In [1]:

```
import pandas as pd
import numpy as np

import seaborn as sns
```

In [4]:

```
df = pd.read_csv("Iris .csv")
```

In [5]:

```
df
```

Out[5]:

	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 [6]:

```
df.head()
```

Out[6]:

	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

In [7]:

```
df.tail()
```

Out[7]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
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

In [8]:

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 150 entries, 0 to 149
Data columns (total 6 columns):
 #   Column         Non-Null Count  Dtype  
---  ------         --------------  -----  
 0   Id             150 non-null    int64  
 1   SepalLengthCm  150 non-null    float64
 2   SepalWidthCm   150 non-null    float64
 3   PetalLengthCm  150 non-null    float64
 4   PetalWidthCm   150 non-null    float64
 5   Species        150 non-null    object 
dtypes: float64(4), int64(1), object(1)
memory usage: 7.2+ KB
```

In [10]:

```
df.dtypes
```

Out[10]:

```
Id                int64
SepalLengthCm    float64
SepalWidthCm     float64
PetalLengthCm    float64
PetalWidthCm     float64
Species           object
dtype: object
```

In [11]:

```
df.describe()
```

Out[11]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
count	150.000000	150.000000	150.000000	150.000000	150.000000
mean	75.500000	5.843333	3.054000	3.758667	1.198667
std	43.445368	0.828066	0.433594	1.764420	0.763161
min	1.000000	4.300000	2.000000	1.000000	0.100000
25%	38.250000	5.100000	2.800000	1.600000	0.300000
50%	75.500000	5.800000	3.000000	4.350000	1.300000
75%	112.750000	6.400000	3.300000	5.100000	1.800000
max	150.000000	7.900000	4.400000	6.900000	2.500000

In [12]:

```
df1 = df.groupby('Species')
```

In [15]:

```
df1.get_group('Iris-setosa').describe()
```

Out[15]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
count	50.00000	50.00000	50.000000	50.000000	50.00000
mean	25.50000	5.00600	3.418000	1.464000	0.24400
std	14.57738	0.35249	0.381024	0.173511	0.10721
min	1.00000	4.30000	2.300000	1.000000	0.10000
25%	13.25000	4.80000	3.125000	1.400000	0.20000
50%	25.50000	5.00000	3.400000	1.500000	0.20000
75%	37.75000	5.20000	3.675000	1.575000	0.30000
max	50.00000	5.80000	4.400000	1.900000	0.60000

In [52]:

```
df['Species'].unique()
```

Out[52]:

```
array(['Iris-setosa', 'Iris-versicolor', 'Iris-virginica'], dtype=object)
```

In [34]:

```
df1 = df.groupby('Species')

species_display = ['Iris-setosa', 'Iris-versicolor', 'Iris-virginica']

for Specie in species_display:
    print(f"{Specie}\n")
    sample = df1.get_group(Specie)
    stat = sample.describe()
    print(stat)
    print('\n')
```

```
Iris-setosa
```

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
count	50.00000	50.00000	50.000000	50.000000	50.00000
mean	25.50000	5.00600	3.418000	1.464000	0.24400
std	14.57738	0.35249	0.381024	0.173511	0.10721
min	1.00000	4.30000	2.300000	1.000000	0.10000
25%	13.25000	4.80000	3.125000	1.400000	0.20000
50%	25.50000	5.00000	3.400000	1.500000	0.20000
75%	37.75000	5.20000	3.675000	1.575000	0.30000
max	50.00000	5.80000	4.400000	1.900000	0.60000

```
Iris-versicolor
```

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
count	50.00000	50.000000	50.000000	50.000000	50.000000
mean	75.50000	5.936000	2.770000	4.260000	1.326000
std	14.57738	0.516171	0.313798	0.469911	0.197753
min	51.00000	4.900000	2.000000	3.000000	1.000000
25%	63.25000	5.600000	2.525000	4.000000	1.200000
50%	75.50000	5.900000	2.800000	4.350000	1.300000
75%	87.75000	6.300000	3.000000	4.600000	1.500000
max	100.00000	7.000000	3.400000	5.100000	1.800000

```
Iris-virginica
```

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
count	50.00000	50.00000	50.000000	50.000000	50.00000
mean	125.50000	6.58800	2.974000	5.552000	2.02600
std	14.57738	0.63588	0.322497	0.551895	0.27465
min	101.00000	4.90000	2.200000	4.500000	1.40000
25%	113.25000	6.22500	2.800000	5.100000	1.80000
50%	125.50000	6.50000	3.000000	5.550000	2.00000
75%	137.75000	6.90000	3.175000	5.875000	2.30000
max	150.00000	7.90000	3.800000	6.900000	2.50000

In [36]:

```
df1.get_group('Iris-setosa').quantile([0.25,0.75])
```

Out[36]:

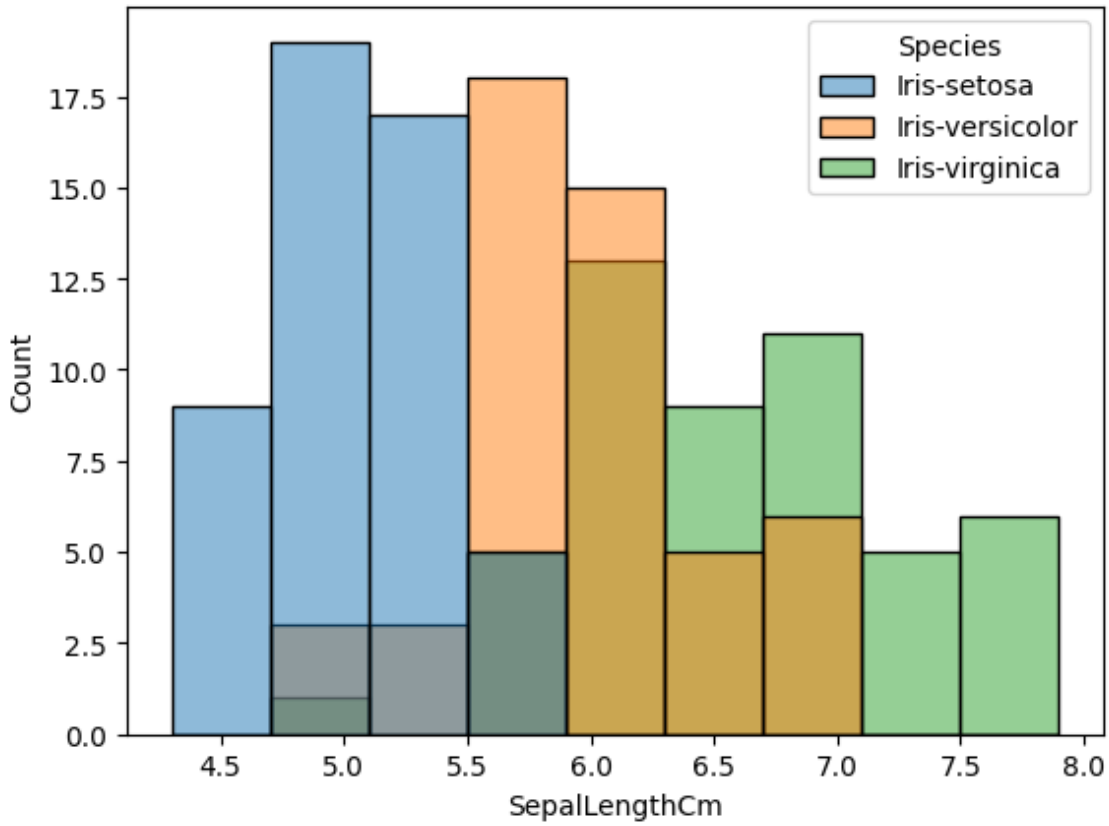
	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
0.25	13.25	4.8	3.125	1.400	0.2
0.75	37.75	5.2	3.675	1.575	0.3

In [41]:

```
sns.histplot(data = df,hue = 'Species' , x = 'SepalLengthCm')
```

Out[41]:

```
<Axes: xlabel='SepalLengthCm', ylabel='Count'>
```

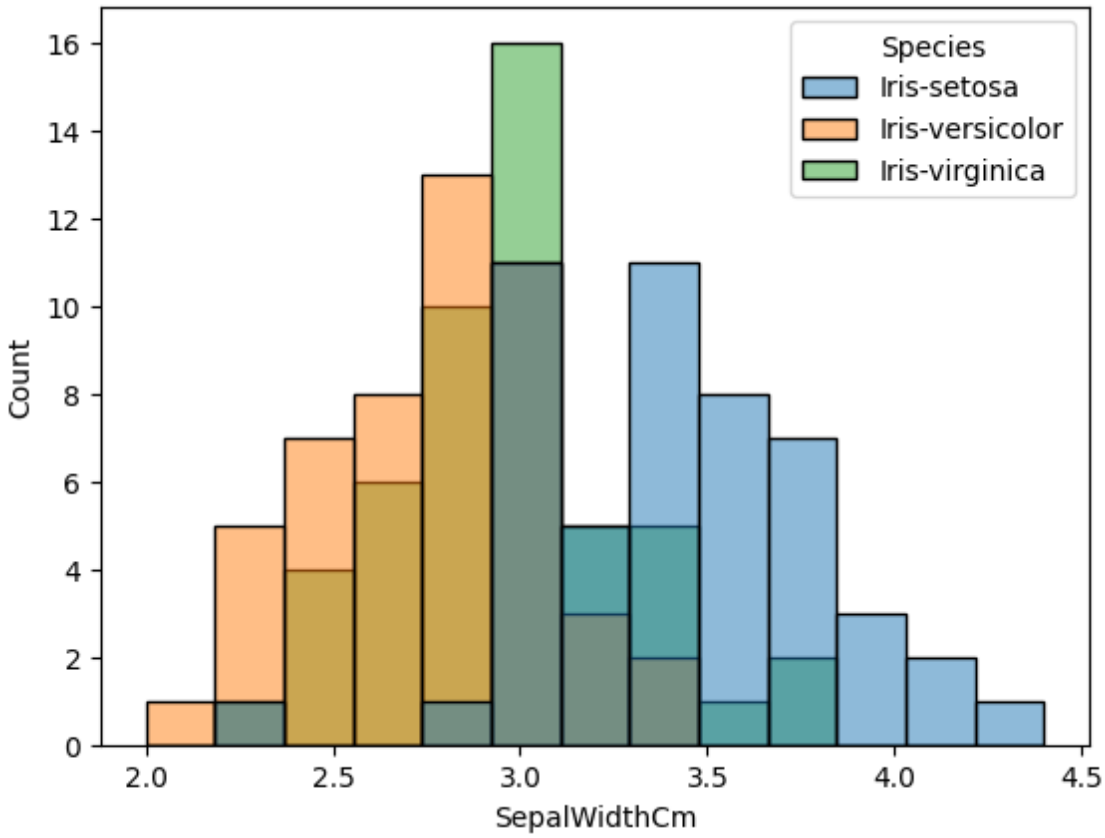


In [44]:

```
sns.histplot(data = df,hue = 'Species' , x = 'SepalWidthCm')
```

Out[44]:

```
<Axes: xlabel='SepalWidthCm', ylabel='Count'>
```

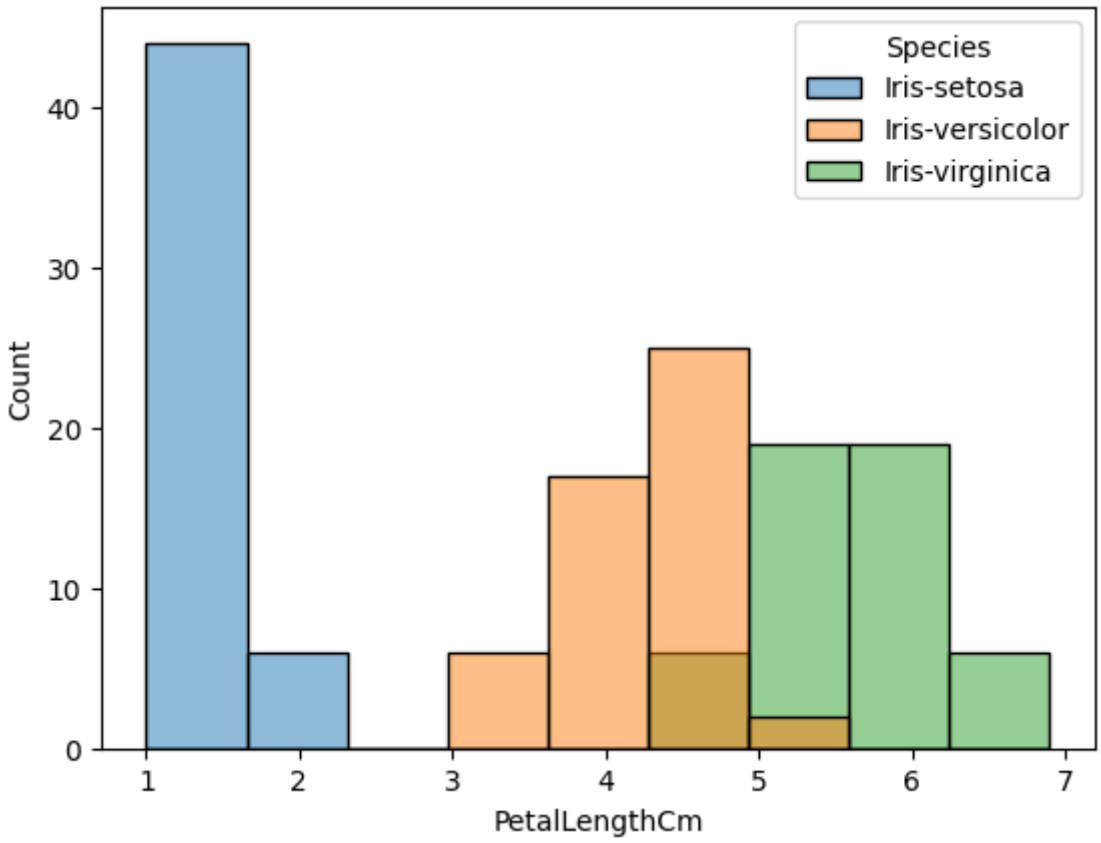


In [45]:

```
sns.histplot(data = df,hue = 'Species' , x = 'PetalLengthCm')
```

Out[45]:

```
<Axes: xlabel='PetalLengthCm', ylabel='Count'>
```

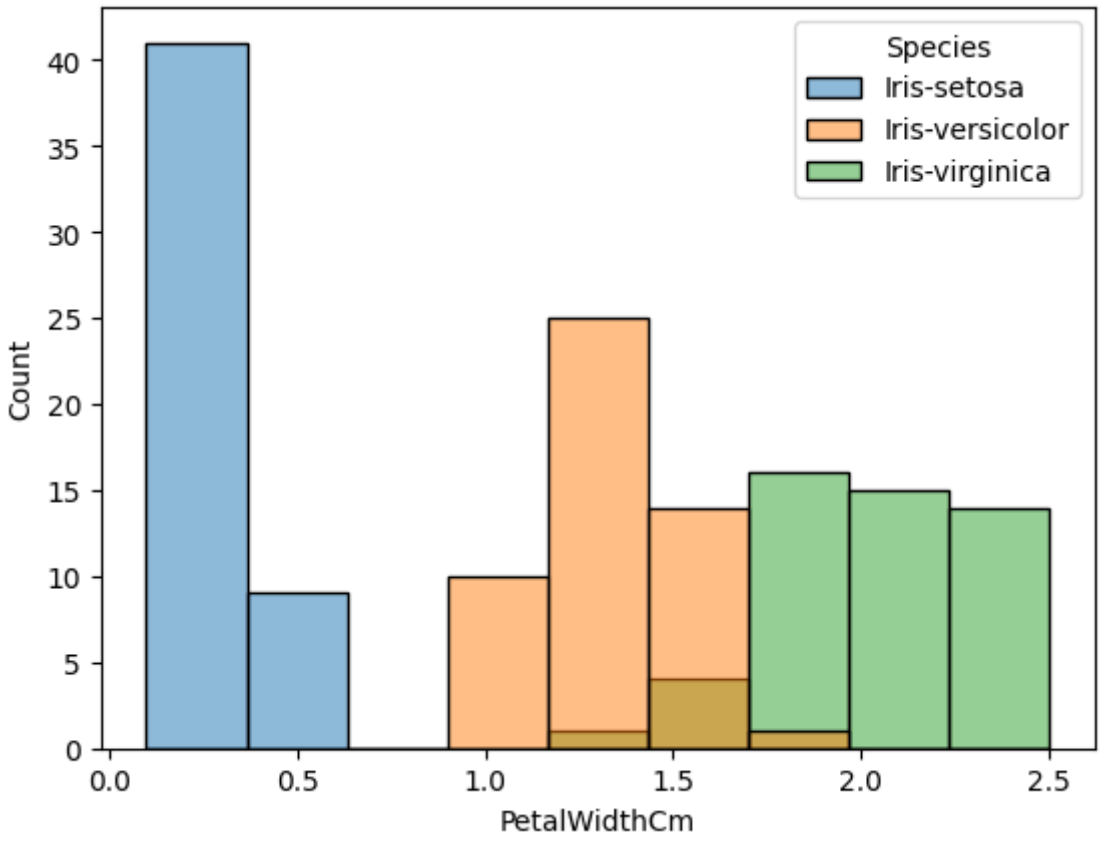


In [51]:

```
sns.histplot(data = df,hue = 'Species' , x = 'PetalWidthCm')
```

Out[51]:

```
<Axes: xlabel='PetalWidthCm', ylabel='Count'>
```

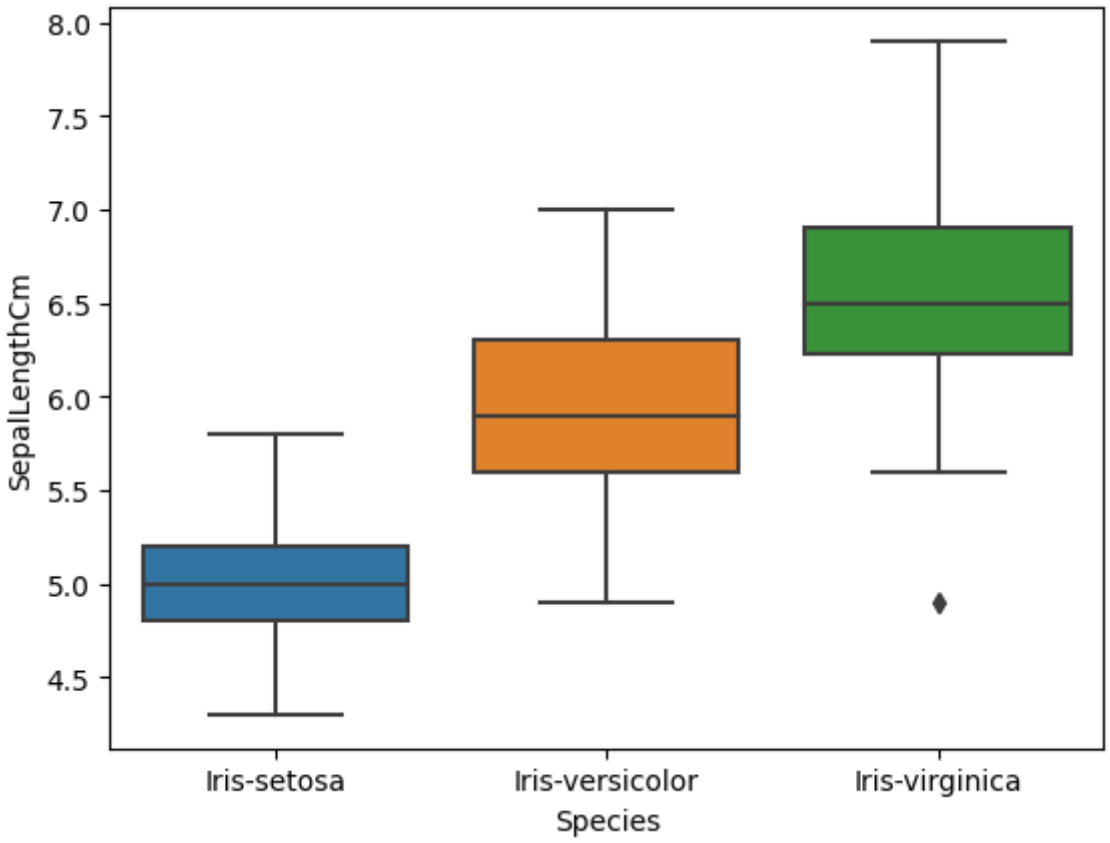


In [43]:

```
sns.boxplot(x = 'Species',y = 'SepalLengthCm',data = df)
```

Out[43]:

```
<Axes: xlabel='Species', ylabel='SepalLengthCm'>
```

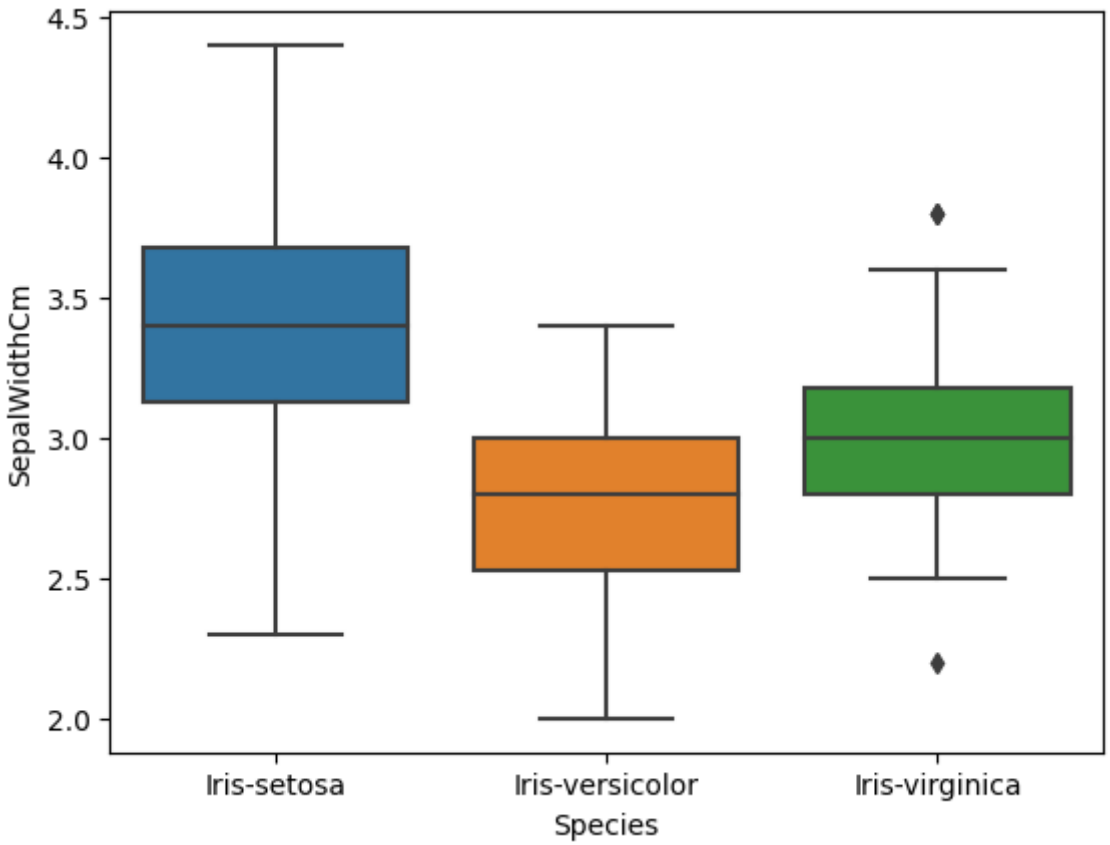


In [47]:

```
sns.boxplot(x = 'Species',y = 'SepalWidthCm',data = df)
```

Out[47]:

```
<Axes: xlabel='Species', ylabel='SepalWidthCm'>
```

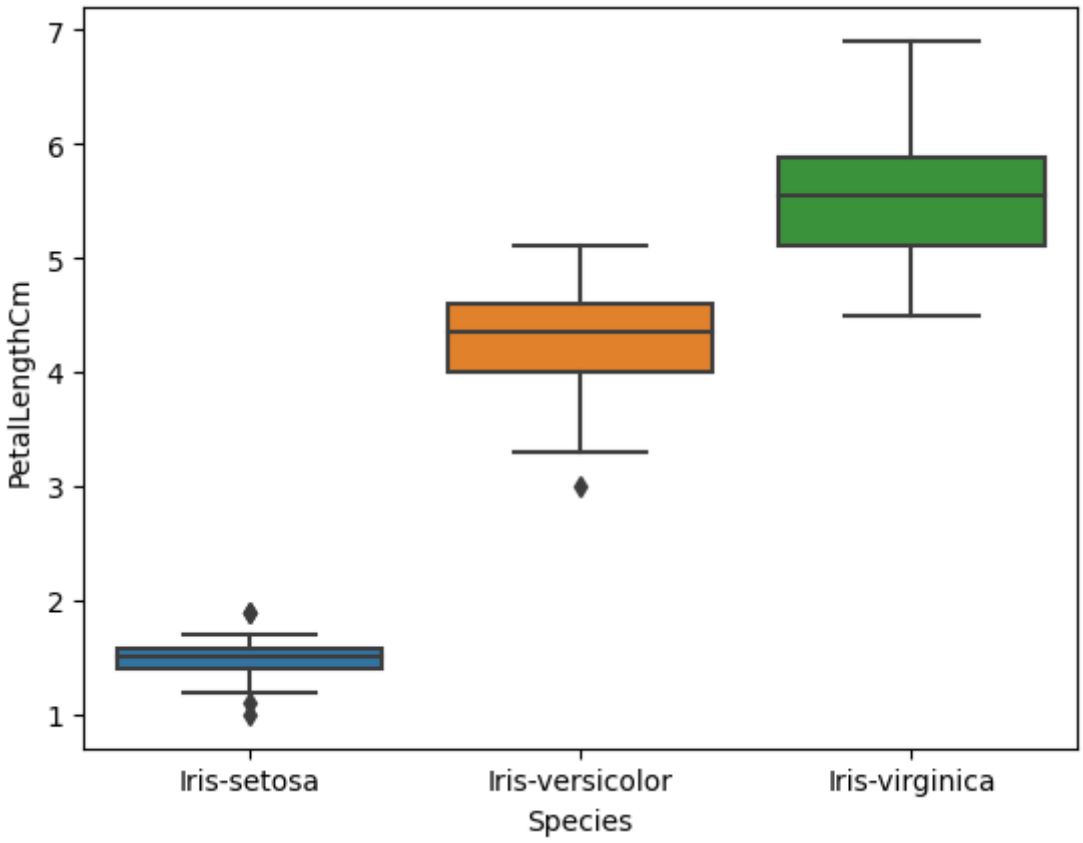


In [48]:

```
sns.boxplot(x = 'Species',y = 'PetalLengthCm',data = df)
```

Out[48]:

```
<Axes: xlabel='Species', ylabel='PetalLengthCm'>
```

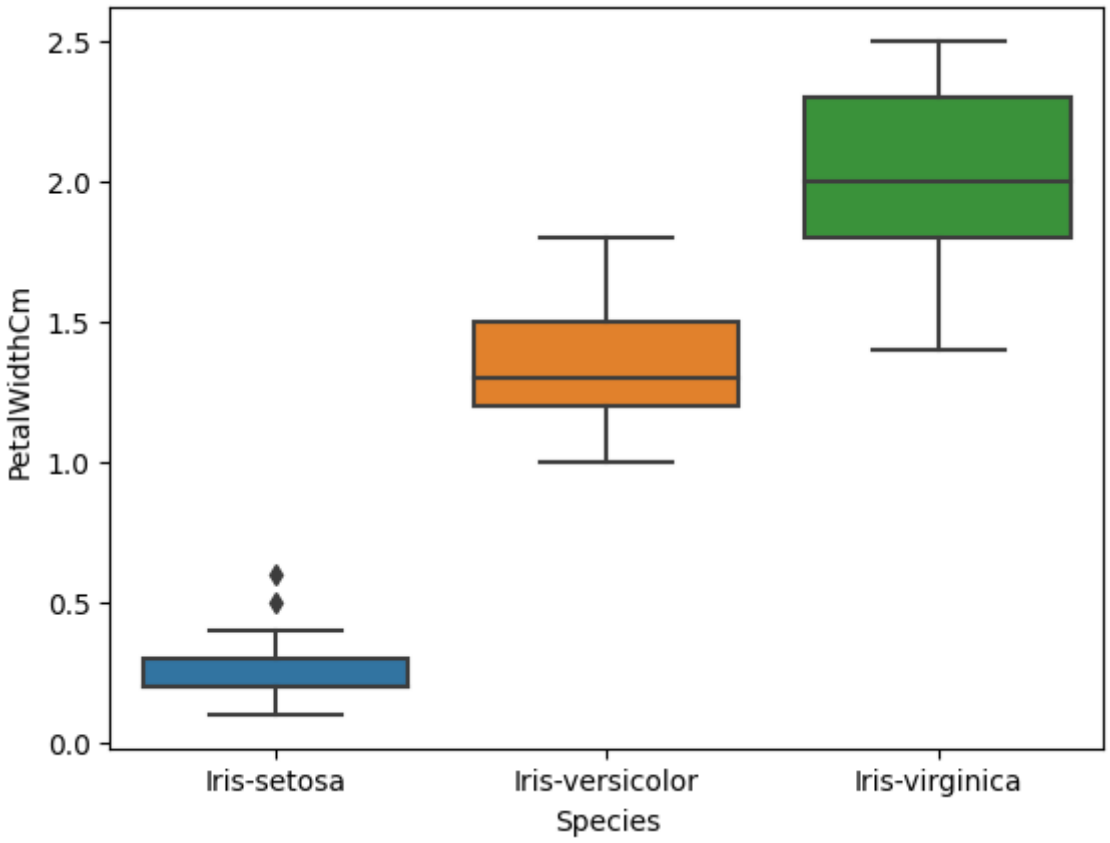


In [49]:

```
sns.boxplot(x = 'Species',y = 'PetalWidthCm',data = df)
```

Out[49]:

```
<Axes: xlabel='Species', ylabel='PetalWidthCm'>
```

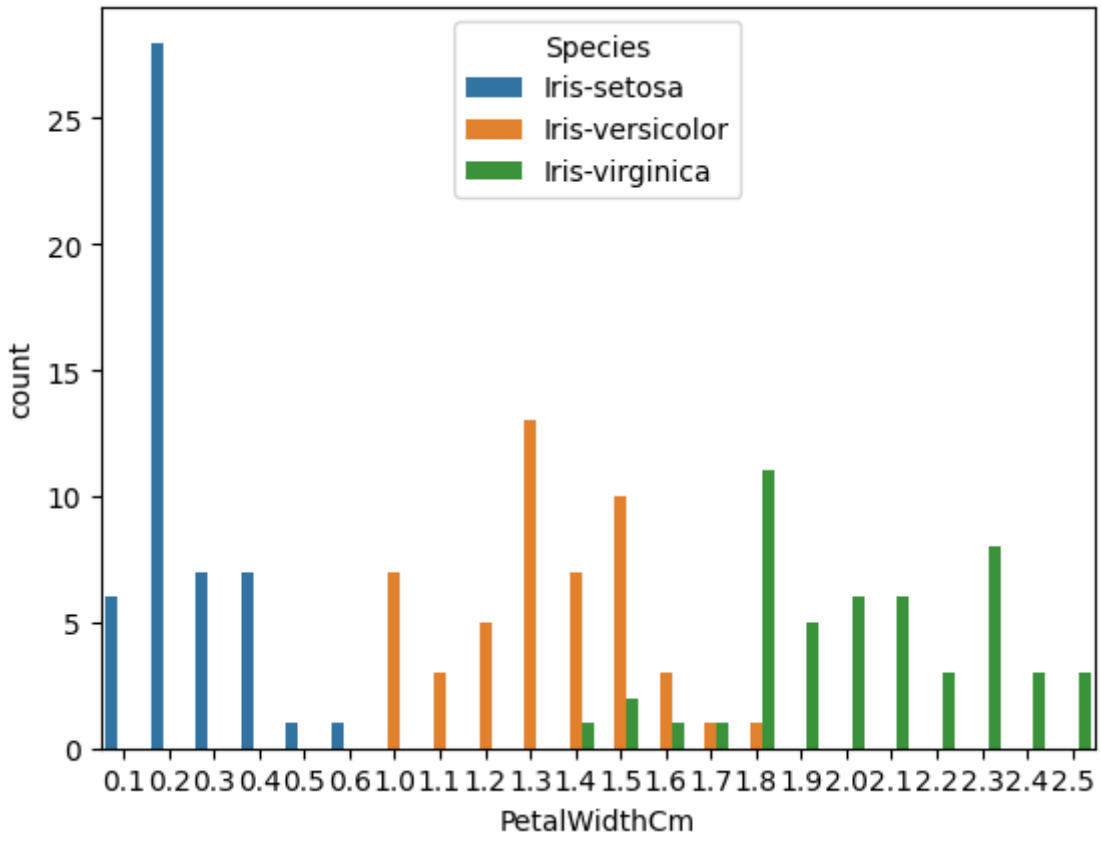


In [55]:

```
sns.countplot(data = df,hue = 'Species' , x = 'PetalWidthCm')
```

Out[55]:

```
<Axes: xlabel='PetalWidthCm', ylabel='count'>
```



In [ ]: