In [1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
%matplotlib inline
```

In [2]:
```
df=pd.read_csv("G:\\Iris.csv")
```

In [3]:
```
df
```

Out[3]:

	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 [4]:
```
df.head()
```

Out[4]:

	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 [5]:
```
df.columns
```

Out[5]:
```
Index(['Id', 'SepalLengthCm', 'SepalWidthCm', 'PetalLengthCm', 'PetalWidthC
m',
       'Species'],
      dtype='object')
```

In [6]:
```
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 [7]:
```
df.describe()
```

Out[7]:

	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 [8]:
```
df.isnull().sum()
```

Out[8]:
```
Id               0
SepalLengthCm    0
SepalWidthCm     0
PetalLengthCm    0
PetalWidthCm     0
Species          0
dtype: int64
```

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

Out[9]:
```
(150, 6)
```

In [10]:
```
df.SepalLengthCm.value_counts()
```

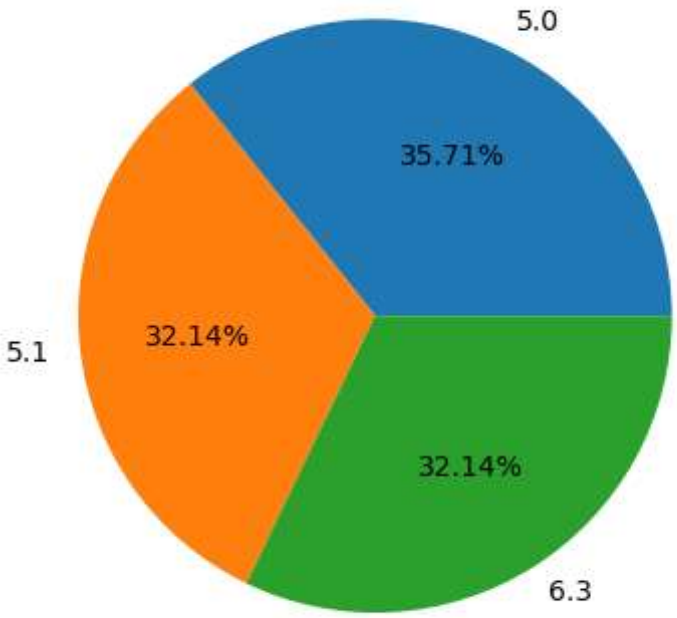
Out[10]:
```
5.0    10
5.1     9
6.3     9
5.7     8
6.7     8
5.8     7
5.5     7
6.4     7
4.9     6
5.4     6
6.1     6
6.0     6
5.6     6
4.8     5
6.5     5
6.2     4
7.7     4
6.9     4
4.6     4
5.2     4
5.9     3
4.4     3
7.2     3
6.8     3
6.6     2
4.7     2
7.6     1
7.4     1
7.3     1
7.0     1
7.1     1
5.3     1
4.3     1
4.5     1
7.9     1
Name: SepalLengthCm, dtype: int64
```

In [11]:
```
SepalLengthCm_name=df.SepalLengthCm.value_counts().index
```

In [12]:
```
SepalLengthCm_val=df.SepalLengthCm.value_counts().values
```

In [13]:
```
##pie chart
plt.pie(SepalLengthCm_val[:3],labels=SepalLengthCm_name[:3],autopct='%1.2f%%')
```

Out[13]:
```
([<matplotlib.patches.Wedge at 0x17c4a923640>,
  <matplotlib.patches.Wedge at 0x17c4a923c40>,
  <matplotlib.patches.Wedge at 0x17c4a93d3a0>],
 [Text(0.4772720865178074, 0.9910657674599294, '5.0'),
  Text(-1.0930834259406412, -0.12316096757443411, '5.1'),
  Text(0.5852352966245338, -0.9313966113234439, '6.3')],
 [Text(0.2603302290097131, 0.5405813277054159, '35.71%'),
  Text(-0.5962273232403498, -0.06717870958605496, '32.14%'),
  Text(0.3192192527042911, -0.5080345152673329, '32.14%')])
```



In [14]:
```
df.columns
```

Out[14]:
```
Index(['Id', 'SepalLengthCm', 'SepalWidthCm', 'PetalLengthCm', 'PetalWidthC
m',
       'Species'],
      dtype='object')
```

In [15]:
```
df.groupby(['PetalLengthCm','PetalWidthCm']).size()
```

Out[15]:
```
PetalLengthCm  PetalWidthCm
1.0            0.2            1
1.1            0.1            1
1.2            0.2            2
1.3            0.2            4
               0.3            2
                             ..
6.4            2.0            1
6.6            2.1            1
6.7            2.0            1
               2.2            1
6.9            2.3            1
Length: 102, dtype: int64
```

In [16]:
```
df.groupby(['PetalLengthCm','PetalWidthCm']).size().reset_index()
```

Out[16]:

	PetalLengthCm	PetalWidthCm	0
0	1.0	0.2	1
1	1.1	0.1	1
2	1.2	0.2	2
3	1.3	0.2	4
4	1.3	0.3	2
...	...	...	...
97	6.4	2.0	1
98	6.6	2.1	1
99	6.7	2.0	1
100	6.7	2.2	1
101	6.9	2.3	1

102 rows × 3 columns

In [17]:
```
df.groupby(['PetalLengthCm','PetalWidthCm']).size().reset_index().rename(columr
```

Out[17]:

	PetalLengthCm	PetalWidthCm	count
0	1.0	0.2	1
1	1.1	0.1	1
2	1.2	0.2	2
3	1.3	0.2	4
4	1.3	0.3	2
...	...	...	...
97	6.4	2.0	1
98	6.6	2.1	1
99	6.7	2.0	1
100	6.7	2.2	1
101	6.9	2.3	1

102 rows × 3 columns

In [18]:
```
ratings=df.groupby(['PetalLengthCm','PetalWidthCm']).size().reset_index().renam
```

In [19]:
```
ratings
```

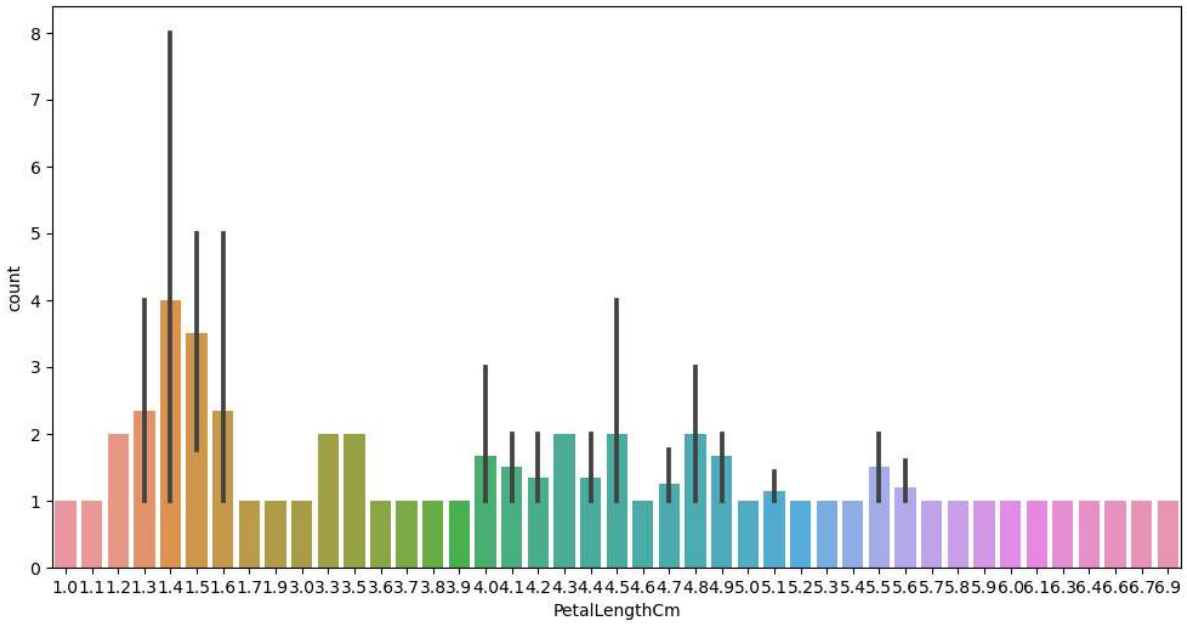
Out[19]:

	PetalLengthCm	PetalWidthCm	count
0	1.0	0.2	1
1	1.1	0.1	1
2	1.2	0.2	2
3	1.3	0.2	4
4	1.3	0.3	2
...	...	...	...
97	6.4	2.0	1
98	6.6	2.1	1
99	6.7	2.0	1
100	6.7	2.2	1
101	6.9	2.3	1

102 rows × 3 columns

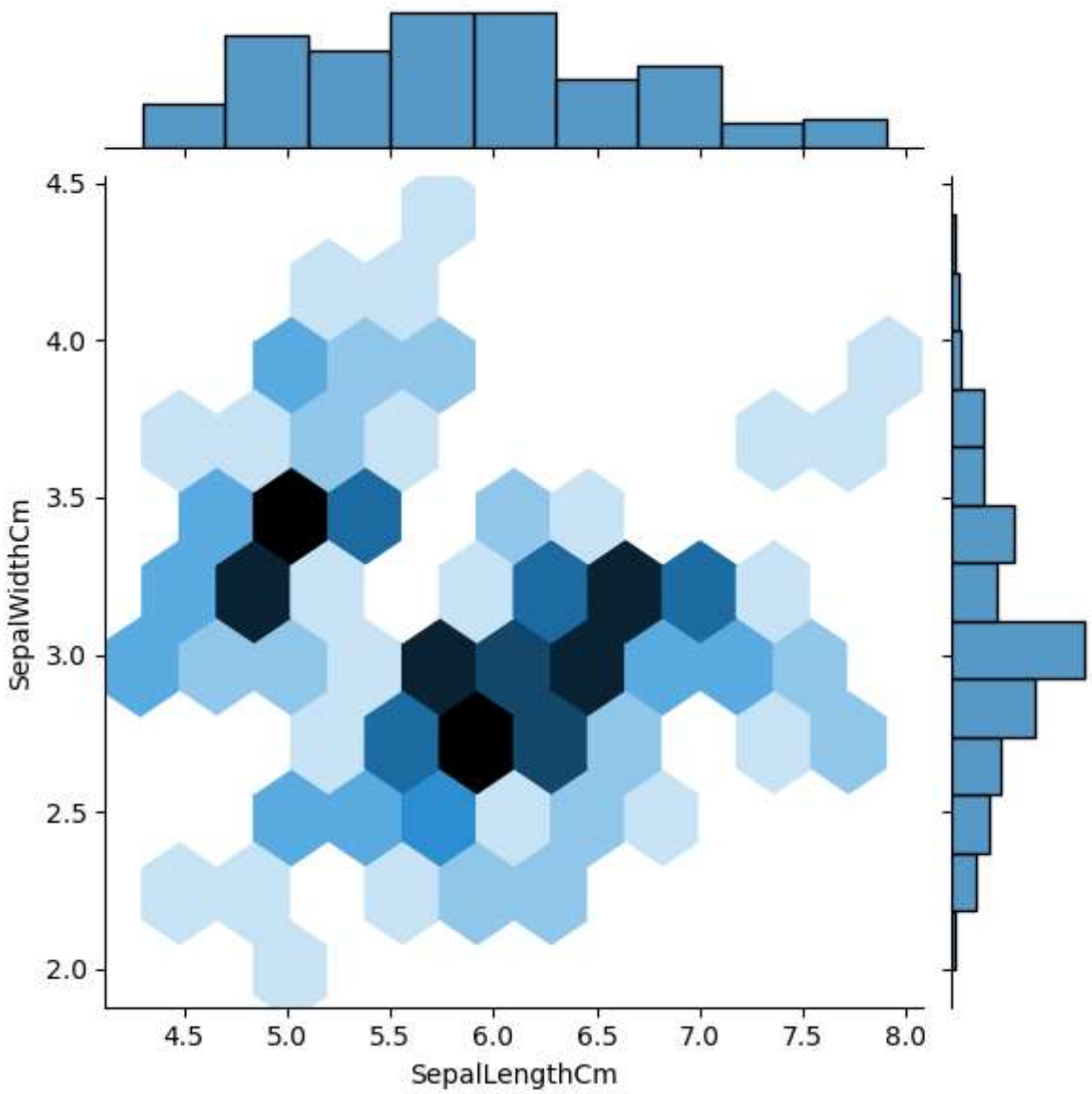
In [20]:
```
import matplotlib
matplotlib.rcParams['figure.figsize']=(12,6)
sns.barplot(x="PetalLengthCm",y="count",data=ratings)
```

Out[20]: <AxesSubplot:xlabel='PetalLengthCm', ylabel='count'>



In [26]:
```
sns.jointplot(x='SepalLengthCm',y='SepalWidthCm',data=df,kind='hex')
```

Out[26]: <seaborn.axisgrid.JointGrid at 0x17c4a6fb5b0>



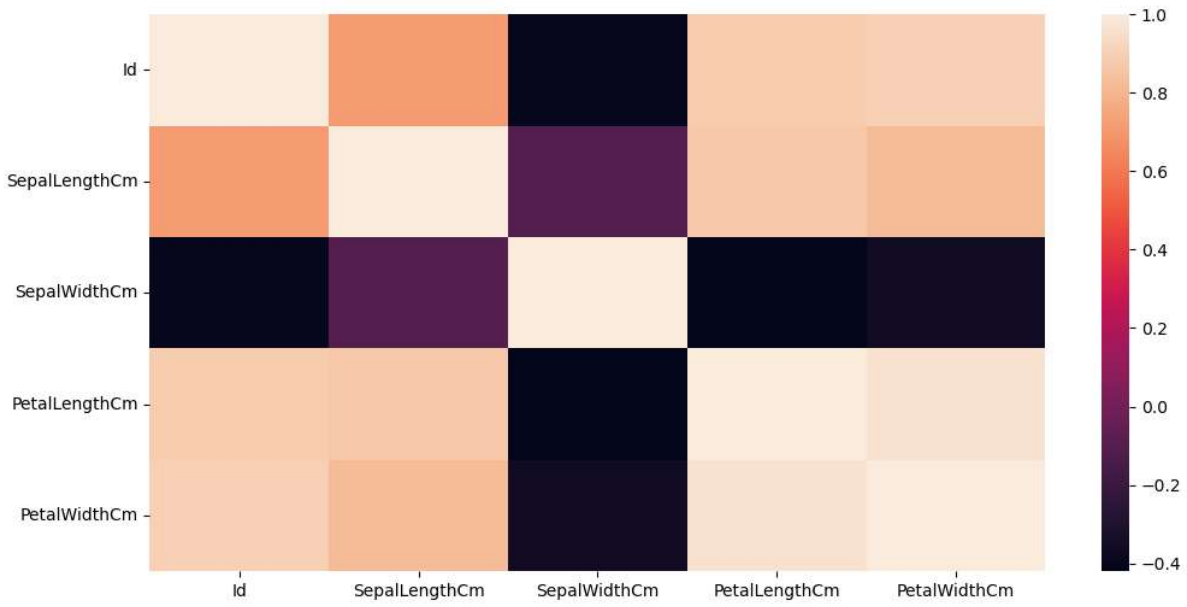
In [29]:
```
import warnings
warnings.filterwarnings('ignore')
df.corr()
```

Out[29]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
Id	1.000000	0.716676	-0.397729	0.882747	0.899759
SepalLengthCm	0.716676	1.000000	-0.109369	0.871754	0.817954
SepalWidthCm	-0.397729	-0.109369	1.000000	-0.420516	-0.356544
PetalLengthCm	0.882747	0.871754	-0.420516	1.000000	0.962757
PetalWidthCm	0.899759	0.817954	-0.356544	0.962757	1.000000

In [30]:
```
sns.heatmap(df.corr())
```

Out[30]: <AxesSubplot:>



In [ ]:
```

```