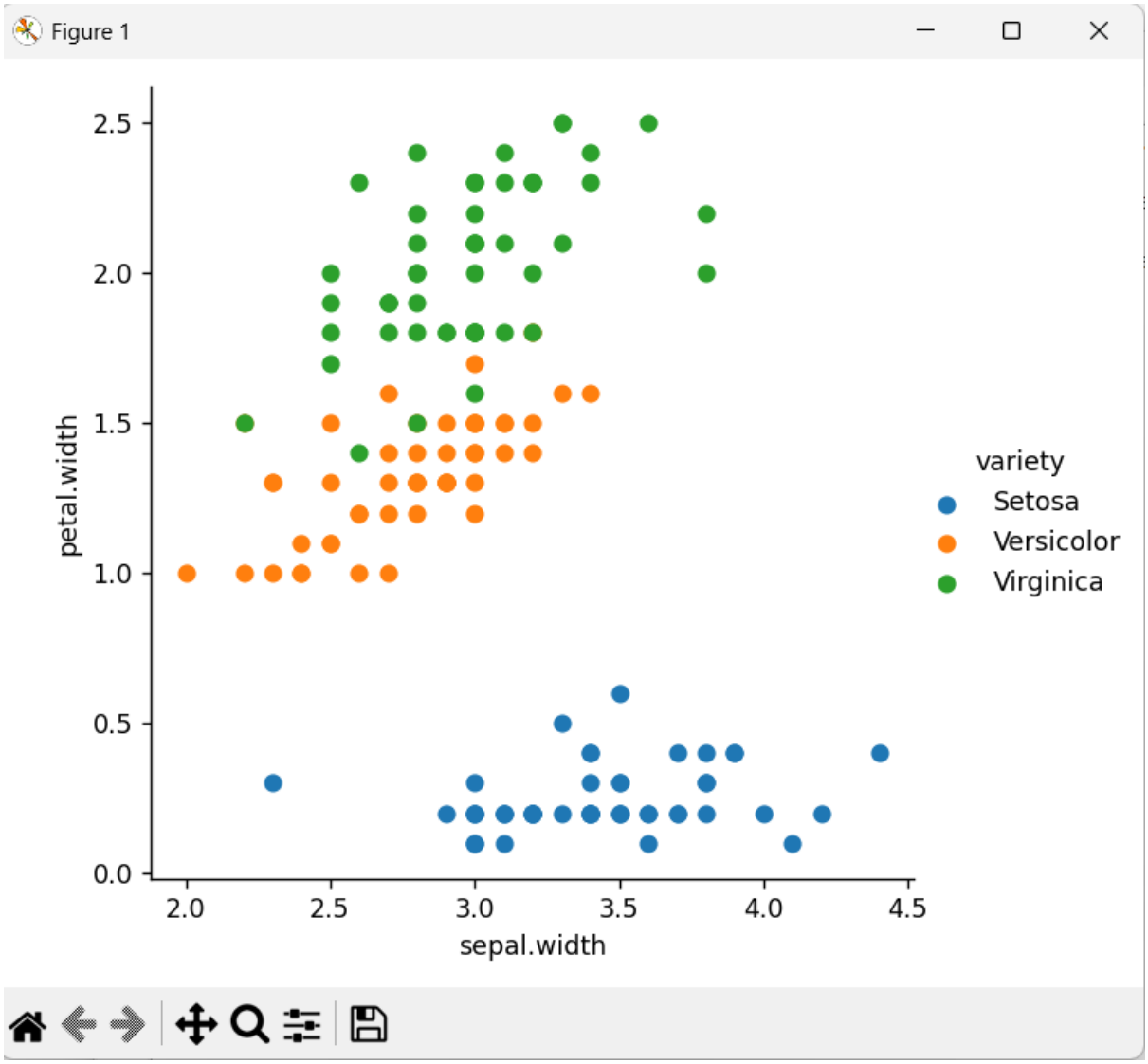
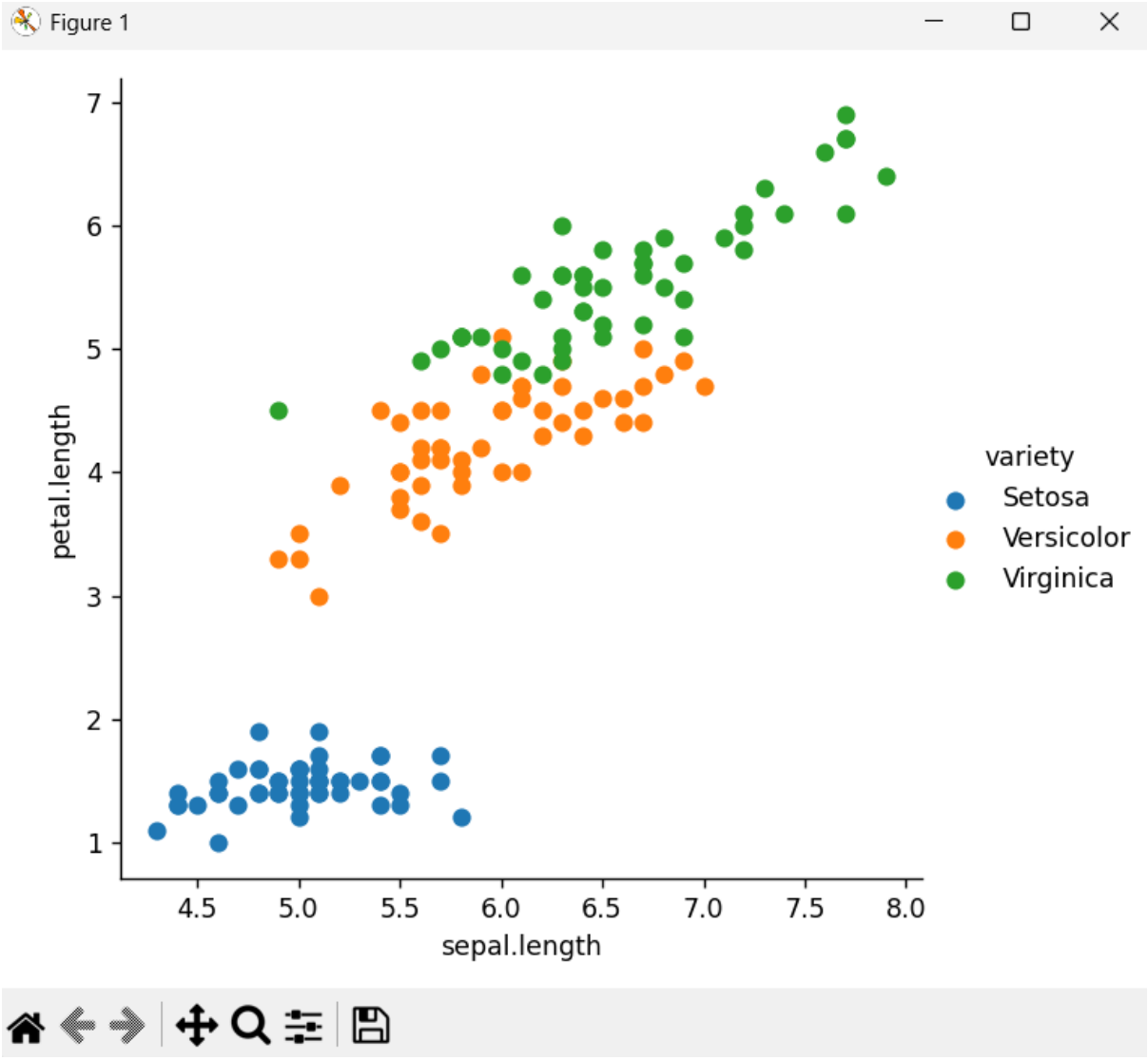


Figure 1
2.5
2.0
1.5
1.0
0.5
0.0
petal.width
2.0
2.5
3.0
3.5
4.0
4.5
sepal.width
variety
Setosa
Versicolor
Virginica



RESULT:

TO IMPLEMENT A PYTHON PROGRAM TO IMPLEMENT UNIVARIATE ,BIVARIATE AND MULTIVARIATE REGRESSION AS BEEN ANALYSED AND VERIFIED