

```
In [1]: # VIVEK-CHAUHAN-ADVANCED-DATA-ANALYTICS-SEABORN-MULTIPLY-SCATTERPLOT
```

```
In [1]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

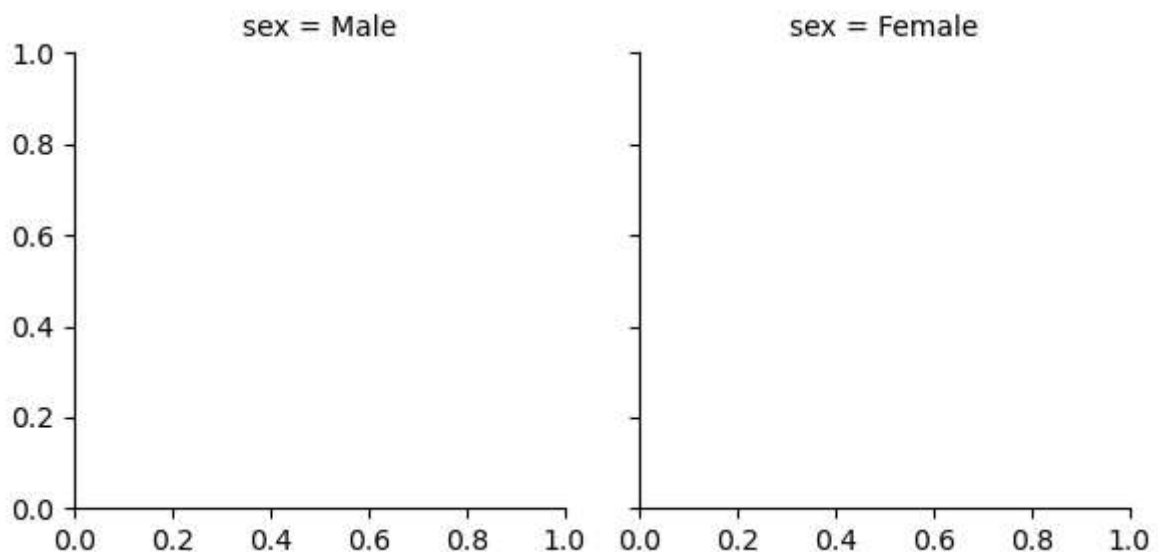
```
In [4]: # Load the dataframe
df = sns.load_dataset("tips")
print(df)

# facegrid using column with hue
a = sns.FacetGrid(df, col="sex", hue="day")
print(a)
```

	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
..
239	29.03	5.92	Male	No	Sat	Dinner	3
240	27.18	2.00	Female	Yes	Sat	Dinner	2
241	22.67	2.00	Male	Yes	Sat	Dinner	2
242	17.82	1.75	Male	No	Sat	Dinner	2
243	18.78	3.00	Female	No	Thur	Dinner	2

[244 rows x 7 columns]

<seaborn.axisgrid.FacetGrid object at 0x0000023A60CC3140>



```
In [32]: # Let's make the facetgrid with some attributes
# Load the dataframe
df = sns.load_dataset("tips")
print(df)

# facegrid using column with hue
```

```

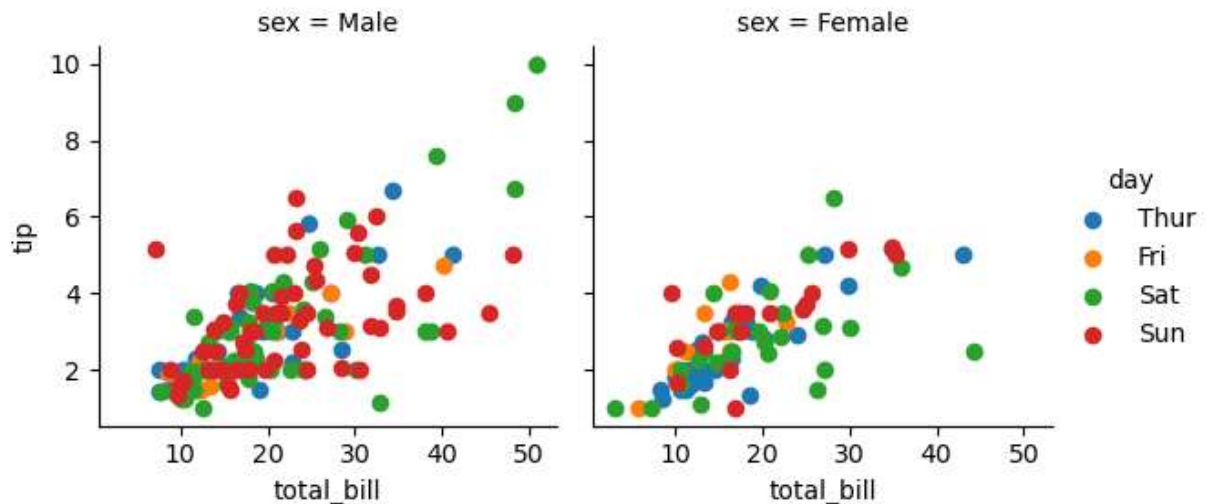
a = sns.FacetGrid(df,col="sex",hue="day")
# give some attributes to the facetgrid
a.map(plt.scatter,"total_bill","tip").add_legend()
# now show the all the plot
plt.show

```

	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
..
239	29.03	5.92	Male	No	Sat	Dinner	3
240	27.18	2.00	Female	Yes	Sat	Dinner	2
241	22.67	2.00	Male	Yes	Sat	Dinner	2
242	17.82	1.75	Male	No	Sat	Dinner	2
243	18.78	3.00	Female	No	Thur	Dinner	2

[244 rows x 7 columns]

Out[32]: <function matplotlib.pyplot.show(close=None, block=None)>



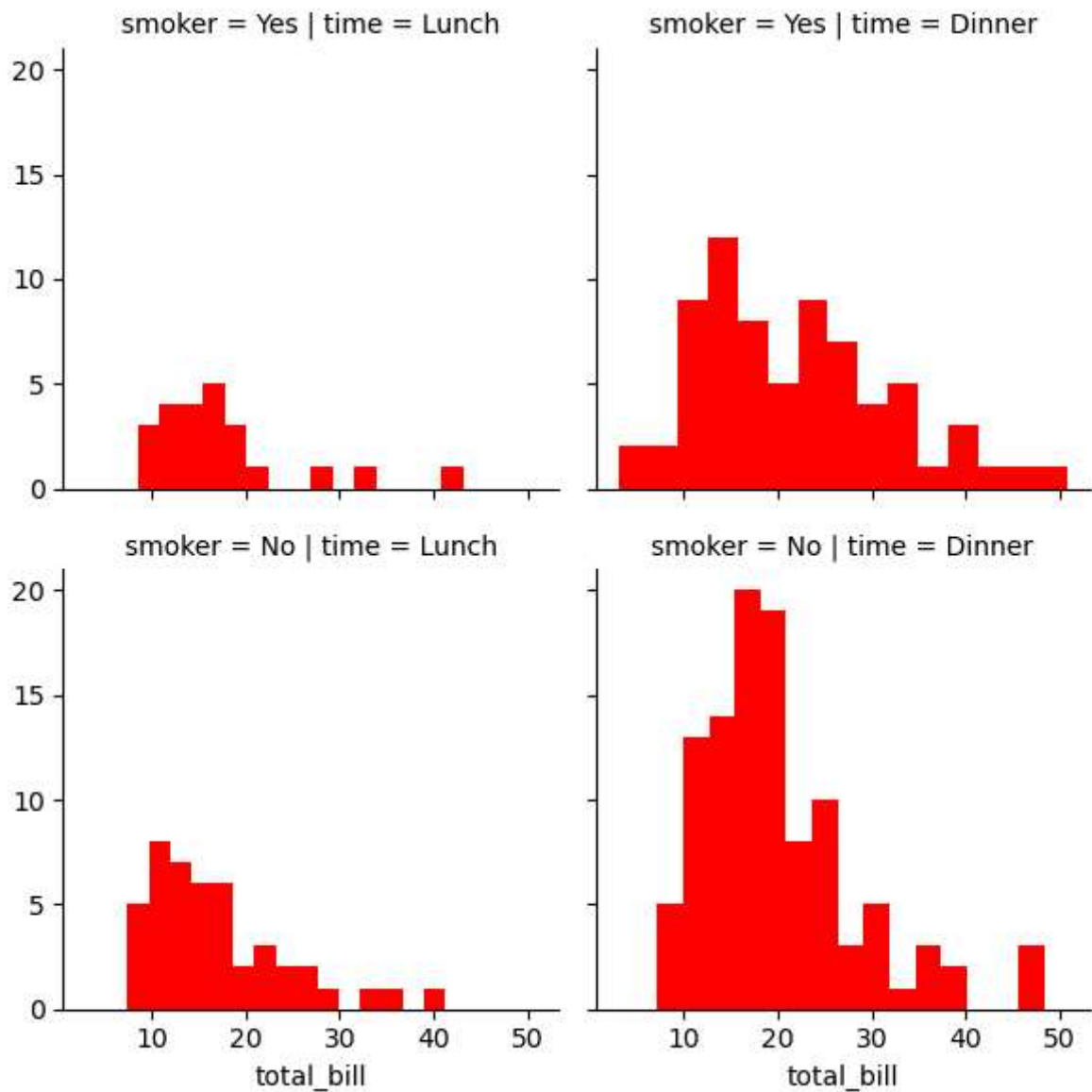
In [40]: # now we can create the facetgrid by rows and columns

```

a = sns.FacetGrid(df,row="smoker",col="time")
a.map(plt.hist,"total_bill",bins=15,color="red")
# now this time to see the plot
plt.show

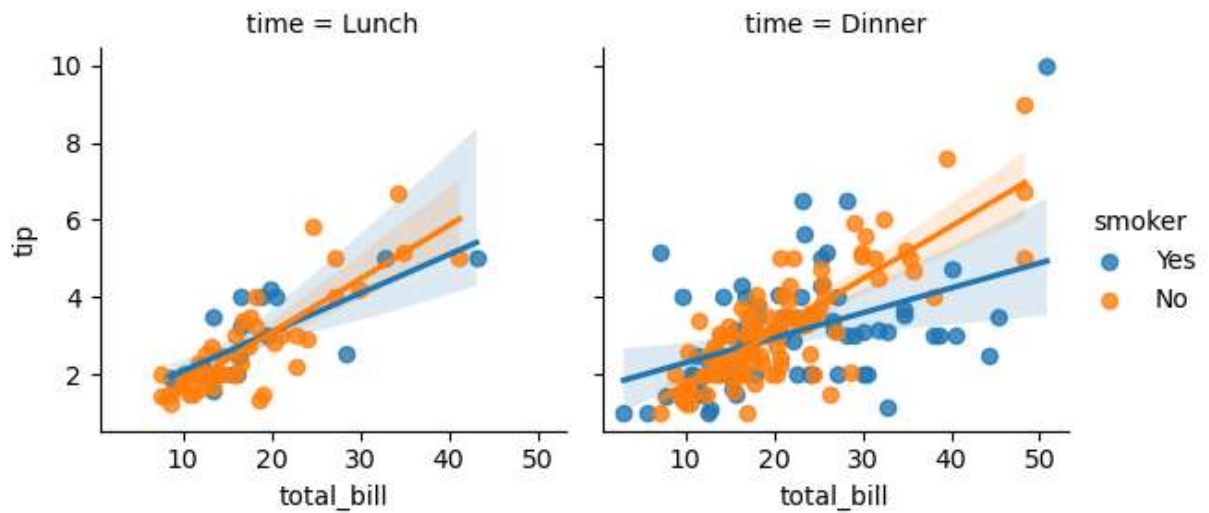
```

Out[40]: <function matplotlib.pyplot.show(close=None, block=None)>



In [50]: *# regression plot using regplot to know the best fit of the data*

```
# to create the facegrid using column with hue
a = sns.FacetGrid(df,col="time",hue="smoker")
# map the above form facetgrid with some attributes
a.map(sns.regplot,"total_bill","tip").add_legend()
#now this time to show the plot
plt.show()
```



```
In [70]: # now this time to create pairgrid
# in the pairgrid the diagonal is hist and upper and lower plot is scatter

df = sns.load_dataset("tips")

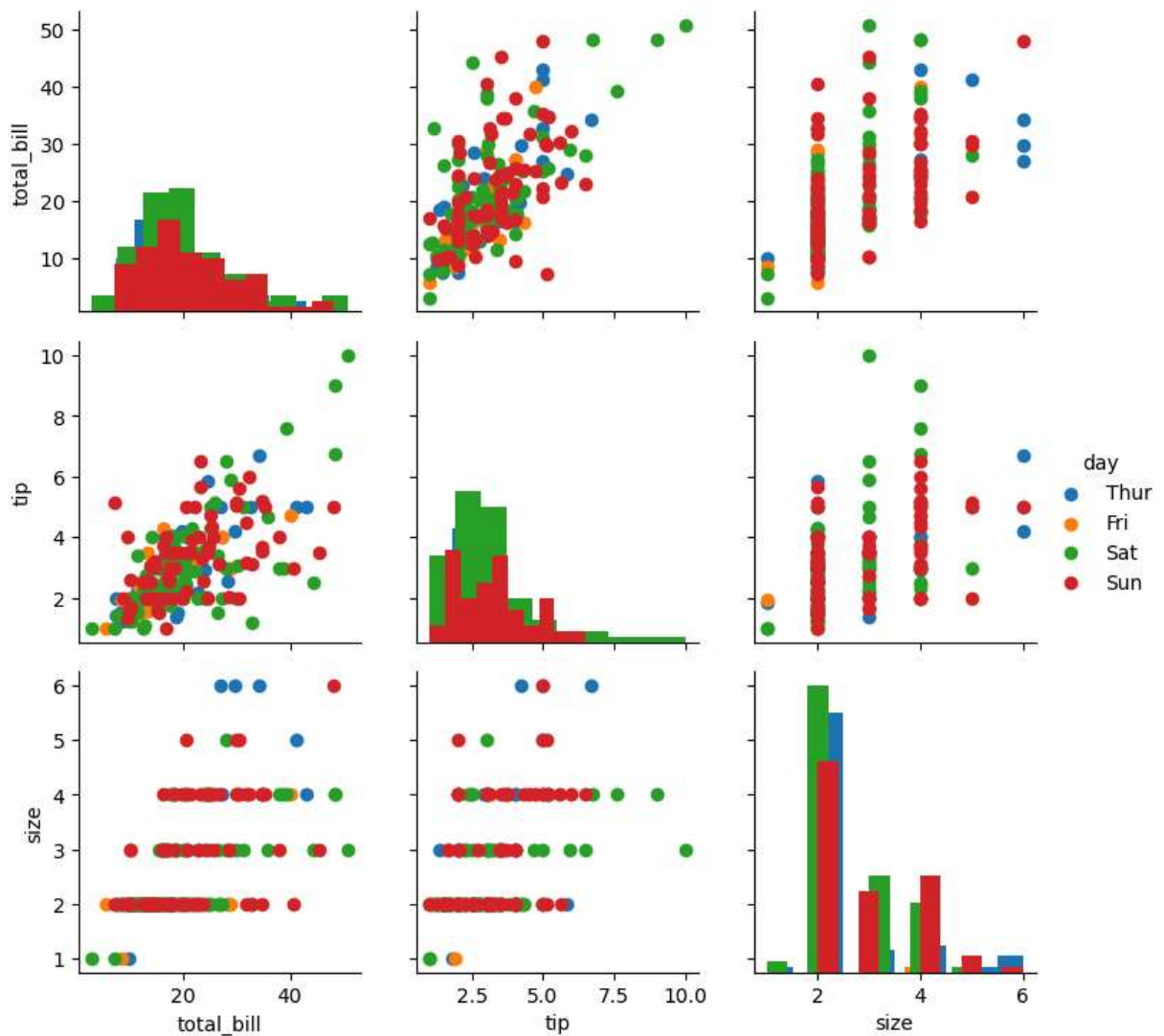
# pairgrid object with hue
a = sns.PairGrid(df, hue="day") # the plain graph is made in this

# type of graph for diagonal
a.map_diag(plt.hist)

# type of graph for non-diagonal means upper & lower part
a.map_offdiag(plt.scatter)

# now this time to add legends for clarity
a.add_legend()

# now this time to show the plot
plt.show()
```



```
In [90]: # now we can set the upper & lower plot by own style

df = sns.load_dataset("tips")

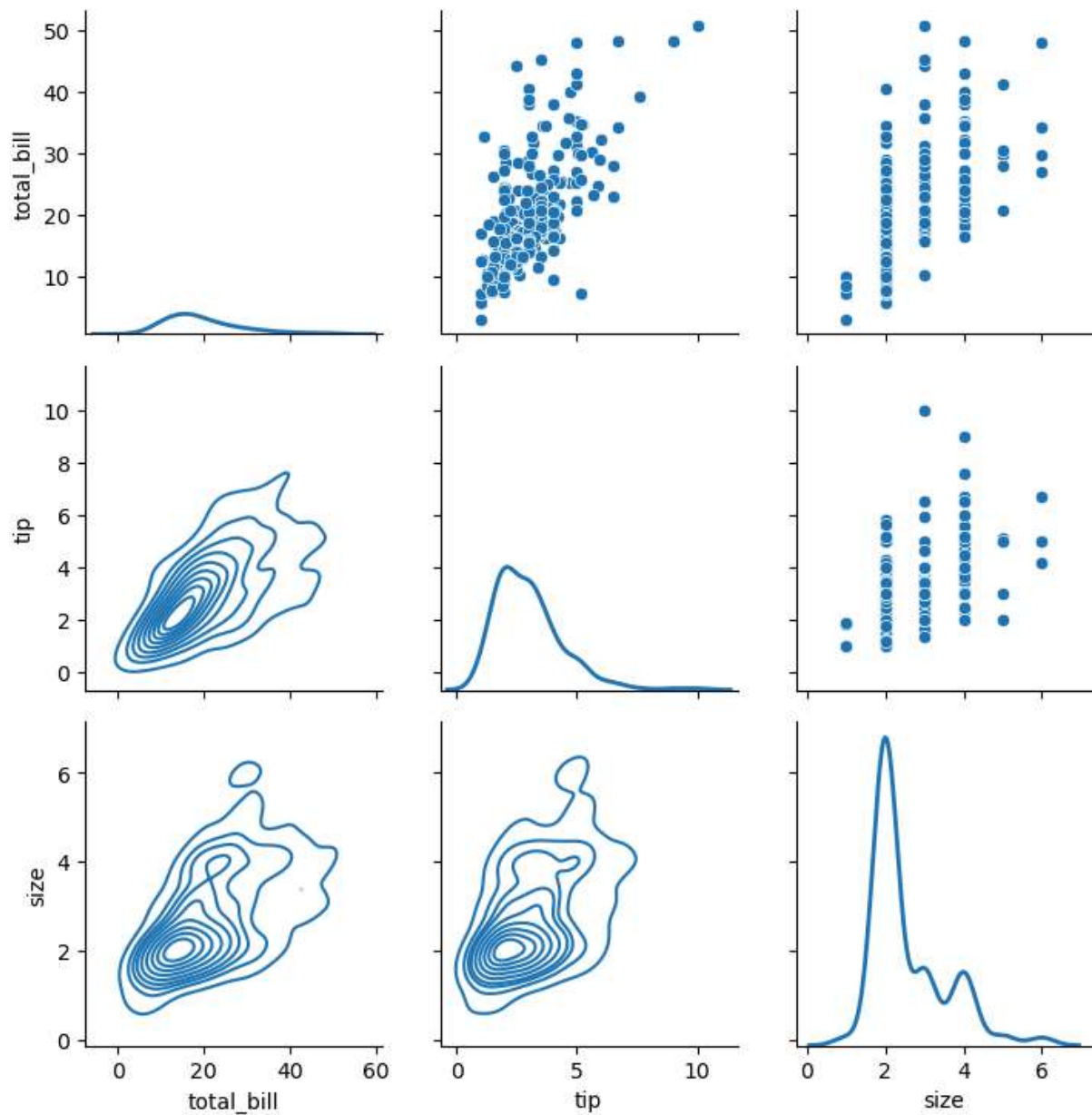
# pairgrid object with the help of hue
a = sns.PairGrid(df) # the plain graph is made in this

# type of graph for non-diagonal means upper-part
a.map_upper(sns.scatterplot)

# type of graph for diagonal means Lower-part
a.map_lower(sns.kdeplot)

# type of graph for the diagonal
a.map_diag(sns.kdeplot, lw = 2) # lw means line width

# now time to show our plot
plt.show()
```



In [14]: *# now we creating the scatter plot*

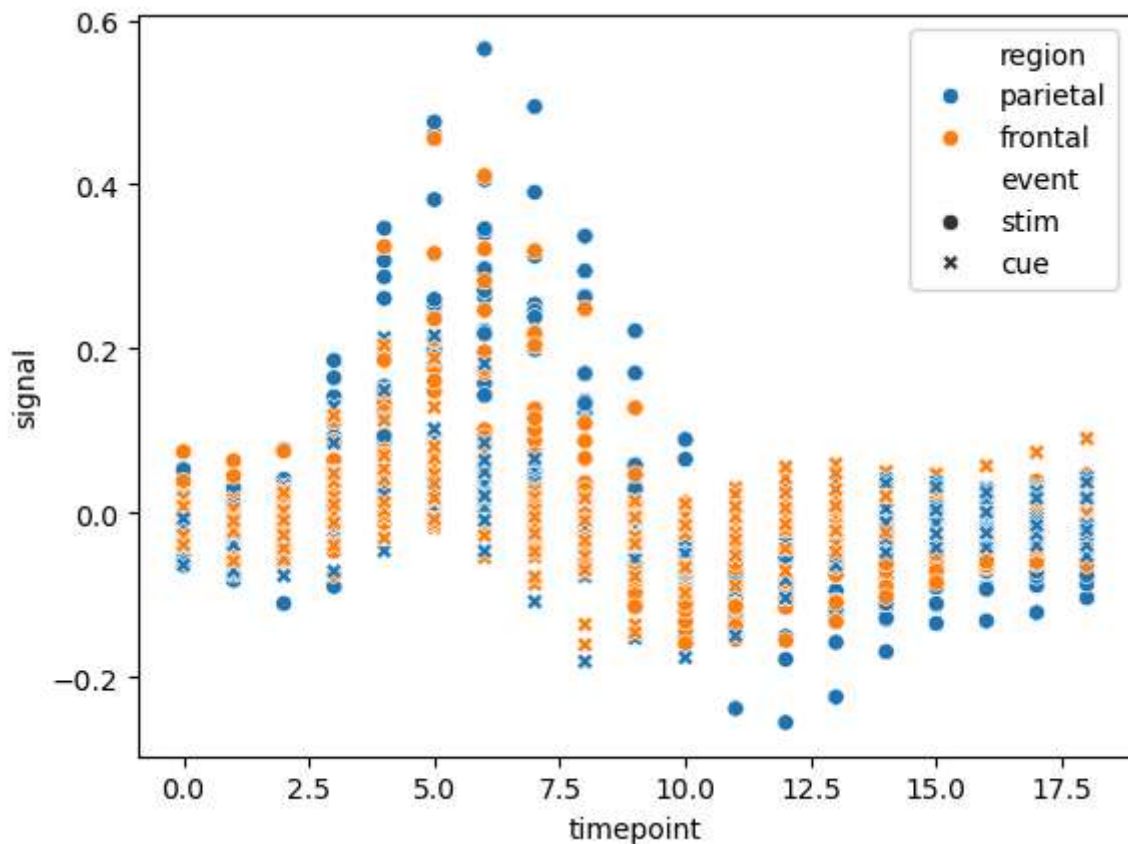
```
a = sns.load_dataset("fmri")
print(a)
```

```
sns.scatterplot(x="timepoint",y="signal",hue="region",data=a,style="event")
```

	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
...
1059	s0	8	cue	frontal	0.018165
1060	s13	7	cue	frontal	-0.029130
1061	s12	7	cue	frontal	-0.004939
1062	s11	7	cue	frontal	-0.025367
1063	s0	0	cue	parietal	-0.006899

[1064 rows x 5 columns]

Out[14]: <Axes: xlabel='timepoint', ylabel='signal'>



```
In [20]: # adding marker attributes
# now we creating the scatter plot

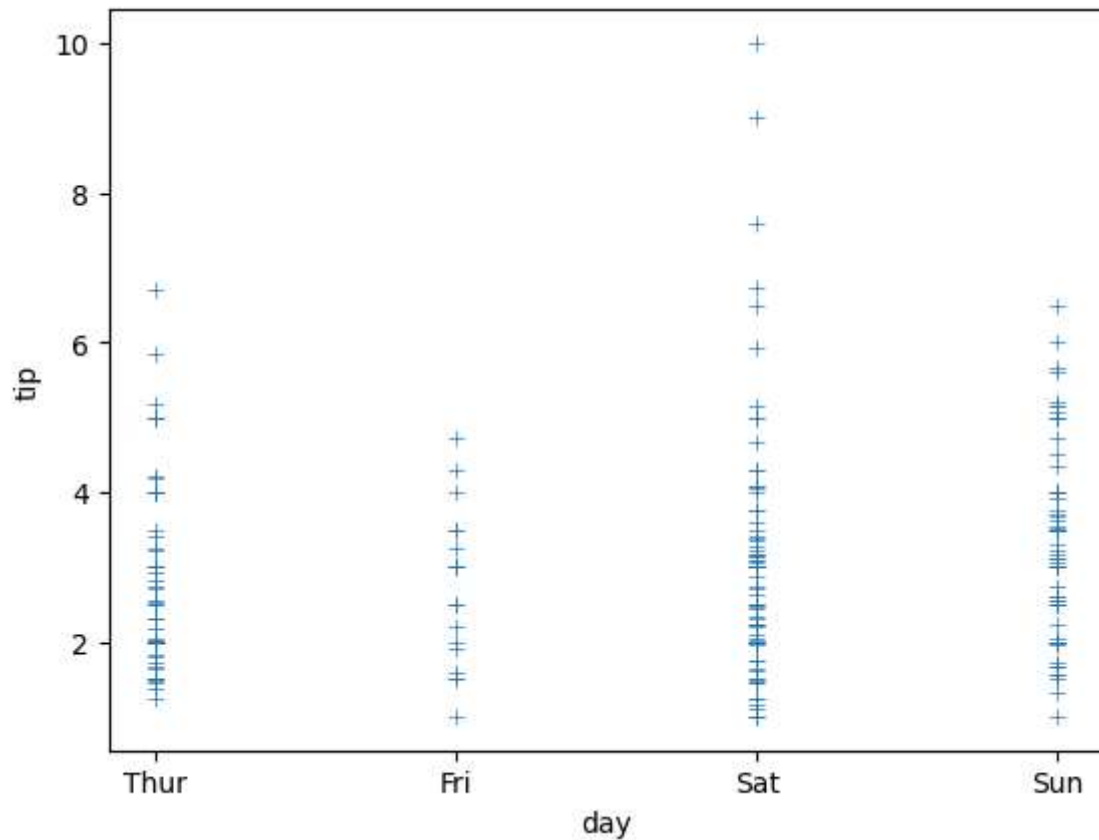
a = sns.load_dataset("tips")
print(a)

sns.scatterplot(x="day", y="tip", data=a, marker="+")
```


	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
..
239	29.03	5.92	Male	No	Sat	Dinner	3
240	27.18	2.00	Female	Yes	Sat	Dinner	2
241	22.67	2.00	Male	Yes	Sat	Dinner	2
242	17.82	1.75	Male	No	Sat	Dinner	2
243	18.78	3.00	Female	No	Thur	Dinner	2

[244 rows x 7 columns]

Out[20]: <Axes: xlabel='day', ylabel='tip'>



```
In [22]: # adding the hue attributes
# adding marker attributes
# now we creating the scatter plot

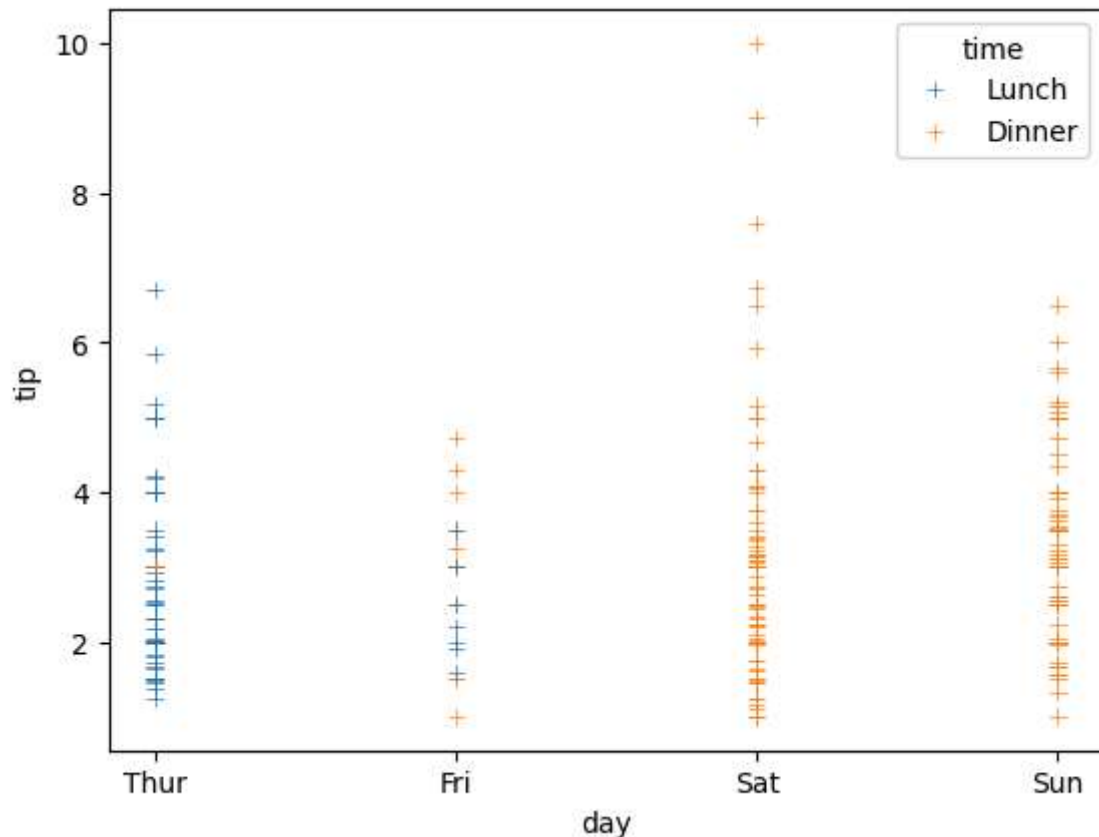
a = sns.load_dataset("tips")
print(a)

sns.scatterplot(x="day",y="tip",data=a,marker="+",hue="time")
```


	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
..
239	29.03	5.92	Male	No	Sat	Dinner	3
240	27.18	2.00	Female	Yes	Sat	Dinner	2
241	22.67	2.00	Male	Yes	Sat	Dinner	2
242	17.82	1.75	Male	No	Sat	Dinner	2
243	18.78	3.00	Female	No	Thur	Dinner	2

[244 rows x 7 columns]

Out[22]: <Axes: xlabel='day', ylabel='tip'>



```
In [24]: # Lets check the day in which day the tip is high
# adding the hue attributes
# adding marker attributes
# now we creating the scatter plot

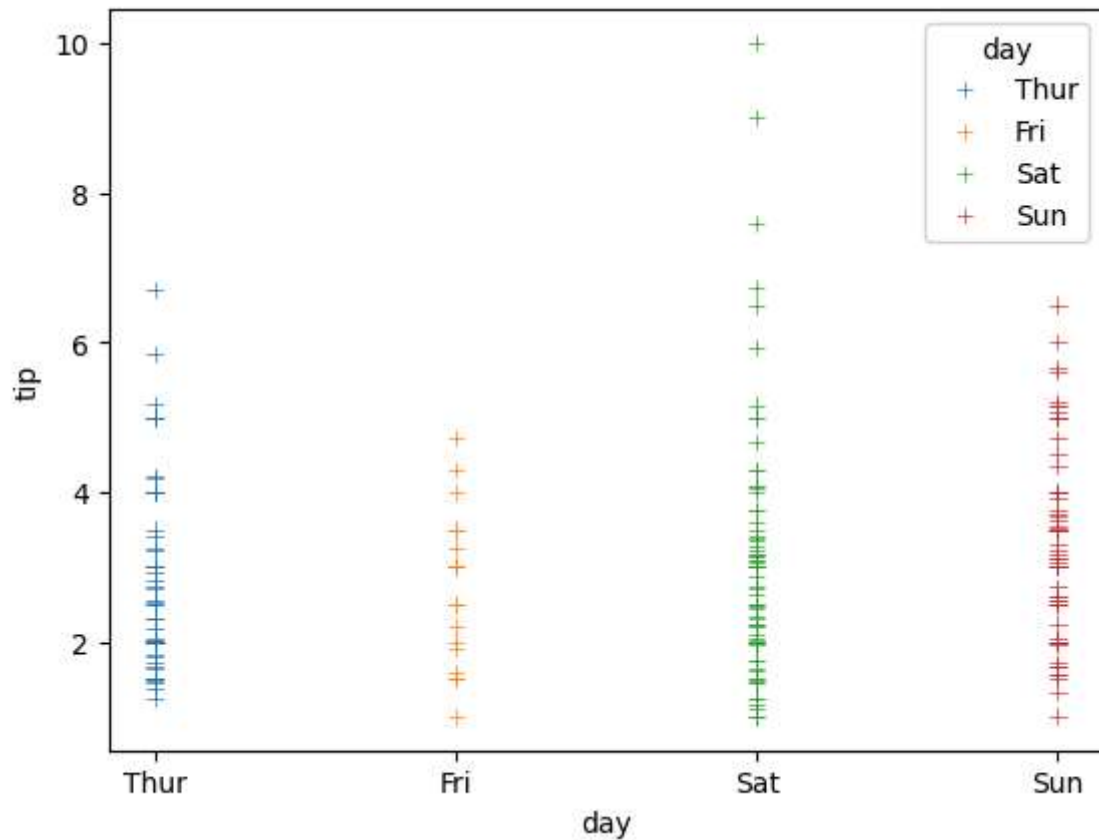
a = sns.load_dataset("tips")
print(a)

sns.scatterplot(x="day",y="tip",data=a,marker="+",hue="day")
```

	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
..
239	29.03	5.92	Male	No	Sat	Dinner	3
240	27.18	2.00	Female	Yes	Sat	Dinner	2
241	22.67	2.00	Male	Yes	Sat	Dinner	2
242	17.82	1.75	Male	No	Sat	Dinner	2
243	18.78	3.00	Female	No	Thur	Dinner	2

[244 rows x 7 columns]

Out[24]: <Axes: xlabel='day', ylabel='tip'>



```
In [26]: # adding the time attributes
# adding the hue attributes
# adding marker attributes
# now we creating the scatter plot

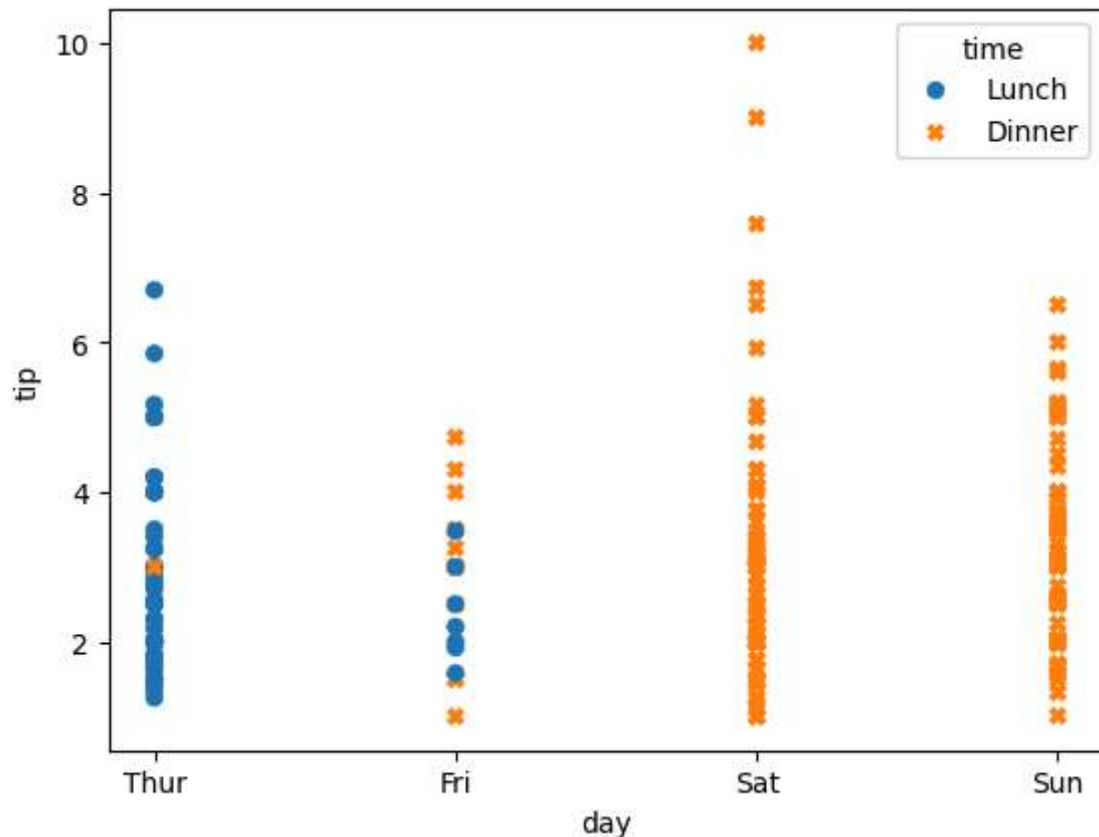
a = sns.load_dataset("tips")
print(a)

sns.scatterplot(x="day",y="tip",data=a,marker="+",hue="time",style="time")
```

	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
..
239	29.03	5.92	Male	No	Sat	Dinner	3
240	27.18	2.00	Female	Yes	Sat	Dinner	2
241	22.67	2.00	Male	Yes	Sat	Dinner	2
242	17.82	1.75	Male	No	Sat	Dinner	2
243	18.78	3.00	Female	No	Thur	Dinner	2

[244 rows x 7 columns]

Out[26]: <Axes: xlabel='day', ylabel='tip'>



```
In [30]: # adding palette attributes
# adding the hue attributes
# adding marker attributes
# now we creating the scatter plot

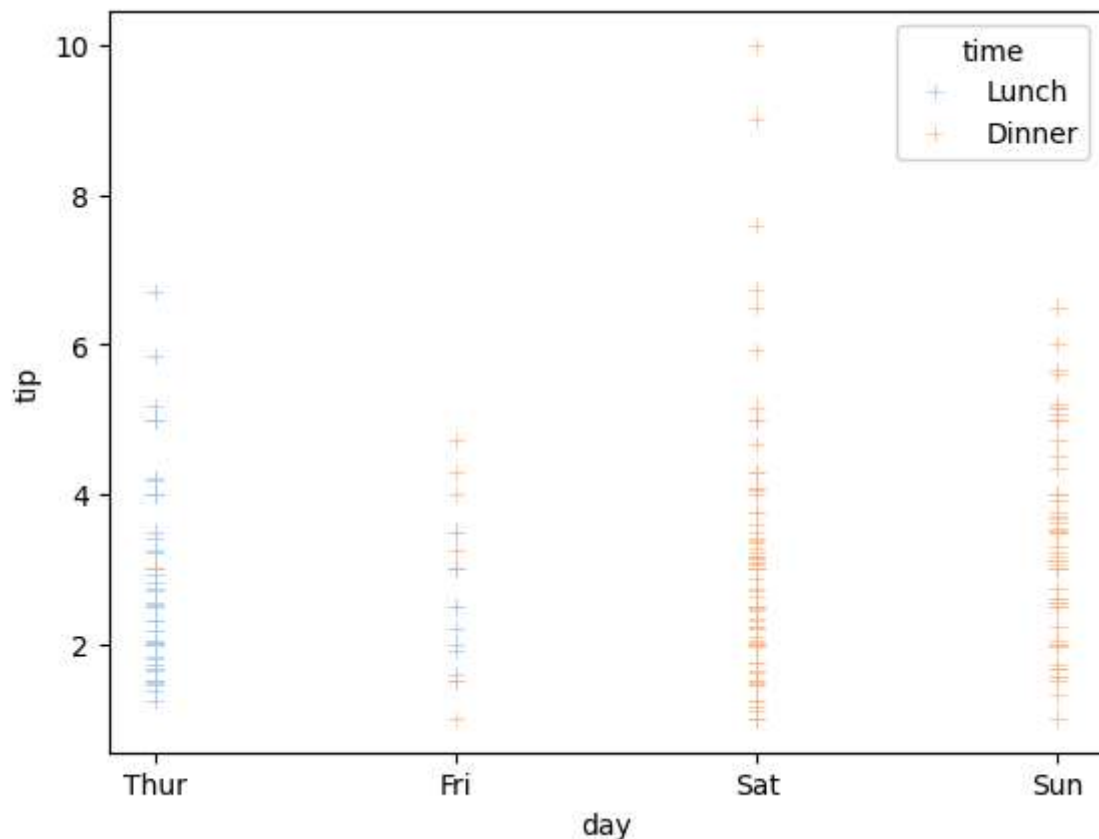
a = sns.load_dataset("tips")
print(a)

sns.scatterplot(x="day",y="tip",data=a,marker="+",hue="time",palette="pastel")
```

	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
..
239	29.03	5.92	Male	No	Sat	Dinner	3
240	27.18	2.00	Female	Yes	Sat	Dinner	2
241	22.67	2.00	Male	Yes	Sat	Dinner	2
242	17.82	1.75	Male	No	Sat	Dinner	2
243	18.78	3.00	Female	No	Thur	Dinner	2

[244 rows x 7 columns]

Out[30]: <Axes: xlabel='day', ylabel='tip'>



```
In [38]: # adding the size attributes
# adding the hue attributes
# adding marker attributes
# now we creating the scatter plot

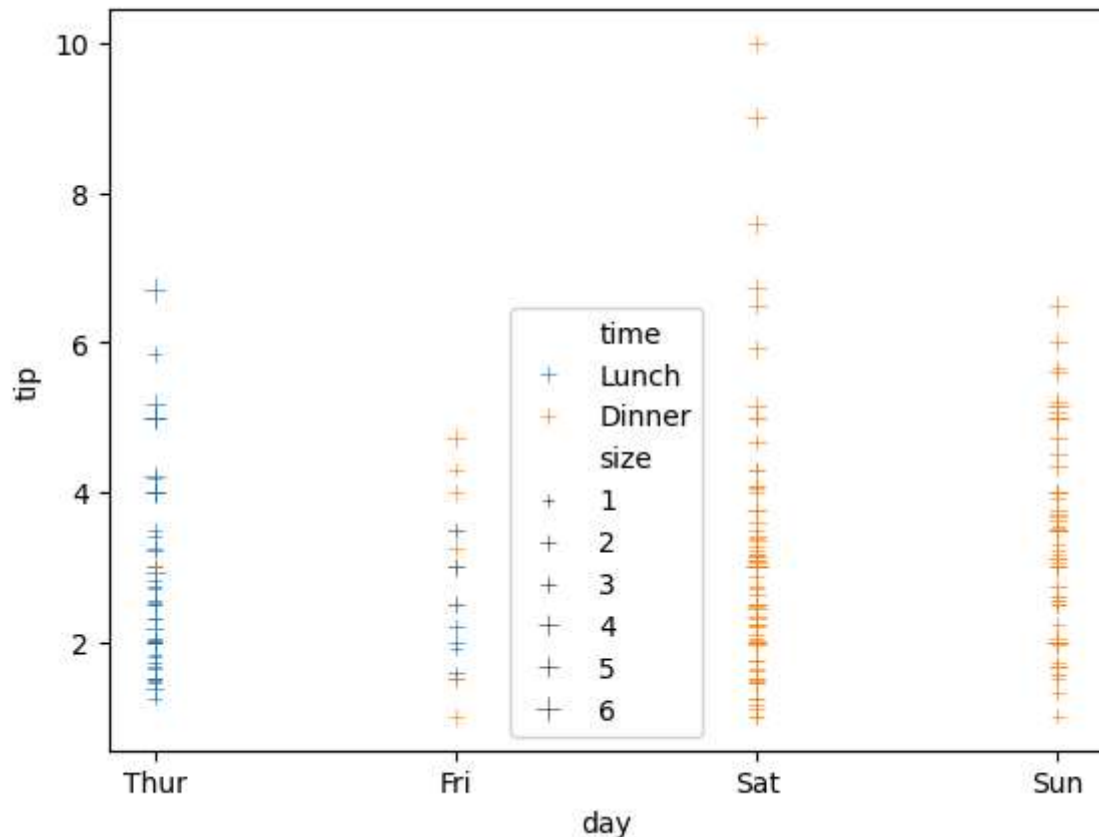
a = sns.load_dataset("tips")
print(a)

sns.scatterplot(x="day",y="tip",data=a,marker="+",hue="time",size="size")
```

	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
..
239	29.03	5.92	Male	No	Sat	Dinner	3
240	27.18	2.00	Female	Yes	Sat	Dinner	2
241	22.67	2.00	Male	Yes	Sat	Dinner	2
242	17.82	1.75	Male	No	Sat	Dinner	2
243	18.78	3.00	Female	No	Thur	Dinner	2

[244 rows x 7 columns]

Out[38]: <Axes: xlabel='day', ylabel='tip'>



```
In [46]: # adding the legend attributes
# adding the hue attributes
# adding marker attributes
# now we creating the scatter plot

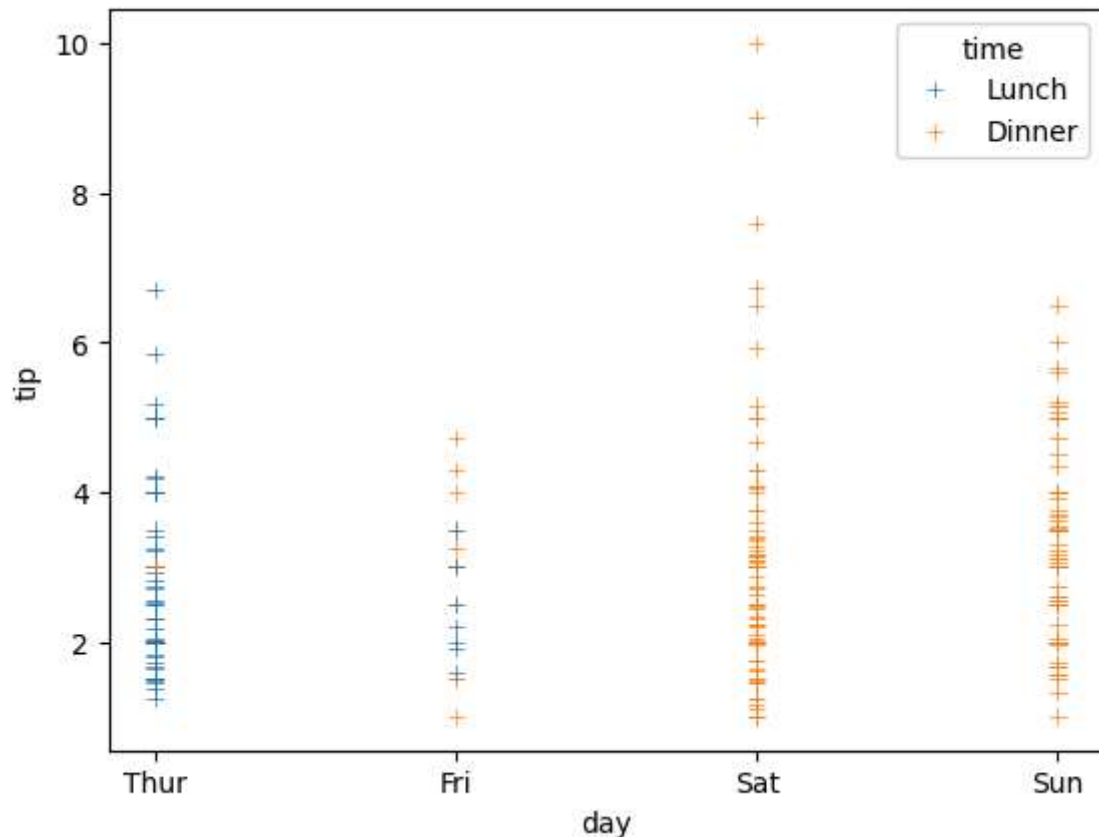
a = sns.load_dataset("tips")
print(a)

sns.scatterplot(x="day",y="tip",data=a,marker="+",hue="time",legend="brief")
```

	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
..
239	29.03	5.92	Male	No	Sat	Dinner	3
240	27.18	2.00	Female	Yes	Sat	Dinner	2
241	22.67	2.00	Male	Yes	Sat	Dinner	2
242	17.82	1.75	Male	No	Sat	Dinner	2
243	18.78	3.00	Female	No	Thur	Dinner	2

[244 rows x 7 columns]

Out[46]: <Axes: xlabel='day', ylabel='tip'>



In [3]: *# alpha attributes we can increase and decrease the opacity of the plot*
now we creating the scatter plot

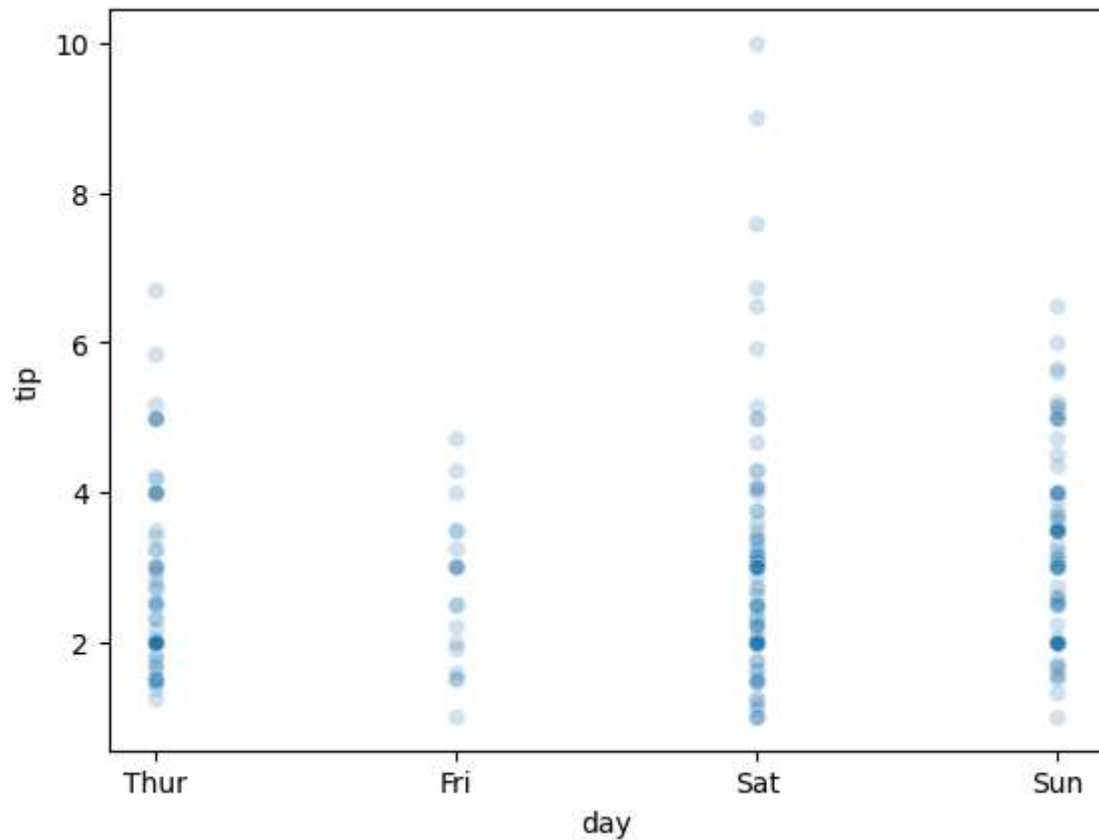
```
a = sns.load_dataset("tips")
print(a)
```

```
sns.scatterplot(x="day",y="tip",data=a,alpha=0.2)
```

	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
..
239	29.03	5.92	Male	No	Sat	Dinner	3
240	27.18	2.00	Female	Yes	Sat	Dinner	2
241	22.67	2.00	Male	Yes	Sat	Dinner	2
242	17.82	1.75	Male	No	Sat	Dinner	2
243	18.78	3.00	Female	No	Thur	Dinner	2

[244 rows x 7 columns]

Out[3]: <Axes: xlabel='day', ylabel='tip'>



In []: