In [1]:
```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn.cluster import KMeans
```

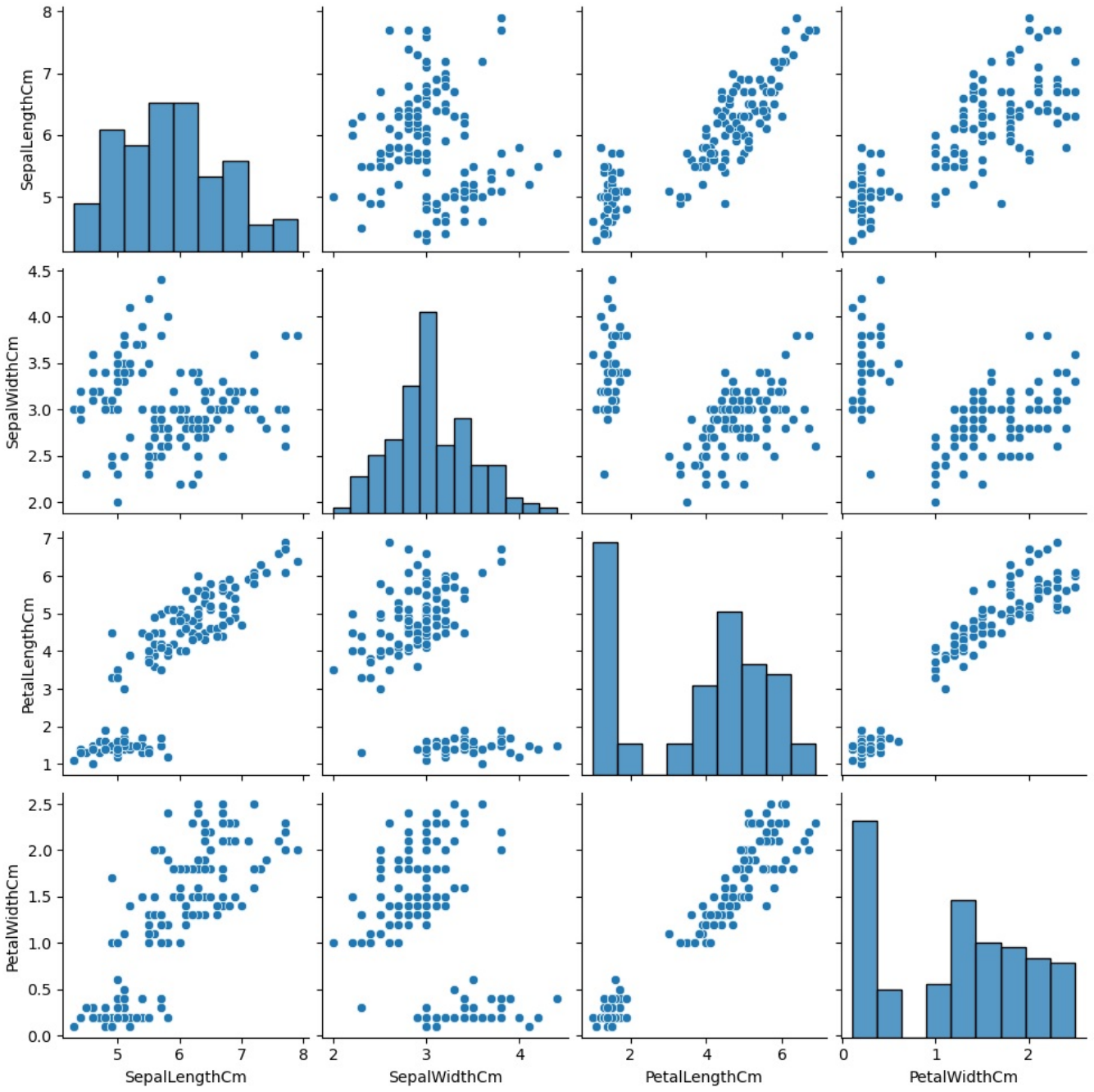
In [2]:
```
df=pd.read_csv("iris.csv")
df.head()
```

Out[2]:

	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
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 [4]:
```
sns.pairplot(data=df)
plt.show()
```

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



In [ ]:
```
```

In [5]:
```
# Elbow Method
wcss=[]
for i in range(2,21):
```

```python
    km=KMeans(n_clusters=i,init='k-means++')
    km.fit(df)
    wcss.append(km.inertia_)
```

```
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ting the environment variable OMP_NUM_THREADS=1.
  warnings.warn(
```
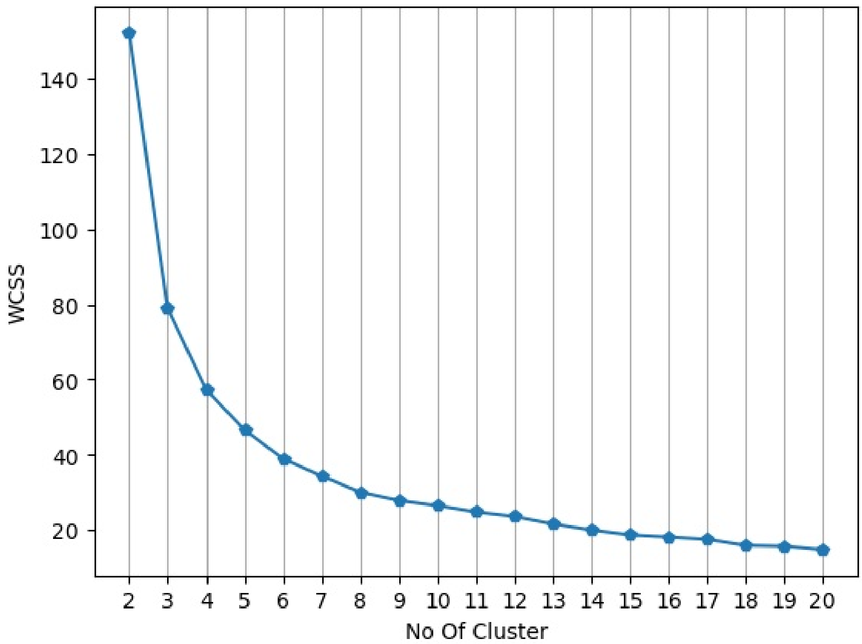

In [6]:

```
plt.plot([i for i in range(2,21)],wcss,marker="p")
plt.xlabel("No Of Cluster")
plt.xticks([i for i in range(2,21)])
plt.grid(axis="x")
plt.ylabel("WCSS")
plt.show()
```



In [7]:

```
km=KMeans(n_clusters=3,init='k-means++')
df["predict"]=km.fit_predict(df)
df
```

```
C:\ProgramData\anaconda3\Lib\site-packages\sklearn\cluster\_kmeans.py:1412: FutureWarning: The default value of
`n_init` will change from 10 to 'auto' in 1.4. Set the value of `n_init` explicitly to suppress the warning
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ting the environment variable OMP_NUM_THREADS=1.
  warnings.warn(
```

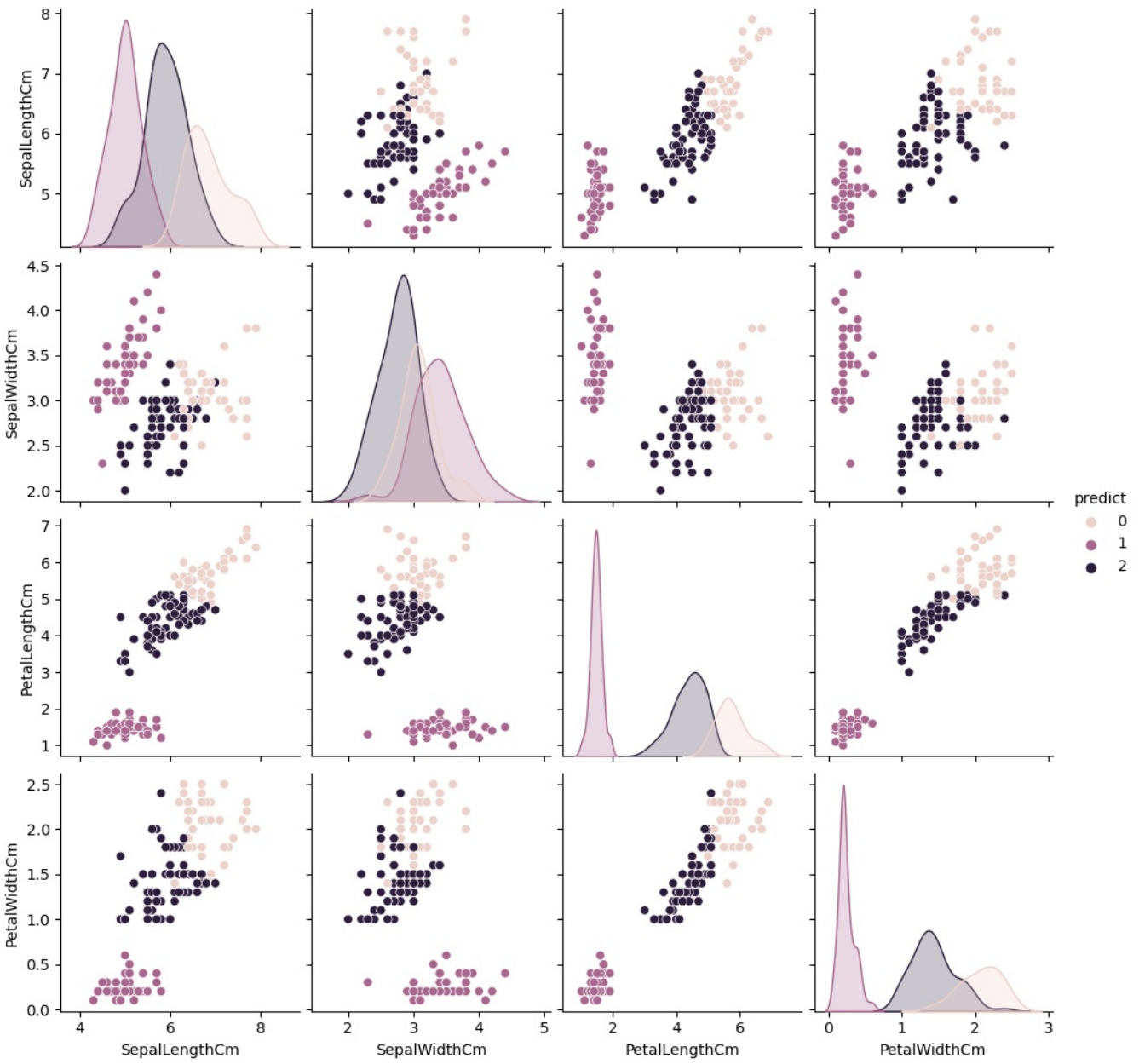
Out[7]:

	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	predict
0	5.1	3.5	1.4	0.2	1
1	4.9	3.0	1.4	0.2	1
2	4.7	3.2	1.3	0.2	1
3	4.6	3.1	1.5	0.2	1
4	5.0	3.6	1.4	0.2	1
...	...	...	...	...	...
145	6.7	3.0	5.2	2.3	0
146	6.3	2.5	5.0	1.9	2
147	6.5	3.0	5.2	2.0	0
148	6.2	3.4	5.4	2.3	0
149	5.9	3.0	5.1	1.8	2

150 rows × 5 columns

In [9]:
```
sns.pairplot(data=df,hue="predict")
plt.show()
```

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



In [ ]: