Module 02

Regression Plots

Data Science Developer

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Regression Plots

Seaborn has many built-in capabilities for regression plots, however we won't really discuss regression until the machine learning section of the course, so we will only cover the lmplot() function for now.

lmplot allows you to display linear models, but it also conveniently allows you to split up those plots based off of features, as well as coloring the hue based off of features.

Let's explore how this works:

Imports and Data

```
import seaborn as sns
%matplotlib inline
```

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

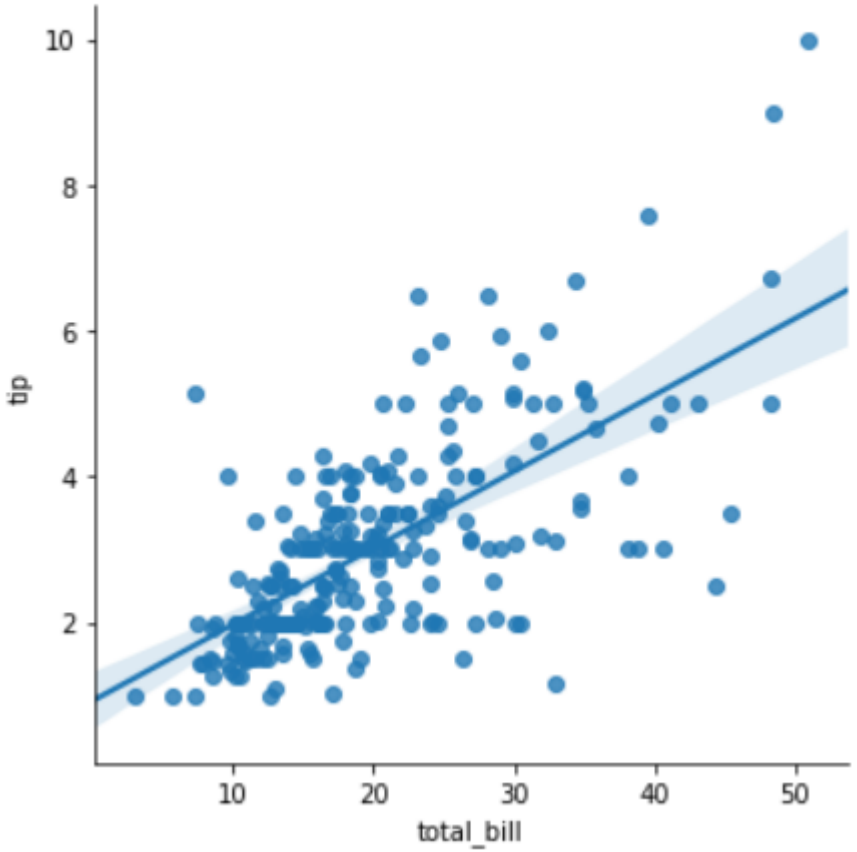
```
tips.head()
```

	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

Implot()

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

```
<seaborn.axisgrid.FacetGrid at 0x256b26b0e80>
```



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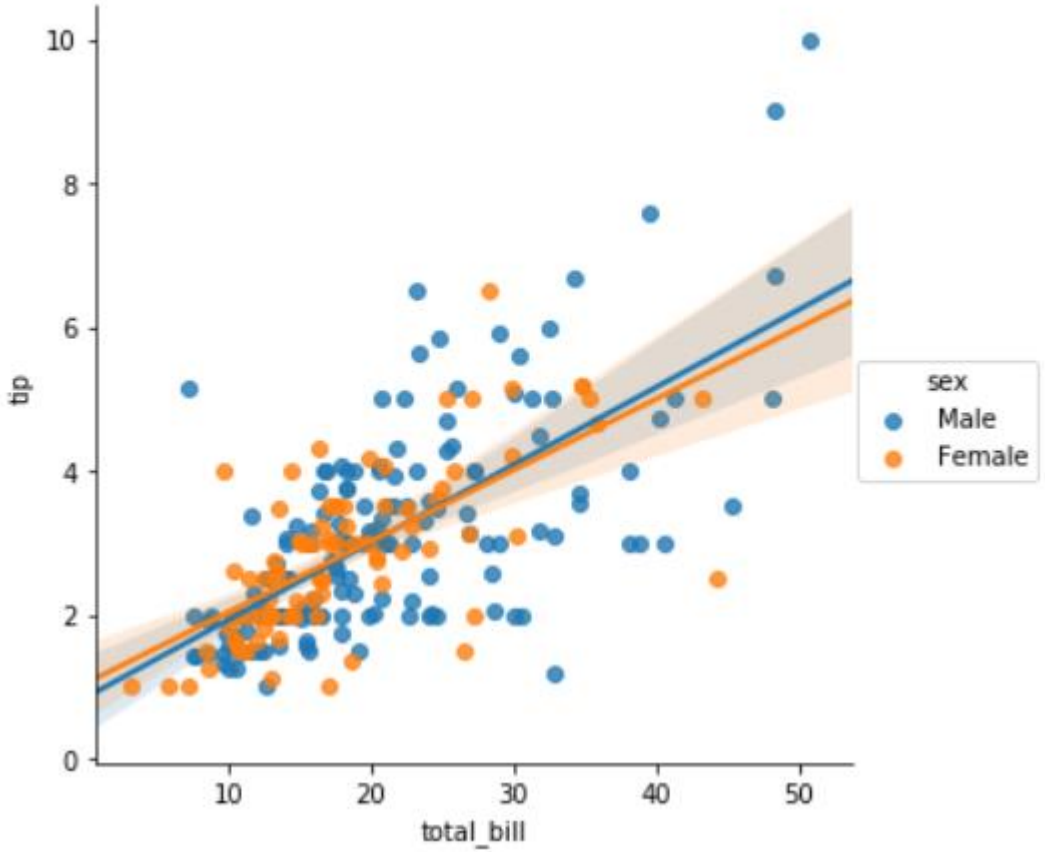
```
sns.lmplot(x='total_bill',y='tip',data=tips,hue='sex')
```

```
<seaborn.axisgrid.FacetGrid at 0x256b27cc4e0>
```



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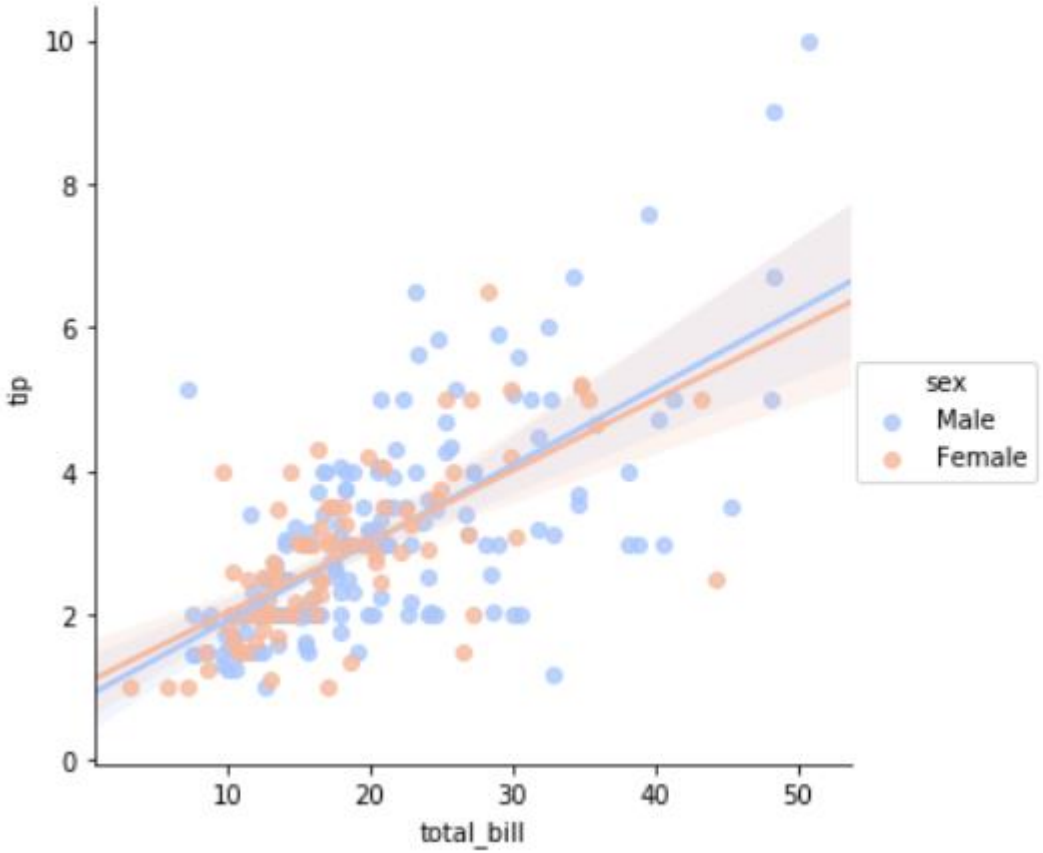
```
sns.lmplot(x='total_bill',y='tip',data=tips,hue='sex',palette='coolwarm')
```

```
<seaborn.axisgrid.FacetGrid at 0x256b27f7438>
```



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Working with Markers

lmplot kwargs get passed through to **regplot** which is a more general form of lmplot(). regplot has a scatter_kws parameter that gets passed to plt.scatter.

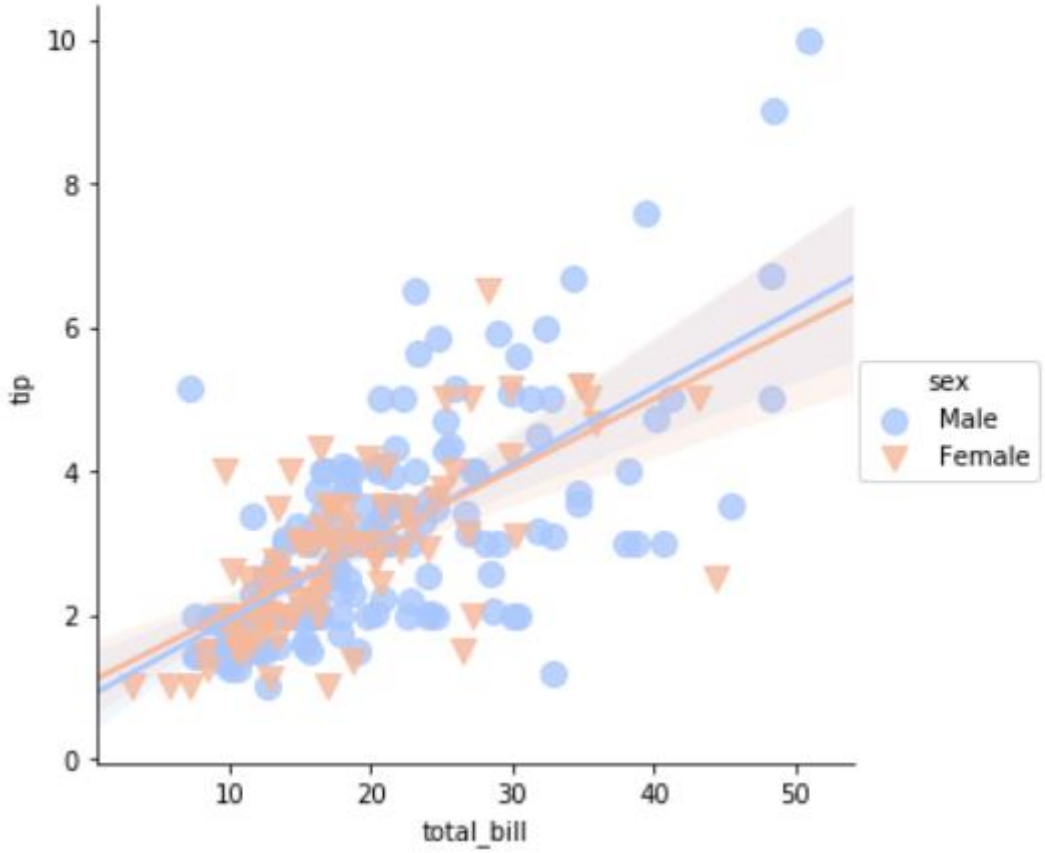
So you want to set the s parameter in that dictionary, which corresponds (a bit confusingly) to the squared markersize.

In other words you end up passing a dictionary with the base matplotlib arguments, in this case, s for size of a scatter plot.

In general, you probably won't remember this off the top of your head, but instead reference the documentation.

```
# http://matplotlib.org/api/markers_api.html
sns.lmplot(x='total_bill',y='tip',data=tips,hue='sex',palette='coolwarm',
           markers=['o','v'],scatter_kws={'s':100})
```

```
<seaborn.axisgrid.FacetGrid at 0x256b3b059b0>
```



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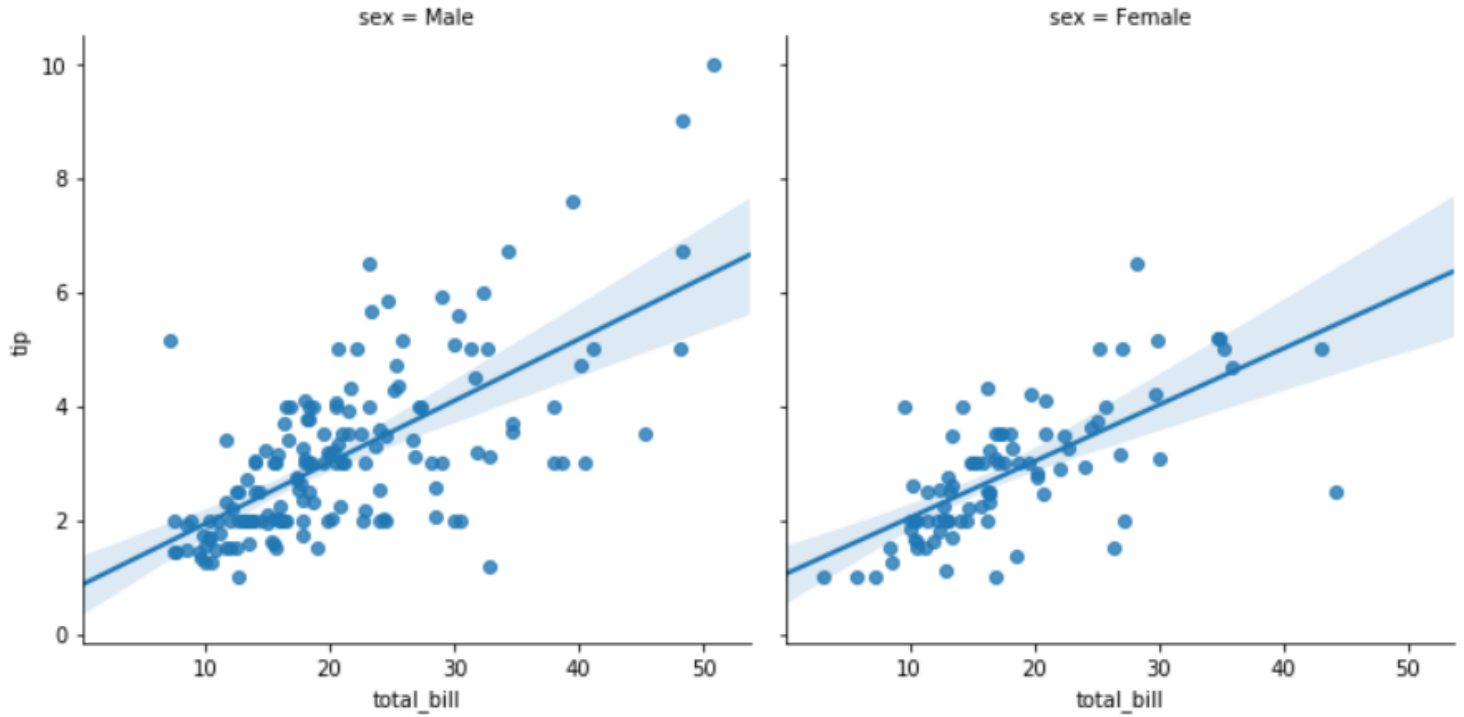
Using a Grid

We can add more variable separation through columns and rows with the use of a grid. Just indicate this with the col or row arguments:

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

```
<seaborn.axisgrid.FacetGrid at 0x256b3afcb70>
```



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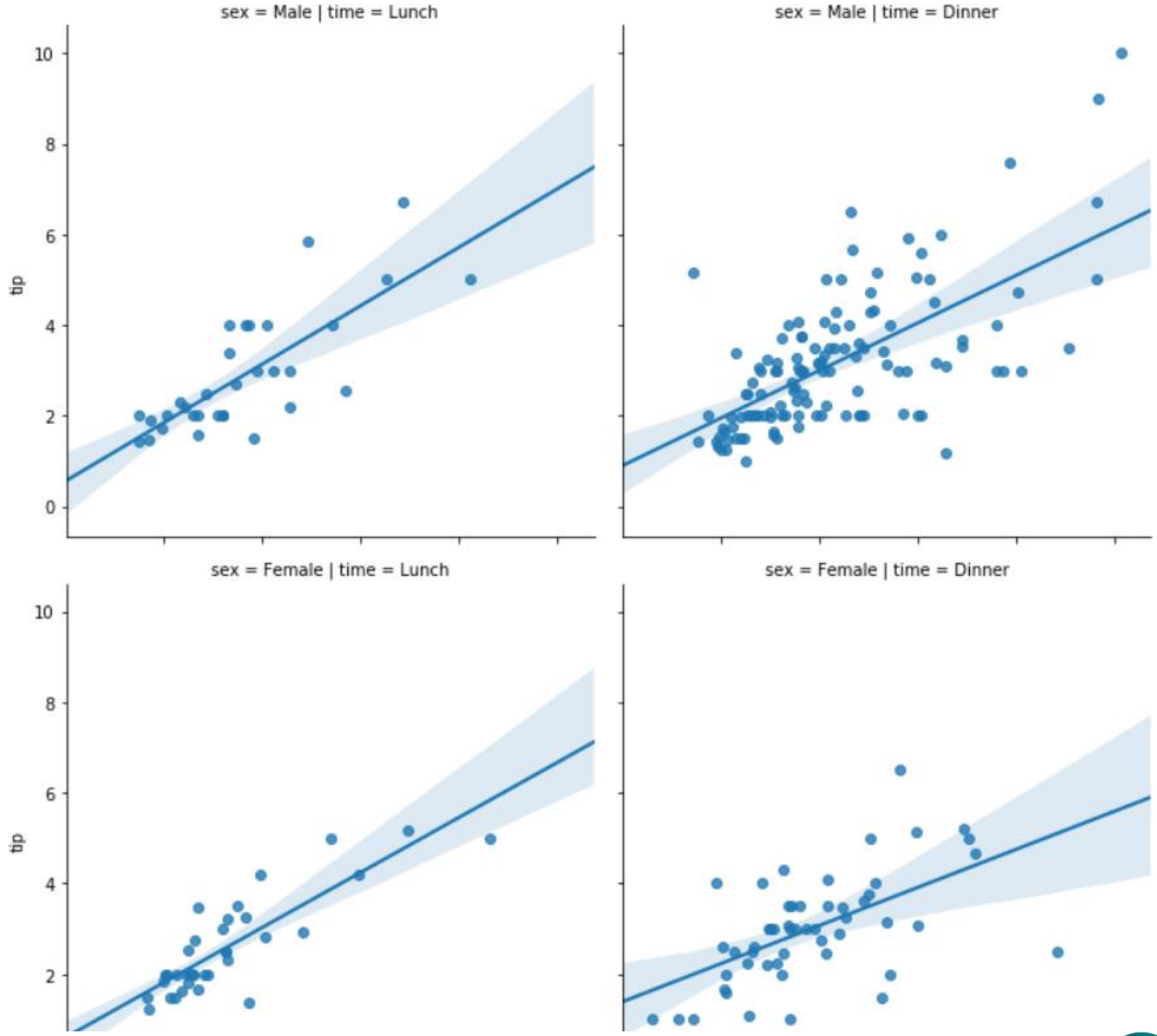
```
sns.lmplot(x="total_bill", y="tip", row="sex", col="time",data=tips)
```



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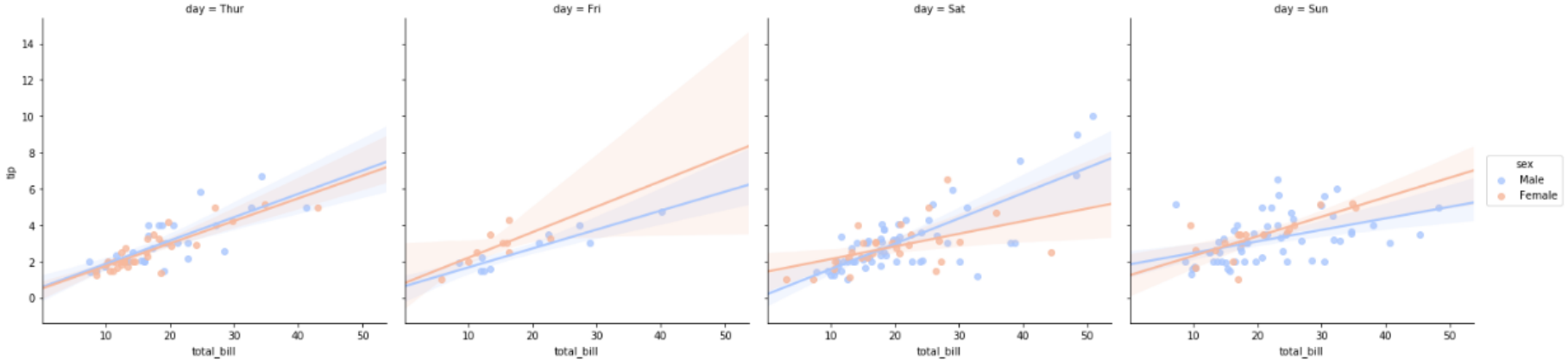
```
sns.lmplot(x='total_bill',y='tip',data=tips,col='day',hue='sex',palette='coolwarm')
```

```
<seaborn.axisgrid.FacetGrid at 0x256b3fb4438>
```



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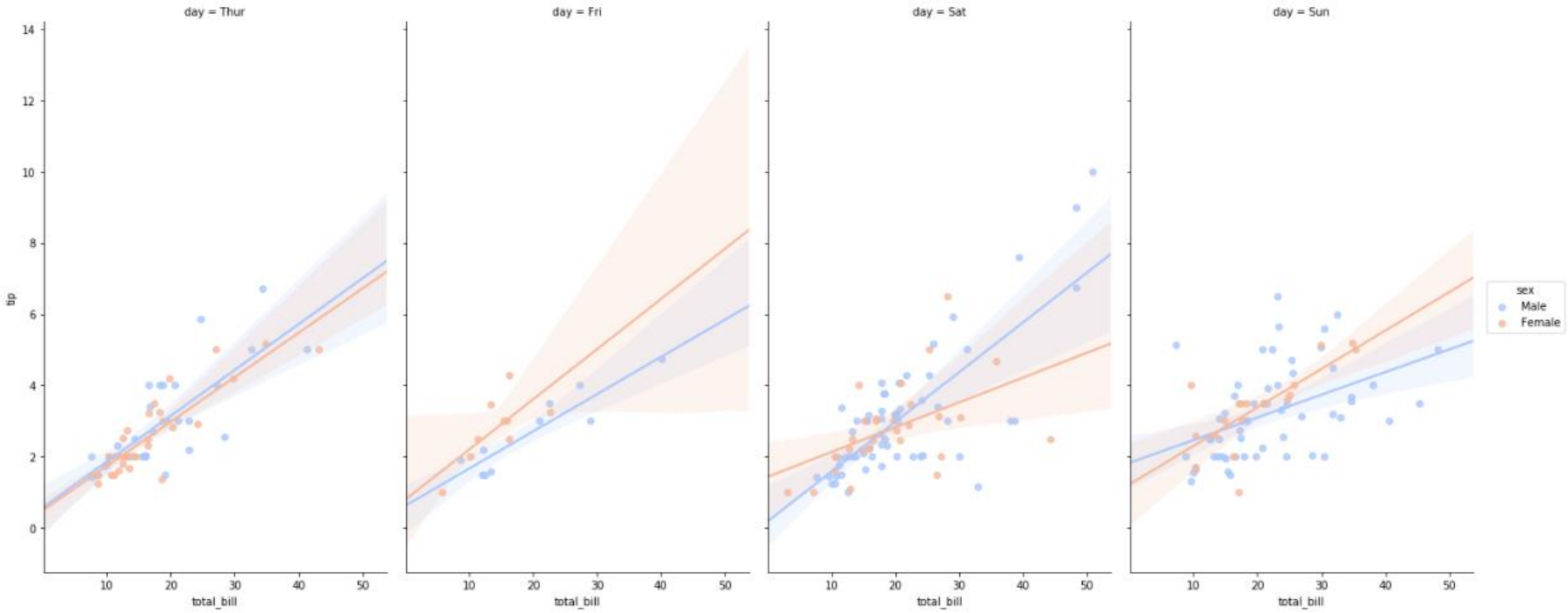
Aspect and Size

Seaborn figures can have their size and aspect ratio adjusted with the size and aspect parameters:

```
sns.lmplot(x='total_bill',y='tip',data=tips,col='day',hue='sex',palette='coolwarm',
           aspect=0.6,size=8)
```

```
<seaborn.axisgrid.FacetGrid at 0x256b44972e8>
```



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