第十三课--Seaborn

任务目标

1、Seaborn的安装

2、绘制柱状图

3、绘制直方图

4、直方图拟合

5、密度曲线图

相关知识

1、学习Seaborn的基本功能。

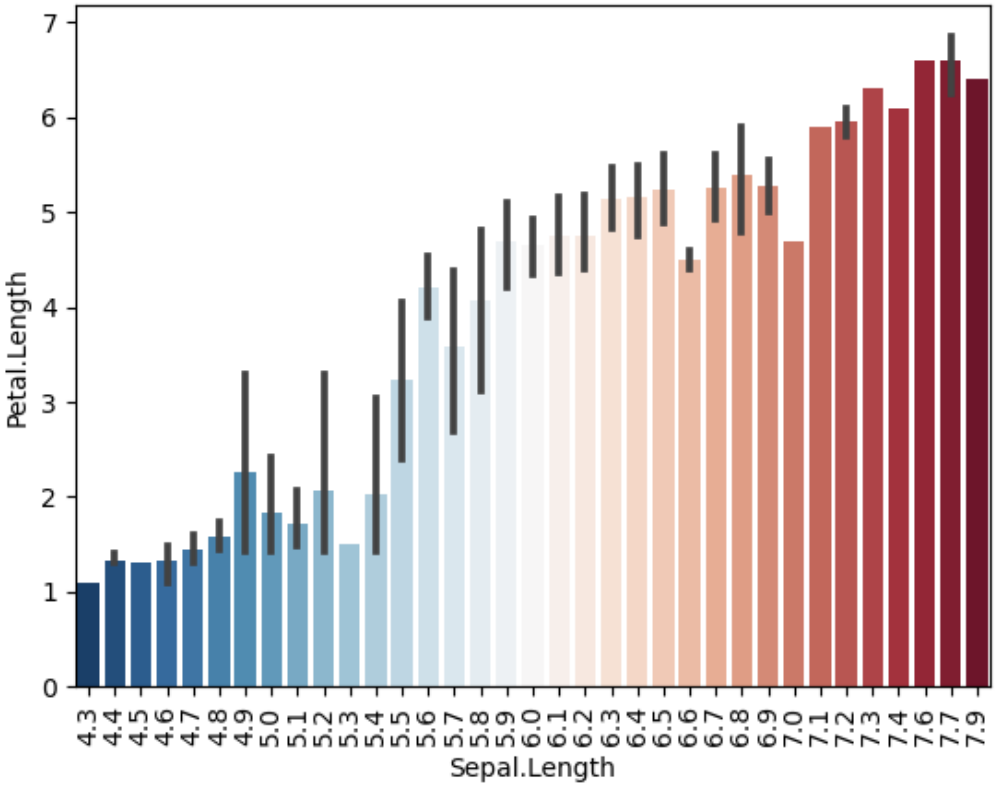
1、Seaborn的安装

1、pip3 install seaborn或者pip3 install seaborn-0.11.0-py3-none-any.whl

2、set_style( )是用来设置主题的，Seaborn有五个预设好的主题： darkgrid , whitegrid , dark , white 和 ticks 默认：darkgrid

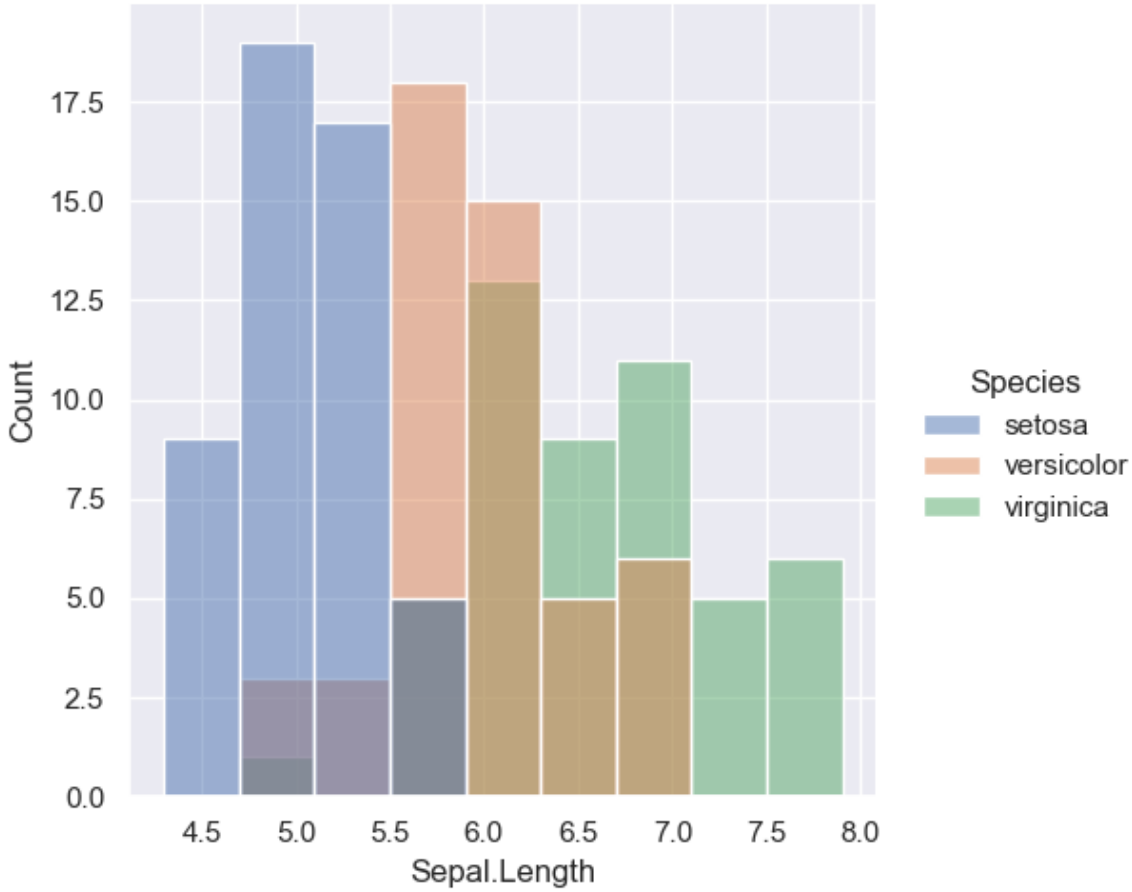
3、绘制柱状图

```
import matplotlib.pyplot as plt
import seaborn as sns
import pandas as pd
import numpy as np
sns.set_theme(style="ticks")

x  = np.arange(8);
y = np.array([1,5,3,6,2,4,5,6]);
df = pd.DataFrame({"x-axis":x,"y-axis":y});
df = pd.read_csv('iris.csv');
sns.barplot("Sepal.Length","Petal.Length",palette="RdBu_r",data=df);
plt.xticks(rotation=90);
plt.show();

import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
df = pd.read_csv('iris.csv');
sns.barplot("Sepal.Length","Petal.Length",palette="RdBu_r",data=df);
plt.xticks(rotation=90);
plt.show();
```



4、绘制直方图

```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
df = pd.read_csv('iris.csv');
sns.histplot(data, x="Sepal.Length", multiple="stack")  #二选一
sns.displot(data, x="Sepal.Length", hue="Species"); #二选一
plt.xticks(rotation=90);
plt.show();
```

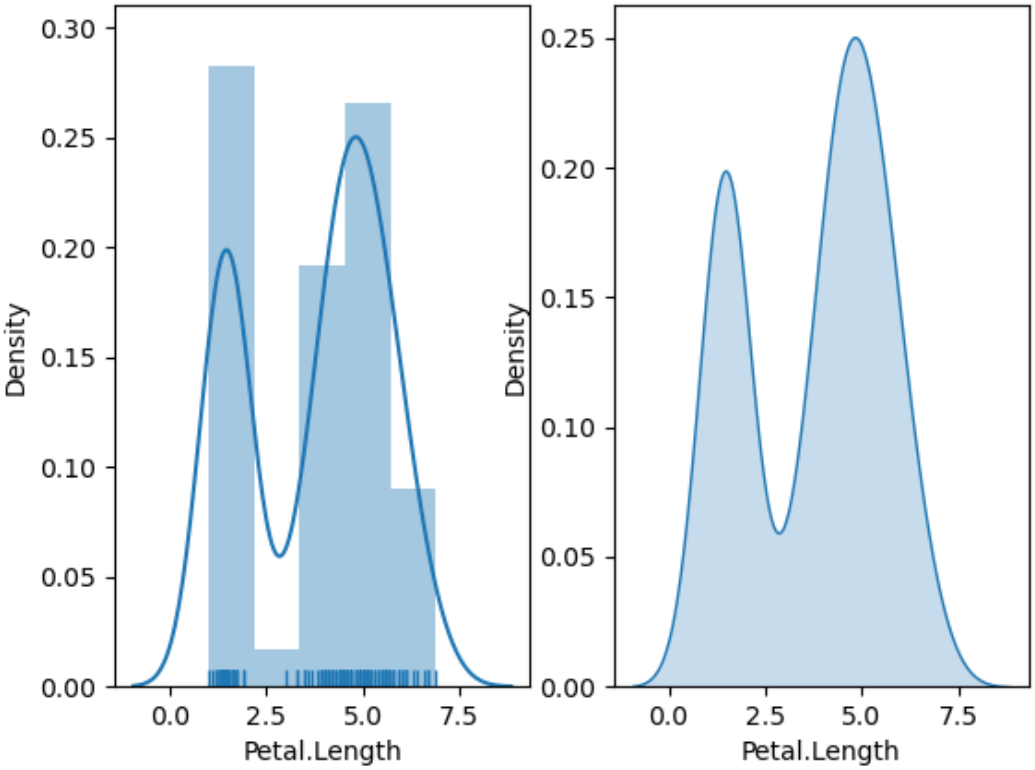


2、绘制数据拟合图

1、distplot() 为直方图

2、kdeplot()为密度曲线图

```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

df = pd.read_csv('iris.csv');
fig, axes = plt.subplots(1,2);
sns.distplot(df['Petal.Length'], ax = axes[0], kde = True, rug = True);
sns.kdeplot(df['Petal.Length'], ax = axes[1], shade=True);

plt.show();
```

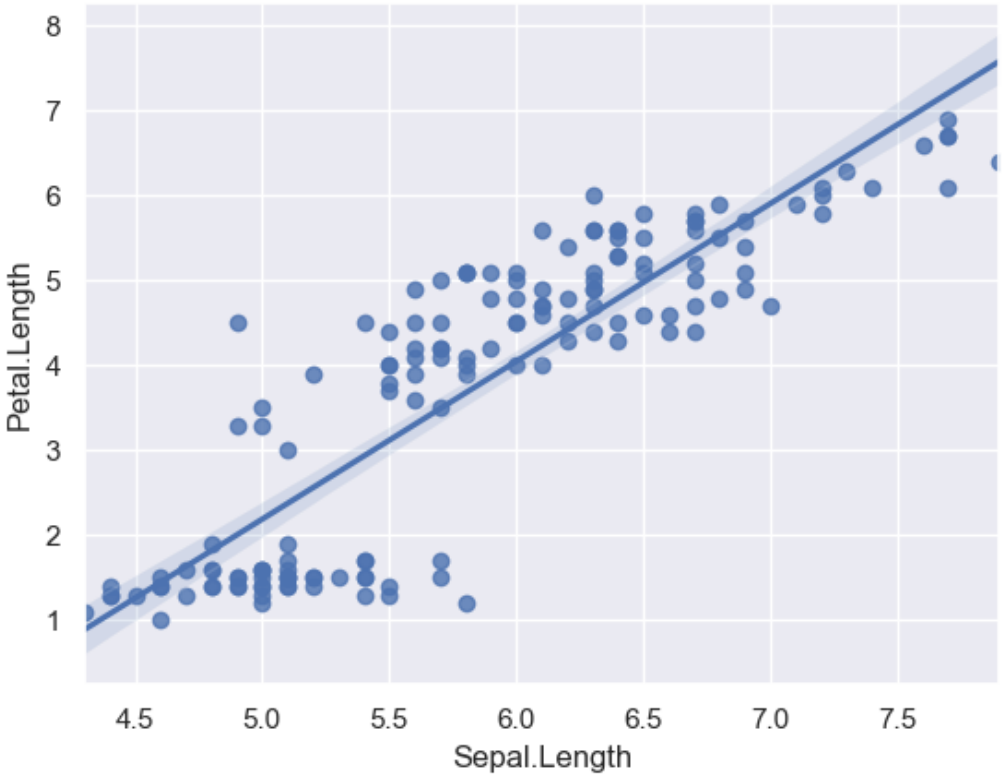


3、绘制回归图

1、绘制$y = ax + b$的回归曲线

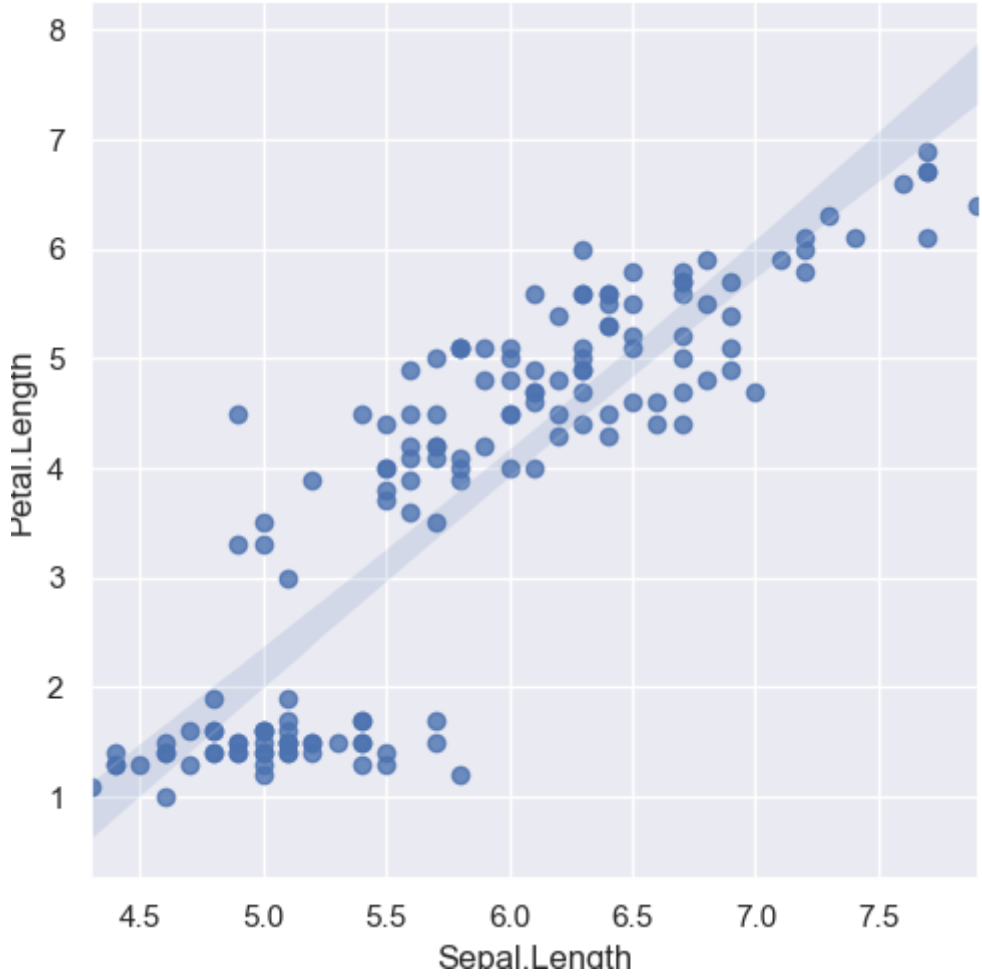
2、regplot函数Plot data and a linear regression model fit.

```
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
sns.set_theme(color_codes=True)
import pandas as pd
data = pd.read_csv('iris.csv',sep=',')
sns.regplot(x='Sepal.Length',y='Petal.Length',data=data);
plt.show();
```



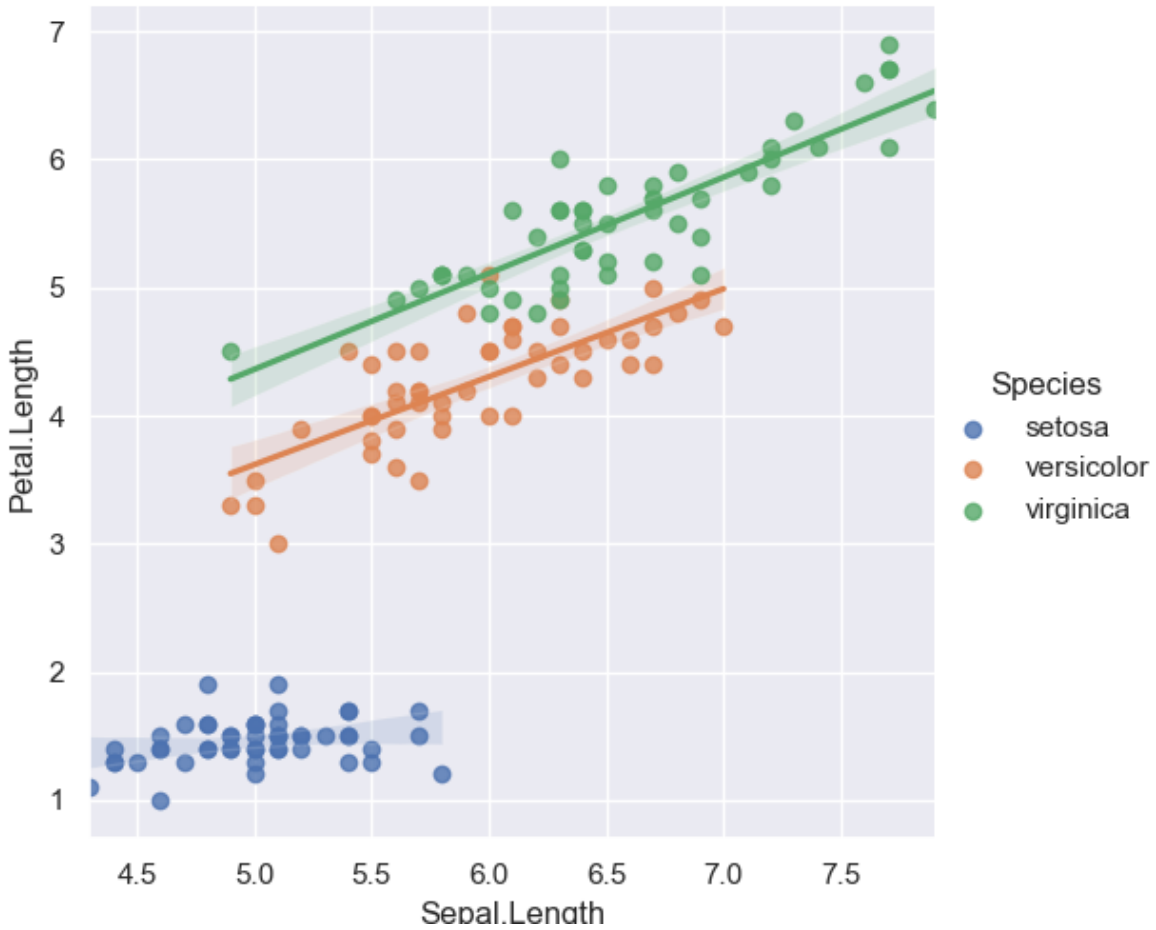
3、Plot data and regression model fits across a FacetGrid

```
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
sns.set_theme(color_codes=True)
import pandas as pd
data = pd.read_csv('iris.csv',sep=',')
sns.lmplot(x='Sepal.Length',y='Petal.Length',data=data);
plt.show();
```



4、分类回归

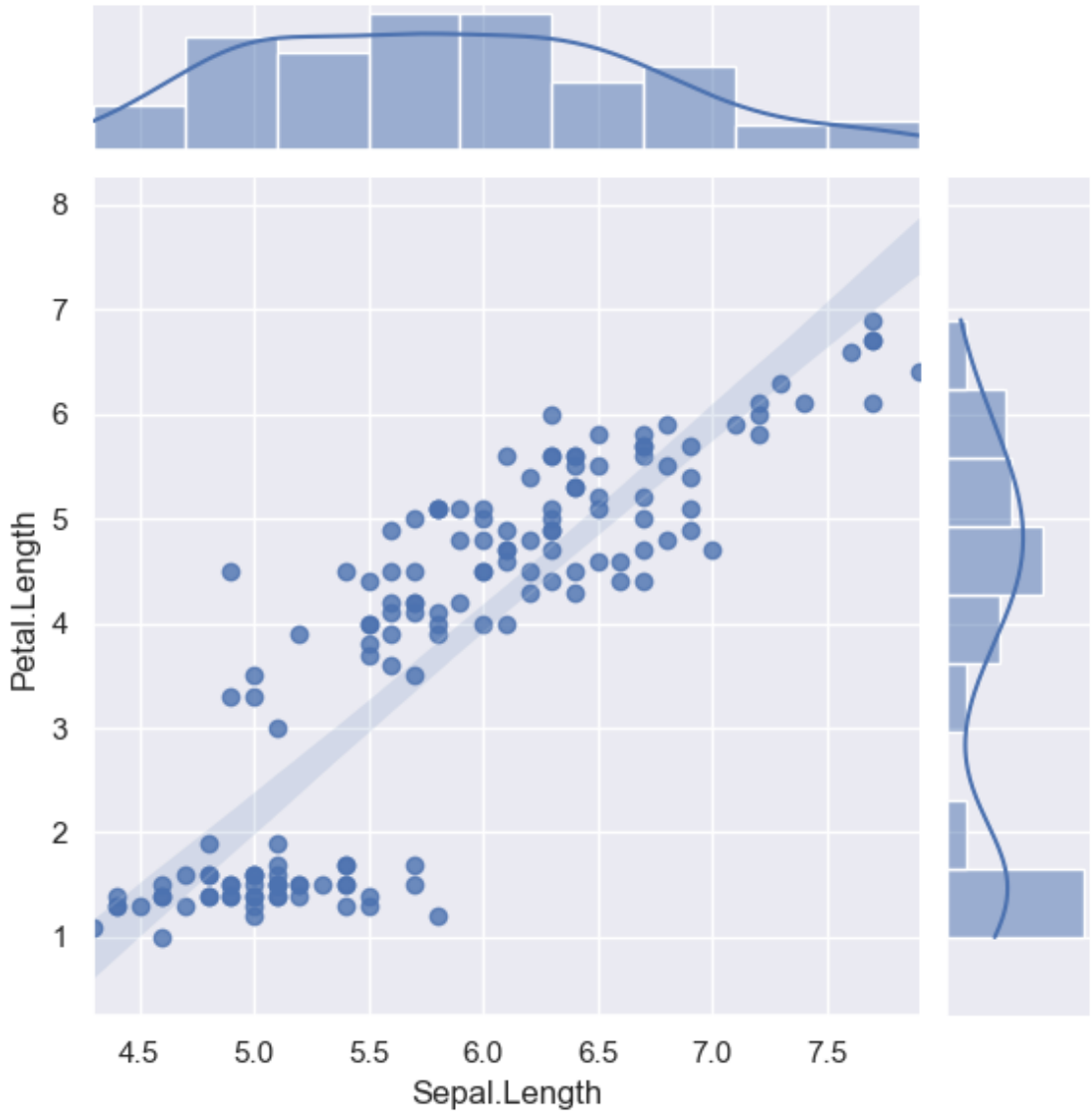
```
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
sns.set_theme(color_codes=True)
import pandas as pd
data = pd.read_csv('iris.csv',sep=',')
sns.lmplot(x='Sepal.Length',y='Petal.Length', hue ="Species", data=data);
plt.show();
```



5、联合概率分布

1、jointplot函数

```
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
sns.set_theme(color_codes=True)
import pandas as pd
data = pd.read_csv('iris.csv',sep=',')
sns.jointplot(x='Sepal.Length',y='Petal.Length',data=data,kind='reg');
plt.show()
```


8
7
6
5
4
3
2
1
Petal.Length
4.5
5.0
5.5
6.0
6.5
7.0
7.5
Sepal.Length