In [1]:
```
import pandas as pd
```

In [2]:
```
from sklearn import datasets
```

In [3]:
```
iris=datasets.load_iris()
```

In [4]:
```
iris
```

Out[4]:
```
{'data': array([[5.1, 3.5, 1.4, 0.2],
        [4.9, 3. , 1.4, 0.2],
        [4.7, 3.2, 1.3, 0.2],
        [4.6, 3.1, 1.5, 0.2],
        [5. , 3.6, 1.4, 0.2],
        [5.4, 3.9, 1.7, 0.4],
        [4.6, 3.4, 1.4, 0.3],
        [5. , 3.4, 1.5, 0.2],
        [4.4, 2.9, 1.4, 0.2],
        [4.9, 3.1, 1.5, 0.1],
        [5.4, 3.7, 1.5, 0.2],
        [4.8, 3.4, 1.6, 0.2],
        [4.8, 3. , 1.4, 0.1],
        [4.3, 3. , 1.1, 0.1],
        [5.8, 4. , 1.2, 0.2],
        [5.7, 4.4, 1.5, 0.4],
        [5.4, 3.9, 1.3, 0.4],
        [5.1, 3.5, 1.4, 0.3],
        [5.7, 3.8, 1.7, 0.3],
```

In [6]:
```
df=pd.DataFrame(iris['data'])
```

In [7]:
```
df.head()
```

Out[7]:

	0	1	2	3
0	5.1	3.5	1.4	0.2
1	4.9	3.0	1.4	0.2
2	4.7	3.2	1.3	0.2
3	4.6	3.1	1.5	0.2
4	5.0	3.6	1.4	0.2

In [8]:
```
df[4]=iris['target']
```

In [9]:
```
df.head()
```

Out[9]:

	0	1	2	3	4
0	5.1	3.5	1.4	0.2	0
1	4.9	3.0	1.4	0.2	0
2	4.7	3.2	1.3	0.2	0
3	4.6	3.1	1.5	0.2	0
4	5.0	3.6	1.4	0.2	0

In [11]:
```
df.rename(columns={0:'SepalLengthcm', 1:'SepalWidthcm', 2:'PetalLengthcm', 3:'PetalWidthcm', 4:'Species'}, inplace=True
```

In [12]:
```
df.head()
```

Out[12]:

	SepalLengthcm	SepalWidthcm	PetalLengthcm	PetalWidthcm	Species
0	5.1	3.5	1.4	0.2	0
1	4.9	3.0	1.4	0.2	0
2	4.7	3.2	1.3	0.2	0
3	4.6	3.1	1.5	0.2	0
4	5.0	3.6	1.4	0.2	0

In [13]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 150 entries, 0 to 149
Data columns (total 5 columns):
 #   Column         Non-Null Count  Dtype  
---  ------         --------------  -----  
 0   SepalLengthcm  150 non-null    float64
 1   SepalWidthcm   150 non-null    float64
 2   PetalLengthcm  150 non-null    float64
 3   PetalWidthcm   150 non-null    float64
 4   Species        150 non-null    int32  
dtypes: float64(4), int32(1)
memory usage: 5.4 KB
```

In [14]:
```
df.describe()
```

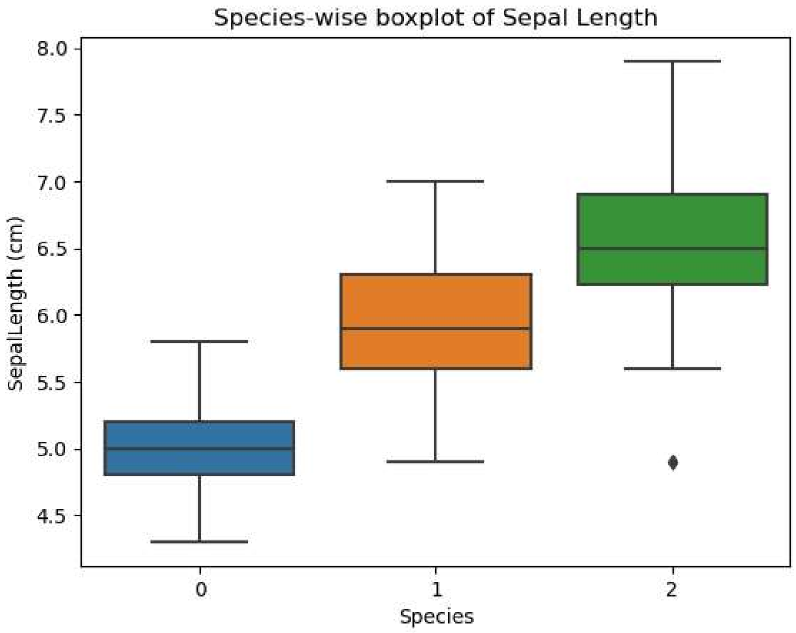
Out[14]:

	SepalLengthcm	SepalWidthcm	PetalLengthcm	PetalWidthcm	Species
count	150.000000	150.000000	150.000000	150.000000	150.000000
mean	5.843333	3.057333	3.758000	1.199333	1.000000
std	0.828066	0.435866	1.765298	0.762238	0.819232
min	4.300000	2.000000	1.000000	0.100000	0.000000
25%	5.100000	2.800000	1.600000	0.300000	0.000000
50%	5.800000	3.000000	4.350000	1.300000	1.000000
75%	6.400000	3.300000	5.100000	1.800000	2.000000
max	7.900000	4.400000	6.900000	2.500000	2.000000

In [15]:
```
import seaborn as sns
import matplotlib.pyplot as plt
```

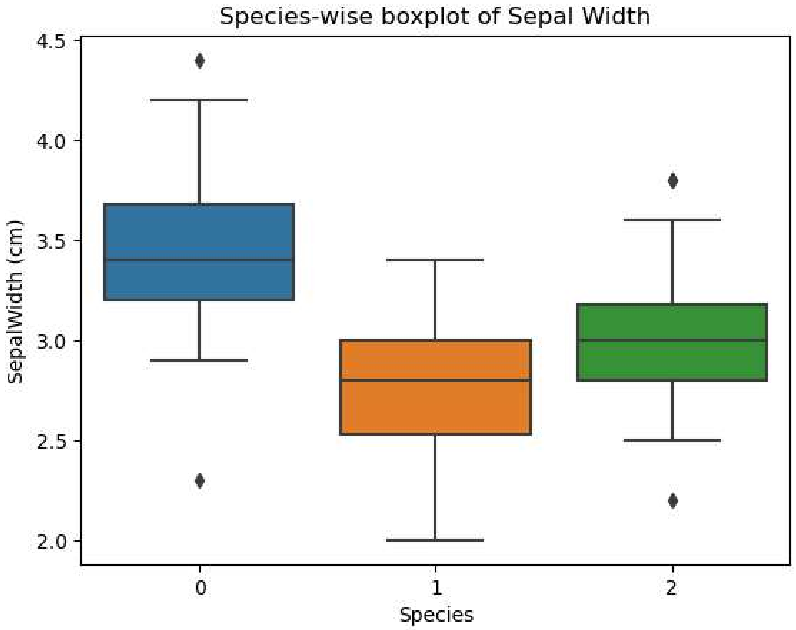
In [21]:
```
sns.boxplot(x='Species',y='SepalLengthcm',data=df)
plt.xlabel("Species")
plt.ylabel("SepalLength (cm)")
plt.title('Species-wise boxplot of Sepal Length')
```

Out[21]:
```
Text(0.5, 1.0, 'Species-wise boxplot of Sepal Length')
```



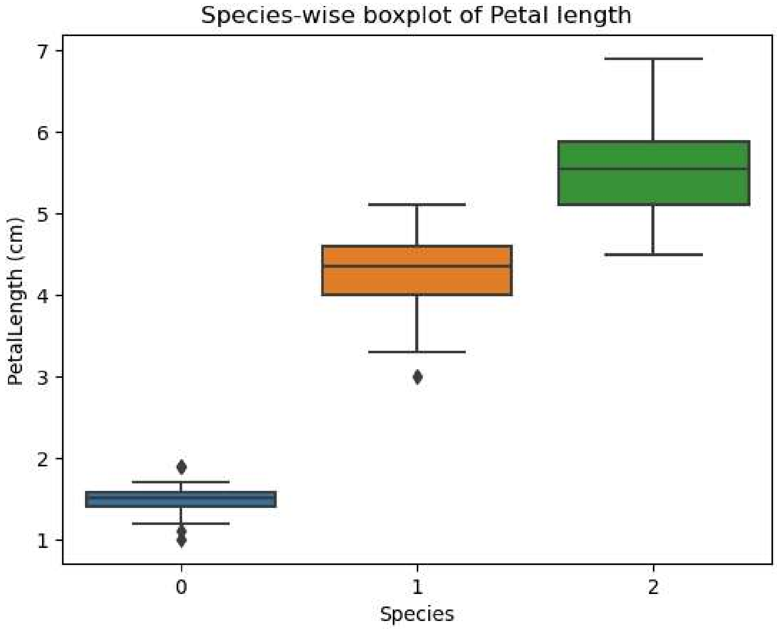
In [22]:
```
sns.boxplot(x='Species',y='SepalWidthcm',data=df)
plt.xlabel("Species")
plt.ylabel("SepalWidth (cm)")
plt.title('Species-wise boxplot of Sepal Width')
```

Out[22]:
```
Text(0.5, 1.0, 'Species-wise boxplot of Sepal Width')
```



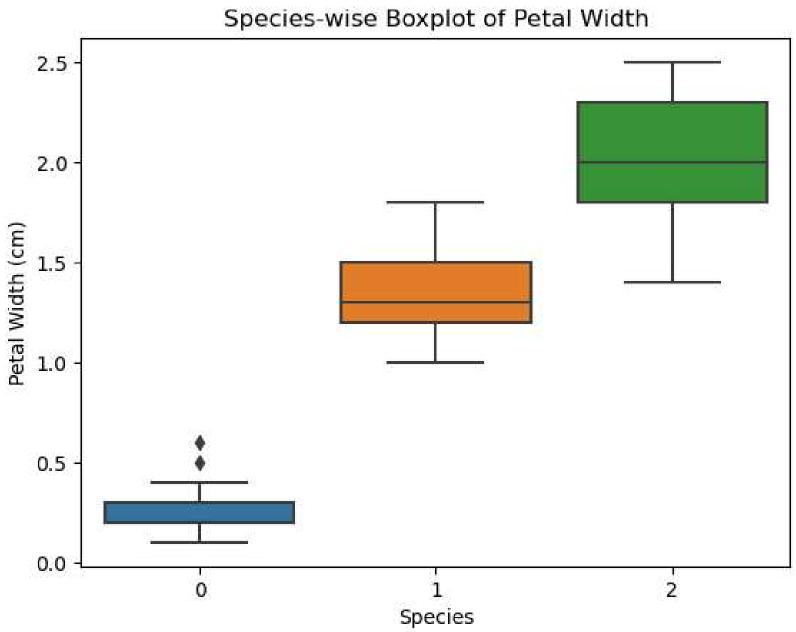
In [20]:
```
sns.boxplot(x='Species',y='PetalLengthcm',data=df)
plt.xlabel("Species")
plt.ylabel("PetalLength (cm)")
plt.title('Species-wise boxplot of Petal length')
```

Out[20]:
```
Text(0.5, 1.0, 'Species-wise boxplot of Petal length')
```



In [23]:
```
sns.boxplot(x='Species', y='PetalWidthcm', data=df)
plt.xlabel("Species")
plt.ylabel("Petal Width (cm)")
plt.title("Species-wise Boxplot of Petal Width")
```

Out[23]:
```
Text(0.5, 1.0, 'Species-wise Boxplot of Petal Width')
```



In [26]:
```
df.shape
```

Out[26]:
```
(150, 5)
```

In [27]:
```
df.mean()
```

Out[27]:
```
SepalLengthcm    5.843333
SepalWidthcm     3.057333
PetalLengthcm    3.758000
PetalWidthcm     1.199333
Species          1.000000
dtype: float64
```

In [28]:
```
df.groupby(['Species']).mean()
```

Out[28]:

	SepalLengthcm	SepalWidthcm	PetalLengthcm	PetalWidthcm
Species				
0	5.006	3.428	1.462	0.246
1	5.936	2.770	4.260	1.326
2	6.588	2.974	5.552	2.026

In [29]:
```
df.median()
```

Out[29]:
```
SepalLengthcm    5.80
SepalWidthcm     3.00
PetalLengthcm    4.35
PetalWidthcm     1.30
Species          1.00
dtype: float64
```

In [30]:
```
df.groupby(['Species']).mean()
```

Out[30]:

	SepalLengthcm	SepalWidthcm	PetalLengthcm	PetalWidthcm
Species				
0	5.006	3.428	1.462	0.246
1	5.936	2.770	4.260	1.326
2	6.588	2.974	5.552	2.026

```
In [31]: df.groupby(['Species']).count()
```

Out[31]:

	SepalLengthcm	SepalWidthcm	PetalLengthcm	PetalWidthcm
Species				
0	50	50	50	50
1	50	50	50	50
2	50	50	50	50

```
In [32]: df.Species.mode()

Out[32]: 0    0
         1    1
         2    2
         Name: Species, dtype: int32
```

```
In [33]: df.SepalLengthcm.std()

Out[33]: 0.8280661279778629
```

```
In [34]: df.SepalWidthcm.std()

Out[34]: 0.435866284936698
```

```
In [35]: df.PetalLengthcm.std()

Out[35]: 1.7652982332594667
```

```
In [36]: df.PetalWidthcm.std()

Out[36]: 0.7622376689603465
```

```
In [38]: df.quantile(0.25)

Out[38]: SepalLengthcm    5.1
         SepalWidthcm     2.8
         PetalLengthcm    1.6
         PetalWidthcm     0.3
         Species          0.0
         Name: 0.25, dtype: float64
```

```
In [39]: df.quantile(0.5)

Out[39]: SepalLengthcm    5.80
         SepalWidthcm     3.00
         PetalLengthcm    4.35
         PetalWidthcm     1.30
         Species          1.00
         Name: 0.5, dtype: float64
```

```
In [41]: df.quantile(0.75)

Out[41]: SepalLengthcm    6.4
         SepalWidthcm     3.3
         PetalLengthcm    5.1
         PetalWidthcm     1.8
         Species          2.0
         Name: 0.75, dtype: float64
```

```
In [ ]:
```