A22126551053

P.BIPIN SATYANKAR

CSD A

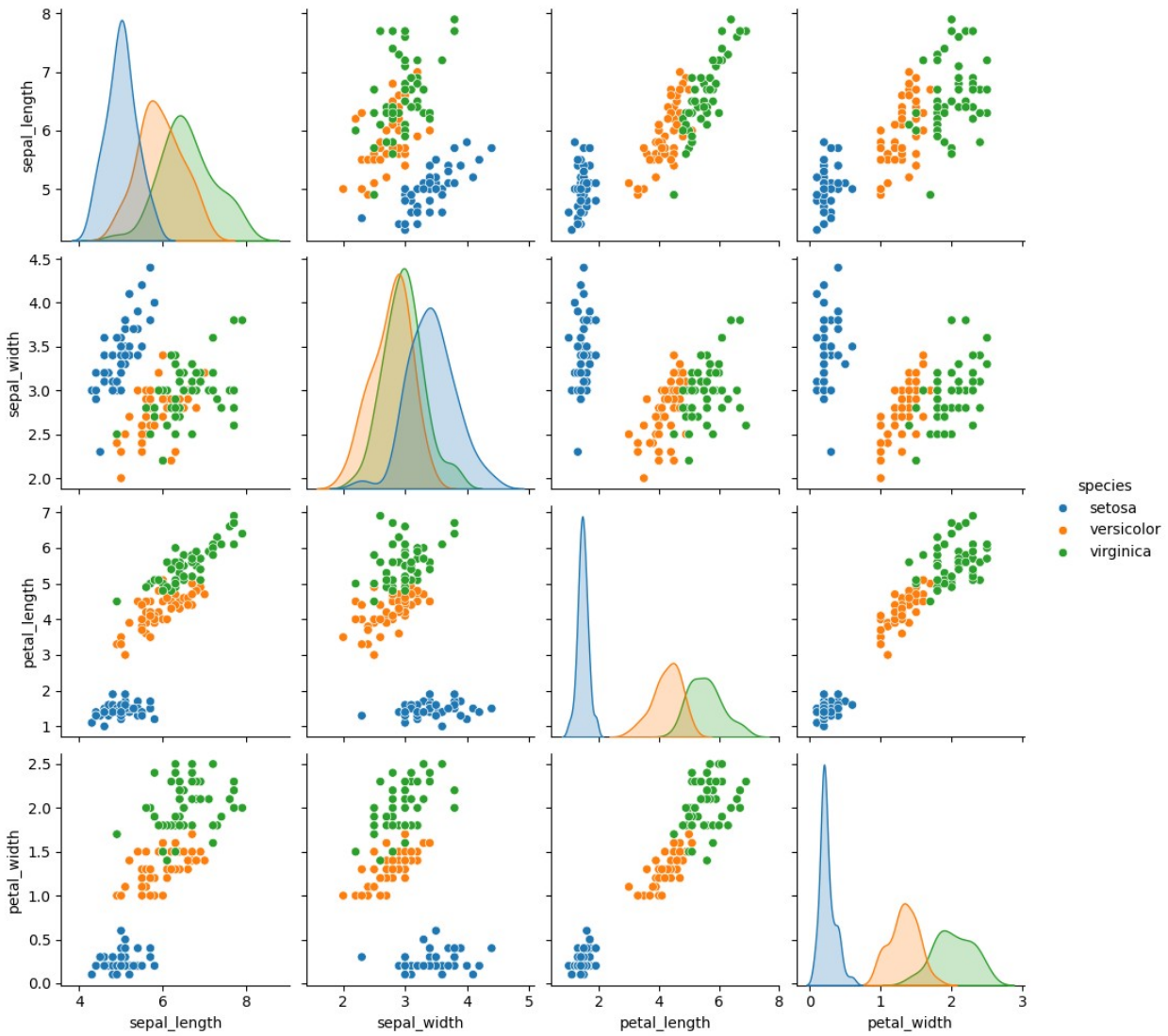
#IRIS DATASET

```
import seaborn as sns
import matplotlib.pyplot as plt
# Load the Iris dataset
iris=sns.load_dataset('iris')
```

Week 7

Write a Python program to create a plot that gives a general statistical summary of the Iris data. You can use seaborn's pairplot or pandas' describe() for guidance.

```
# General Statistics Plot (Matplotlib or Seaborn):
# data. You can use seaborn's pairplot or pandas' describe() for
guidance.

import seaborn as sns
import matplotlib.pyplot as plt

# Load the Iris dataset
iris = sns.load_dataset('iris')

# Create a pairplot to visualize relationships between variables
sns.pairplot(iris, hue='species')
plt.show()

# Alternatively, you can use pandas describe() for a statistical
summary
print(iris.describe())
```

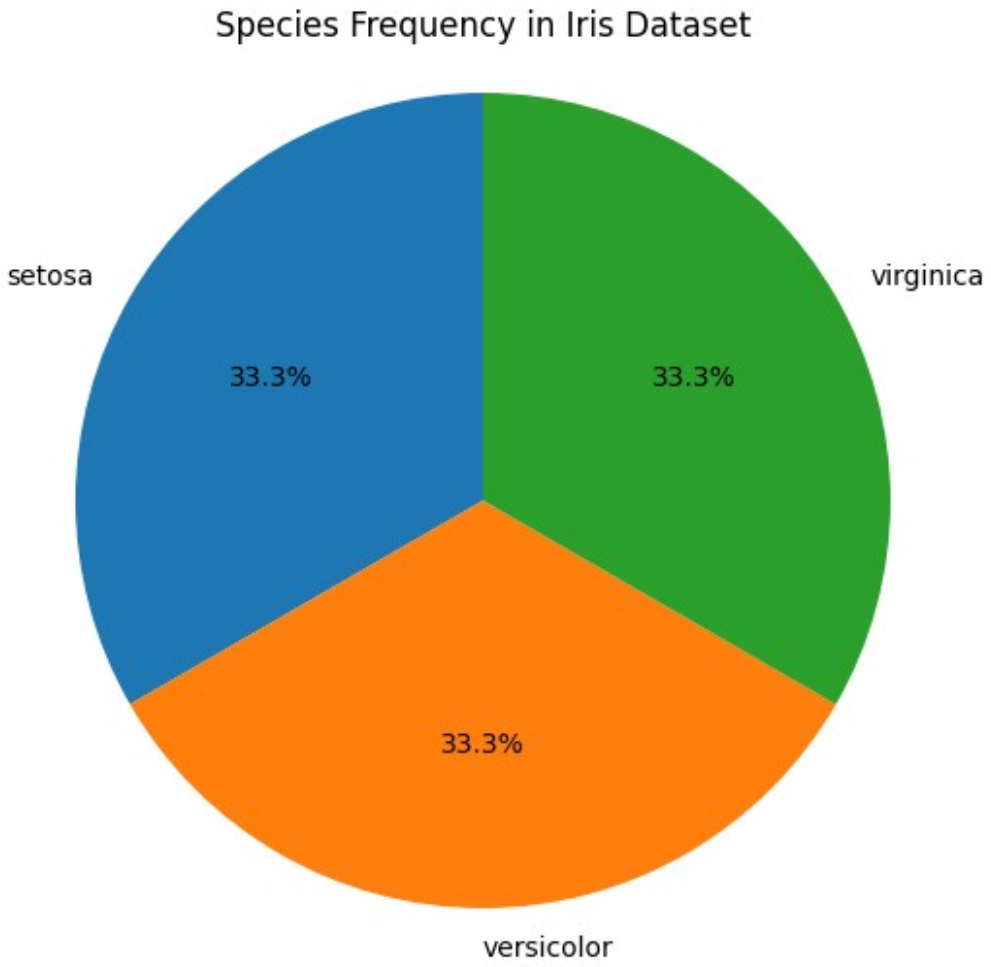


	sepal_length	sepal_width	petal_length	petal_width
count	150.000000	150.000000	150.000000	150.000000
mean	5.843333	3.057333	3.758000	1.199333
std	0.828066	0.435866	1.765298	0.762238
min	4.300000	2.000000	1.000000	0.100000
25%	5.100000	2.800000	1.600000	0.300000
50%	5.800000	3.000000	4.350000	1.300000
75%	6.400000	3.300000	5.100000	1.800000
max	7.900000	4.400000	6.900000	2.500000

Write a Python program to create a pie chart to display the frequency of the three species (setosa, versicolor, virginica) in the Iris dataset.

```
# Pie Plot for Species Frequency:
# (setosa, versicolor, virginica) in the Iris dataset.
```

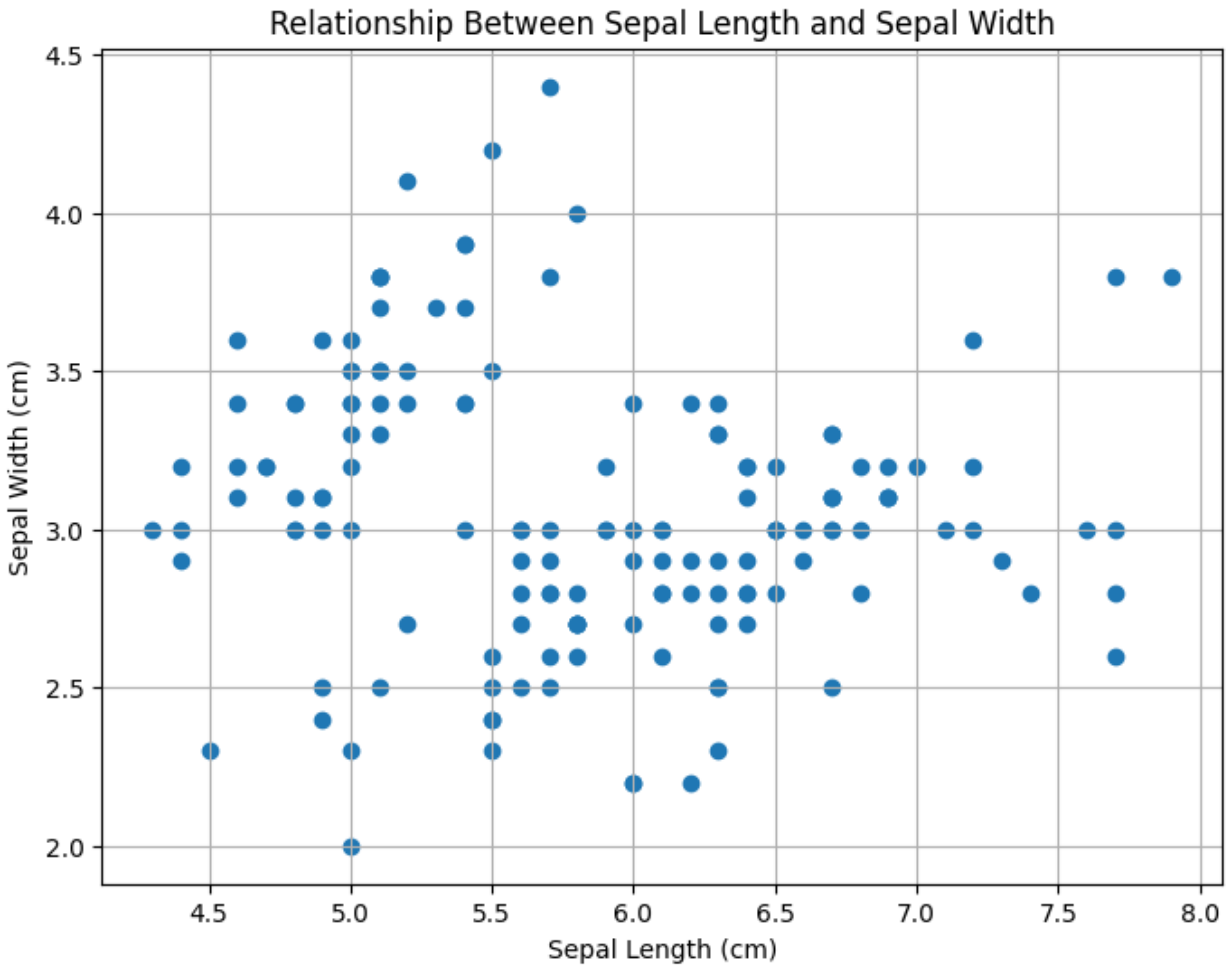
```
import matplotlib.pyplot as plt
# Count the frequency of each species
species_counts = iris['species'].value_counts()

# Create a pie chart
plt.figure(figsize=(8, 6))
plt.pie(species_counts, labels=species_counts.index, autopct='%1.1f%
%', startangle=90)
plt.title('Species Frequency in Iris Dataset')
plt.axis('equal')  # Equal aspect ratio ensures that pie is drawn as a
circle.
plt.show()
```



Write a Python program to create a scatter plot to find the relationship between sepal length and sepal width for the Iris dataset.

```
# Relationship Between Sepal Length and Width:
# length and sepal width for the Iris dataset.
```

```
import matplotlib.pyplot as plt
plt.figure(figsize=(8, 6))
plt.scatter(iris['sepal_length'], iris['sepal_width'])
plt.xlabel('Sepal Length (cm)')
plt.ylabel('Sepal Width (cm)')
plt.title('Relationship Between Sepal Length and Sepal Width')
plt.grid(True)
plt.show()
```

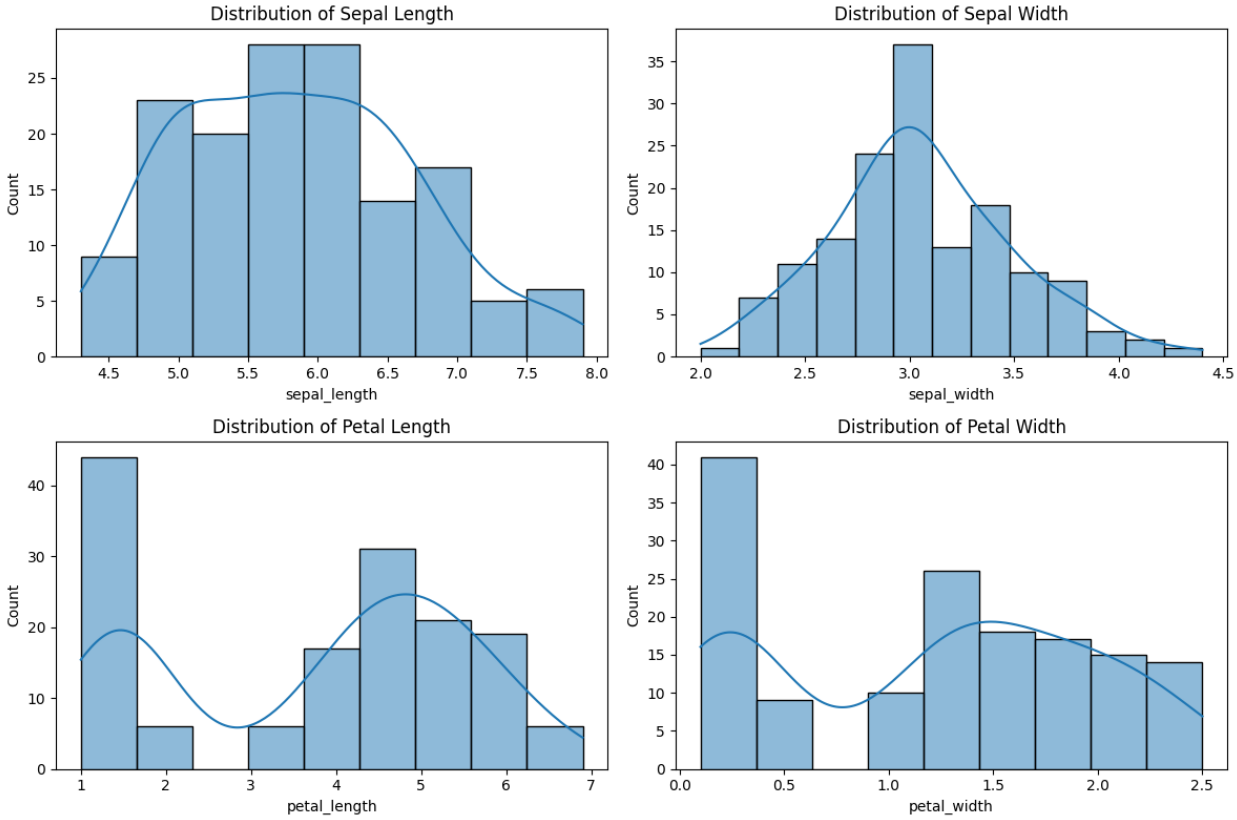


week 8

Write a Python program to create a plot that shows how the length and width of sepal length, sepal width, petal length, and petal width are distributed.

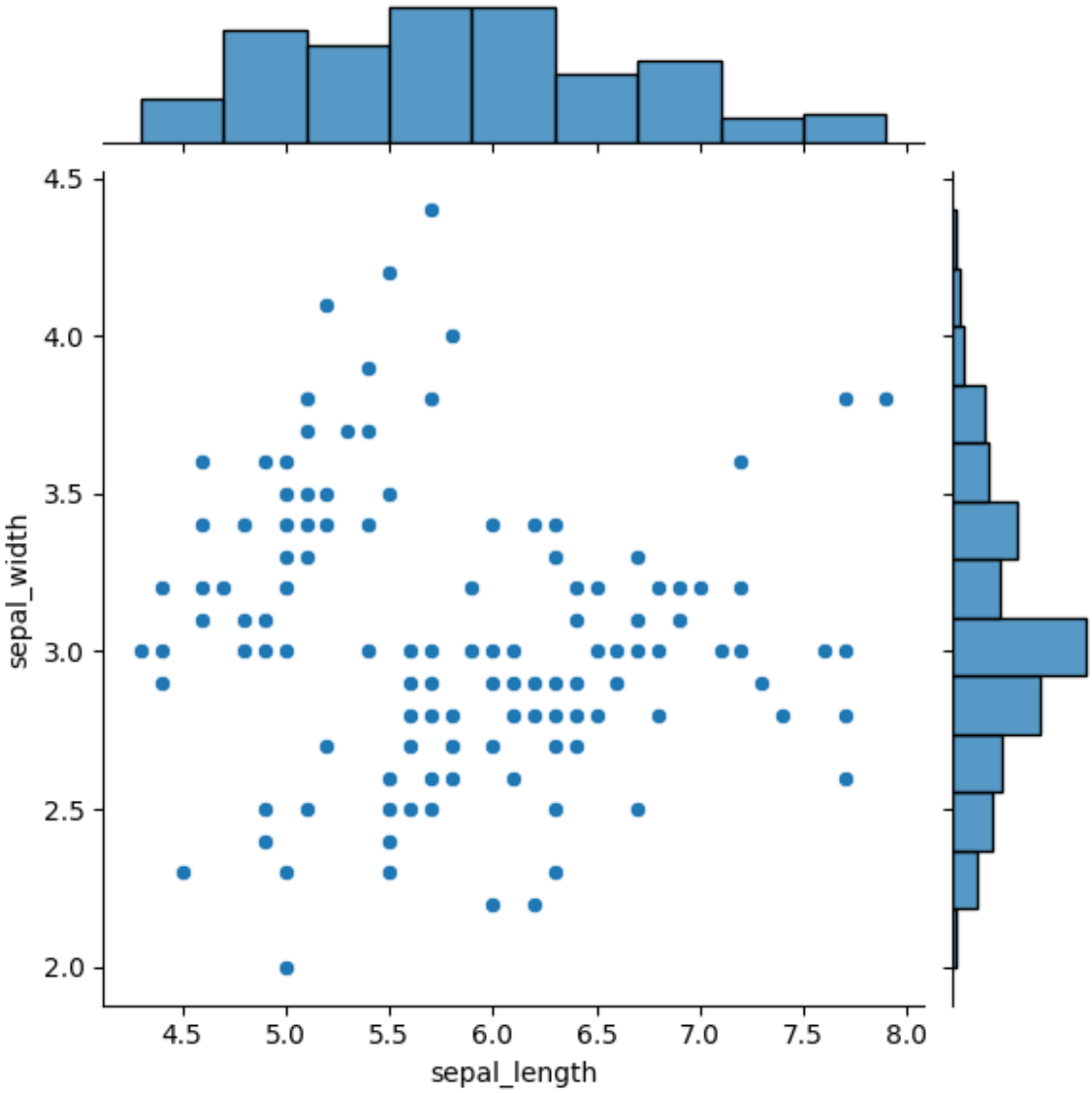
```
#Distribution of Sepal and Petal Features:
import matplotlib.pyplot as plt
import seaborn as sns

# Create a figure with subplots
fig, axes = plt.subplots(2, 2, figsize=(12, 8))
```

```
# Distribution of Sepal Length
sns.histplot(iris['sepal_length'], kde=True, ax=axes[0, 0])
axes[0, 0].set_title('Distribution of Sepal Length')

# Distribution of Sepal Width
sns.histplot(iris['sepal_width'], kde=True, ax=axes[0, 1])
axes[0, 1].set_title('Distribution of Sepal Width')

# Distribution of Petal Length
sns.histplot(iris['petal_length'], kde=True, ax=axes[1, 0])
axes[1, 0].set_title('Distribution of Petal Length')

# Distribution of Petal Width
sns.histplot(iris['petal_width'], kde=True, ax=axes[1, 1])
axes[1, 1].set_title('Distribution of Petal Width')

plt.tight_layout()
plt.show()
```



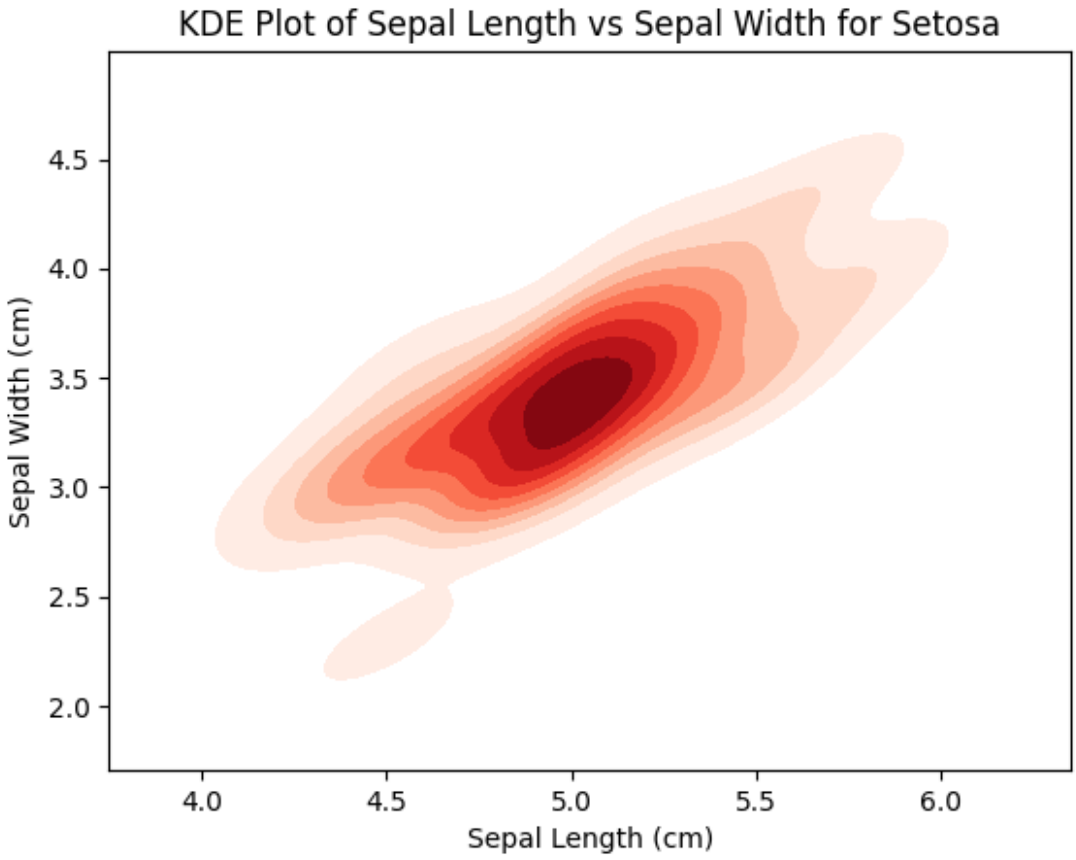
Write a Python program to create a joint plot to describe the individual distributions on the same plot between sepal length and sepal width.

```python
# Jointplot of Sepal Length vs Sepal Width:
# the same plot between sepal length and sepal width.

import seaborn as sns
import matplotlib.pyplot as plt

# Load the Iris dataset
iris = sns.load_dataset('iris')

# Create a joint plot of Sepal Length vs Sepal Width
sns.jointplot(x='sepal_length', y='sepal_width', data=iris,
kind='scatter')
plt.show()
```



Write a Python program using seaborn to create a KDE (Kernel Density Estimate) plot of sepal length versus sepal width for the setosa species of the Iris dataset.

```python
# KDE Plot for Setosa Species (Sepal Length vs Sepal Width):
# sepal length versus sepal width for the setosa species of the Iris
dataset.

import seaborn as sns
import matplotlib.pyplot as plt

# Load the Iris dataset
iris = sns.load_dataset('iris')

# Filter the dataset for the setosa species
setosa_data = iris[iris['species'] == 'setosa']

# Create a KDE plot for sepal length vs sepal width for setosa
sns.kdeplot(x='sepal_length', y='sepal_width', data=setosa_data,
cmap="Reds", fill=True)
plt.xlabel('Sepal Length (cm)')
plt.ylabel('Sepal Width (cm)')
plt.title('KDE Plot of Sepal Length vs Sepal Width for Setosa')
plt.show()
```



Write a Python program using seaborn to create a KDE plot of petal length versus petal width for the setosa species.

```
# KDE Plot for Setosa Species (Petal Length vs Petal Width):
# width for the setosa species.

import matplotlib.pyplot as plt
# Load the Iris dataset
iris = sns.load_dataset('iris')

# Filter the dataset for the setosa species
setosa_data = iris[iris['species'] == 'setosa']

# Create a KDE plot for petal length vs petal width for setosa
sns.kdeplot(x='petal_length', y='petal_width', data=setosa_data,
cmap="Reds", fill=True)
plt.xlabel('Petal Length (cm)')
plt.ylabel('Petal Width (cm)')
plt.title('KDE Plot of Petal Length vs Petal Width for Setosa')
plt.show()
```