In [6]:
```
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
```

In [7]:
```
df = pd.read_csv(r"C:\Users\Admin\Downloads\archive\Iris.csv")
df
```

Out[7]:

	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
...	...	...	...	...	...	...
145	146	6.7	3.0	5.2	2.3	Iris-virginica
146	147	6.3	2.5	5.0	1.9	Iris-virginica
147	148	6.5	3.0	5.2	2.0	Iris-virginica
148	149	6.2	3.4	5.4	2.3	Iris-virginica
149	150	5.9	3.0	5.1	1.8	Iris-virginica

150 rows × 6 columns

In [8]:
```
#Separate by species
df_Setosa = df[df['Species'] == 'Iris-setosa']
df_Versicolor = df[df['Species'] == 'Iris-versicolor']
df_Virginica = df[df['Species'] == 'Iris-virginica']
```

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

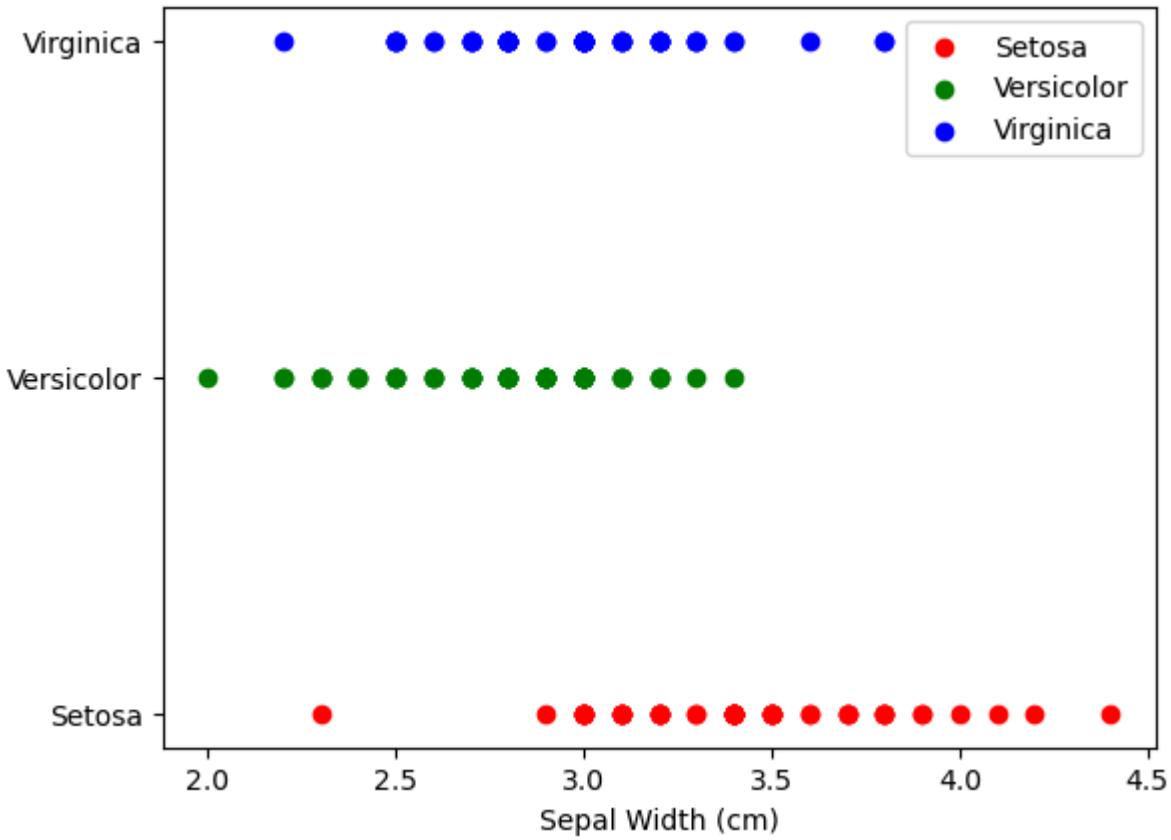
Out[9]:
```
(50, 6)
```

In [10]:
```
df_Versicolor
df_Versicolor.shape
```

Out[10]:
```
(50, 6)
```

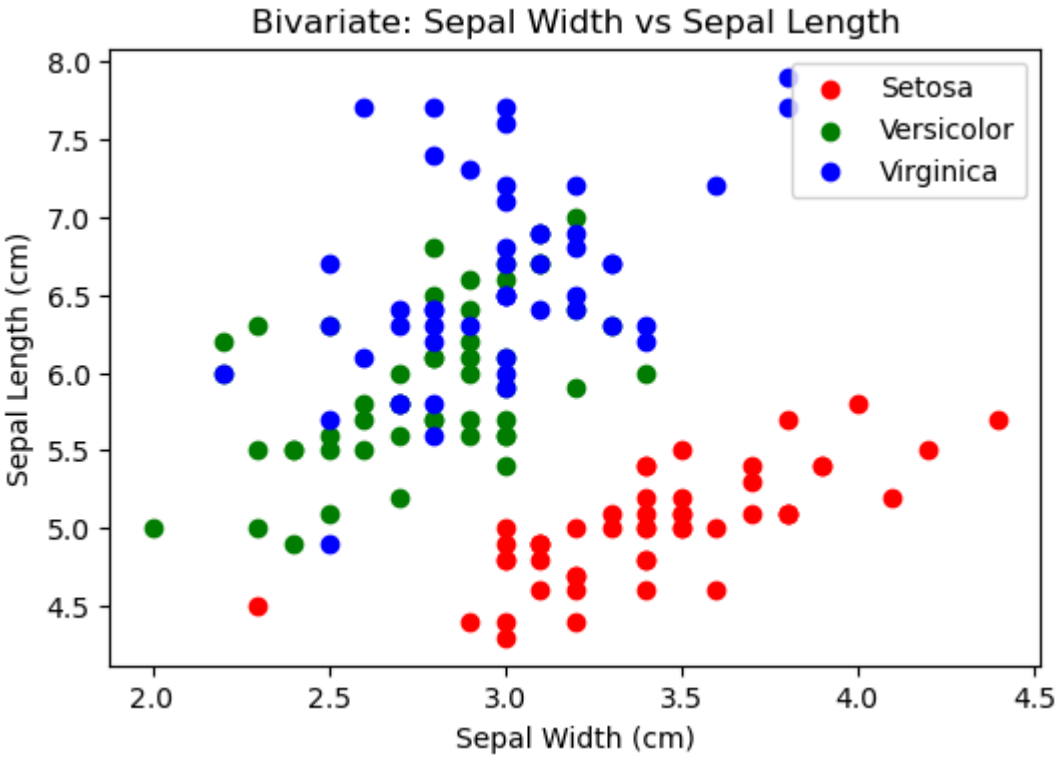
In [11]:
```
# Scatter plot (with offsets so points don't overlap)
plt.scatter(df_Setosa['SepalWidthCm'], np.zeros_like(df_Setosa['SepalWidthCm']),
            label='Setosa', color='red')
plt.scatter(df_Versicolor['SepalWidthCm'], np.ones_like(df_Versicolor['SepalWidthCm']),
            label='Versicolor', color='green')
plt.scatter(df_Virginica['SepalWidthCm'], np.full_like(df_Virginica['SepalWidthCm'], 2),
            label='Virginica', color='blue')

plt.xlabel('Sepal Width (cm)')
plt.yticks([0, 1, 2], ['Setosa', 'Versicolor', 'Virginica'])
plt.legend()
plt.show()
```



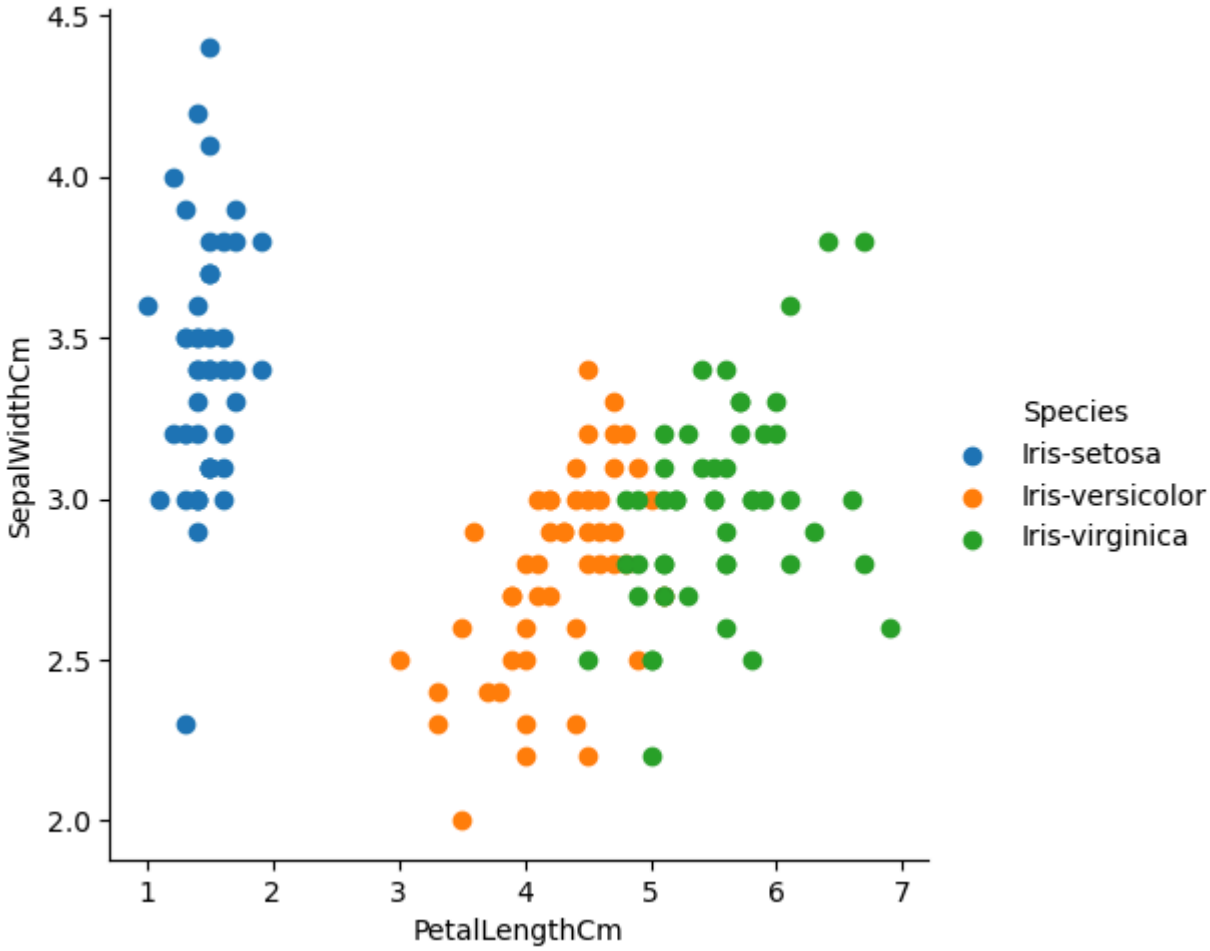
In [12]:
```
# Bivariate scatter plot
plt.figure(figsize=(6, 4))
plt.scatter(df_Setosa['SepalWidthCm'], df_Setosa['SepalLengthCm'], color='red', label='Setosa
plt.scatter(df_Versicolor['SepalWidthCm'], df_Versicolor['SepalLengthCm'], color='green', lab
plt.scatter(df_Virginica['SepalWidthCm'], df_Virginica['SepalLengthCm'], color='blue', label=

plt.xlabel('Sepal Width (cm)')
plt.ylabel('Sepal Length (cm)')
plt.title('Bivariate: Sepal Width vs Sepal Length')
plt.legend()
plt.show()
```



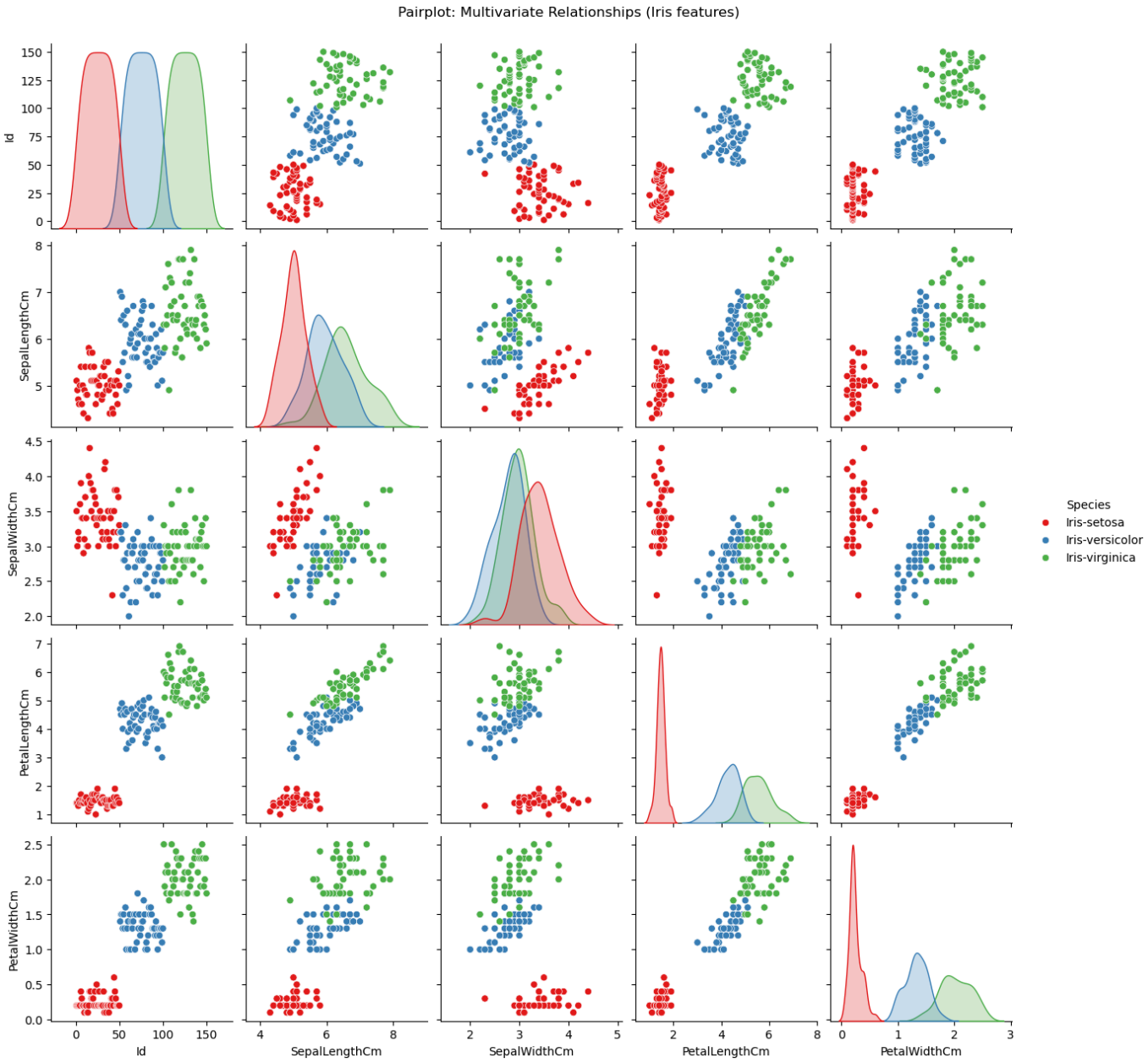
In [13]:
```
sns.FacetGrid(df, hue="Species", height=5) \
   .map(plt.scatter, "PetalLengthCm", "SepalWidthCm") \
   .add_legend()

plt.show()
```



In [14]:
```
import seaborn as sns

sns.pairplot(df, hue='Species', diag_kind='kde', palette='Set1')
plt.suptitle('Pairplot: Multivariate Relationships (Iris features)', y=1.02)
plt.show()
```


Pairplot: Multivariate Relationships (Iris features)
Id
SepalLengthCm
SepalWidthCm
PetalLengthCm
PetalWidthCm
Species
Iris-setosa
Iris-versicolor
Iris-virginica