A PYTHON PROGRAM TO IMPLEMENT UNIVARIATE, BIVARIATE AND MULTIVARIATE REGRESION

Expt no. 1

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PROGRAM:

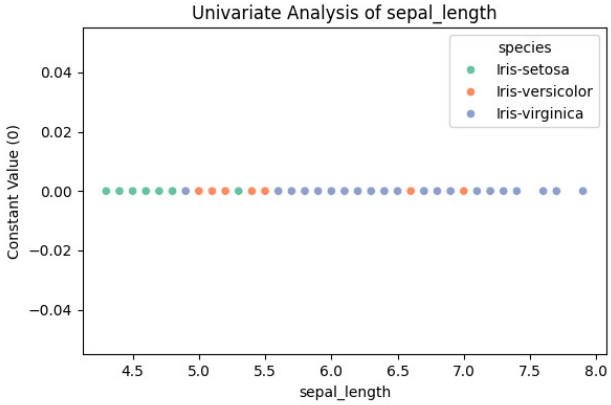
```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import numpy as np

df = pd.read_csv('/mnt/data/84d048562d-9b116-42b7-99fd-ca7c23b5d7ea.csv',
header=None) df.columns = ['sepal_length', 'sepal_width', 'petal_length', 'petal_width',
'species']
df_Setosa = df.loc[df['species'] == 'Iris-setosa']
df_Versicolor = df.loc[df['species'] == 'Iris-versicolor']
df_Virginica = df.loc[df['species'] == 'Iris-virginica']

plt.scatter(df_Setosa['sepal_width'], np.zeros_like(df_Setosa['sepal_width']),
label='Setosa') plt.scatter(df_Versicolor['sepal_width'],
np.zeros_like(df_Versicolor['sepal_width']), label='Versicolor')
plt.scatter(df_Virginica['sepal_width'],
np.zeros_like(df_Virginica['sepal_width']), label='Virginica')
plt.xlabel('sepal_width')
plt.legend()
plt.show() plt.scatter(df_Setosa['sepal_length'],

np.zeros_like(df_Setosa['sepal_length']), label='Setosa')
```

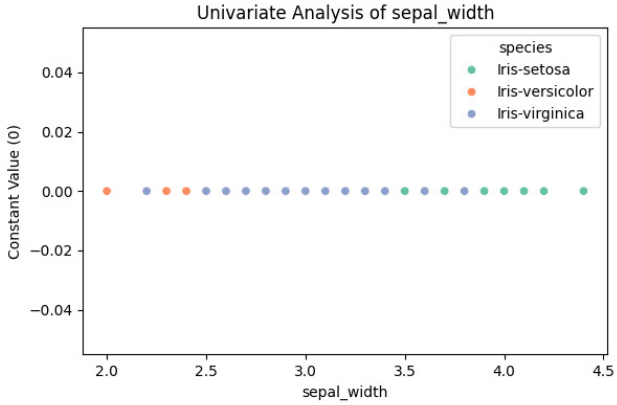
```
plt.scatter(df_Versicolor['sepal_length'],
np.zeros_like(df_Versicolor['sepal_length']), label='Versicolor')

plt.scatter(df_Virginica['sepal_length'],
np.zeros_like(df_Virginica['sepal_length']), label='Virginica')

plt.xlabel('sepal_length')

plt.legend()

plt.show()


plt.scatter(df_Setosa['petal_width'], np.zeros_like(df_Setosa['petal_width']),
label='Setosa') plt.scatter(df_Versicolor['petal_width'],
np.zeros_like(df_Versicolor['petal_width']), label='Versicolor')

plt.scatter(df_Virginica['petal_width'],
np.zeros_like(df_Virginica['petal_width']), label='Virginica')

plt.xlabel('petal_width')

plt.legend()

plt.show()


plt.scatter(df_Setosa['petal_length'], np.zeros_like(df_Setosa['petal_length']),
label='Setosa') plt.scatter(df_Versicolor['petal_length'],
np.zeros_like(df_Versicolor['petal_length']), label='Versicolor')

plt.scatter(df_Virginica['petal_length'],
np.zeros_like(df_Virginica['petal_length']), label='Virginica')

plt.xlabel('petal_length')

plt.legend()

plt.show()


sns.FacetGrid(df, hue='species', height=5).map(plt.scatter,
"sepal_width", "petal_width").add_legend()

plt.show()
```

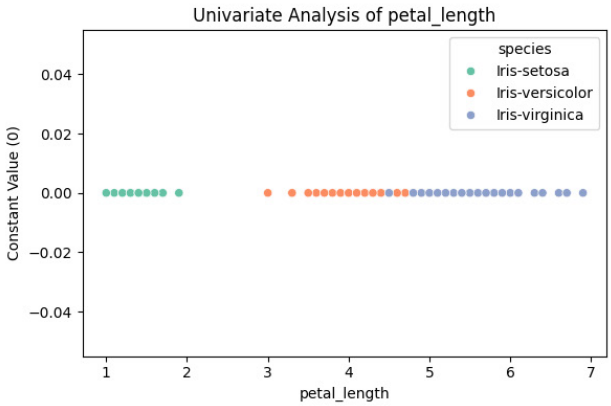
```
sns.FacetGrid(df, hue='species', height=5).map(plt.scatter,
"sepal_length", "petal_length").add_legend()

plt.show()


sns.pairplot(df, hue="species", height=2)

plt.show()
```

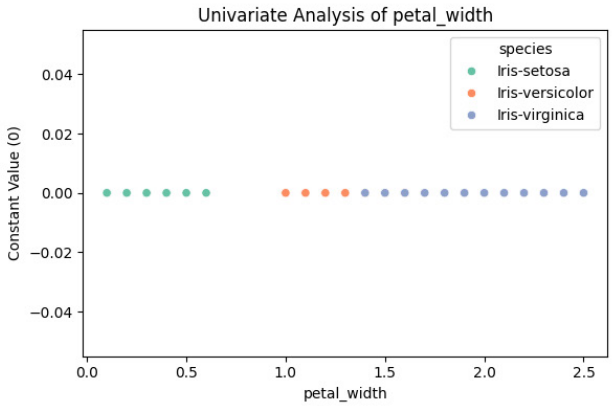
OUTPUT:

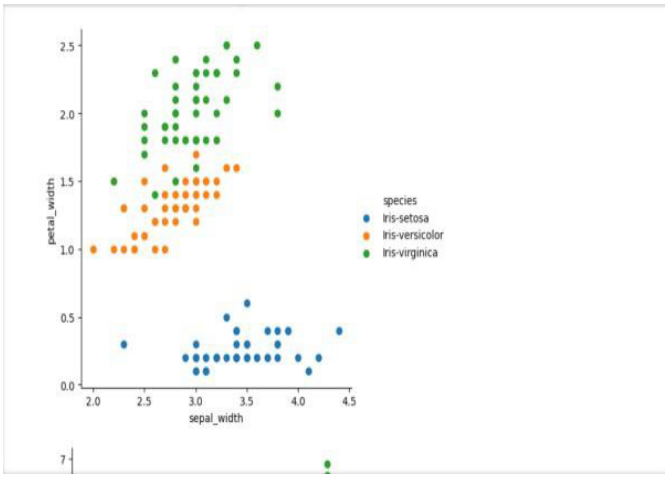
```
Drive already mounted at /content/drive; to attempt to forcibly
remount, call drive.mount("/content/drive", force_remount=True).
   sepal_length  sepal_width  petal_length  petal_width      species
0           5.1          3.5           1.4          0.2  Iris-setosa
1           4.9          3.0           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
```

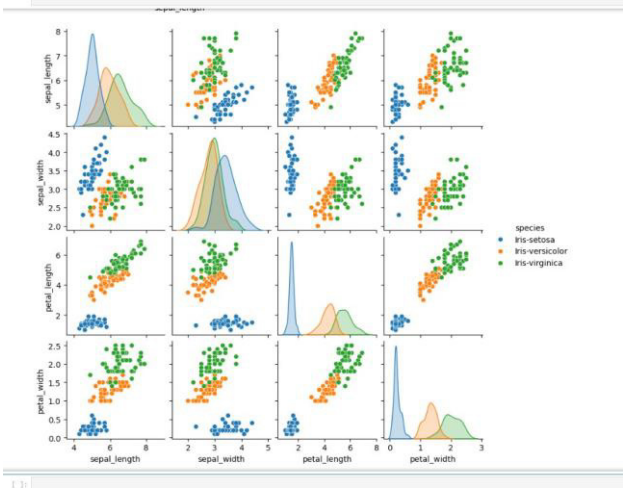

Univariate Analysis of sepal_length
species
Iris-setosa
Iris-versicolor
Iris-virginica
Constant Value (0)
sepal_length


Univariate Analysis of sepal_width
species
Iris-setosa
Iris-versicolor
Iris-virginica
Constant Value (0)
sepal_width


Univariate Analysis of petal_length
species
Iris-setosa
Iris-versicolor
Iris-virginica
Constant Value (0)
petal_length


Univariate Analysis of petal_width
species
Iris-setosa
Iris-versicolor
Iris-virginica
Constant Value (0)
petal_width


petal_width
sepal_width
species
Iris-setosa
Iris-versicolor
Iris-virginica


sepal_length
sepal_width
petal_length
petal_width
species
Iris-setosa
Iris-versicolor
Iris-virginica