

```
# Step 1: Import libraries
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import numpy as np

# Step 2: Upload the file
from google.colab import files
uploaded = files.upload() # Choose iris.csv when prompted

# Step 3: Load the dataset
df = pd.read_csv("iris.csv")

# Step 4: Display basic info
print(df.head())
print("Shape of dataset:", df.shape)

# Step 5: Separate species
df_Setosa = df.loc[df['variety'] == 'Setosa']
df_Virginica = df.loc[df['variety'] == 'Virginica']
df_Versicolor = df.loc[df['variety'] == 'Versicolor']

# -----
# Univariate - Sepal Width
# -----
plt.scatter(df_Setosa['sepal.width'], np.zeros_like(df_Setosa['sepal.width']), label='Setosa')
plt.scatter(df_Virginica['sepal.width'], np.zeros_like(df_Virginica['sepal.width']) + 0.1,
label='Virginica')
plt.scatter(df_Versicolor['sepal.width'], np.zeros_like(df_Versicolor['sepal.width']) + 0.2,
label='Versicolor')
plt.xlabel('sepal.width')
plt.legend()
```

```
plt.title("Univariate Analysis - Sepal Width")
plt.show()

# -----
# Univariate - Sepal Length
# -----

plt.scatter(df_Setosa['sepal.length'], np.zeros_like(df_Setosa['sepal.length']), label='Setosa')
plt.scatter(df_Virginica['sepal.length'], np.zeros_like(df_Virginica['sepal.length']) + 0.1,
label='Virginica')
plt.scatter(df_Versicolor['sepal.length'], np.zeros_like(df_Versicolor['sepal.length']) + 0.2,
label='Versicolor')

plt.xlabel('sepal.length')
plt.legend()

plt.title("Univariate Analysis - Sepal Length")
plt.show()

# -----
# Univariate - Petal Width
# -----

plt.scatter(df_Setosa['petal.width'], np.zeros_like(df_Setosa['petal.width']), label='Setosa')
plt.scatter(df_Virginica['petal.width'], np.zeros_like(df_Virginica['petal.width']) + 0.1,
label='Virginica')
plt.scatter(df_Versicolor['petal.width'], np.zeros_like(df_Versicolor['petal.width']) + 0.2,
label='Versicolor')

plt.xlabel('petal.width')
plt.legend()

plt.title("Univariate Analysis - Petal Width")
plt.show()

# -----
# Univariate - Petal Length
# -----
```

```
plt.scatter(df_Setosa['petal.length'], np.zeros_like(df_Setosa['petal.length']), label='Setosa')
plt.scatter(df_Virginica['petal.length'], np.zeros_like(df_Virginica['petal.length']) + 0.1,
label='Virginica')
plt.scatter(df_Versicolor['petal.length'], np.zeros_like(df_Versicolor['petal.length']) + 0.2,
label='Versicolor')
plt.xlabel('petal.length')
plt.legend()
plt.title("Univariate Analysis - Petal Length")
plt.show()

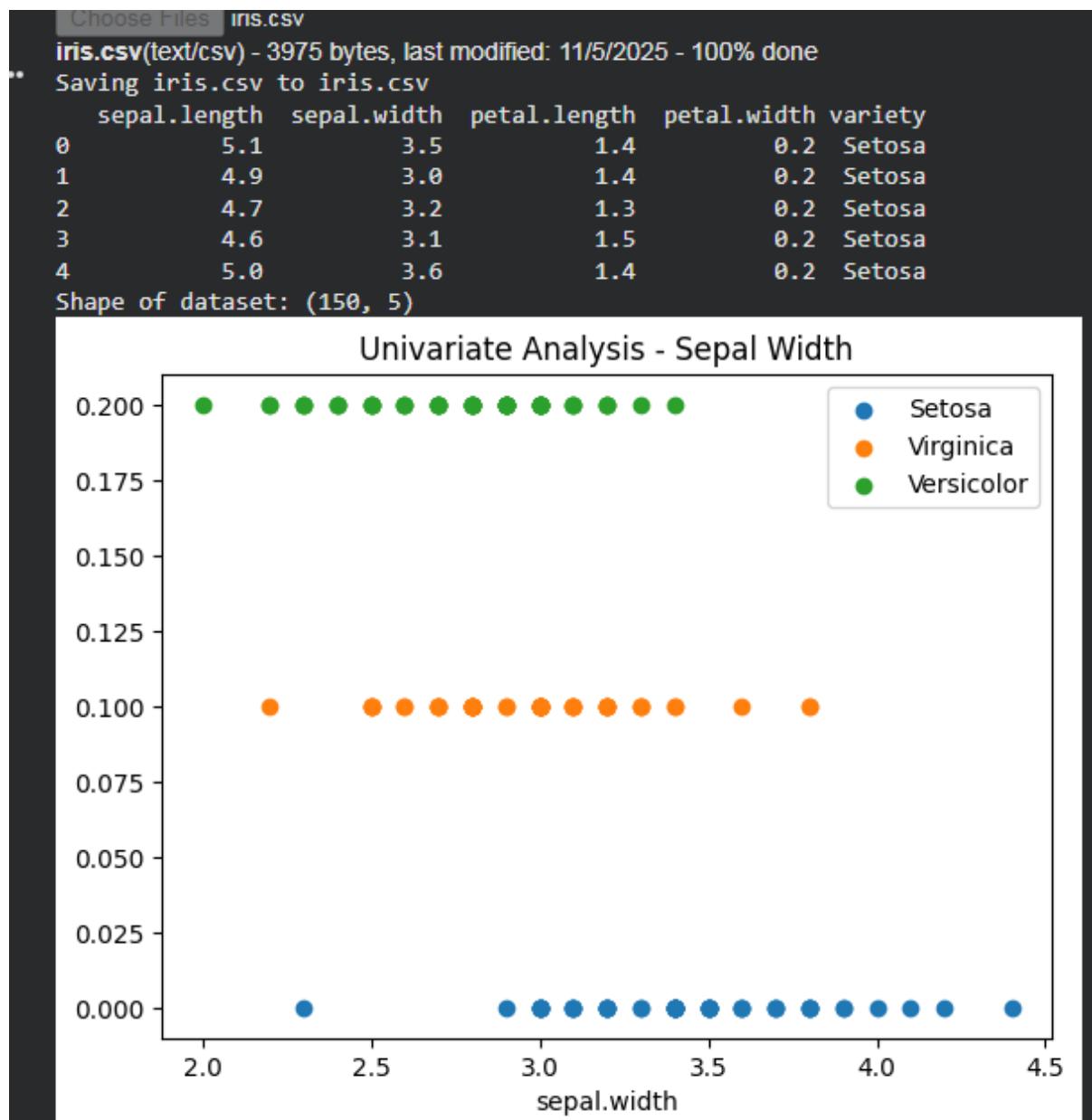
# -----
# Bivariate - Sepal Width vs Petal Width
# -----
sns.FacetGrid(df, hue='variety', height=5) \
.map(plt.scatter, "sepal.width", "petal.width") \
.add_legend()
plt.title("Bivariate Analysis - Sepal Width vs Petal Width")
plt.show()

# -----
# Bivariate - Sepal Length vs Petal Length
# -----
sns.FacetGrid(df, hue='variety', height=5) \
.map(plt.scatter, "sepal.length", "petal.length") \
.add_legend()
plt.title("Bivariate Analysis - Sepal Length vs Petal Length")
plt.show()

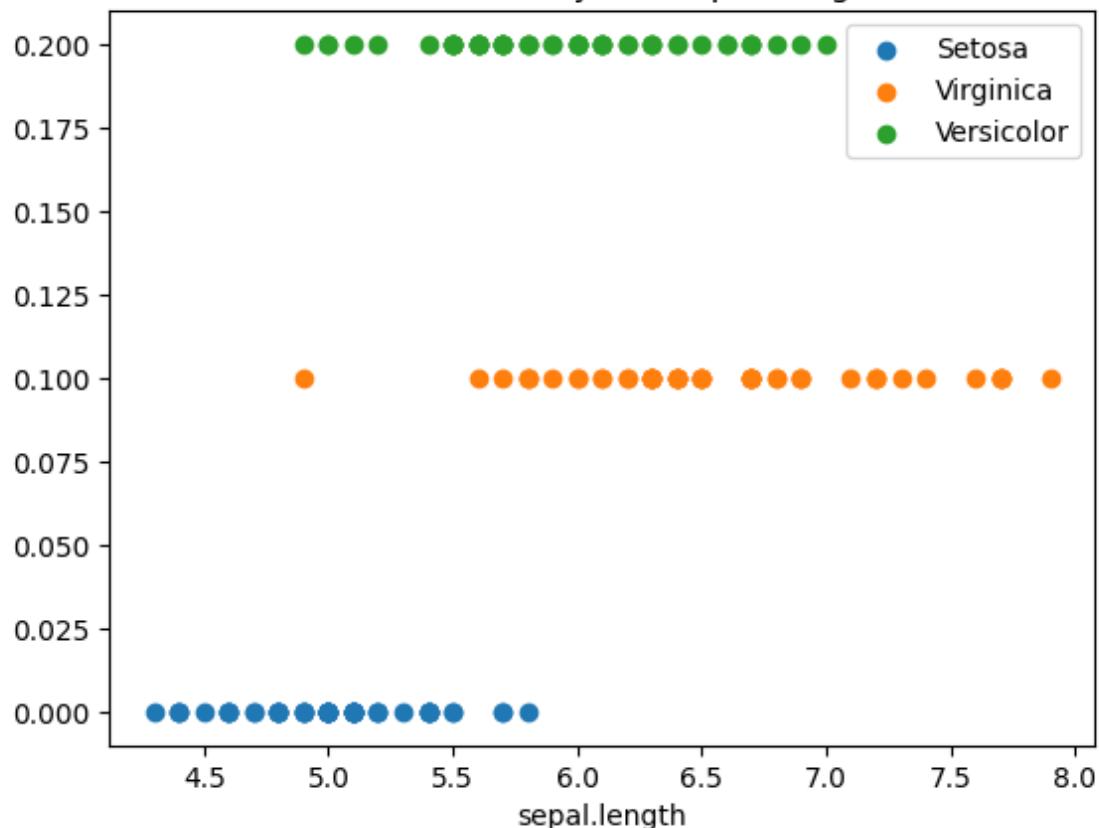
# -----
# Multivariate - All Features
# -----
sns.pairplot(df, hue="variety", height=2)
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plt.suptitle("Multivariate Analysis - All Features", y=1.02)
```

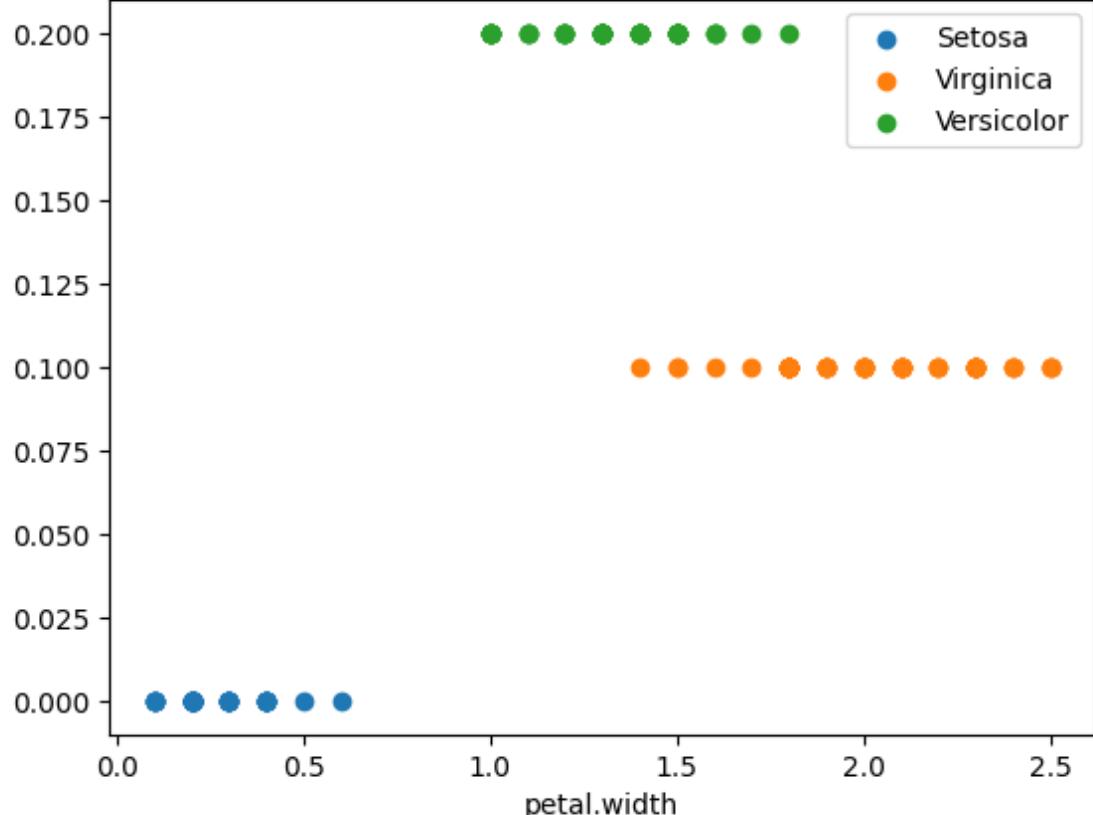
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plt.show()
```

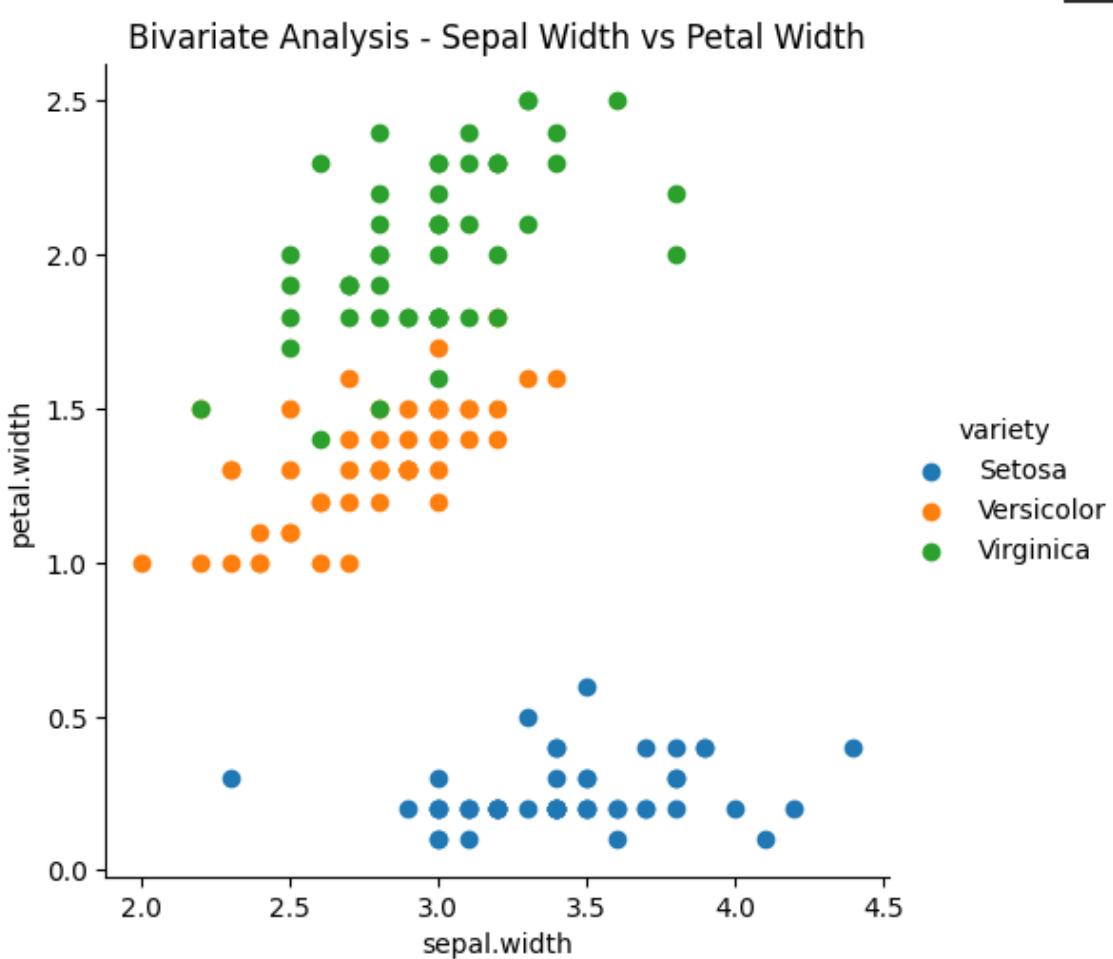
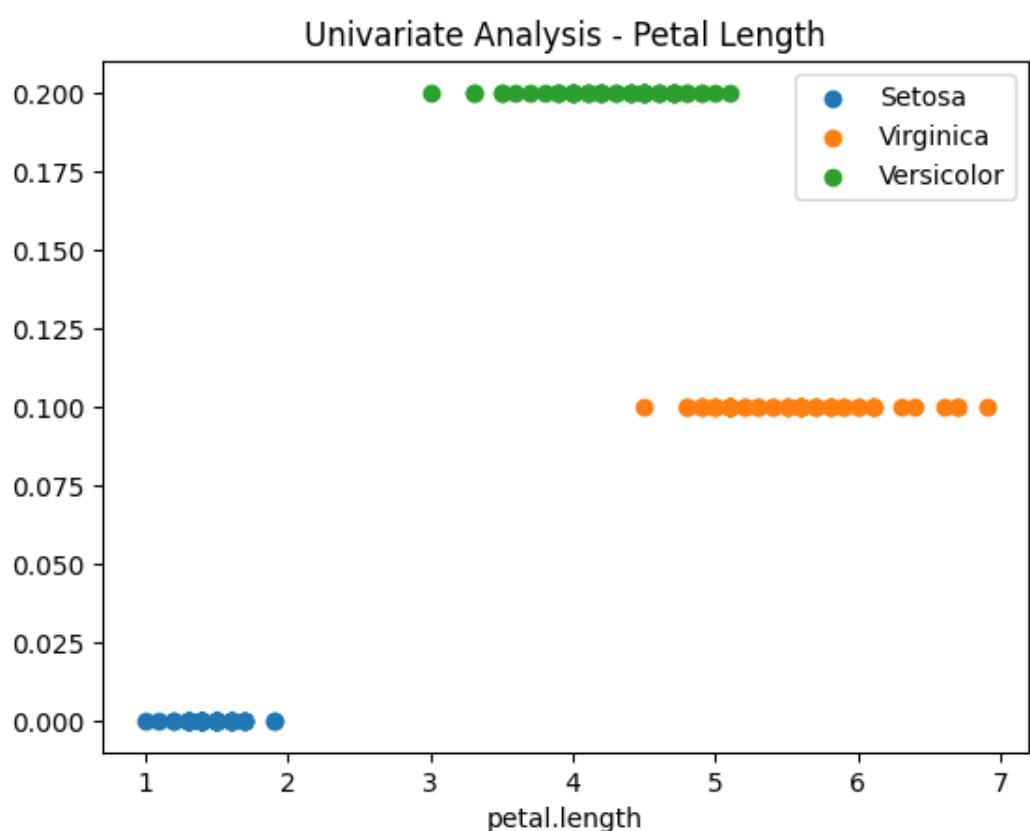


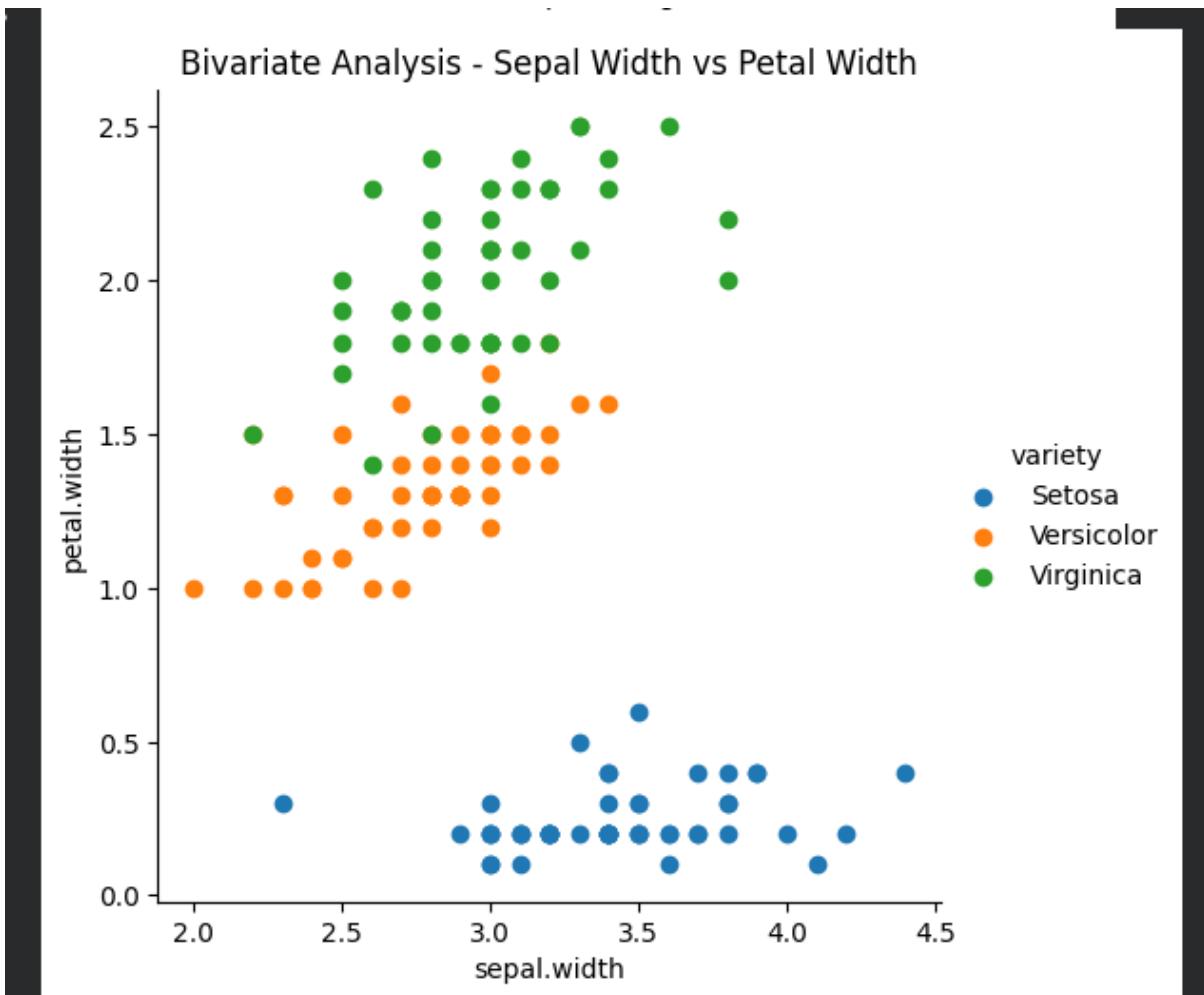
### Univariate Analysis - Sepal Length



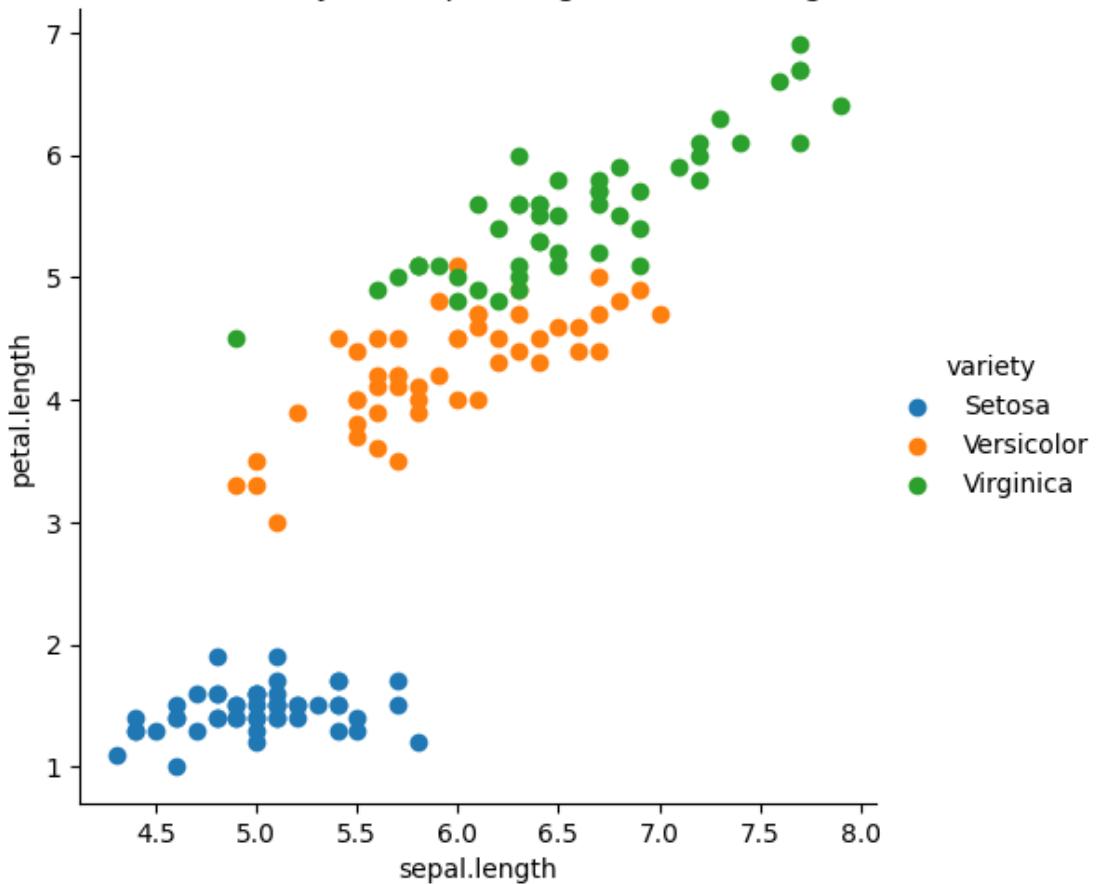
### Univariate Analysis - Petal Width







### Bivariate Analysis - Sepal Length vs Petal Length



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### Multivariate Analysis - All Features

