PERFORMING THE VISUALIZATIONS ON THE IRIS DATASET

problem 1 :

Creating General Statistics Plot on Iris dataset using Matplotlib or Seaborn libraries :

IMPORTING SEABORN LIBRARY :

In [2]:

```
import seaborn as sns
```

IMPORTING PYPLOT MODULE :

In [9]:

```
import matplotlib.pyplot as plt
```

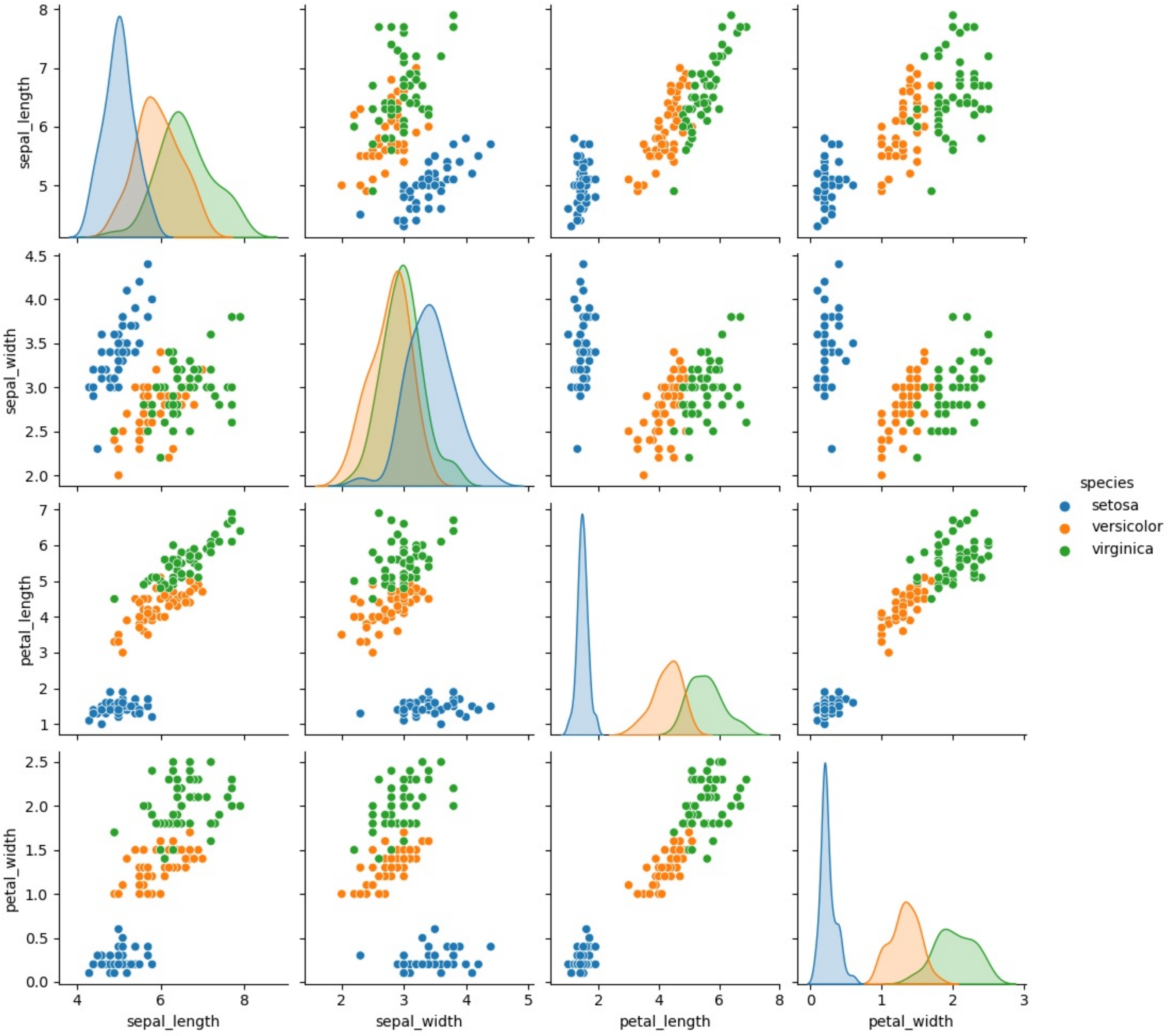
In [12]:

```
#load the iris dataset
iris = sns.load_dataset('iris')
```

In [11]:

```
sns.pairplot(iris,hue='species',height=2.5)
plt.show()
```

```
C:\Users\anits-csm\anaconda3\Lib\site-packages\seaborn\axisgrid.py:118: UserWarning: The figure layout has chan
ged to tight
  self._figure.tight_layout(*args, **kwargs)
```



Here,sns.pairplot(iris, hue='species', height=2.5) creates a pair plot of the Iris dataset.

1. iris is the DataFrame containing the Iris dataset.
2. hue='species' colors the points according to the species of the Iris flowers.
3. height=2.5 sets the size of each subplot in the pair plot.
4. plt.show() displays the plot.

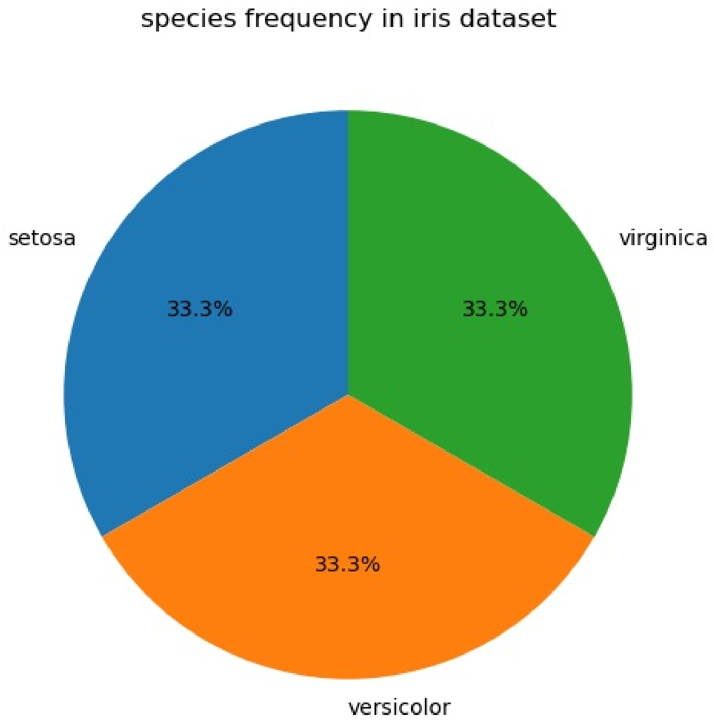
- This shows the relationships between the features of the Iris dataset with different colors for each species.

problem 2 :

Creating a pie plot for species frequency :

In [7]:

```
species_counts = iris['species'].value_counts()
plt.figure(figsize=(6,6))
plt.pie(species_counts,labels=species_counts.index,autopct='%1.1f%%',startangle=90)
plt.title('species frequency in iris dataset')
plt.show()
```



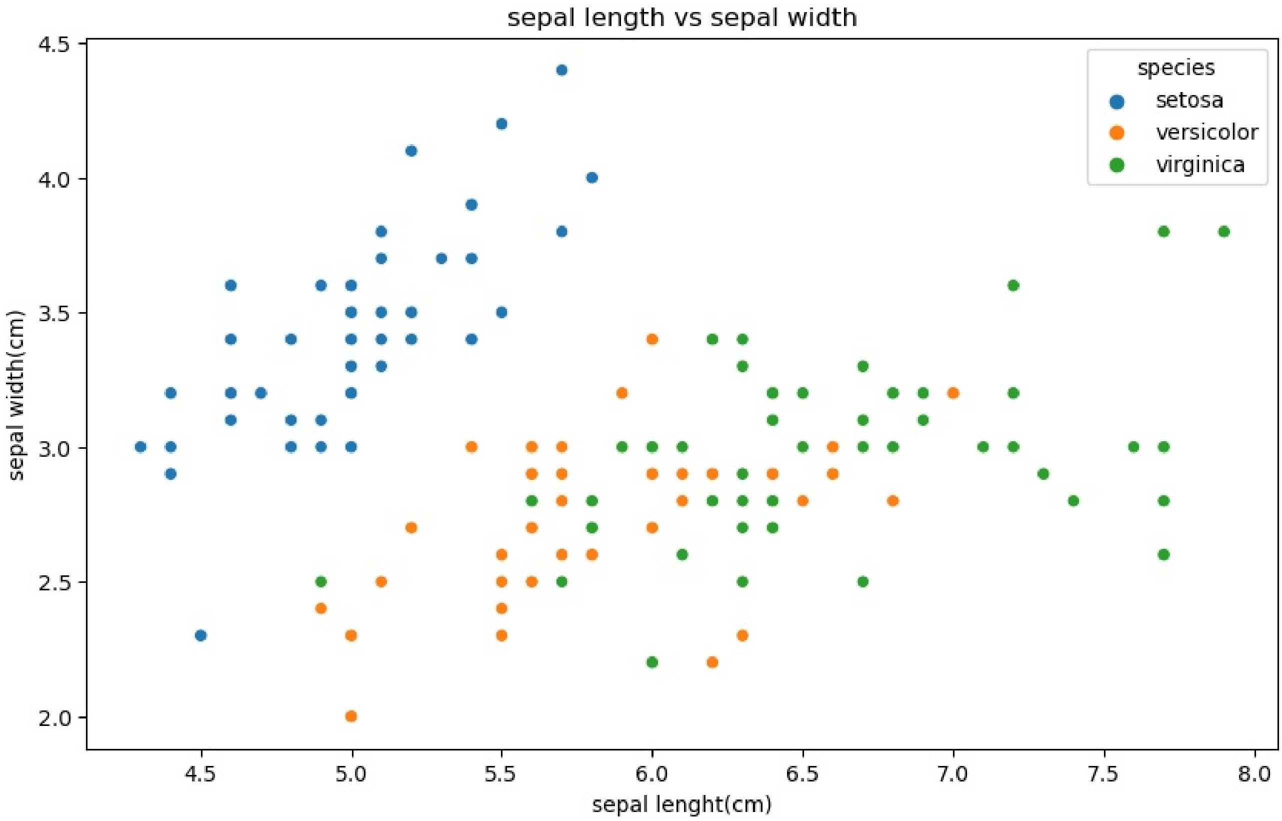
- It will display the proportion of each species in the dataset as a percentage. And represents the distribution of different Iris species in the dataset.

problem 3 :

plotting the relationship between sepal length and sepal width

In [13]:

```
plt.figure(figsize=(10,6))
sns.scatterplot(x='sepal_length',y='sepal_width',hue='species',data=iris)
plt.title('sepal length vs sepal width')
plt.xlabel('sepal lenght(cm)')
plt.ylabel('sepal width(cm)')
plt.show()
```



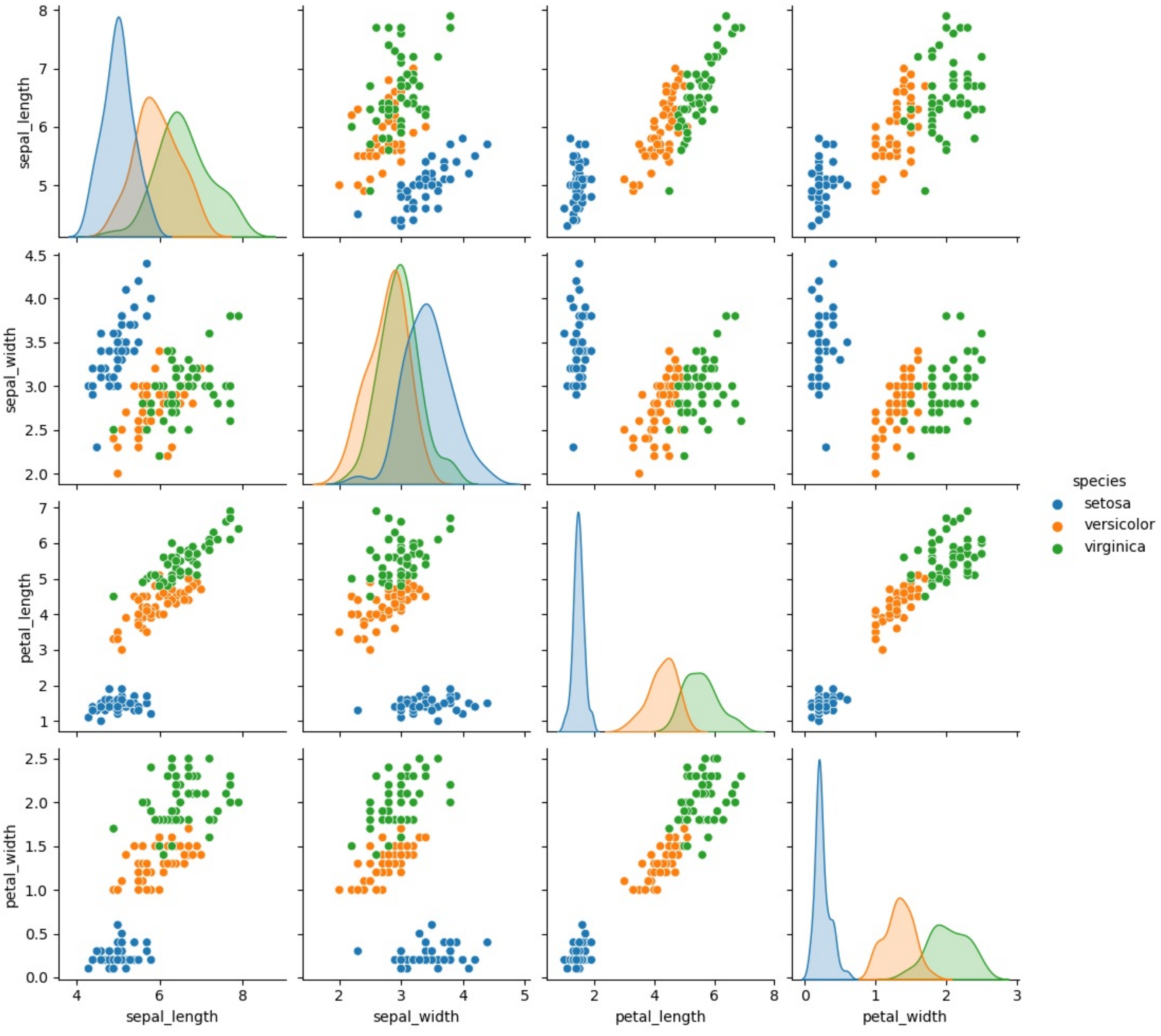
- It shows the relationship between sepal_length and sepal_width in the Iris dataset, with different colors representing different species.

problem 4 :

To create a plot that shows how the length and width of sepal length, sepal width, petal length, and petal width are distributed.

In [14]:
```
sns.pairplot(iris,hue='species',height=2.5)
plt.show()
```

```
C:\Users\anits-csm\anaconda3\Lib\site-packages\seaborn\axisgrid.py:118: UserWarning: The figure layout has chan
ged to tight
  self._figure.tight_layout(*args, **kwargs)
```



- It generates a matrix of scatter plots and histograms showing pairwise relationships between features in the Iris dataset, with different colors representing different species.

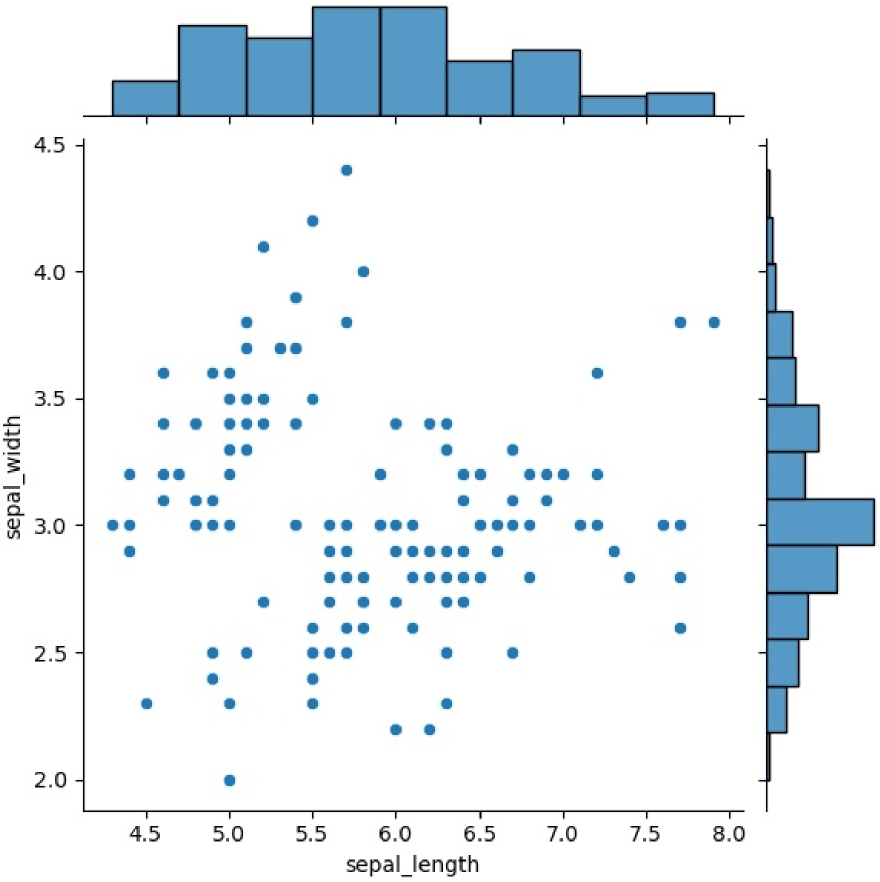
problem 5 :

problem 5 :

creating a joint plot to describe the individual distributions on the same plot between sepal length and sepal width.

In [15]:

```
sns.jointplot(x='sepal_length',y='sepal_width',data=iris,kind='scatter')
plt.show()
```



- This shows a scatter plot of sepal_length vs. sepal_width, with marginal histograms showing the distribution of each feature along the axes.

problem 6 :

creating a KDE (Kernel Density Estimate) plot of sepal length versus sepal width for the setosa species of the Iris dataset.

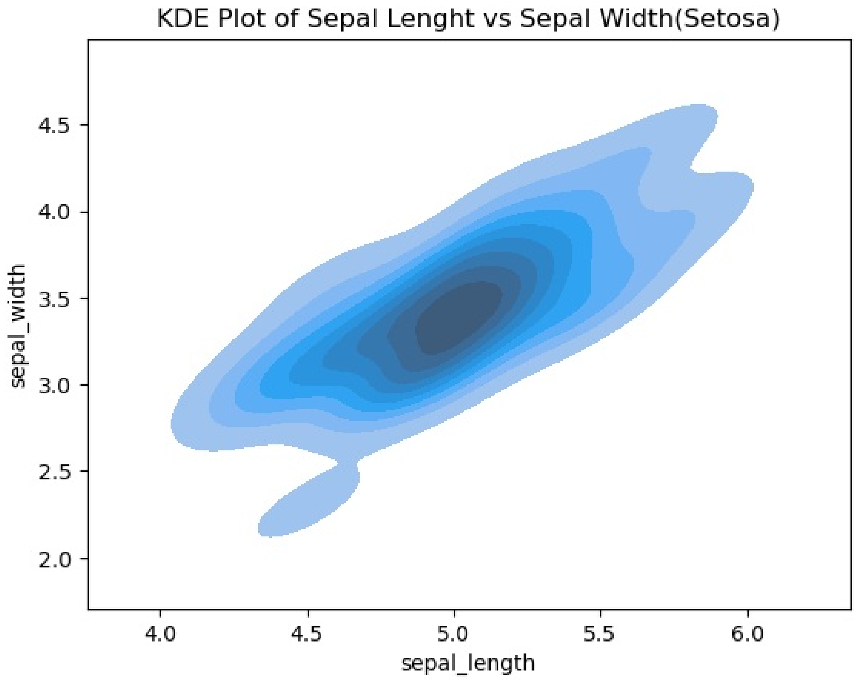
In [16]:

```
setosa = iris[iris['species']=='setosa']
sns.kdeplot(x='sepal_length',y='sepal_width',data=setosa,shade=True)
plt.title('KDE Plot of Sepal Lenght vs Sepal Width(Setosa)')
plt.show()
```

```
C:\Users\anits-csm\AppData\Local\Temp\ipykernel_13840\4212413935.py:2: FutureWarning:

`shade` is now deprecated in favor of `fill`; setting `fill=True`.
This will become an error in seaborn v0.14.0; please update your code.

  sns.kdeplot(x='sepal_length',y='sepal_width',data=setosa,shade=True)
```



problem 7 :

creating a KDE plot of petal length versus petal width for the setosa species.

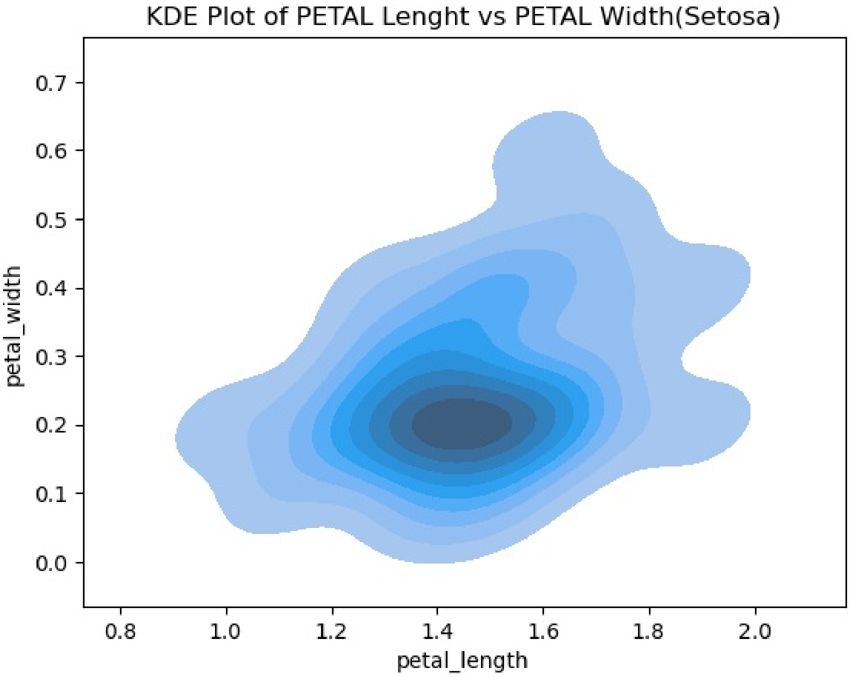
In [17]:

```
sns.kdeplot(x='petal_length',y='petal_width',data=setosa,shade=True)
plt.title('KDE Plot of PETAL Lenght vs PETAL Width(Setosa)')
plt.show()
```

```
C:\Users\anits-csm\AppData\Local\Temp\ipykernel_13840\1942465215.py:1: FutureWarning:

`shade` is now deprecated in favor of `fill`; setting `fill=True`.
This will become an error in seaborn v0.14.0; please update your code.

  sns.kdeplot(x='petal_length',y='petal_width',data=setosa,shade=True)
```



KDE Plot of PETAL Lenght vs PETAL Width(Setosa)

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