

Python102

Python for Data Science Bootcamp

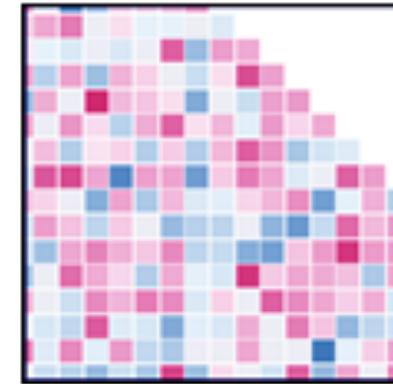
(5.2) Python for Data Visualization

Seaborn

AIAT Academy

Python for Data Visualization Outline

- Matplotlib
- **Seaborn**



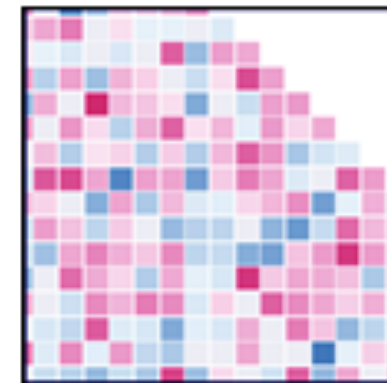
Seaborn

matplotlib

Seaborn

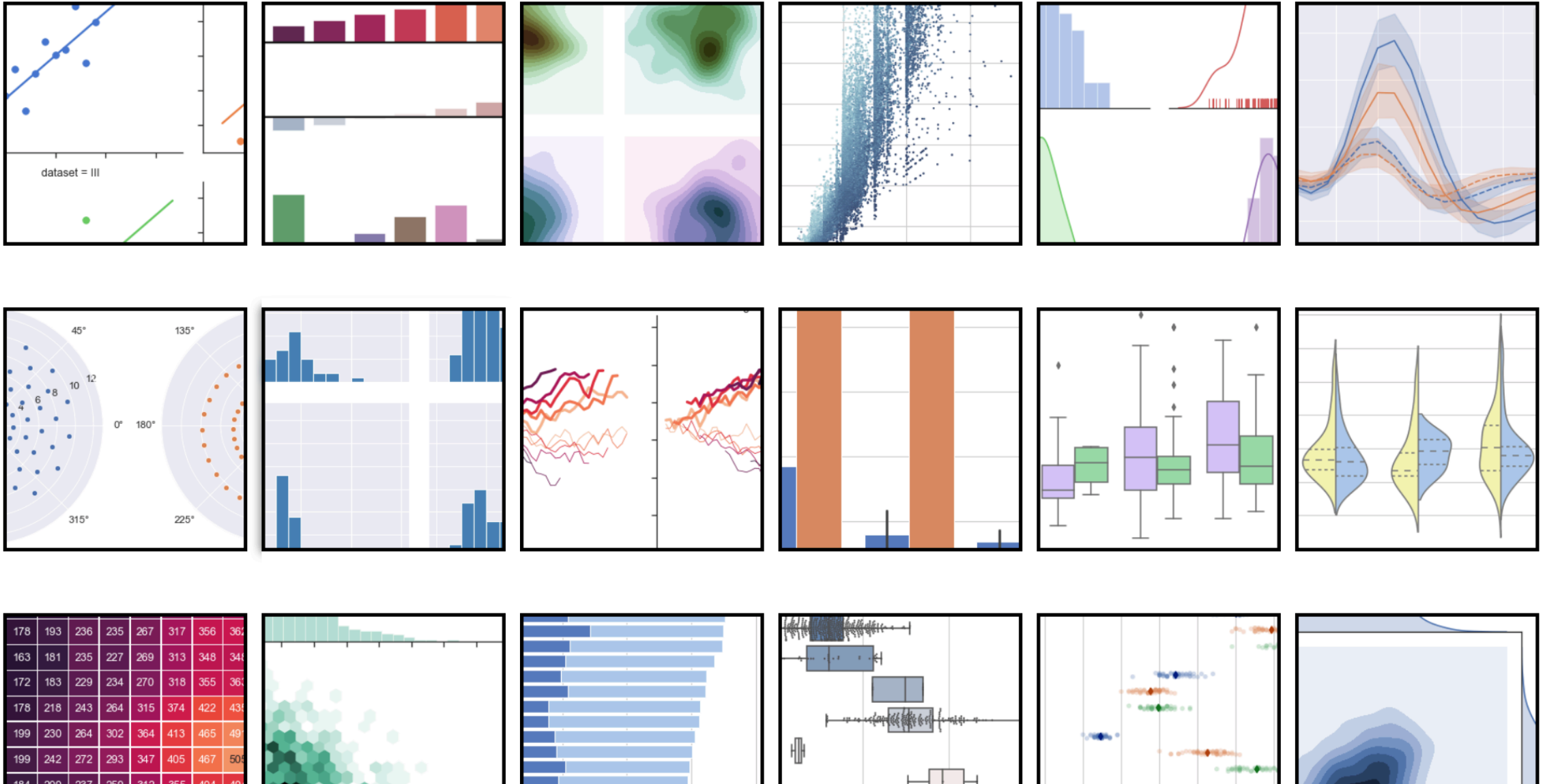
Introduction to Seaborn

- A Statistical plotting library
- Beautiful default styles
- Designed to work well with Pandas DataFrame object
- <https://seaborn.pydata.org>



Seaborn

Introduction to Seaborn (Example Gallery)



Seaborn Installation

- To install Seaborn, just going to your terminal or command prompt and typing

```
conda install seaborn
```

or

```
pip install seaborn
```

Seaborn Usages (Distribution Plots)

```
import seabornplot as sns
import matplotlib.pyplot as plt
%matplotlib inline
```

```
tips = sns.load_dataset('tips')
```

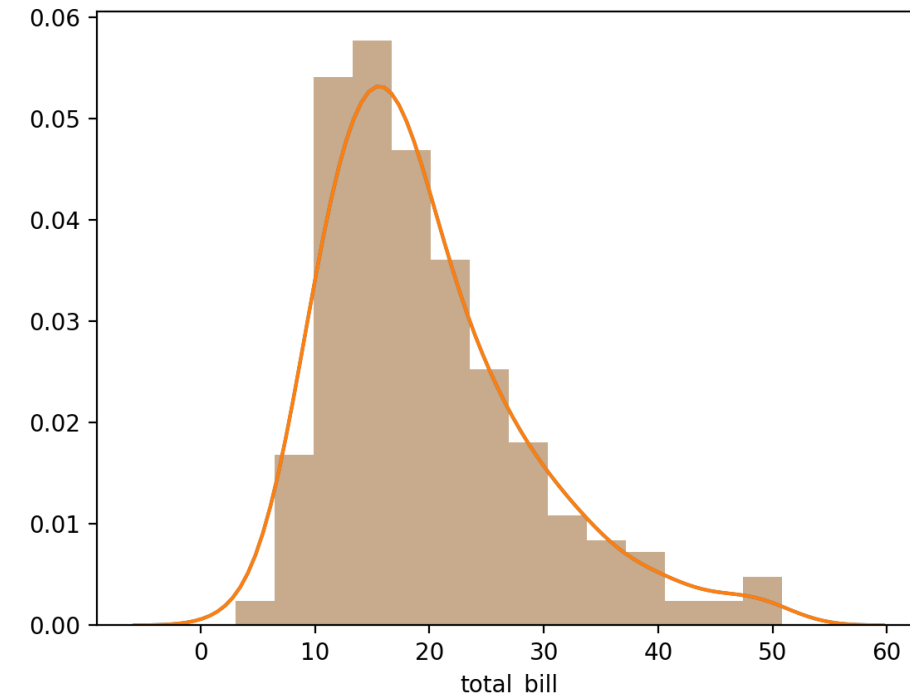
Seaborn comes with
build-in datasets

```
tips.head()
```

#	total_bill	tip	sex	smoker	day	time	size
# 0	16.99	1.01	Female	No	Sun	Dinner	2
# 1	10.34	1.66	Male	No	Sun	Dinner	3
# 2	21.01	3.50	Male	No	Sun	Dinner	3
# 3	23.68	3.31	Male	No	Sun	Dinner	2
# 4	24.59	3.61	Female	No	Sun	Dinner	4

```
sns.distplot(tips['total_bill'])
```

```
plt.show()
```



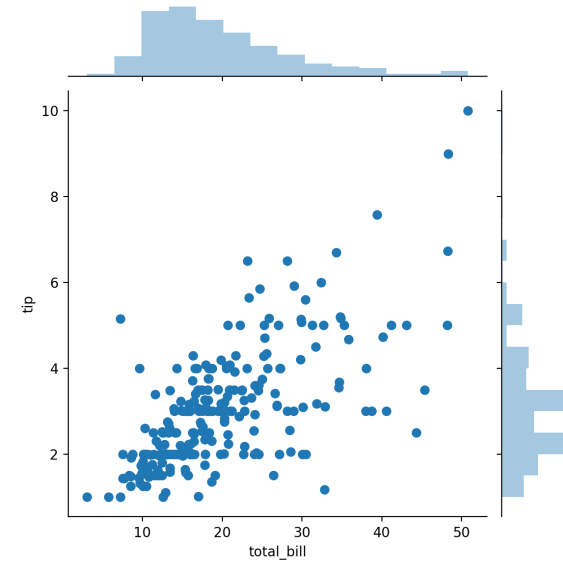
Seaborn Usages (Joint Plots)

```
tips.head()
```

```
#   total_bill  tip  sex smoker  day  time  size
# 0      16.99  1.01 Female    No  Sun  Dinner    2
# 1      10.34  1.66  Male    No  Sun  Dinner    3
# 2      21.01  3.50  Male    No  Sun  Dinner    3
# 3      23.68  3.31  Male    No  Sun  Dinner    2
# 4      24.59  3.61 Female    No  Sun  Dinner    4
```

```
sns.jointplot(x='total_bill', y='tip', data=tips)
```

```
plt.show()
```



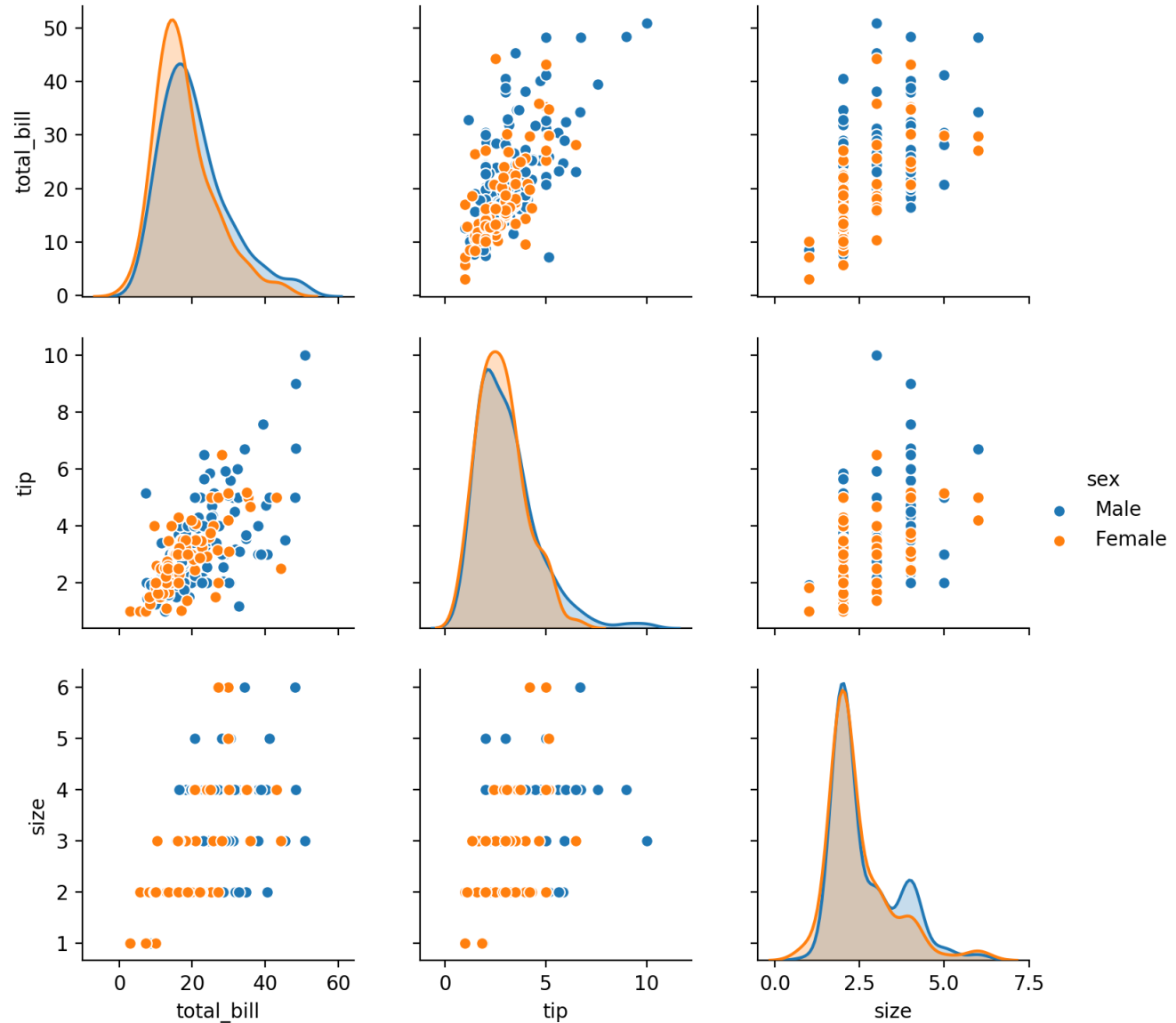
Seaborn Usages (Pair Plots)

```
tips.head()
```

```
#   total_bill  tip  sex smoker  day  time  size
# 0    16.99  1.01 Female    No  Sun  Dinner    2
# 1    10.34  1.66  Male    No  Sun  Dinner    3
# 2    21.01  3.50  Male    No  Sun  Dinner    3
# 3    23.68  3.31  Male    No  Sun  Dinner    2
# 4    24.59  3.61 Female    No  Sun  Dinner    4
```

```
sns.pairplot(tips, hue="sex")
plt.show()
```

```
# plot every pairs from data
# by "hue"
```



Seaborn Usages (Bar Plots)

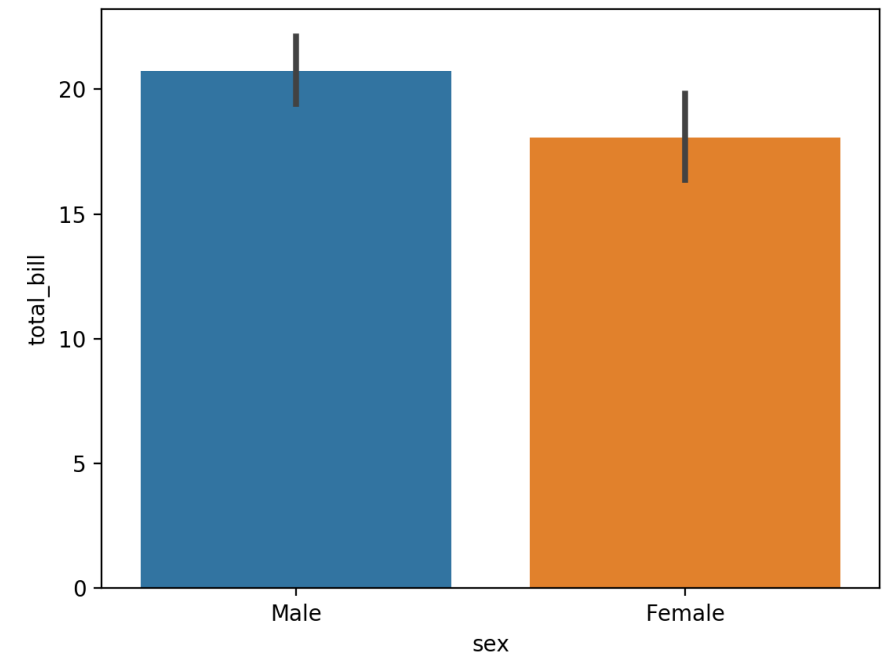
```
tips.head()
```

```
#   total_bill  tip  sex smoker  day  time  size
# 0      16.99  1.01 Female    No  Sun  Dinner    2
# 1      10.34  1.66  Male    No  Sun  Dinner    3
# 2      21.01  3.50  Male    No  Sun  Dinner    3
# 3      23.68  3.31  Male    No  Sun  Dinner    2
# 4      24.59  3.61 Female    No  Sun  Dinner    4
```

```
sns.barplot(x="sex",y="total_bill",data=tips)
```

```
# barplot default in average plotting
```

```
plt.show()
```

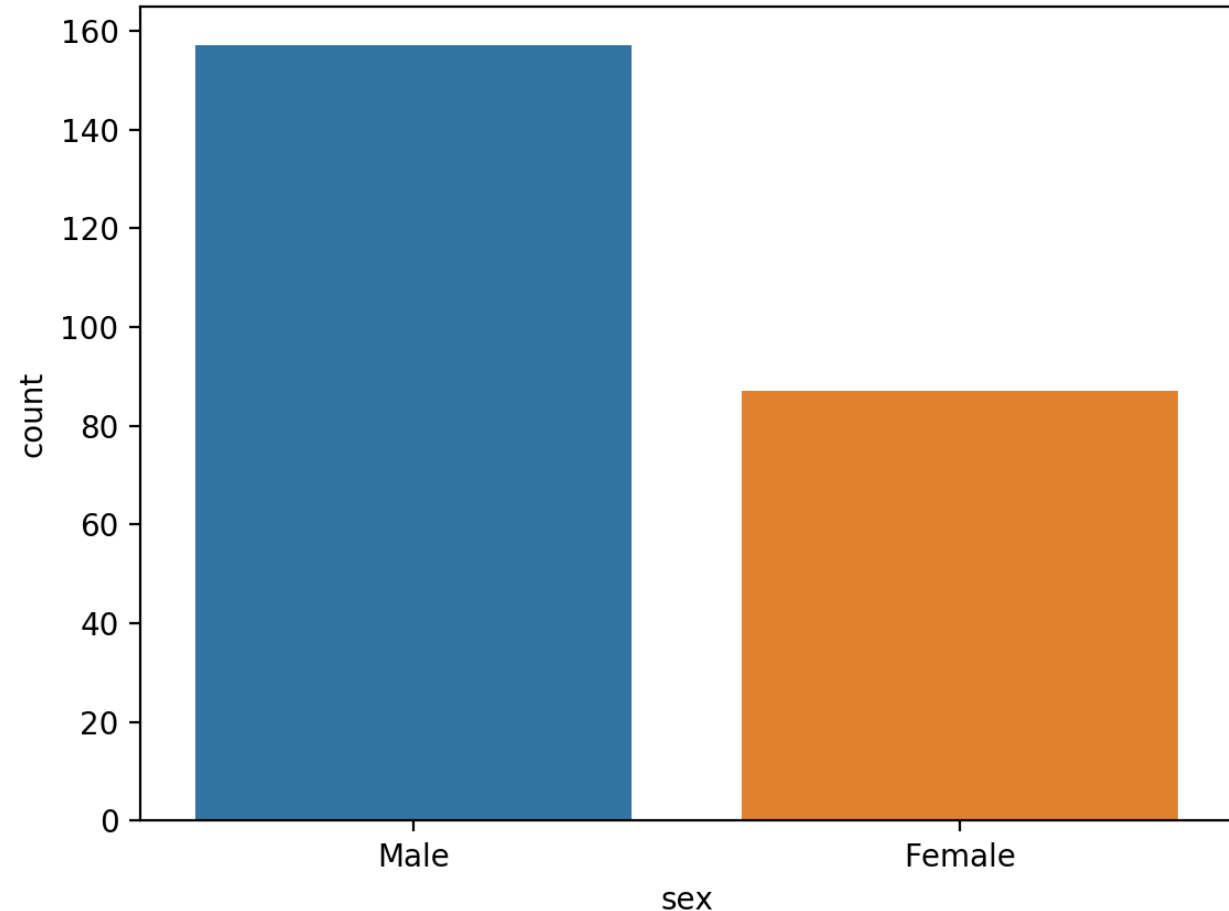


Seaborn Usages (Count Plots)

```
tips.head()
```

```
#   total_bill  tip  sex smoker  day  time  size
# 0      16.99  1.01 Female    No  Sun  Dinner    2
# 1      10.34  1.66  Male    No  Sun  Dinner    3
# 2      21.01  3.50  Male    No  Sun  Dinner    3
# 3      23.68  3.31  Male    No  Sun  Dinner    2
# 4      24.59  3.61 Female    No  Sun  Dinner    4
```

```
sns.countplot(x="sex",data=tips)
plt.show()
```

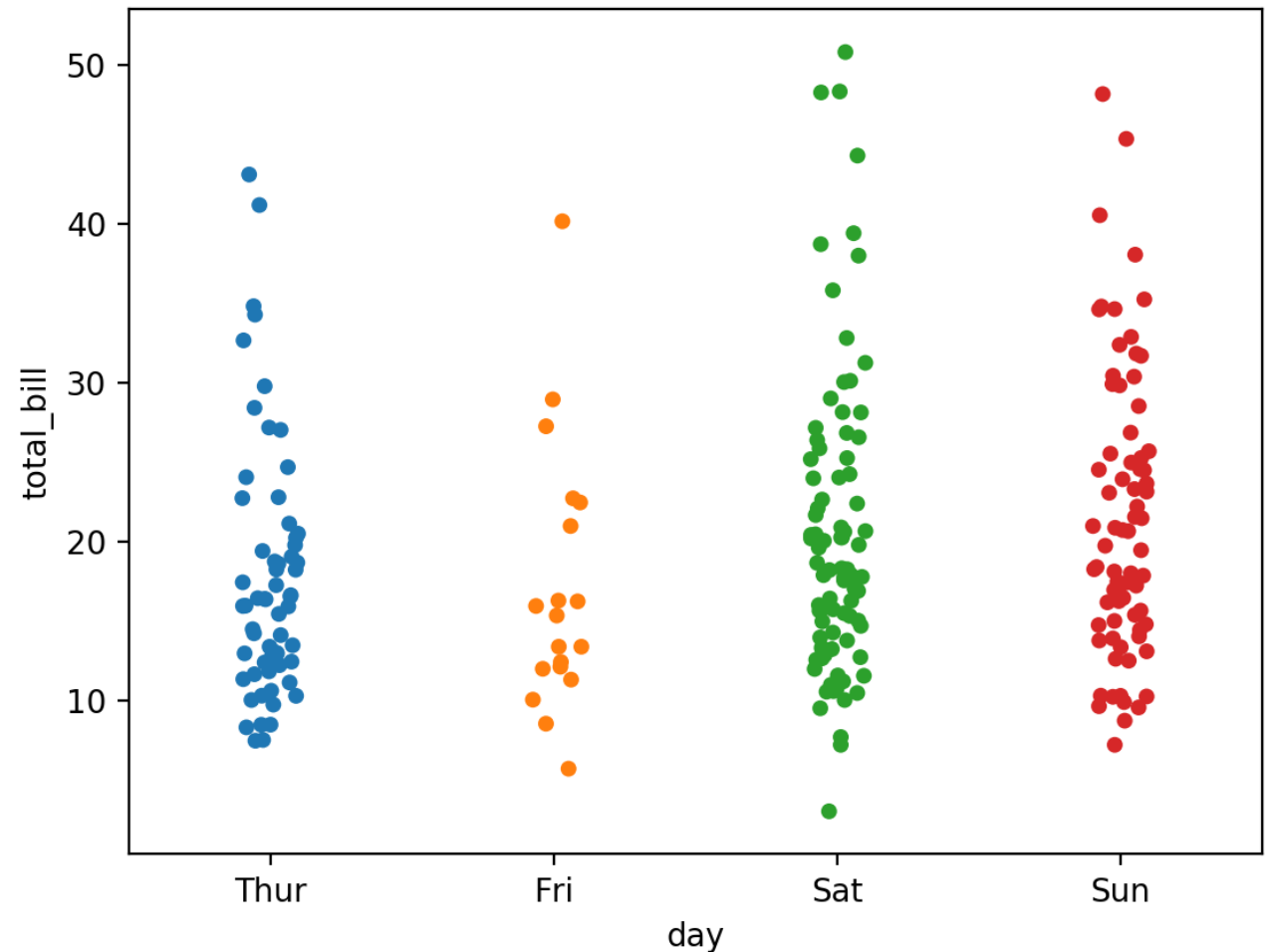


Seaborn Usages (Strip Plots)

```
tips.head()
```

```
sns.stripplot(x="day",y="total_bill",data=tips)
```

```
plt.show()
```

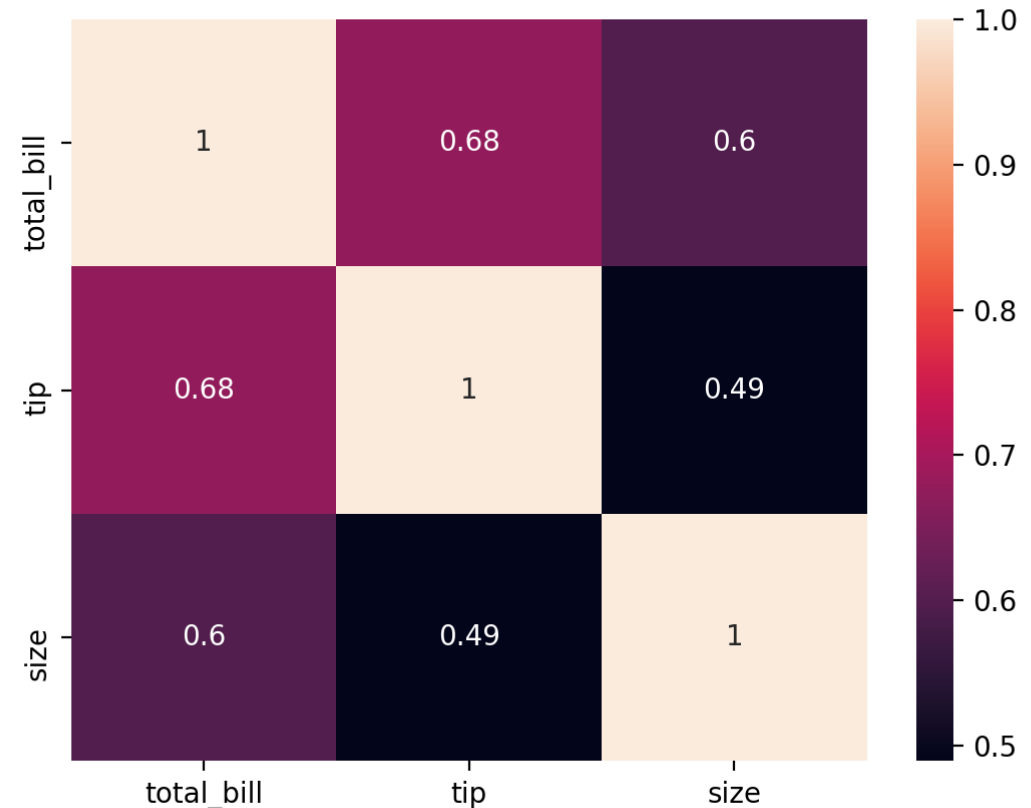


Seaborn Usages (Matrix Plots)

```
tc = tips.corr()
```

```
#          total_bill      tip      size
# total_bill    1.000000  0.675734  0.598315
# tip           0.675734  1.000000  0.489299
# size          0.598315  0.489299  1.000000
```

```
sns.heatmap(tc, annot=True)
```



Seaborn Usages (Matrix Plots)

```
flights = sns.load_dataset("flights")
```

```
fp = flights.pivot_table(index="month", columns="year", values="passengers")
```

year	1949	1950	1951	1952	...	1957	1958	1959	1960
month					...				
January	112	115	145	171	...	315	340	360	417
February	118	126	150	180	...	301	318	342	391
March	132	141	178	193	...	356	362	406	419
April	129	135	163	181	...	348	348	396	461
May	121	125	172	183	...	355	363	420	472
June	135	149	178	218	...	422	435	472	535
July	148	170	199	230	...	465	491	548	622
August	148	170	199	242	...	467	505	559	606
September	136	158	184	209	...	404	404	463	508
October	119	133	162	191	...	347	359	407	461
November	104	114	146	172	...	305	310	362	390
December	118	140	166	194	...	336	337	405	432

```
flights.head()
```

#	year	month	passengers
# 0	1949	January	112
# 1	1949	February	118
# 2	1949	March	132
# 3	1949	April	129
# 4	1949	May	121

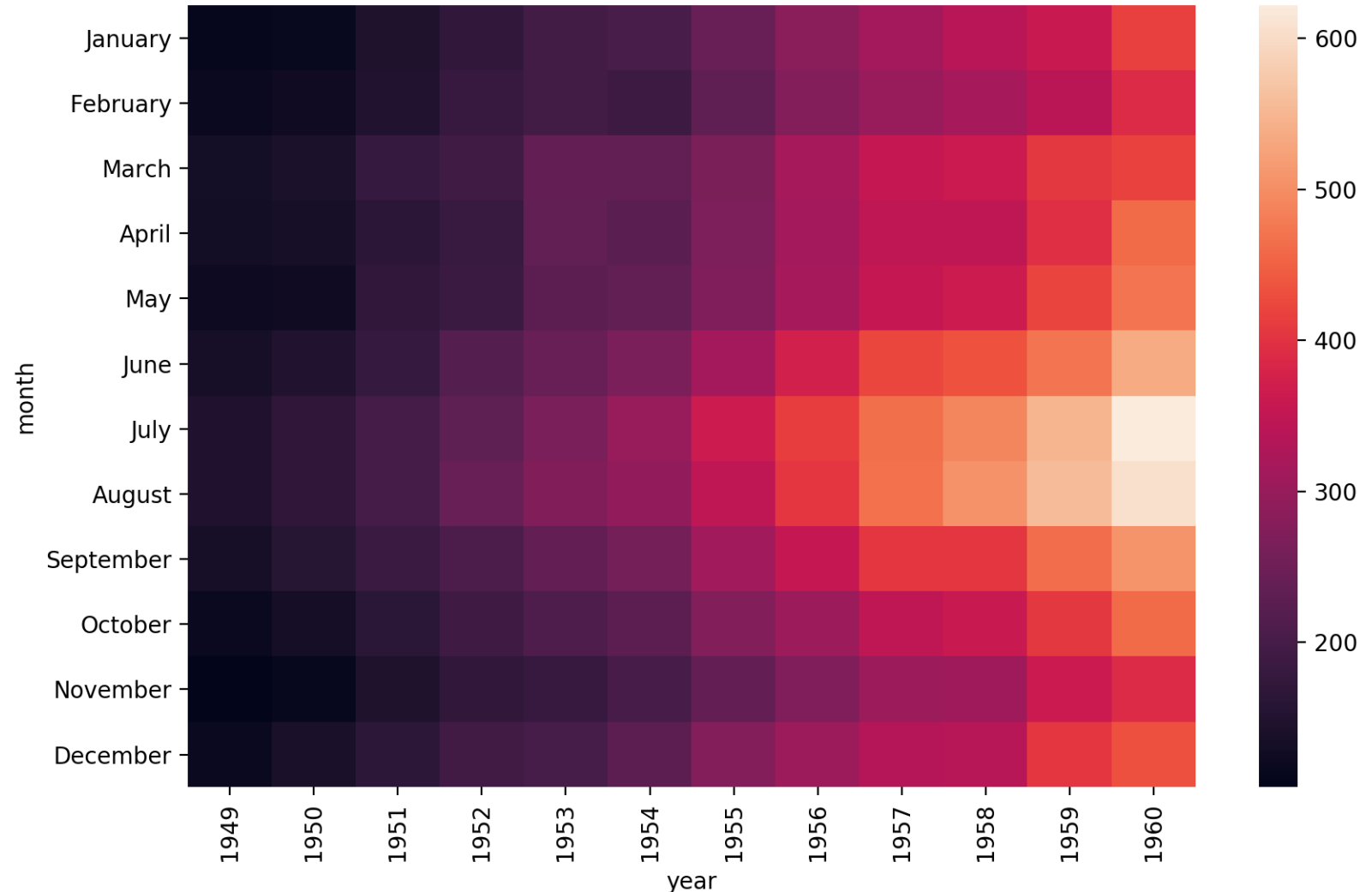
Seaborn Usages (Matrix Plots)

```
flights = sns.load_dataset("flights")
```

```
fp = flights.pivot_table(index="month", columns="year", values="passengers")
```

```
sns.heatmap(fp)
```

```
plt.show()
```



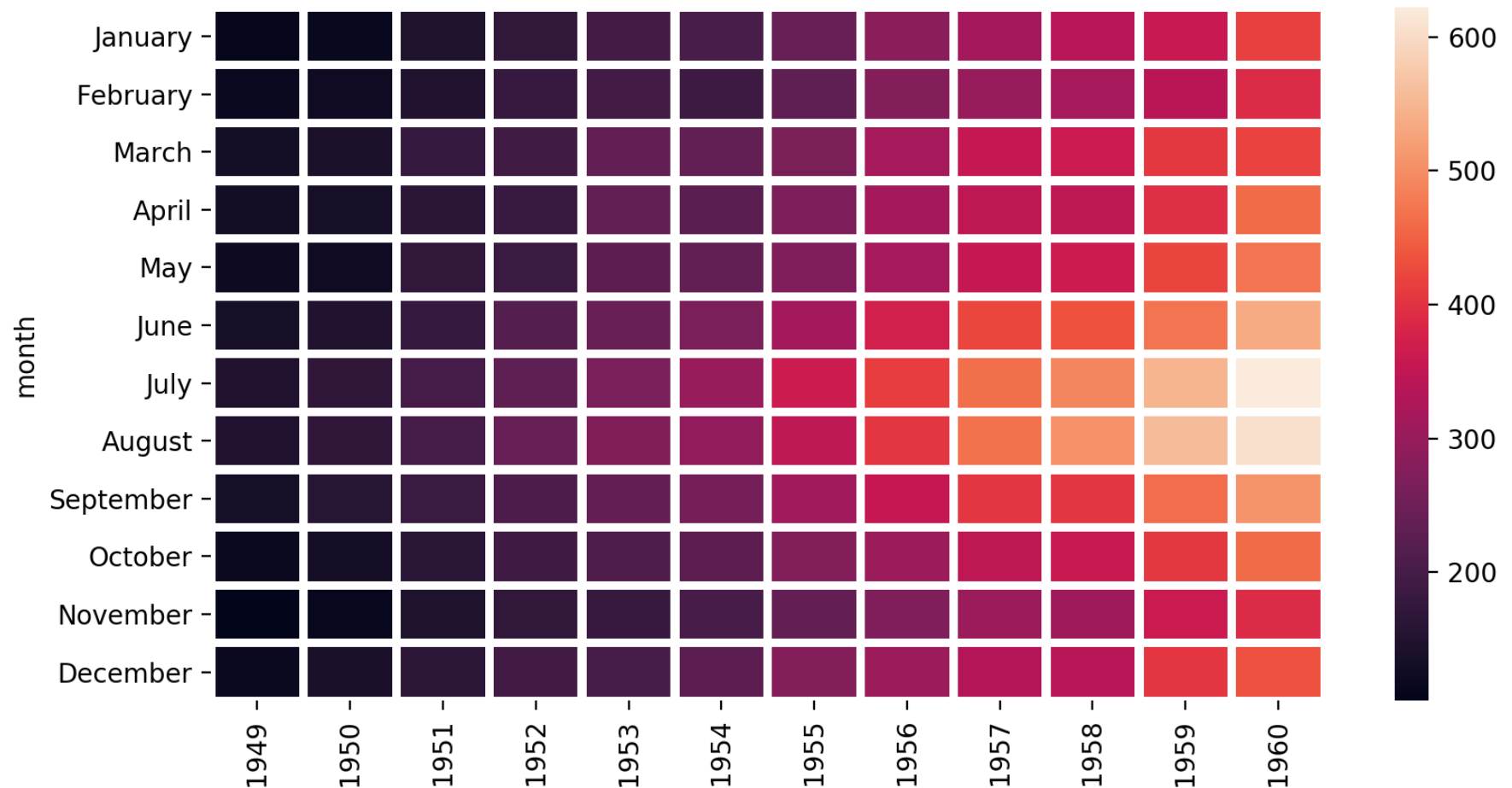
Seaborn Usages (Matrix Plots)

```
flights = sns.load_dataset("flights")
```

```
fp = flights.pivot_table(index="month", columns="year", values="passengers")
```

```
sns.heatmap(fp, linecolor='white', linewidths=3)
```

```
plt.show()
```



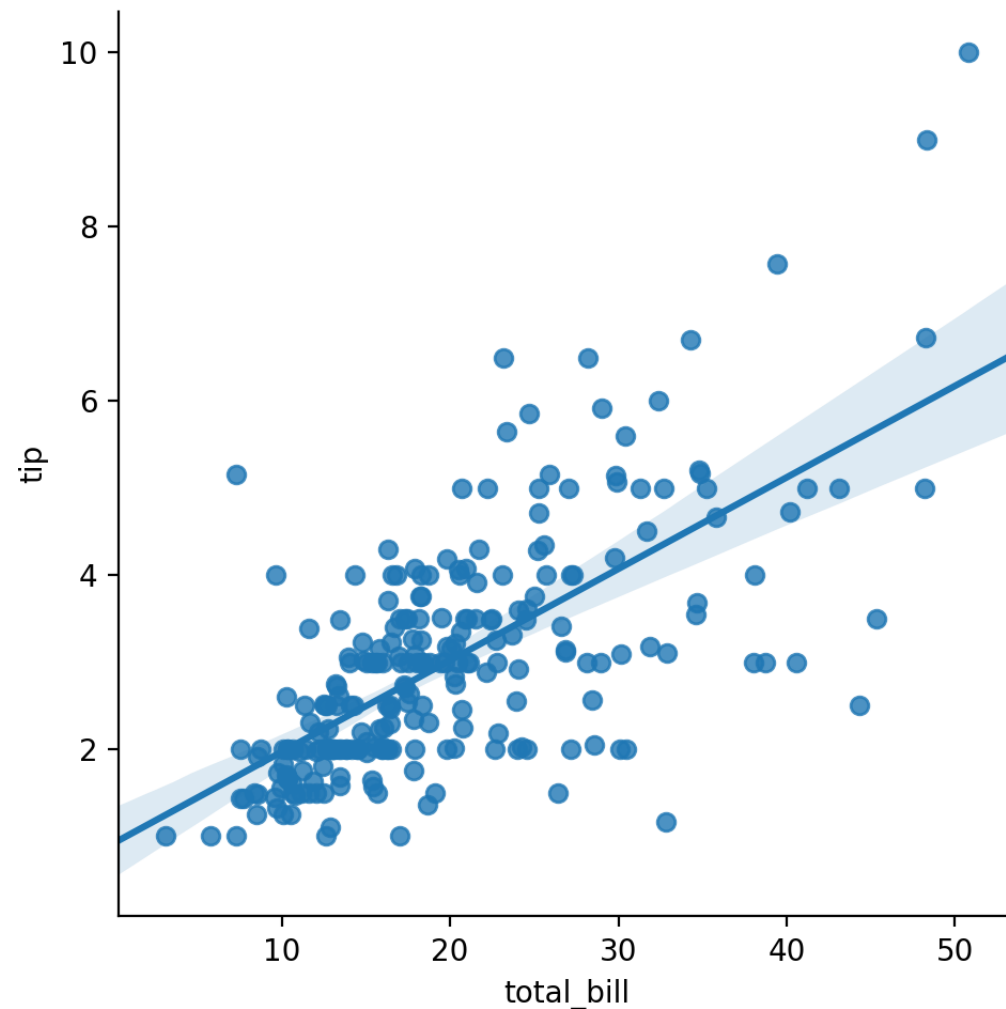
Seaborn Usages (Regression Plots)

```
tips.head()
```

```
#   total_bill  tip  sex smoker  day  time  size
# 0      16.99  1.01 Female    No  Sun  Dinner    2
# 1      10.34  1.66   Male    No  Sun  Dinner    3
# 2      21.01  3.50   Male    No  Sun  Dinner    3
# 3      23.68  3.31   Male    No  Sun  Dinner    2
# 4      24.59  3.61 Female    No  Sun  Dinner    4
```

```
sns.lmplot(x="total_bill",y="tip",data=tips)
```

```
plt.show()
```



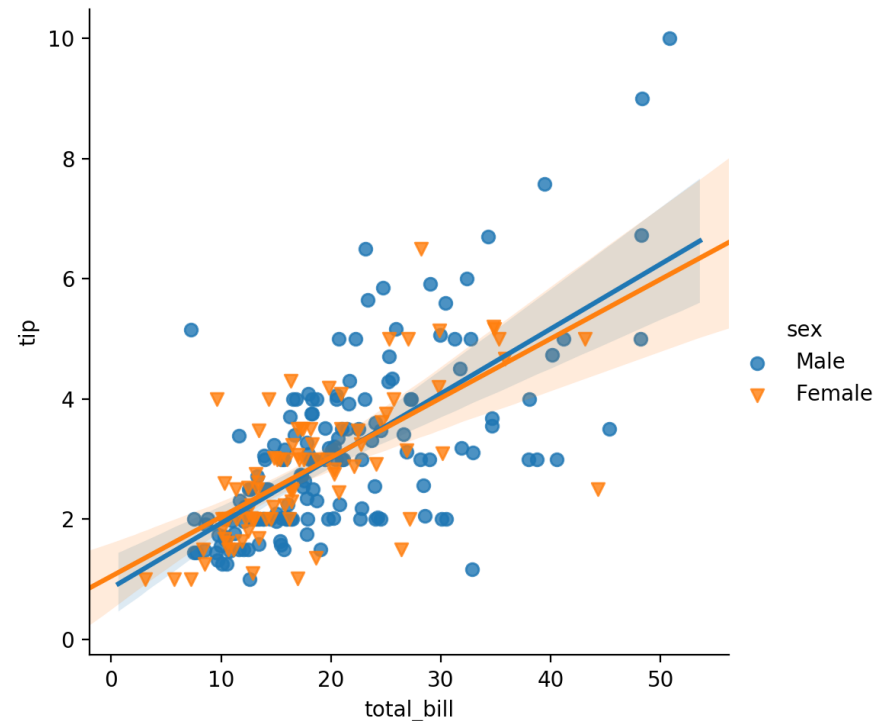
Seaborn Usages (Regression Plots)

```
tips.head()
```

```
#   total_bill  tip  sex smoker  day  time  size
# 0      16.99  1.01 Female    No  Sun  Dinner    2
# 1      10.34  1.66  Male    No  Sun  Dinner    3
# 2      21.01  3.50  Male    No  Sun  Dinner    3
# 3      23.68  3.31  Male    No  Sun  Dinner    2
# 4      24.59  3.61 Female    No  Sun  Dinner    4
```

```
sns.lmplot(x="total_bill",y="tip",hue="sex",data=tips, markers=['o','v'])
```

```
plt.show()
```



Seaborn Usages (Regression Plots)

```
tips.head()
```

```
#   total_bill  tip  sex smoker  day  time  size
# 0      16.99  1.01 Female    No  Sun  Dinner    2
# 1      10.34  1.66  Male    No  Sun  Dinner    3
# 2      21.01  3.50  Male    No  Sun  Dinner    3
# 3      23.68  3.31  Male    No  Sun  Dinner    2
# 4      24.59  3.61 Female    No  Sun  Dinner    4
```

```
sns.lmplot(x="total_bill",y="tip",hue="sex",data=tips, col="day")
```

```
plt.show()
```

