Seaborn

A library used for visualization and it is build over matplotlib.

In [1]:
```
import seaborn as sns
from matplotlib import pyplot as plt
```

In [2]:
```
fmri = sns.load_dataset("fmri")
fmri.head()
```

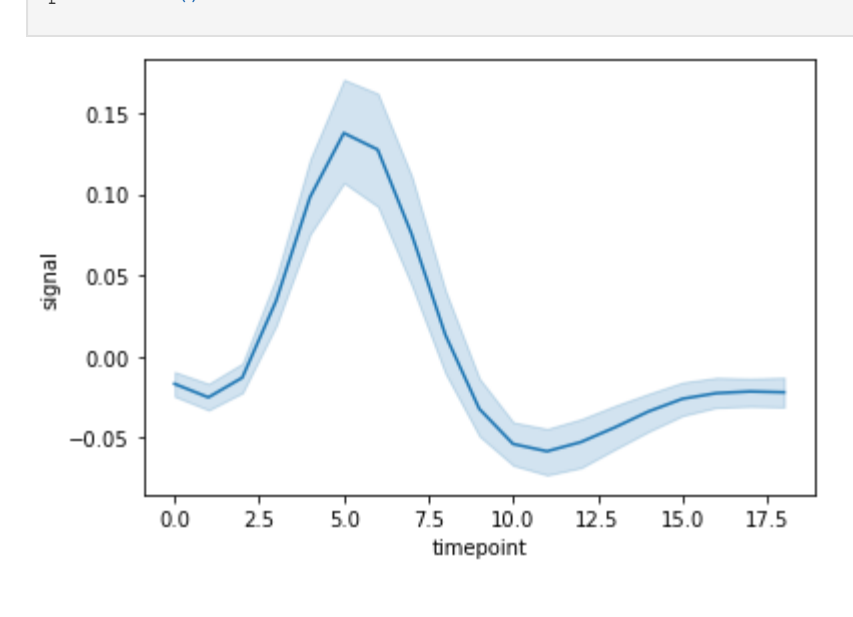
Out[2]:

	subject	timepoint	event	region	signal
0	s13	18	stim	parietal	-0.017552
1	s5	14	stim	parietal	-0.080883
2	s12	18	stim	parietal	-0.081033
3	s11	18	stim	parietal	-0.046134
4	s10	18	stim	parietal	-0.037970

In [3]:
```
fmri.shape
```

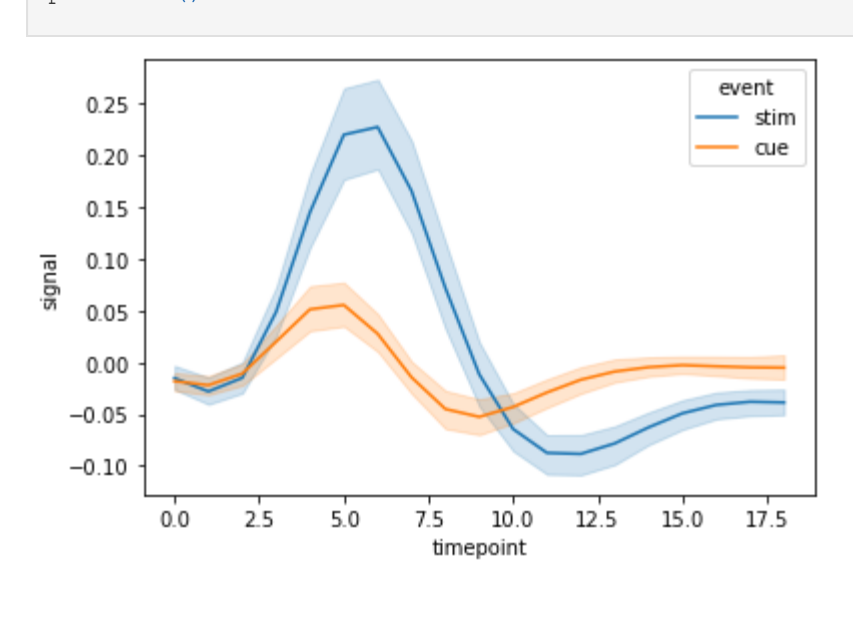
Out[3]: (1064, 5)

In [4]:
```
sns.lineplot(x="timepoint", y="signal", data=fmri)
plt.show()
```



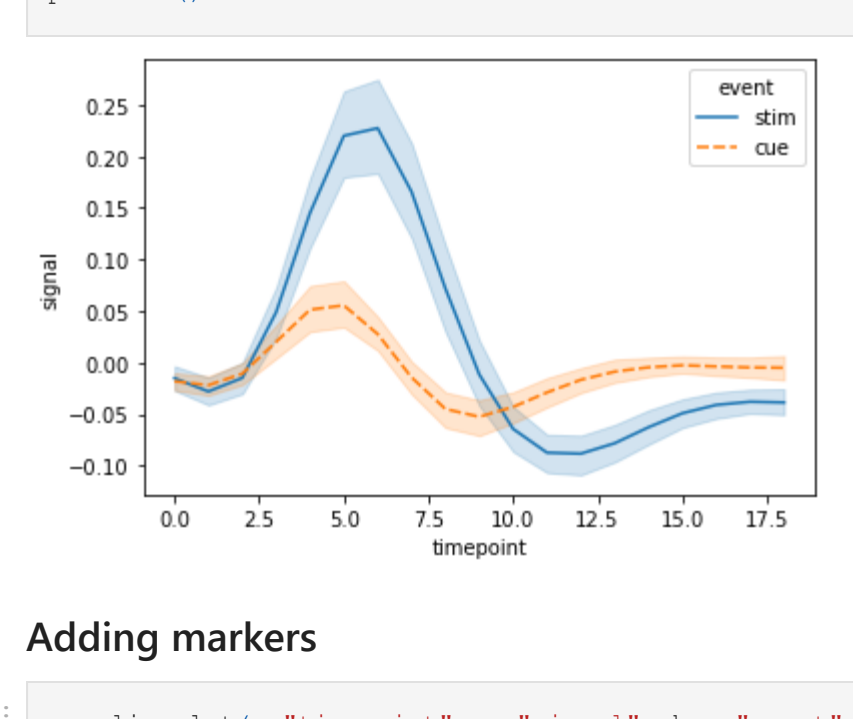
Grouping data with 'hue'

In [5]:
```
sns.lineplot(x="timepoint", y="signal", data=fmri, hue="event")
plt.show()
```



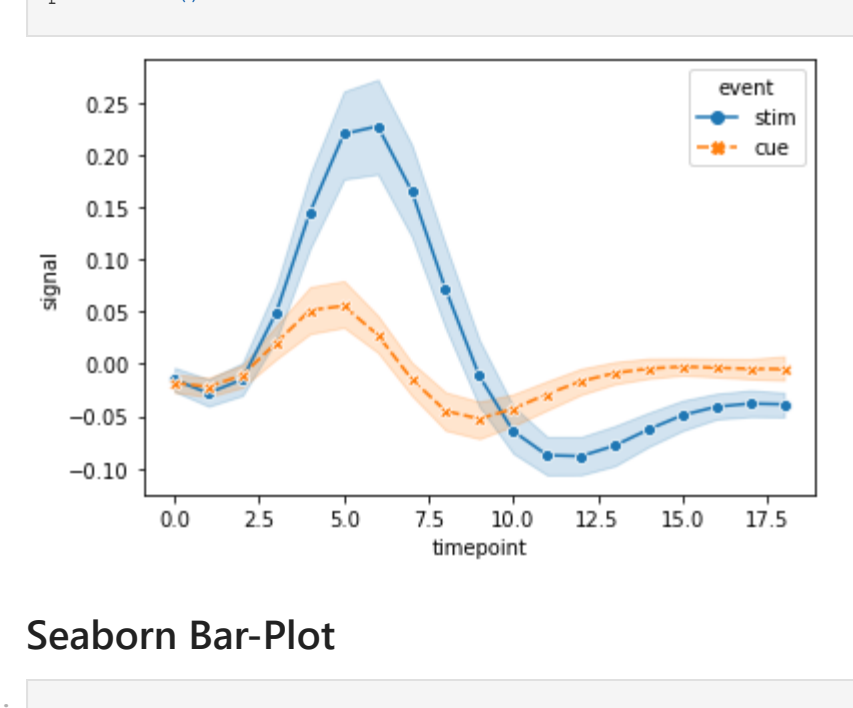
Addind style

In [6]:
```
sns.lineplot(x="timepoint", y="signal", data=fmri, hue="event", style="event")
plt.show()
```



Adding markers

In [7]:
```
sns.lineplot(x="timepoint", y="signal", hue="event", style="event", markers=True, data=fmri)
plt.show()
```



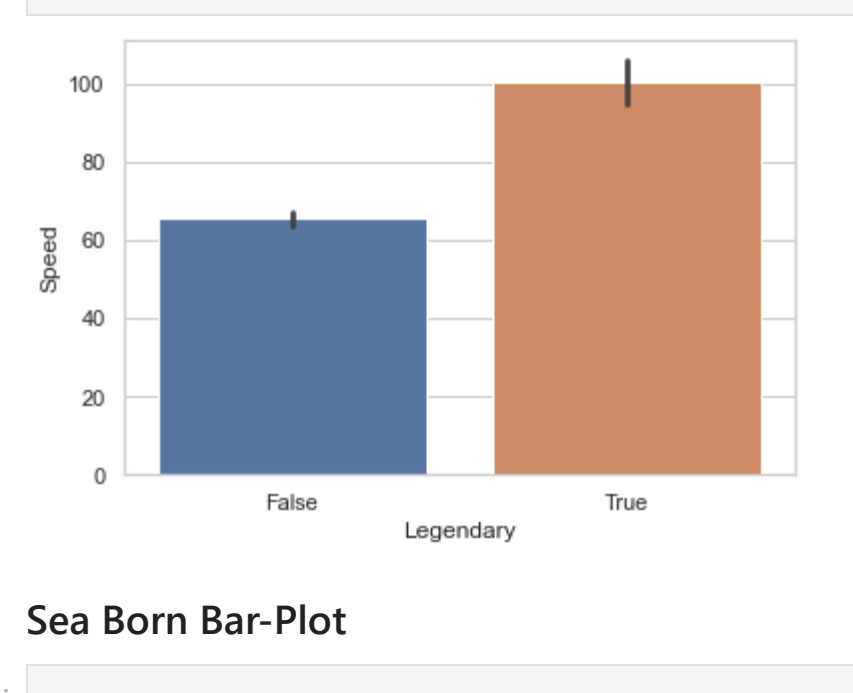
Seaborn Bar-Plot

In [8]:
```
import pandas as pd
sns.set(style = "whitegrid")
pokemon = pd.read_csv('pokemon.csv')
pokemon.head()
```

Out[8]:

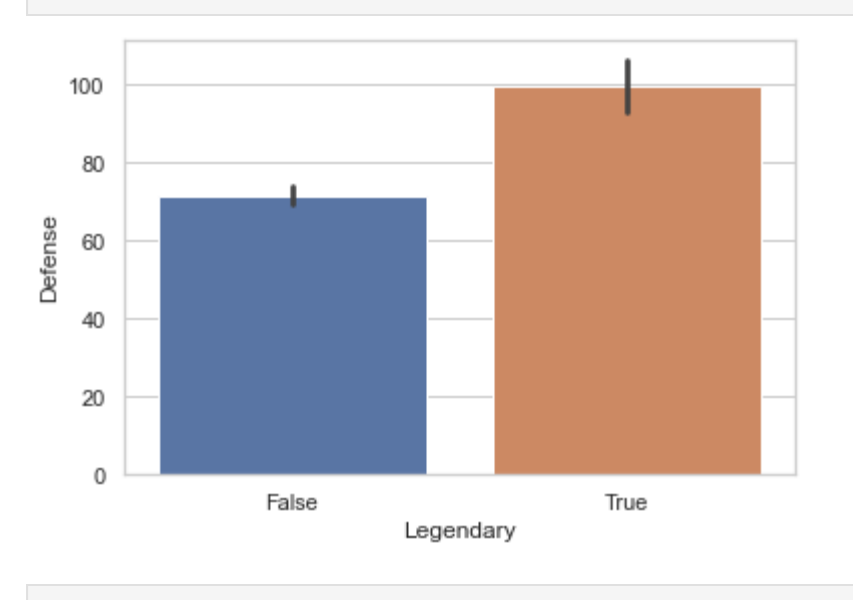
	#	Name	Type 1	Type 2	Total	HP	Attack	Defense	Sp. Atk	Sp. Def	Speed	Generation	Legendary
0	1	Bulbasaur	Grass	Poison	318	45	49	49	65	65	45	1	False
1	2	Ivysaur	Grass	Poison	405	60	62	63	80	80	60	1	False
2	3	Venusaur	Grass	Poison	525	80	82	83	100	100	80	1	False
3	3	VenusaurMega Venusaur	Grass	Poison	625	80	100	123	122	120	80	1	False
4	4	Charmander	Fire	NaN	309	39	52	43	60	50	65	1	False

In [9]:
```
sns.barplot(x="Legendary", y="Speed", data=pokemon)
plt.show()
```

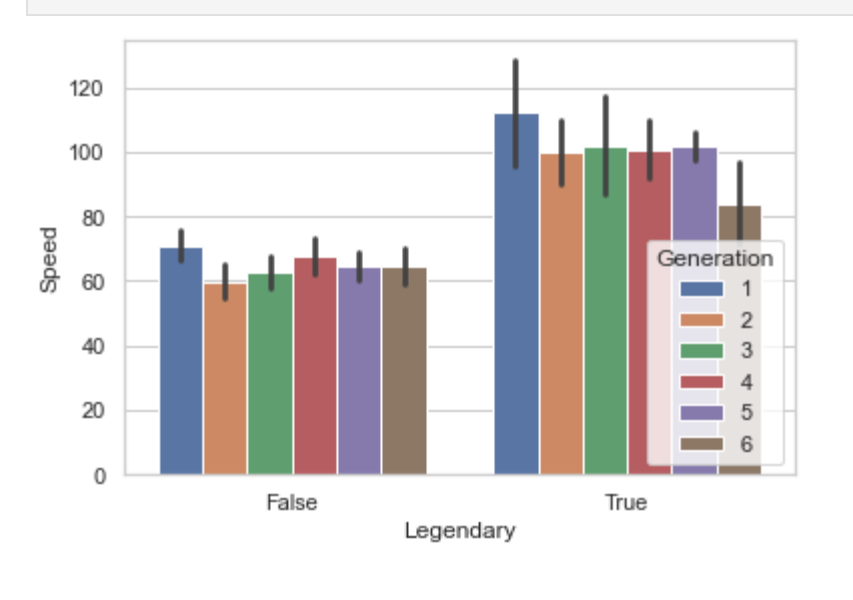


Sea Born Bar-Plot

In [10]:
```
sns.barplot(x="Legendary", y="Defense", data=pokemon)
plt.show()
```

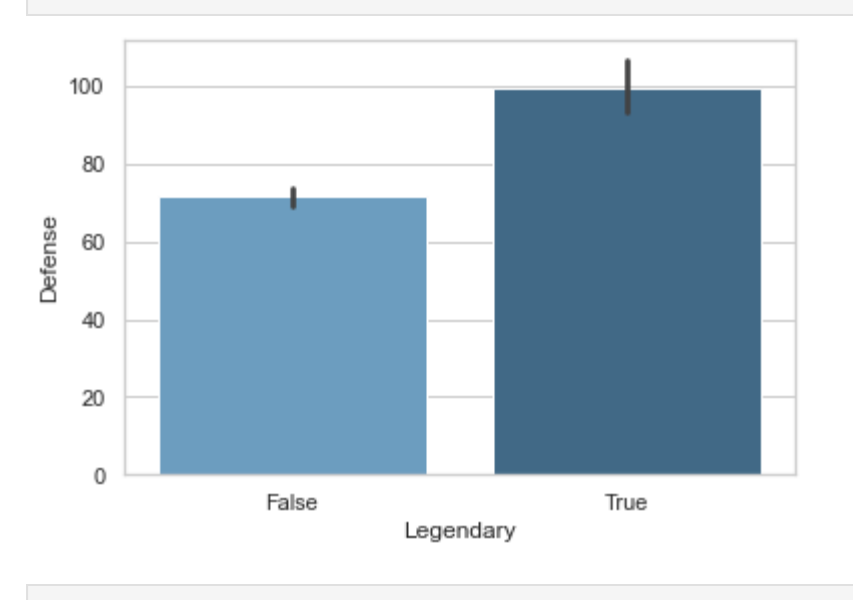


In [11]:
```
sns.barplot(x="Legendary", y="Speed", hue="Generation", data=pokemon)
plt.show()
```

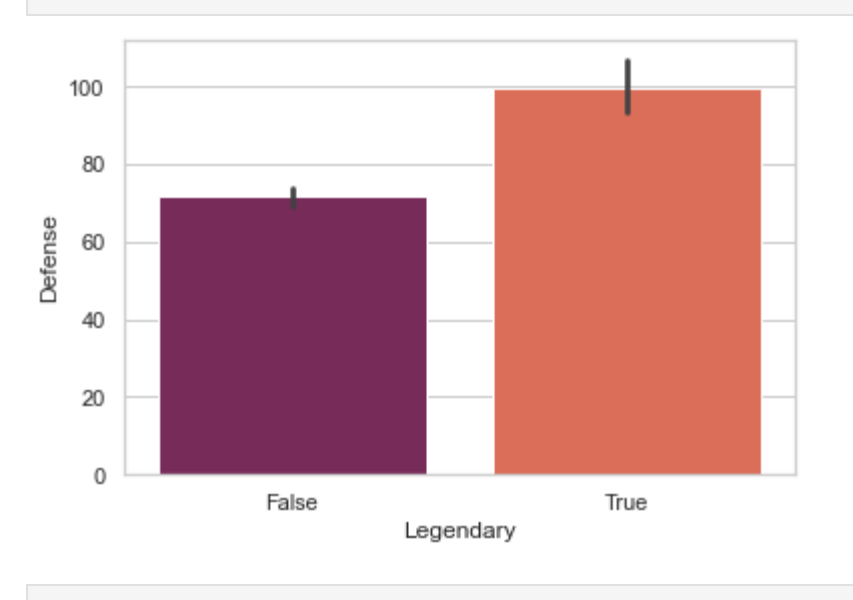


Changing bar colors with 'Palette'

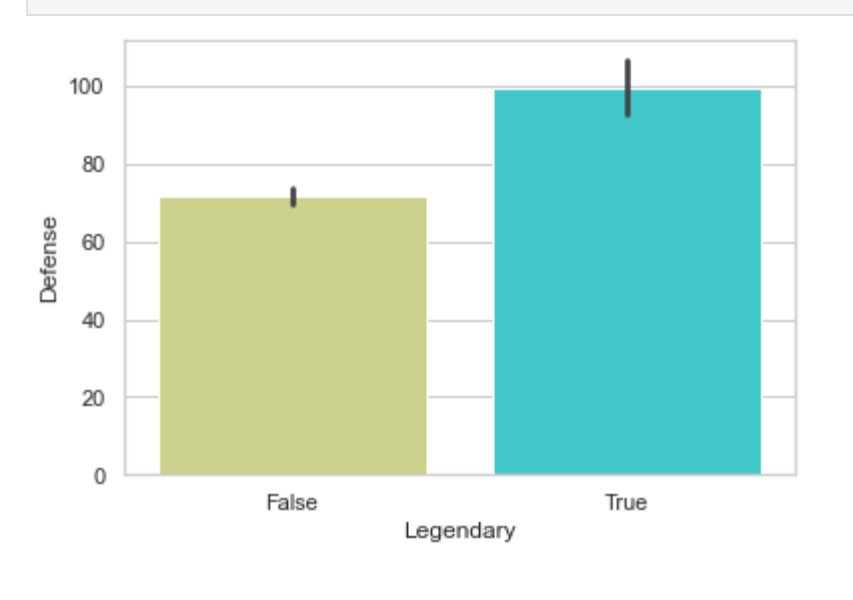
In [12]:
```
sns.barplot(x="Legendary", y="Defense", data=pokemon, palette='Blues_d')
plt.show()
```



In [13]:
```
sns.barplot(x="Legendary", y="Defense", data=pokemon, palette='rocket')
plt.show()
```

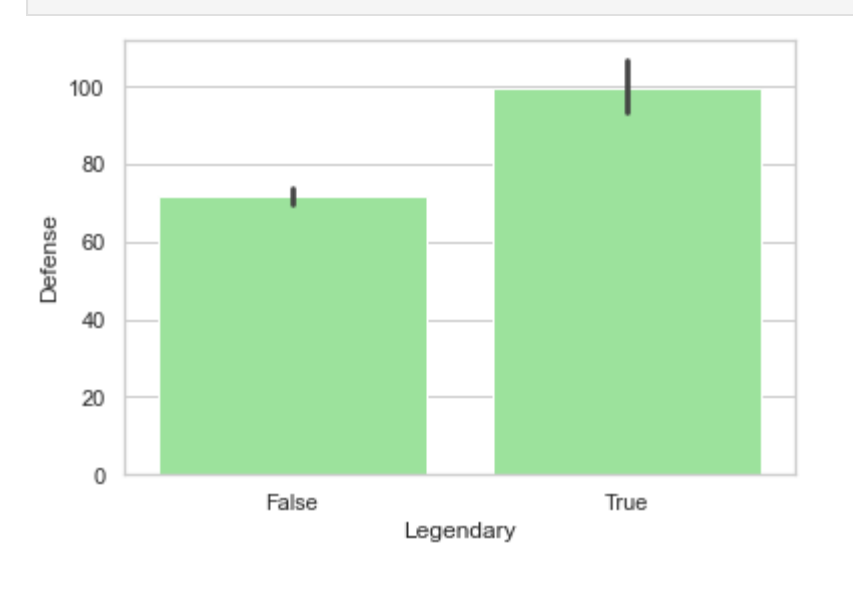


In [14]:
```
sns.barplot(x="Legendary", y="Defense", data=pokemon, palette='rainbow_r')
plt.show()
```



Fixing Bar Colours

In [15]:
```
sns.barplot(x="Legendary", y="Defense", color="lightgreen", data=pokemon)
plt.show()
```



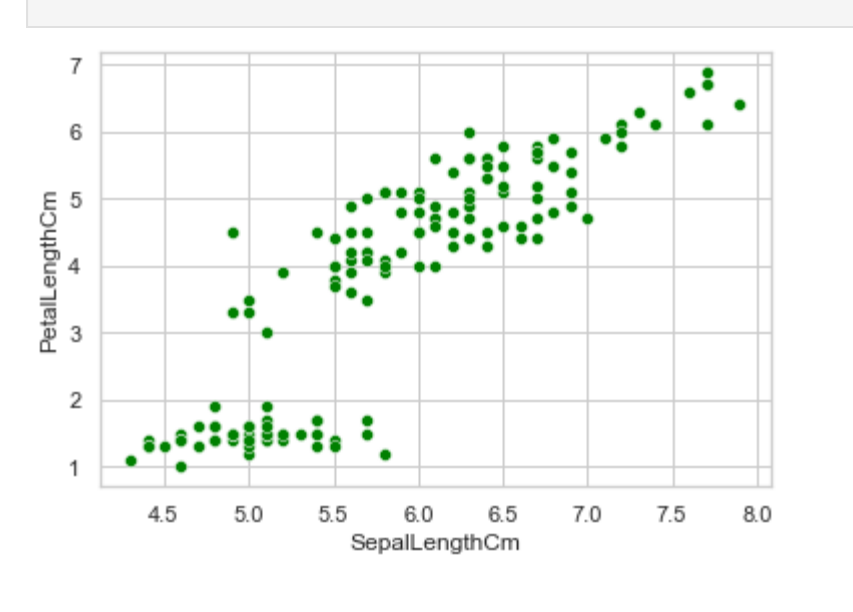
Seaborn Scatter Plot

In [16]:
```
iris=pd.read_csv('iris.csv')
iris.head()
```

Out[16]:

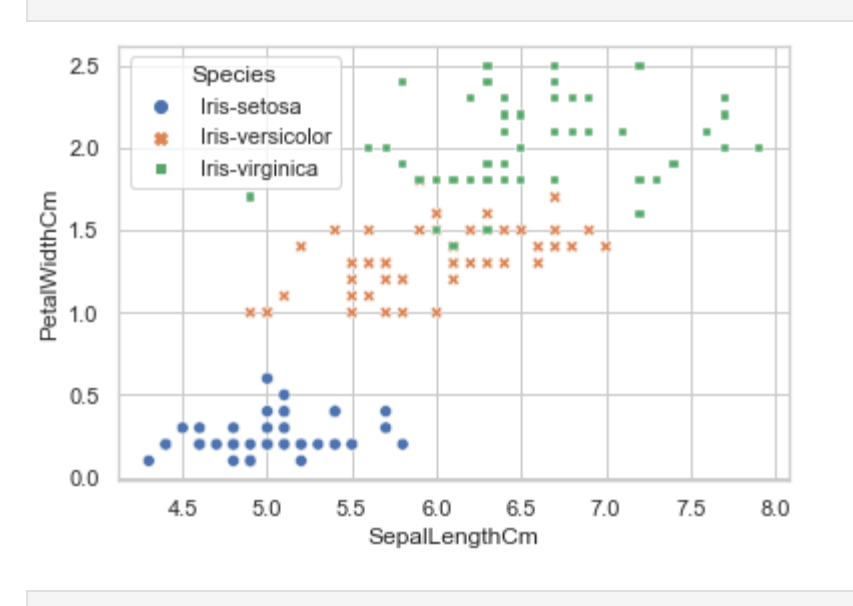
	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

In [17]:
```
sns.scatterplot(x="SepalLengthCm", y='PetalLengthCm', color= "green",data=iris)
plt.show()
```

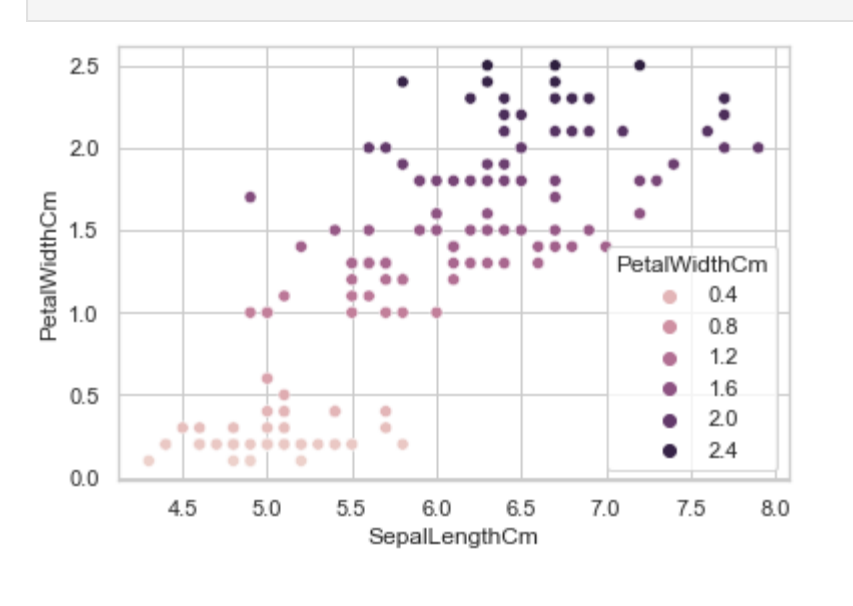


Adding Hue & Style to scatter-plot

In [18]:
```
sns.scatterplot(x="SepalLengthCm",y="PetalWidthCm", hue="Species", style="Species", data=iris)
plt.show()
```



In [19]:
```
sns.scatterplot(x="SepalLengthCm",y="PetalWidthCm", hue="PetalWidthCm", data=iris)
plt.show()
```



Seaborn Histogram/Distribution Curve

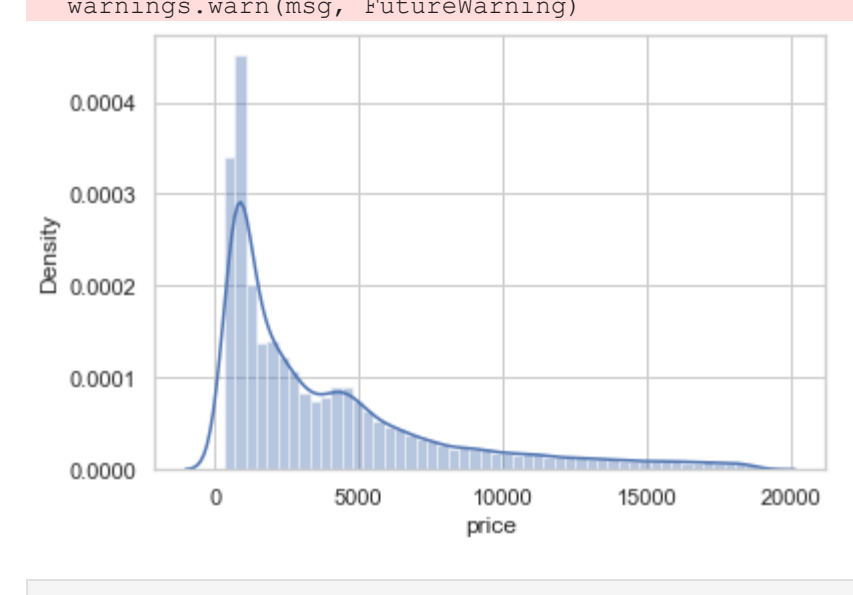
In [21]:
```
diamonds = pd.read_csv("diamonds.csv")
diamonds.head()
```

Out[21]:

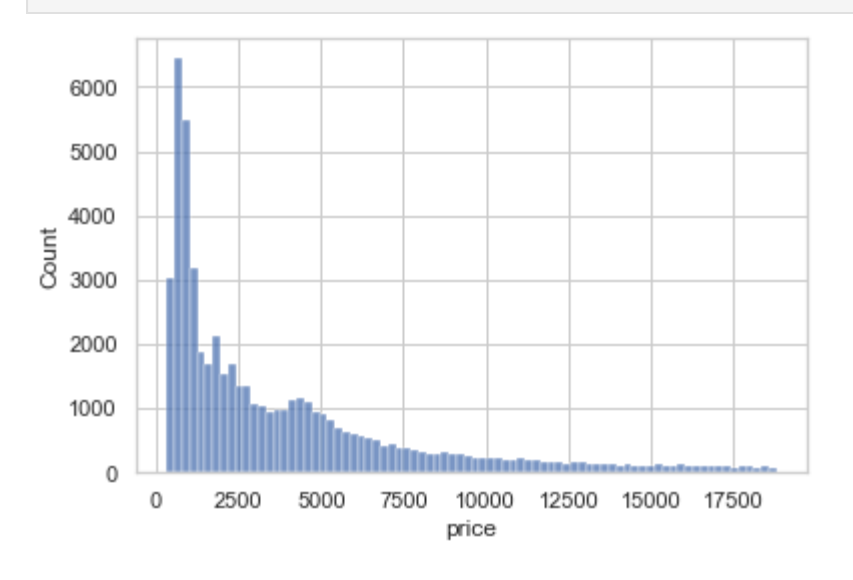
	carat	cut	color	clarity	depth	table	price	x	y	z
0	0.23	Ideal	E	SI2	61.5	55.0	326	3.95	3.98	2.43
1	0.21	Premium	E	SI1	59.8	61.0	326	3.89	3.84	2.31
2	0.23	Good	E	VS1	56.9	65.0	327	4.05	4.07	2.31
3	0.29	Premium	I	VS2	62.4	58.0	334	4.20	4.23	2.63
4	0.31	Good	J	SI2	63.3	58.0	335	4.34	4.35	2.75

In [25]:
```
sns.distplot(diamonds['price'])
plt.show()
```

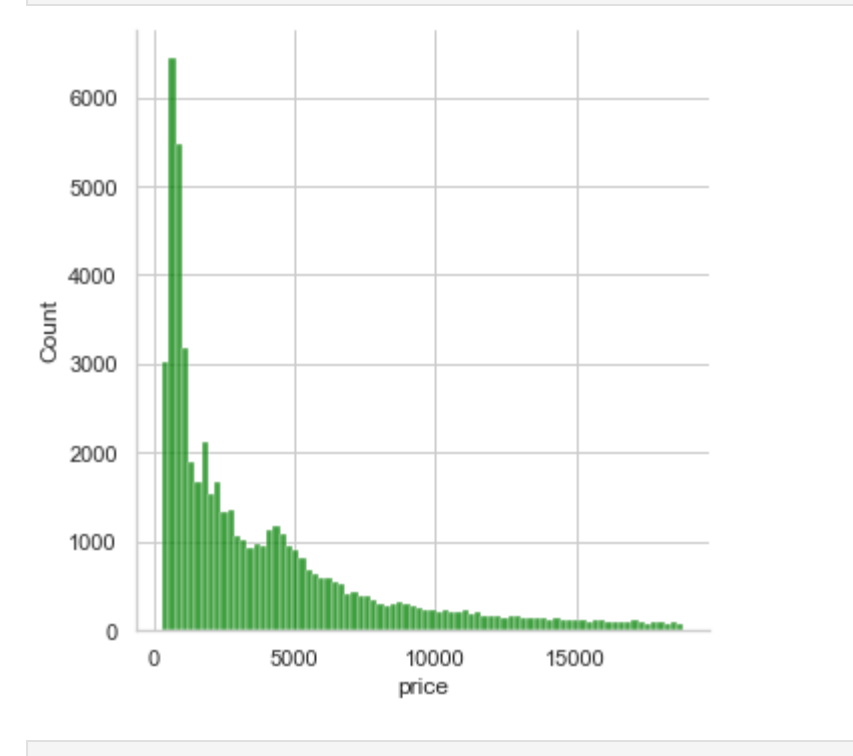
```
C:\Users\Atif\anaconda3\lib\site-packages\seaborn\distributions.py:2557: FutureWarning: `distplot` is a deprecated function and will be removed in a future version. Please adapt your code to use either `displot` (a figure-level function with similar flexibility) or `histplot` (an axes-level function for histograms).
  warnings.warn(msg, FutureWarning)
```



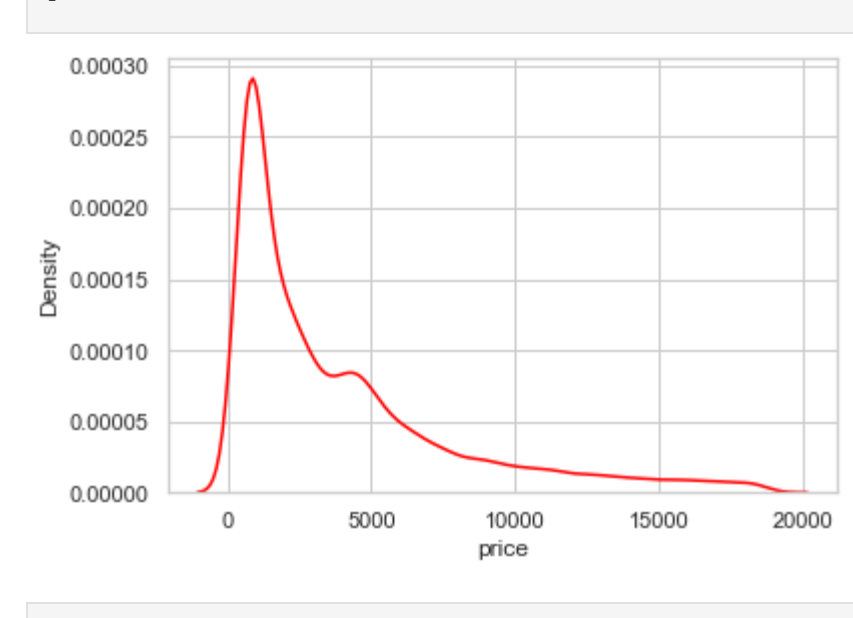
In [24]:
```
 sns.histplot(diamonds['price'])
plt.show()
```



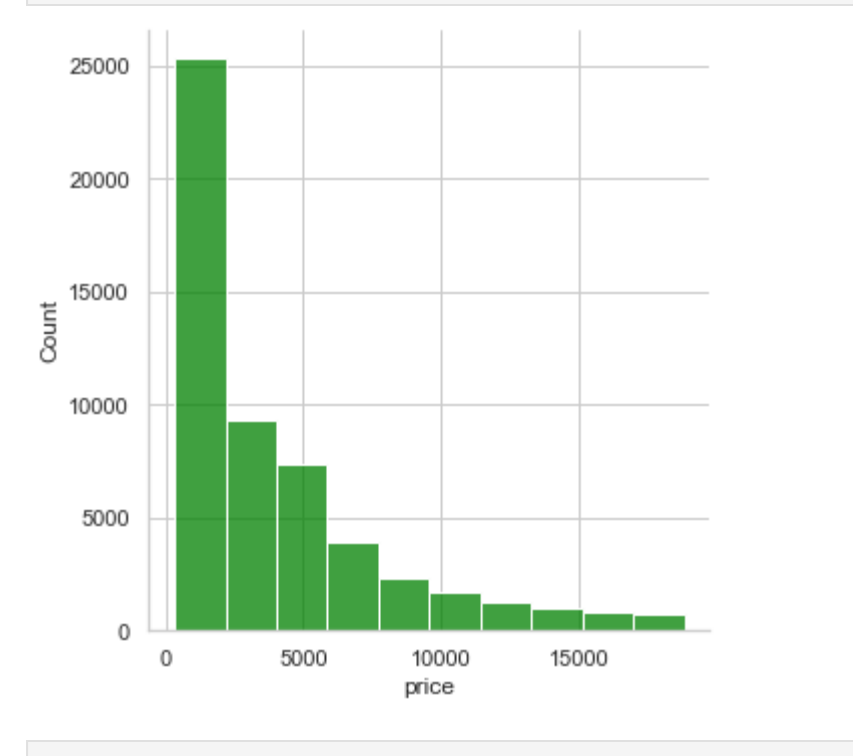
In [32]:
```
sns.displot(diamonds['price'], color='green')
plt.show()
```



In [33]:
```
sns.kdeplot(diamonds['price'], color='red') # kdeplot only gives the distribution curve and not the histogram.
plt.show()
```

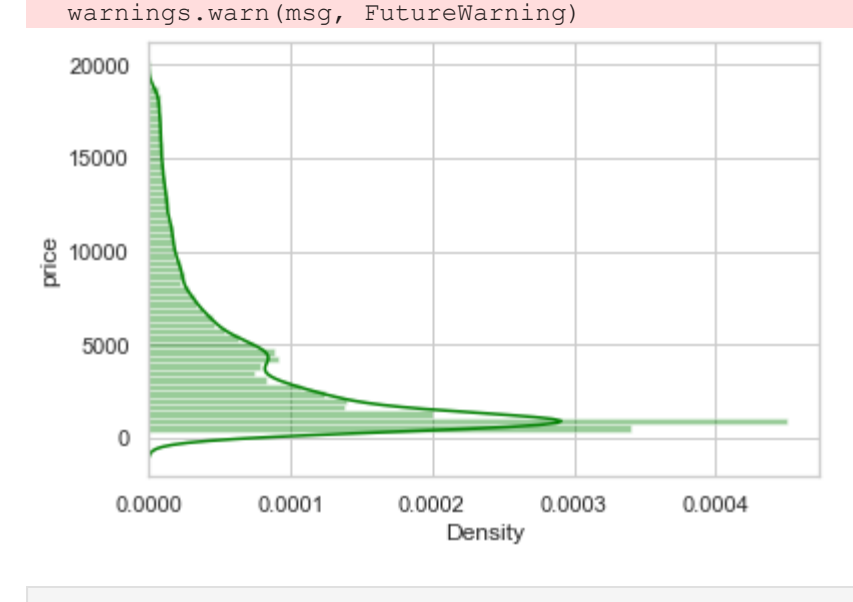


In [34]:
```
sns.displot(diamonds['price'], color='green', bins=10)
plt.show()
```

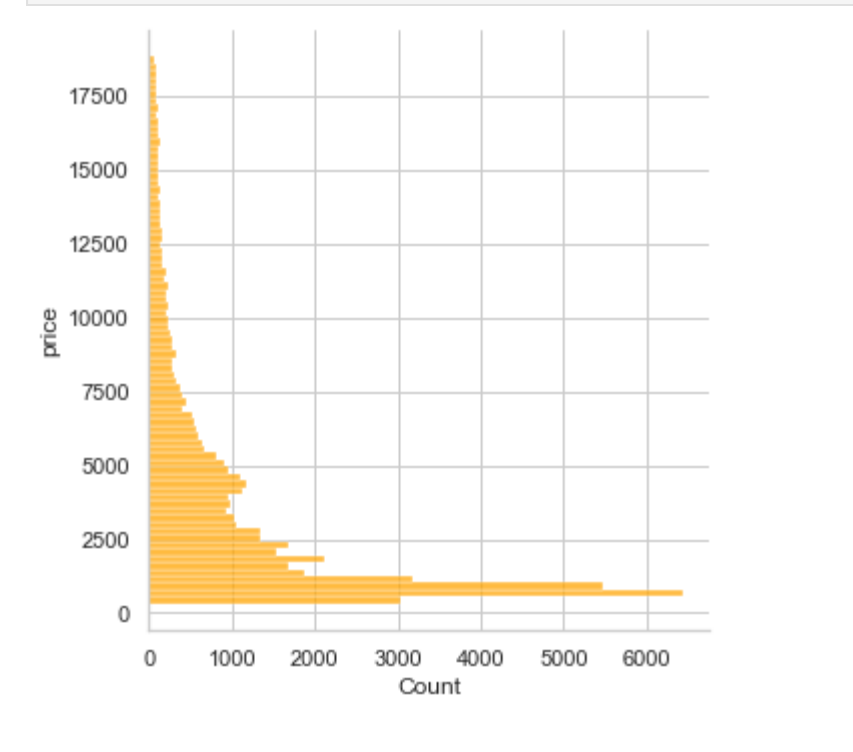


In [38]:
```
sns.distplot(diamonds['price'], color='green', vertical=True)
plt.show()
```

```
C:\Users\Atif\anaconda3\lib\site-packages\seaborn\distributions.py:2557: FutureWarning: `distplot` is a deprecated function and will be removed in a future version. Please adapt your code to use either `displot` (a figure-level function with similar flexibility) or `histplot` (an axes-level function for histograms).
  warnings.warn(msg, FutureWarning)
C:\Users\Atif\anaconda3\lib\site-packages\seaborn\distributions.py:1647: FutureWarning: The `vertical` parameter is deprecated and will be removed in a future version. Assign the data to the `y` variable instead.
  warnings.warn(msg, FutureWarning)
```



In [41]:
```
sns.displot(y='price', color= 'orange', data=diamonds)
plt.show()
```



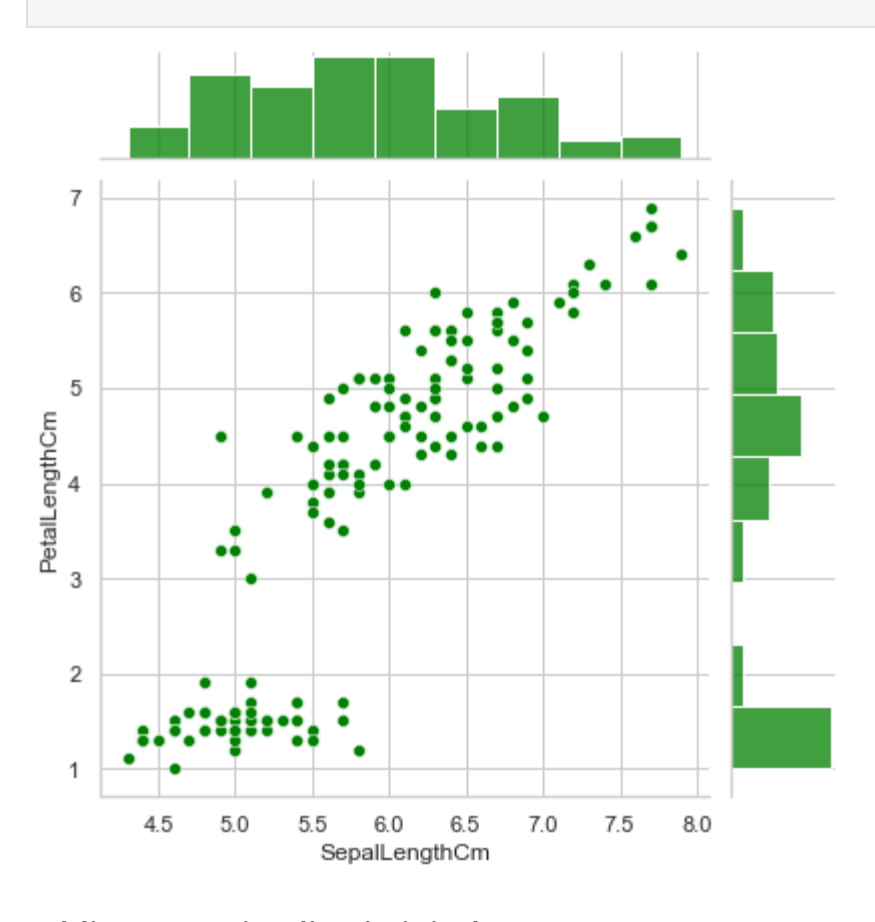
Seaborn Joint-Plot (Scatter plot + HIstogram)

In [43]:
```
iris = pd.read_csv('iris.csv')
iris.head()
```

Out[43]:

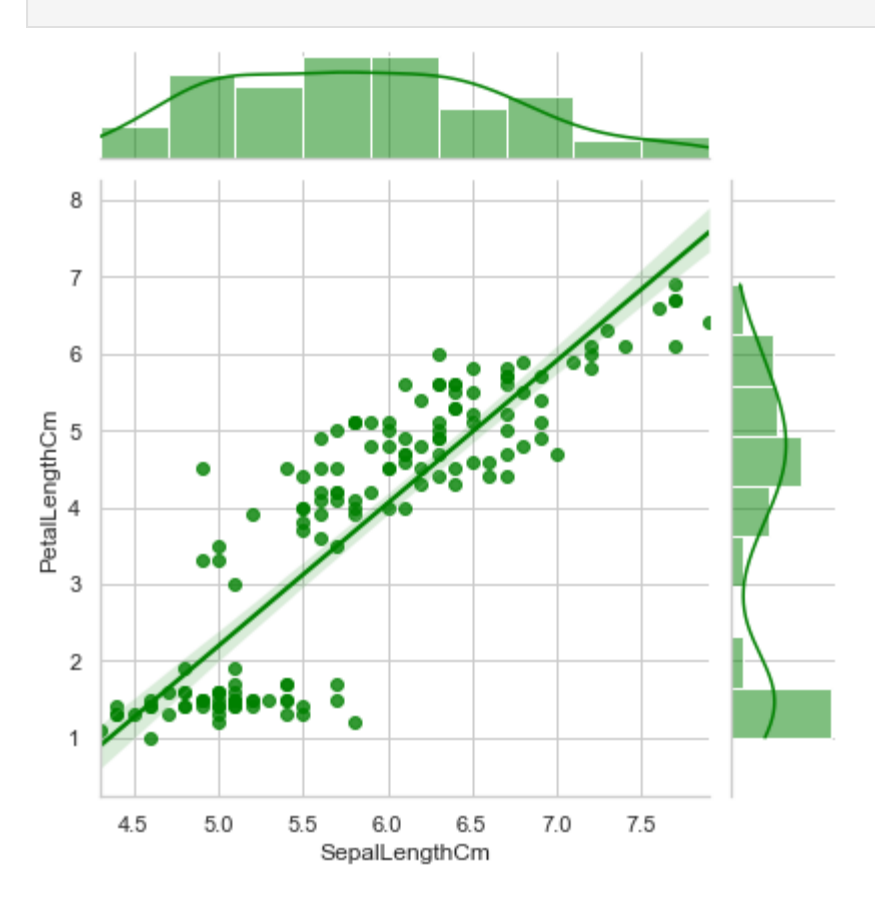
	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

In [45]:
```
sns.jointplot(x="SepalLengthCm", y="PetalLengthCm", color='green', data=iris)
plt.show()
```



Adding regresion line in joitplot

In [46]:
```
sns.jointplot(x="SepalLengthCm", y="PetalLengthCm", color='green', kind= "reg", data=iris)
plt.show()
```



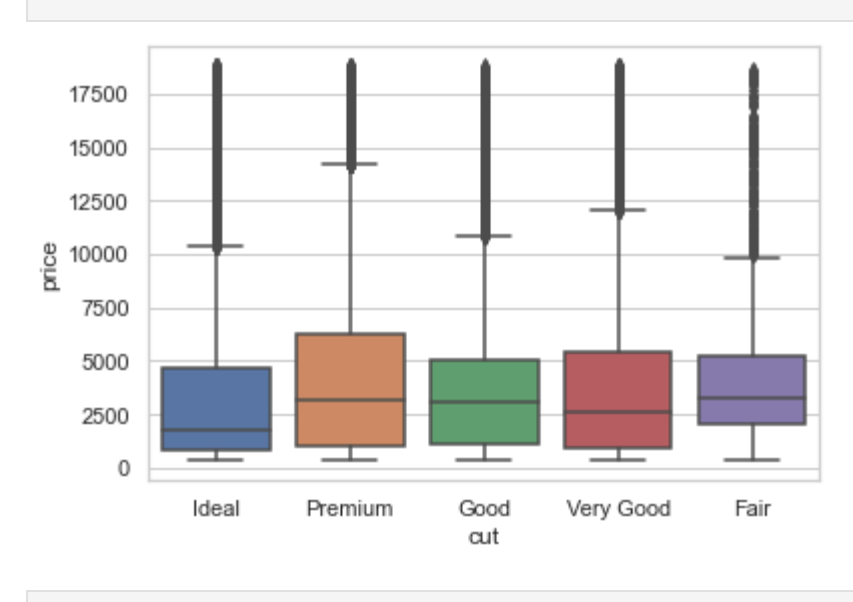
Seaborn Box-plot

In [61]:
```
diamonds = pd.read_csv('diamonds.csv')
diamonds.head()
```

Out[61]:

	carat	cut	color	clarity	depth	table	price	x	y	z
0	0.23	Ideal	E	SI2	61.5	55.0	326	3.95	3.98	2.43
1	0.21	Premium	E	SI1	59.8	61.0	326	3.89	3.84	2.31
2	0.23	Good	E	VS1	56.9	65.0	327	4.05	4.07	2.31
3	0.29	Premium	I	VS2	62.4	58.0	334	4.20	4.23	2.63
4	0.31	Good	J	SI2	63.3	58.0	335	4.34	4.35	2.75

In [65]:
```
sns.boxplot(x='cut', y= 'price', data=diamonds)
plt.show()
```



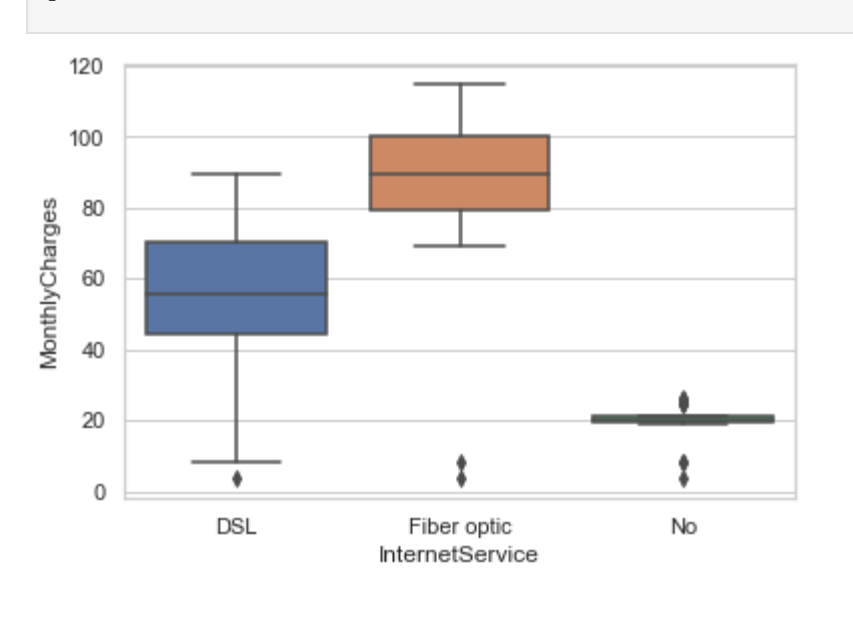
In [66]:
```
chur = pd.read_csv('churn.csv')
chur.head()
```

Out[66]:

	Unnamed: 0	customerID	tenure	Contract	PaperlessBilling	PaymentMethod	MonthlyCharges	TotalCharges	gender	SeniorCitizen	...	Ph1S
0	1	8260-NGFNY	1	Month-to-month	No	Mailed check	25.2	25.20	Female	0.0	...	
1	2	2359-QWQUL	39	1 year	Yes	Credit card (automatic)	104.7	4134.85	Female	0.0	...	
2	3	6598/RFFVI	2	1 year	No	Credit card (automatic)	19.3	28.30	Male	0.0	...	
3	4	IXSTS-8780	6	Month-to-month	Yes	Electronic check	90.1	521.30	Female	0.0	...	
4	5	2674/MIAHT	4	Month-to-month	Yes	Mailed check	80.3	324.20	Female	0.0	...	

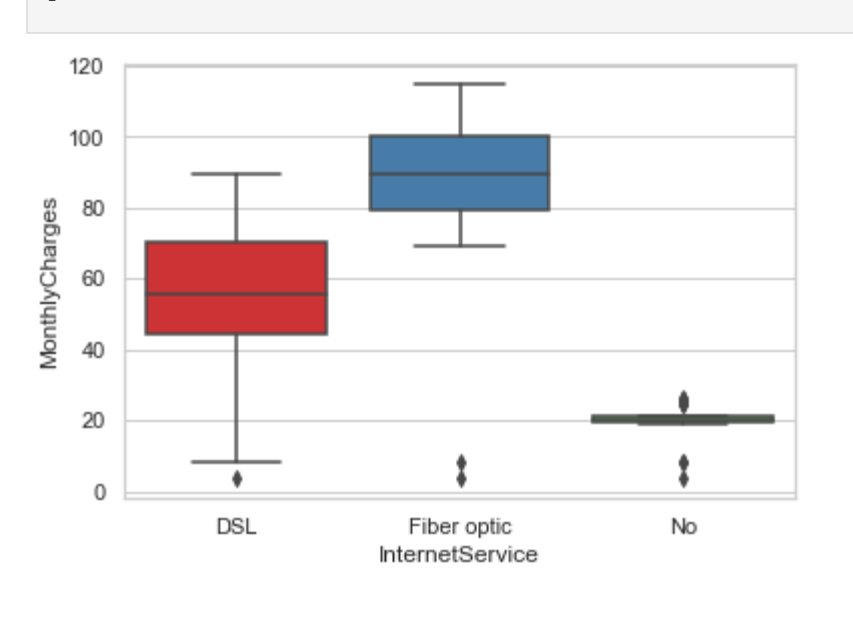
5 rows × 22 columns

In [67]:
```
sns.boxplot(x='InternetService', y='MonthlyCharges', data=churn)
plt.show()
```



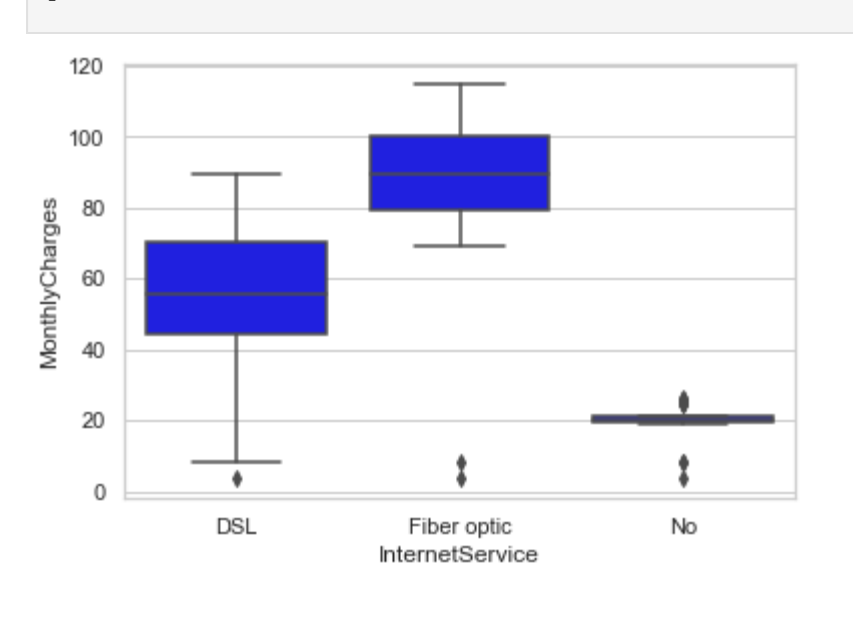
Paletts

In [71]:
```
sns.boxplot(x='InternetService', y='MonthlyCharges', palette = 'Set1', data=churn)
plt.show()
```



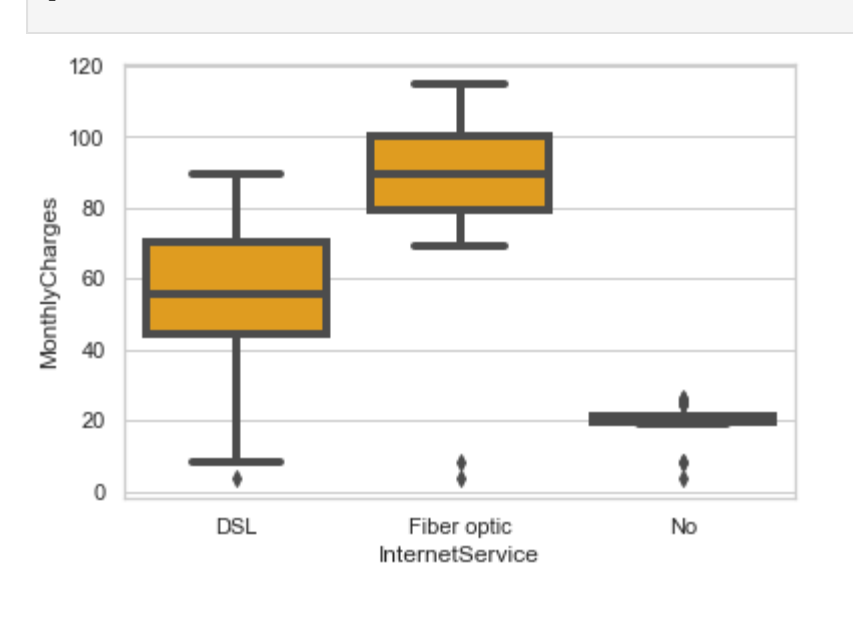
Assignig colour

In [76]:
```
sns.boxplot(x='InternetService', y='MonthlyCharges', color='blue', data=churn)
plt.show()
```



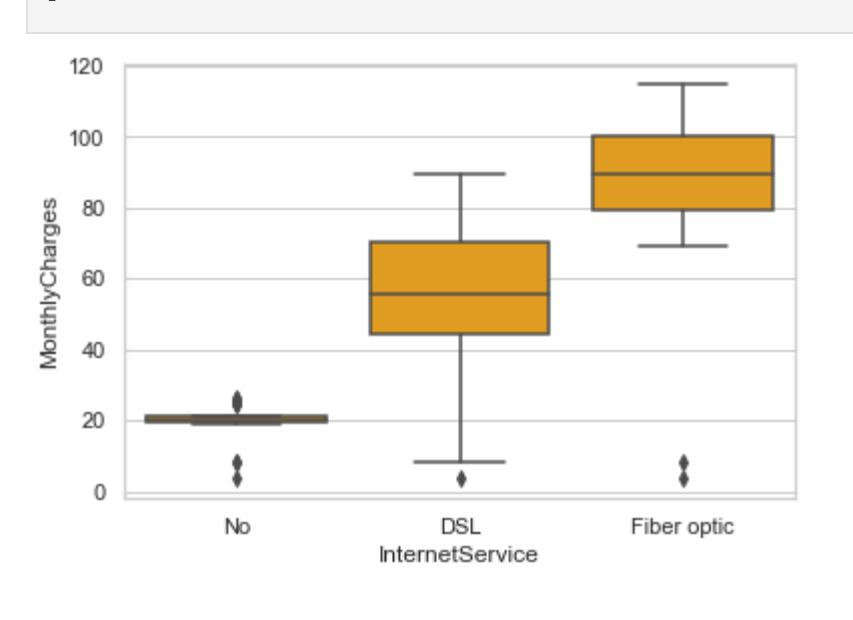
Line width - increase or decrease the boundary line of box-plot

In [78]:
```
sns.boxplot(x='InternetService', y='MonthlyCharges', color='orange', linewidth=4, data=churn)
plt.show()
```



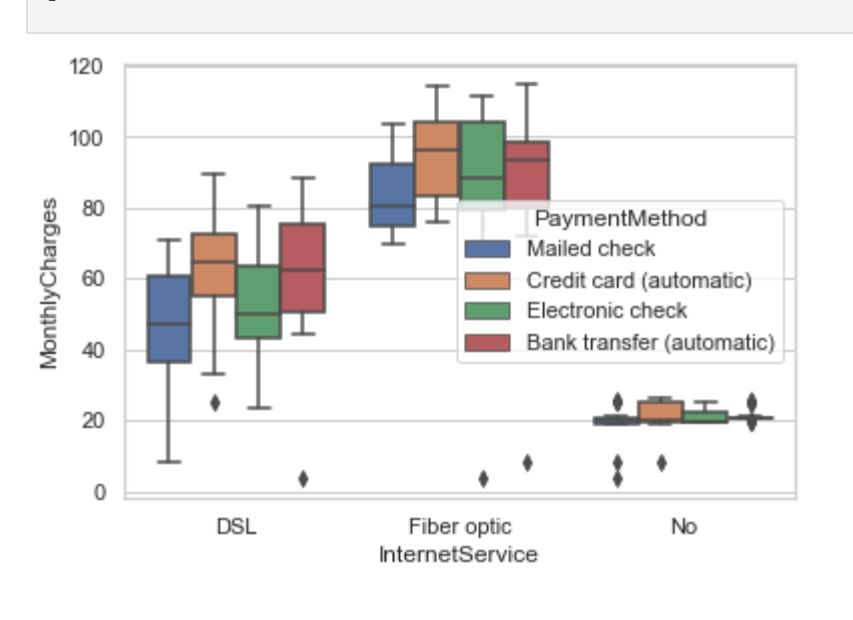
change Order

In [79]:
```
sns.boxplot(x='InternetService', y='MonthlyCharges', color='orange', data=churn, order=["No","DSL","Fiber optic
plt.show()
```



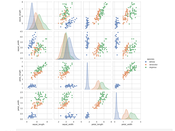
Addinh Hue

In [85]:
```
sns.boxplot(x='InternetService', y='MonthlyCharges', hue= 'PaymentMethod', data=churn)
plt.show()
```



Seaborn Pair Plot

In [86]:
```
df=sns.load_dataset("iris")
sns.pairplot(df,hue="species")
plt.show()
```


sepal_length
sepal_width
petal_length
petal_width
species
setosa
versicolor
virginica