

```
import seaborn as sns
import matplotlib.pyplot as plt
import plotly.express as px
```

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

```
tips
```

	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 × 7 columns

Next steps:

[Generate code with tips](#)

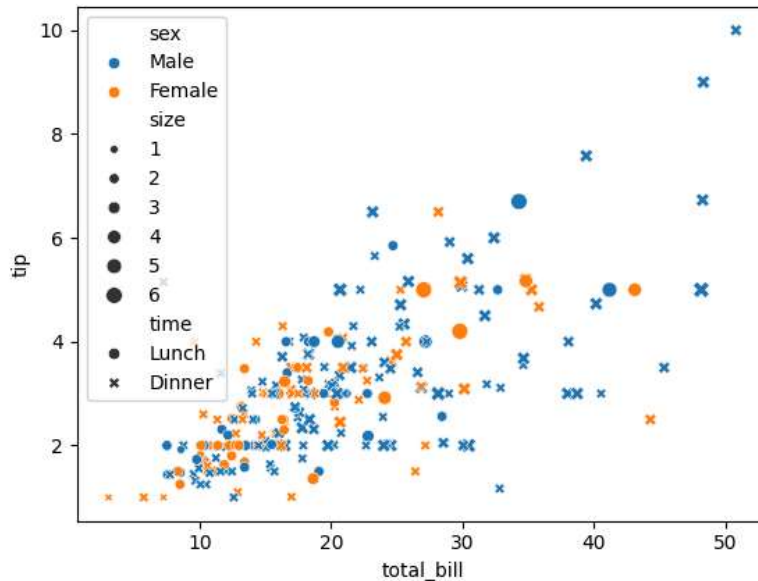
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#scatter plot ---> Axis level function

```
sns.scatterplot(data=tips, x='total_bill', y="tip", hue="sex", style='time', size='size')
```

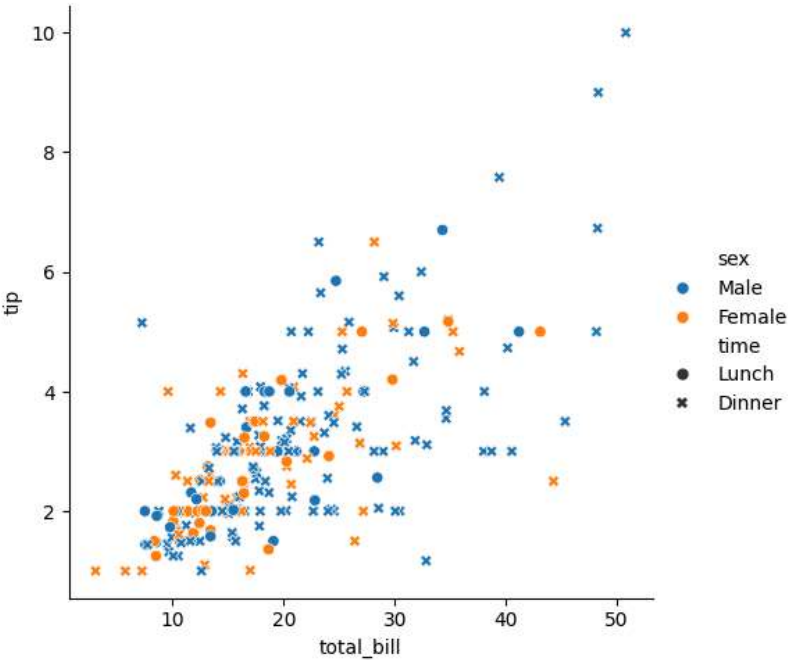
```
<Axes: xlabel='total_bill', ylabel='tip'>
```



#relplot---> Figure Level Function ----> square shape


```
sns.relplot(data=tips, x='total_bill', y="tip", kind='scatter', hue="sex", style='time')
```

 <seaborn.axisgrid.FacetGrid at 0x7f937912af10>



#Line Plot

```
gap=px.data.gapminder()
gap
```



	country	continent	year	lifeExp	pop	gdpPercap	iso_alpha	iso_num
0	Afghanistan	Asia	1952	28.801	8425333	779.445314	AFG	4
1	Afghanistan	Asia	1957	30.332	9240934	820.853030	AFG	4
2	Afghanistan	Asia	1962	31.997	10267083	853.100710	AFG	4
3	Afghanistan	Asia	1967	34.020	11537966	836.197138	AFG	4
4	Afghanistan	Asia	1972	36.088	13079460	739.981106	AFG	4
...	...	...	...	...	...	...	...	...
1699	Zimbabwe	Africa	1987	62.351	9216418	706.157306	ZWE	716
1700	Zimbabwe	Africa	1992	60.377	10704340	693.420786	ZWE	716
1701	Zimbabwe	Africa	1997	46.809	11404948	792.449960	ZWE	716
1702	Zimbabwe	Africa	2002	39.989	11926563	672.038623	ZWE	716
1703	Zimbabwe	Africa	2007	43.487	12311143	469.709298	ZWE	716

1704 rows × 8 columns

Next steps: [Generate code with gap](#) [View recommended plots](#) [New interactive sheet](#)

```
temp_df=gap[gap['country']=='India']
temp_df
```

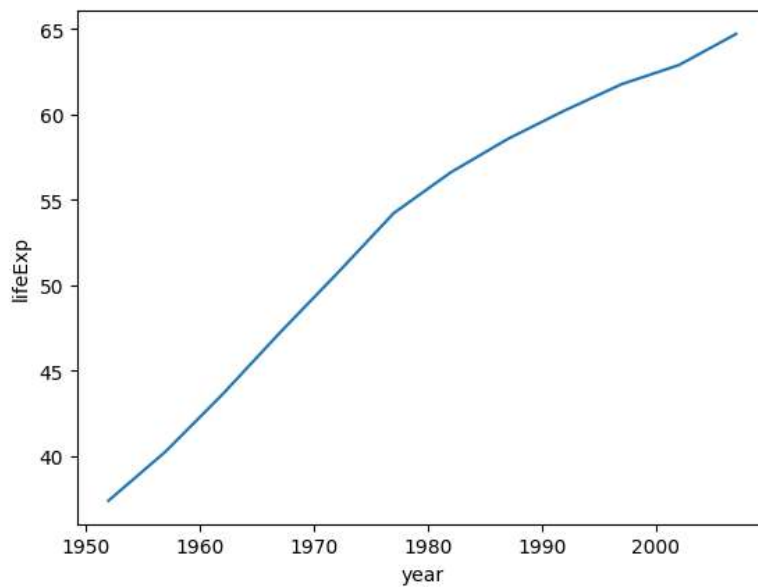
	country	continent	year	lifeExp	pop	gdpPercap	iso_alpha	iso_num	
696	India	Asia	1952	37.373	372000000	546.565749	IND	356	
697	India	Asia	1957	40.249	409000000	590.061996	IND	356	
698	India	Asia	1962	43.605	454000000	658.347151	IND	356	
699	India	Asia	1967	47.193	506000000	700.770611	IND	356	
700	India	Asia	1972	50.651	567000000	724.032527	IND	356	
701	India	Asia	1977	54.208	634000000	813.337323	IND	356	
702	India	Asia	1982	56.596	708000000	855.723538	IND	356	
703	India	Asia	1987	58.553	788000000	976.512676	IND	356	
704	India	Asia	1992	60.223	872000000	1164.406809	IND	356	
705	India	Asia	1997	61.765	959000000	1458.817442	IND	356	
706	India	Asia	2002	62.879	1034172547	1746.769454	IND	356	
707	India	Asia	2007	64.698	1110396331	2452.210407	IND	356	

Next steps:

[Generate code with temp\\_df](#)[View recommended plots](#)[New interactive sheet](#)

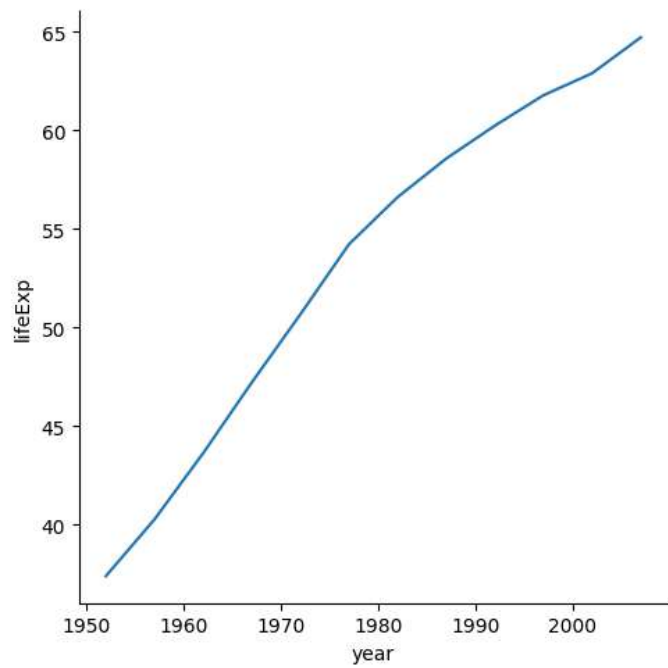
```
#axis level function
sns.lineplot(data=temp_df, x='year', y='lifeExp')
```

```
<Axes: xlabel='year', ylabel='lifeExp'>
```




```
#using releplot
sns.relplot(data=temp_df, x='year', y='lifeExp', kind='line')
```

 <seaborn.axisgrid.FacetGrid at 0x7f9379160f10>






```
#hue -->style
```

```
temp_df=gap[gap['country'].isin(['India','Pakistan','China'])]  
temp_df
```



	country	continent	year	lifeExp	pop	gdpPercap	iso_alpha	iso_num
288	China	Asia	1952	44.00000	556263527	400.448611	CHN	156
289	China	Asia	1957	50.54896	637408000	575.987001	CHN	156
290	China	Asia	1962	44.50136	665770000	487.674018	CHN	156
291	China	Asia	1967	58.38112	754550000	612.705693	CHN	156
292	China	Asia	1972	63.11888	862030000	676.900092	CHN	156
293	China	Asia	1977	63.96736	943455000	741.237470	CHN	156
294	China	Asia	1982	65.52500	1000281000	962.421381	CHN	156
295	China	Asia	1987	67.27400	1084035000	1378.904018	CHN	156
296	China	Asia	1992	68.69000	1164970000	1655.784158	CHN	156
297	China	Asia	1997	70.42600	1230075000	2289.234136	CHN	156
298	China	Asia	2002	72.02800	1280400000	3119.280896	CHN	156
299	China	Asia	2007	72.96100	1318683096	4959.114854	CHN	156
696	India	Asia	1952	37.37300	372000000	546.565749	IND	356
697	India	Asia	1957	40.24900	409000000	590.061996	IND	356
698	India	Asia	1962	43.60500	454000000	658.347151	IND	356
699	India	Asia	1967	47.19300	506000000	700.770611	IND	356
700	India	Asia	1972	50.65100	567000000	724.032527	IND	356
701	India	Asia	1977	54.20800	634000000	813.337323	IND	356
702	India	Asia	1982	56.59600	708000000	855.723538	IND	356
703	India	Asia	1987	58.55300	788000000	976.512676	IND	356
704	India	Asia	1992	60.22300	872000000	1164.406809	IND	356
705	India	Asia	1997	61.76500	959000000	1458.817442	IND	356
706	India	Asia	2002	62.87900	1034172547	1746.769454	IND	356
707	India	Asia	2007	64.69800	1110396331	2452.210407	IND	356
1164	Pakistan	Asia	1952	43.43600	41346560	684.597144	PAK	586
1165	Pakistan	Asia	1957	45.55700	46679944	747.083529	PAK	586
1166	Pakistan	Asia	1962	47.67000	53100671	803.342742	PAK	586
1167	Pakistan	Asia	1967	49.80000	60641899	942.408259	PAK	586
1168	Pakistan	Asia	1972	51.92900	69325921	1049.938981	PAK	586
1169	Pakistan	Asia	1977	54.04300	78152686	1175.921193	PAK	586
1170	Pakistan	Asia	1982	56.15800	91462088	1443.429832	PAK	586

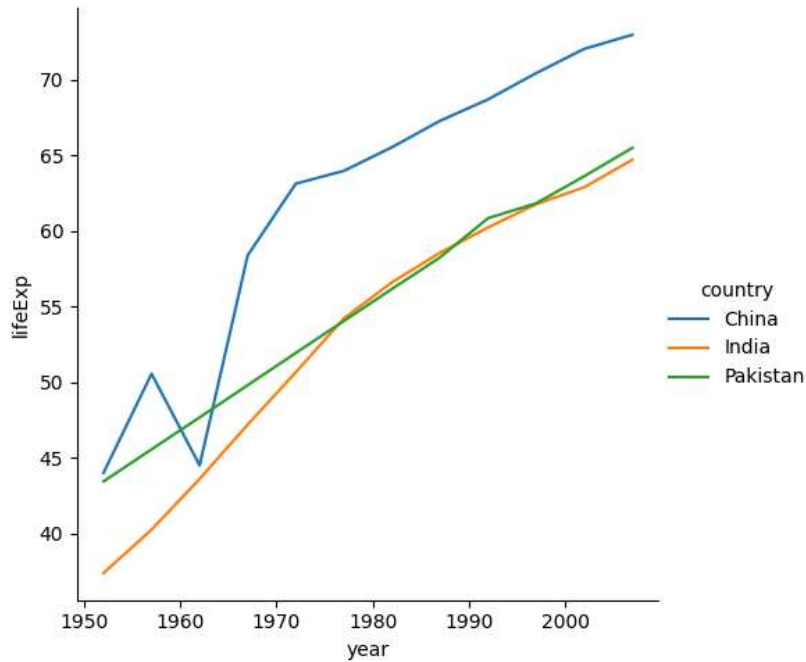




Next steps:


[Generate code with temp\\_df](#)[View recommended plots](#)[New interactive sheet](#)

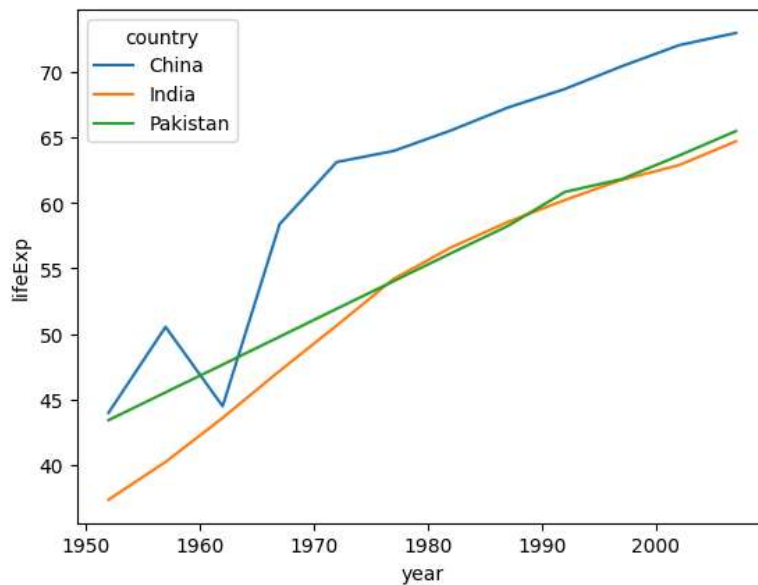
```
sns.relplot(kind='line', data=temp_df, x='year', y='lifeExp', hue='country')
```

 <seaborn.axisgrid.FacetGrid at 0x7f937523af10>







```
sns.lineplot(data=temp_df, x='year', y='lifeExp', hue='country')
```

 <Axes: xlabel='year', ylabel='lifeExp'>



```
temp_df=gap[gap['country'].isin(['India','Brazil','Germany'])]
temp_df
```



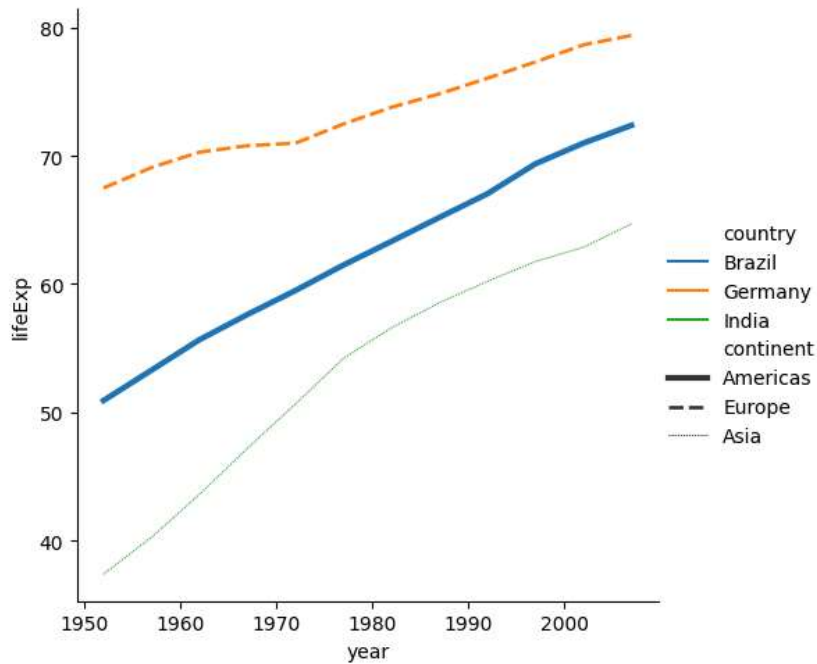
	country	continent	year	lifeExp	pop	gdpPercap	iso_alpha	iso_num	
168	Brazil	Americas	1952	50.917	56602560	2108.944355	BRA	76	
169	Brazil	Americas	1957	53.285	65551171	2487.365989	BRA	76	
170	Brazil	Americas	1962	55.665	76039390	3336.585802	BRA	76	
171	Brazil	Americas	1967	57.632	88049823	3429.864357	BRA	76	
172	Brazil	Americas	1972	59.504	100840058	4985.711467	BRA	76	
173	Brazil	Americas	1977	61.489	114313951	6660.118654	BRA	76	
174	Brazil	Americas	1982	63.336	128962939	7030.835878	BRA	76	
175	Brazil	Americas	1987	65.205	142938076	7807.095818	BRA	76	
176	Brazil	Americas	1992	67.057	155975974	6950.283021	BRA	76	
177	Brazil	Americas	1997	69.388	168546719	7957.980824	BRA	76	
178	Brazil	Americas	2002	71.006	179914212	8131.212843	BRA	76	
179	Brazil	Americas	2007	72.390	190010647	9065.800825	BRA	76	
564	Germany	Europe	1952	67.500	69145952	7144.114393	DEU	276	
565	Germany	Europe	1957	69.100	71019069	10187.826650	DEU	276	
566	Germany	Europe	1962	70.300	73739117	12902.462910	DEU	276	
567	Germany	Europe	1967	70.800	76368453	14745.625610	DEU	276	
568	Germany	Europe	1972	71.000	78717088	18016.180270	DEU	276	
569	Germany	Europe	1977	72.500	78160773	20512.921230	DEU	276	
570	Germany	Europe	1982	73.800	78335266	22031.532740	DEU	276	
571	Germany	Europe	1987	74.847	77718298	24639.185660	DEU	276	
572	Germany	Europe	1992	76.070	80597764	26505.303170	DEU	276	
573	Germany	Europe	1997	77.340	82011073	27788.884160	DEU	276	
574	Germany	Europe	2002	78.670	82350671	30035.801980	DEU	276	
575	Germany	Europe	2007	79.406	82400996	32170.374420	DEU	276	
696	India	Asia	1952	37.373	372000000	546.565749	IND	356	
697	India	Asia	1957	40.249	409000000	590.061996	IND	356	
698	India	Asia	1962	43.605	454000000	658.347151	IND	356	
699	India	Asia	1967	47.193	506000000	700.770611	IND	356	
700	India	Asia	1972	50.651	567000000	724.032527	IND	356	
701	India	Asia	1977	54.208	634000000	813.337323	IND	356	
702	India	Asia	1982	56.596	708000000	855.723538	IND	356	

Next steps:


[Generate code with temp\\_df](#)[View recommended plots](#)[New interactive sheet](#)




```
sns.relplot(kind='line',data=temp_df, x='year',y='lifeExp', hue='country', style='continent', size='continent')
```

 <seaborn.axisgrid.FacetGrid at 0x7f937521fdd0>



tips



	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 × 7 columns

Next steps:

[Generate code with tips](#)

[View recommended plots](#)

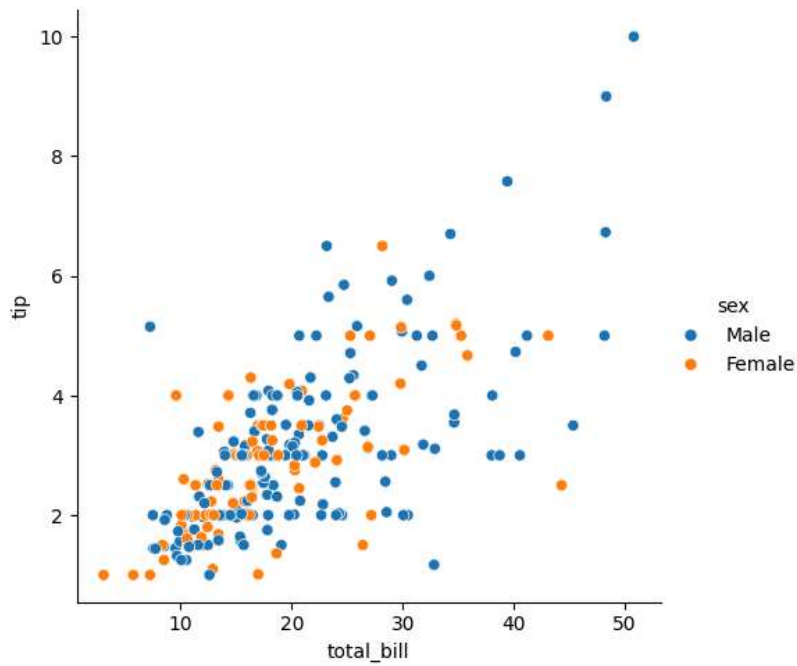
[New interactive sheet](#)

# Facet Plot

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

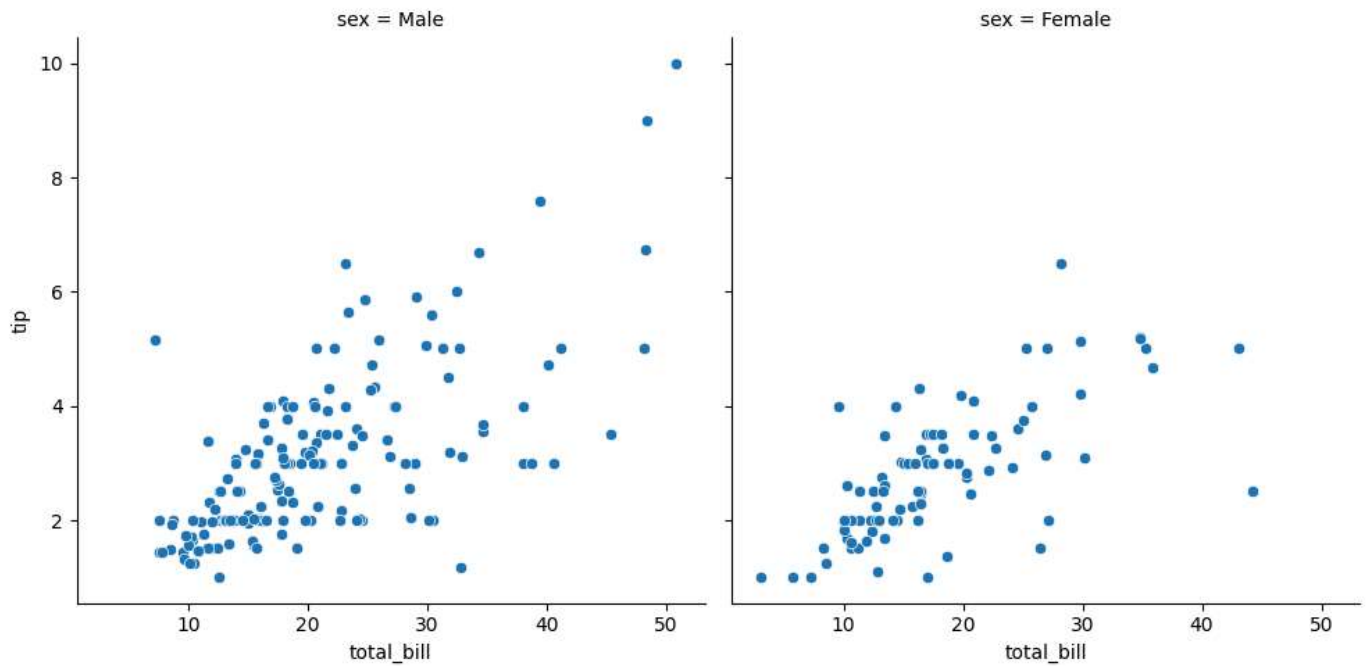


```
<seaborn.axisgrid.FacetGrid at 0x7f9374e47590>
```



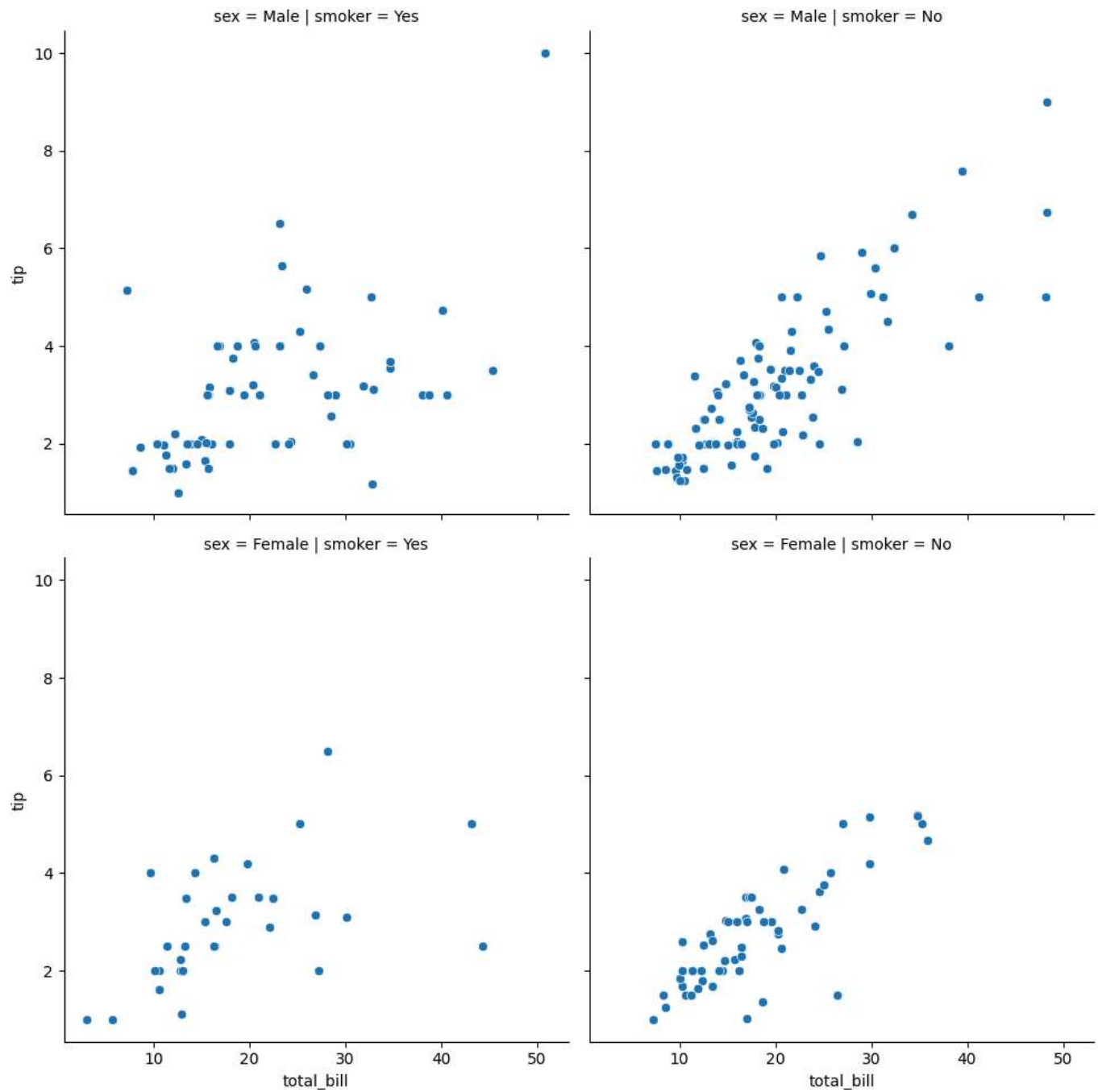
```
# Facet Plot
sns.relplot(data=tips, x='total_bill', y='tip', kind='scatter', col='sex')
```

```
<seaborn.axisgrid.FacetGrid at 0x7f9376befa90>
```



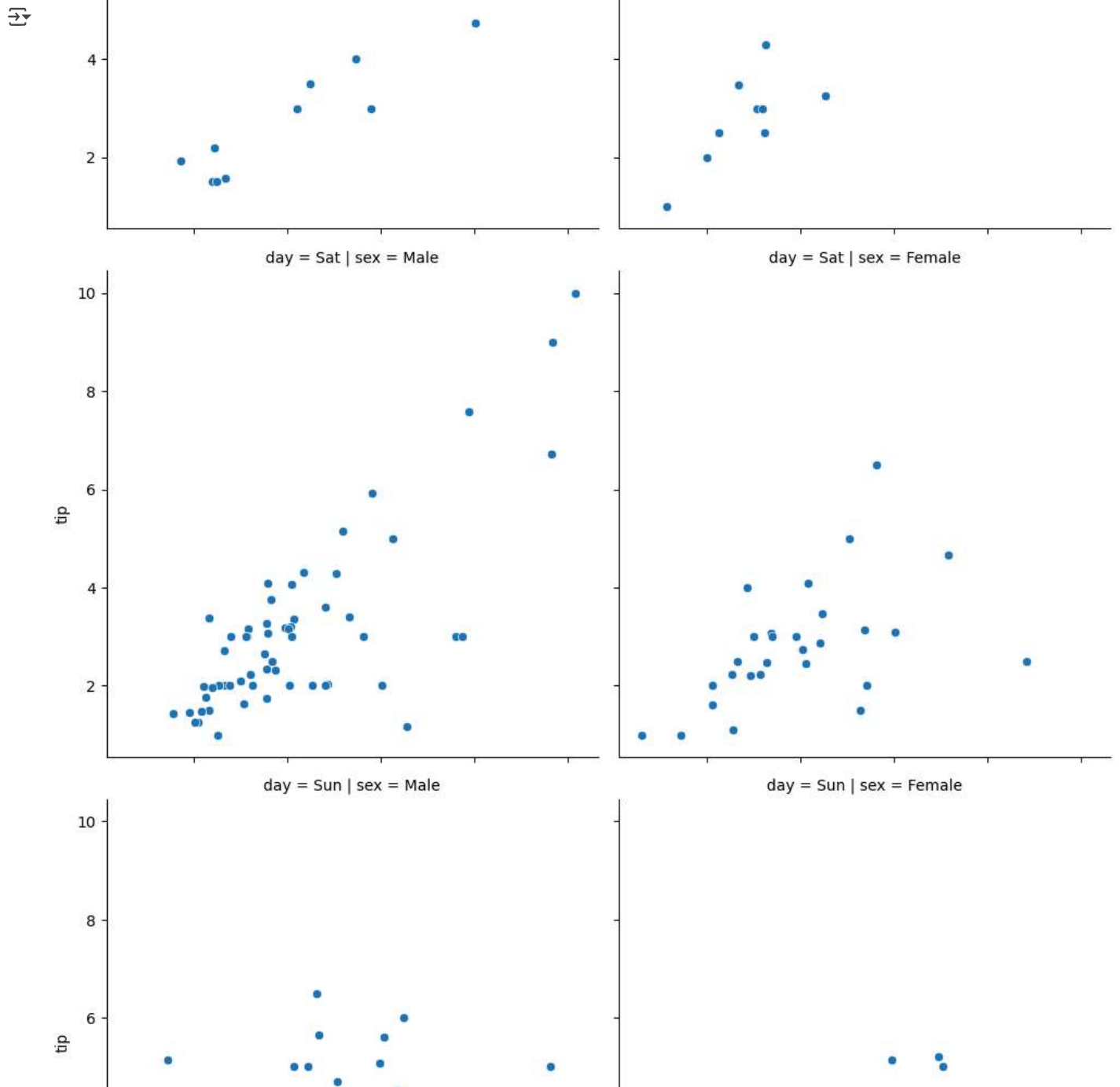
```
# Facet Plot
sns.relplot(data=tips, x='total_bill', y='tip', kind='scatter', row='sex', col='smoker')
```

 <seaborn.axisgrid.FacetGrid at 0x7f9374ccf590>







# Facet Plot

```
sns.relplot(data=tips, x='total_bill', y='tip', kind='scatter', row='day', col='sex')
```



gap

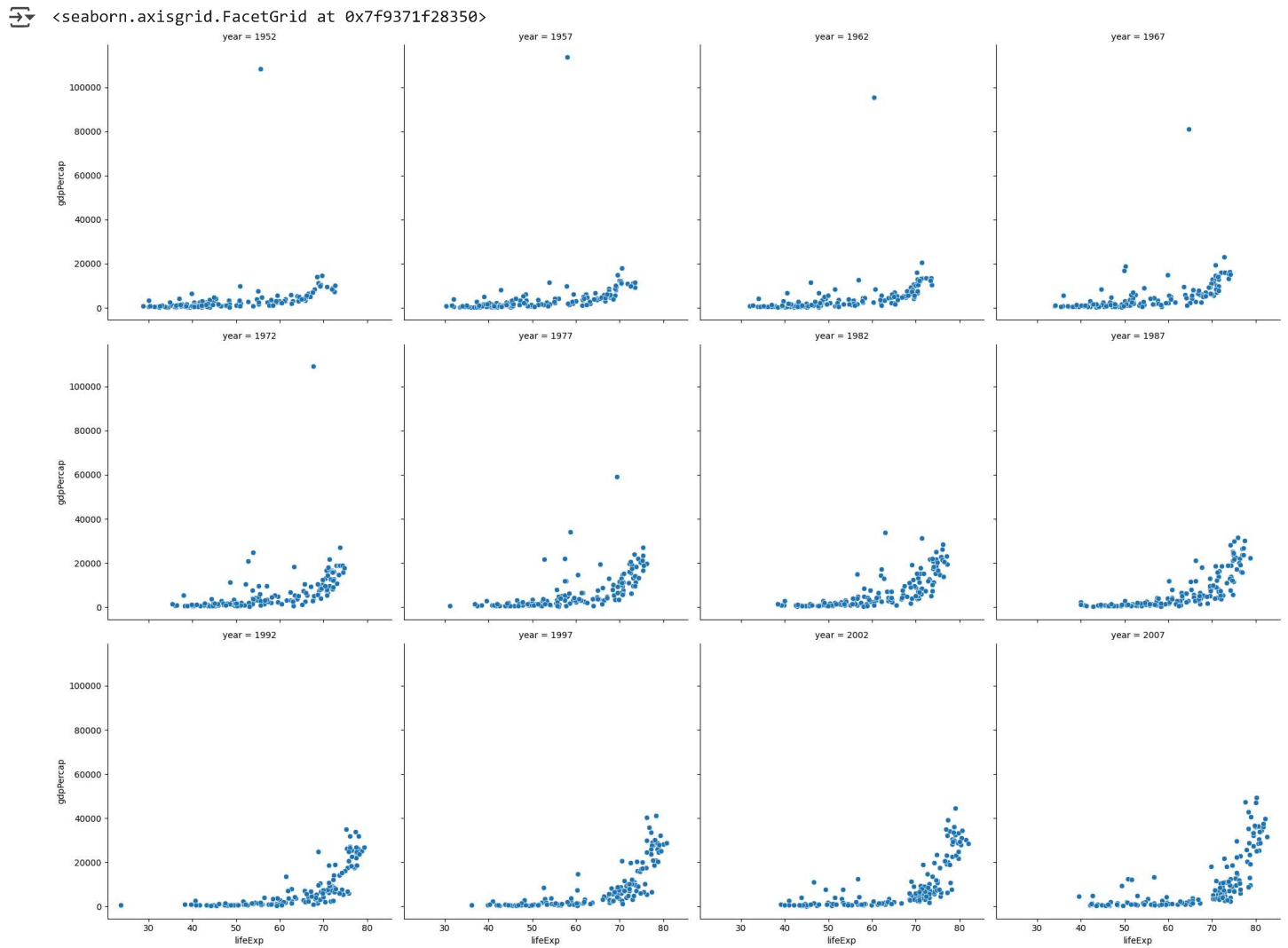


	country	continent	year	lifeExp	pop	gdpPercap	iso_alpha	iso_num	
0	Afghanistan	Asia	1952	28.801	8425333	779.445314	AFG	4	
1	Afghanistan	Asia	1957	30.332	9240934	820.853030	AFG	4	
2	Afghanistan	Asia	1962	31.997	10267083	853.100710	AFG	4	
3	Afghanistan	Asia	1967	34.020	11537966	836.197138	AFG	4	
4	Afghanistan	Asia	1972	36.088	13079460	739.981106	AFG	4	
...	...	...	...	...	...	...	...	...	
1699	Zimbabwe	Africa	1987	62.351	9216418	706.157306	ZWE	716	
1700	Zimbabwe	Africa	1992	60.377	10704340	693.420786	ZWE	716	
1701	Zimbabwe	Africa	1997	46.809	11404948	792.449960	ZWE	716	
1702	Zimbabwe	Africa	2002	39.989	11926563	672.038623	ZWE	716	
1703	Zimbabwe	Africa	2007	43.487	12311143	469.709298	ZWE	716	

1704 rows × 8 columns

Next steps: [Generate code with gap](#) [View recommended plots](#) [New interactive sheet](#)

```
sns.relplot(data=gap,x='lifeExp',y='gdpPercap',kind='scatter', col='year', col_wrap=4)
```




Start coding or [generate](#) with AI.

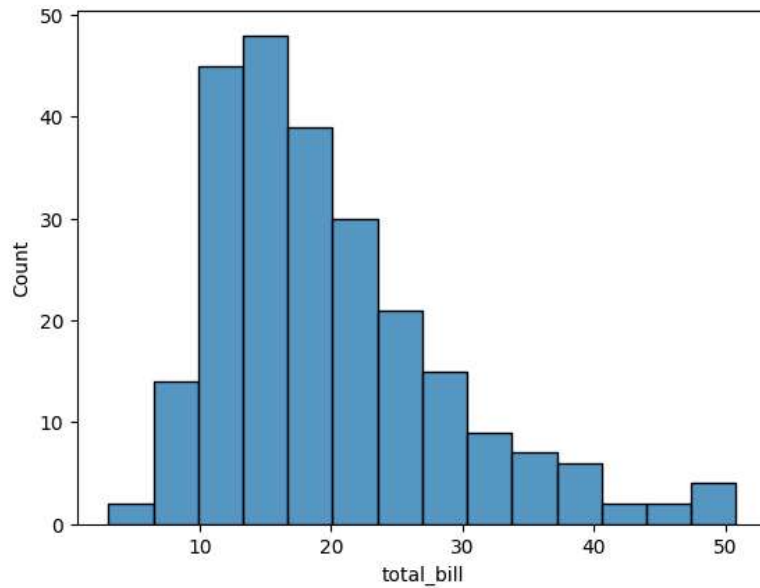
## ✓ Distribution Plot

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### Histogram Plot

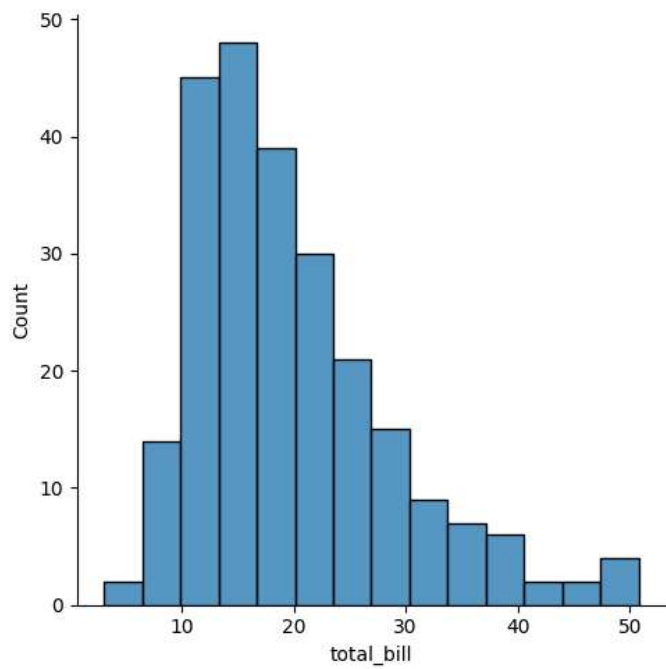
```
sns.histplot(data=tips, x='total_bill')
```

 <Axes: xlabel='total\_bill', ylabel='Count'>




```
sns.displot(data=tips, x='total_bill', kind='hist')
```

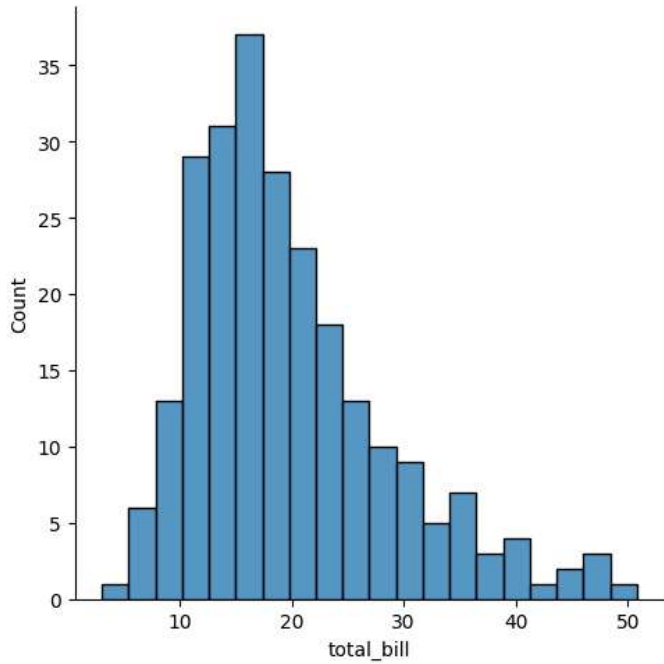
 <seaborn.axisgrid.FacetGrid at 0x7f936f5a7990>




# bin parameter




```
sns.displot(data=tips, x='total_bill', kind='hist', bins=20)
```

 <seaborn.axisgrid.FacetGrid at 0x7f936c18a510>



# It also possible to visualize the distribution of categorical variable using the logic of a histogram  
 # Discrete bins are automatically set for categorical variables  
 tips



	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 × 7 columns

Next steps:

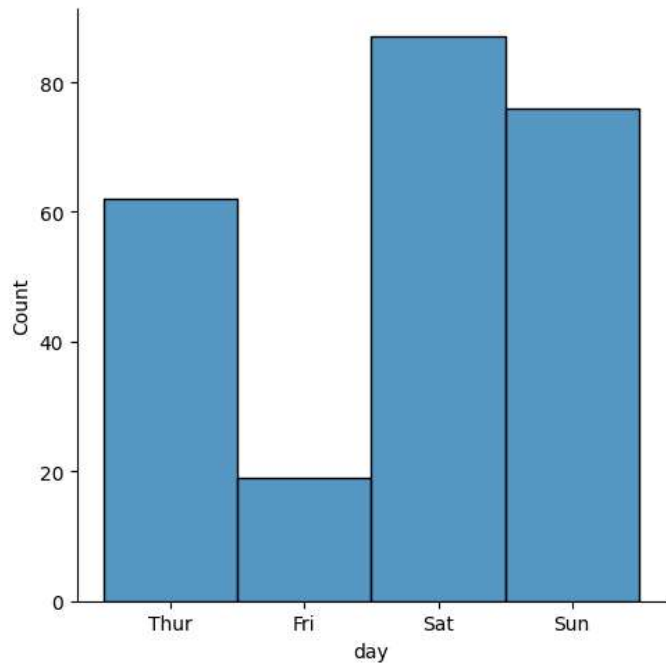
[Generate code with tips](#)

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```
sns.displot(data=tips, x='day', kind='hist')# how many customes in per day
```

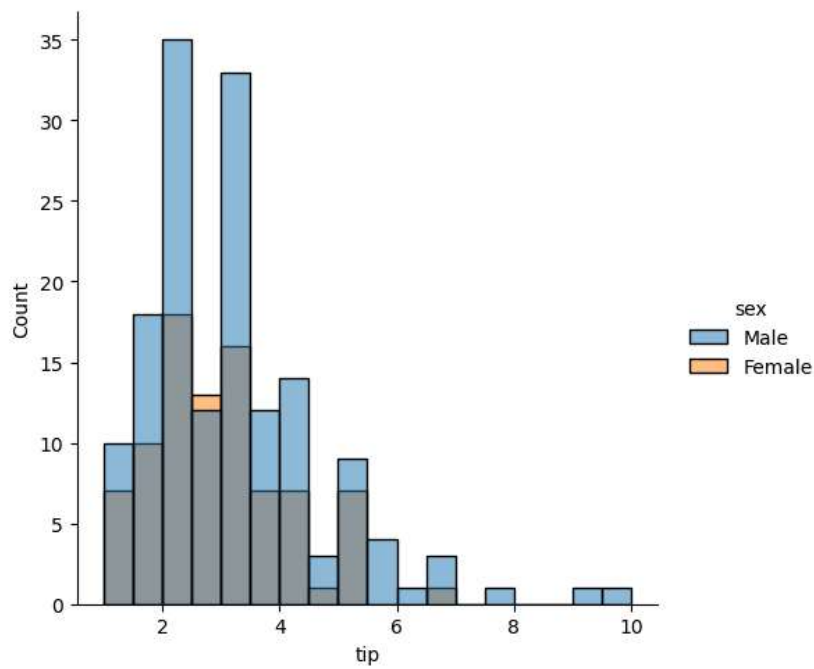
```
<seaborn.axisgrid.FacetGrid at 0x7f936b60ec50>
```



```
#hue parameter
```

```
sns.displot(data=tips, x='tip', kind='hist', hue='sex')
```

```
<seaborn.axisgrid.FacetGrid at 0x7f936b686f50>
```

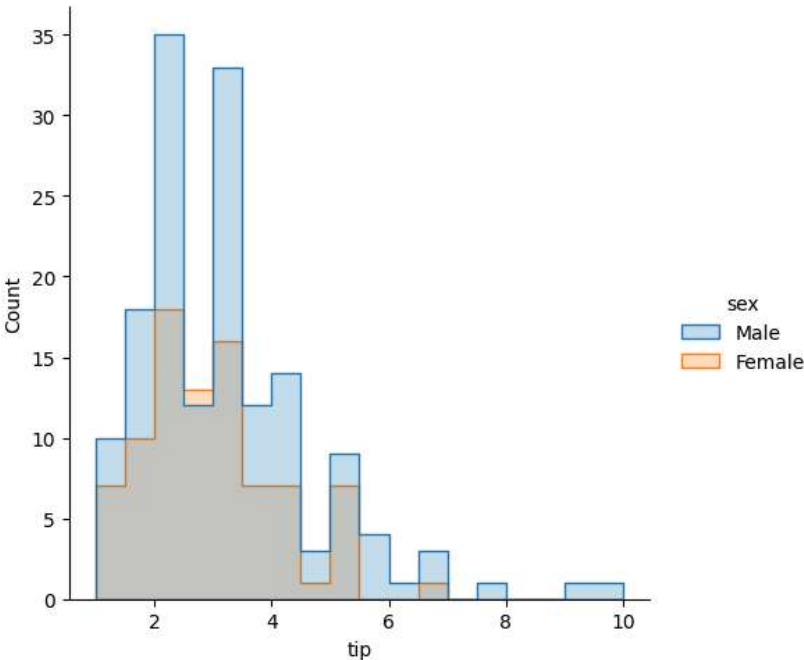


```
# element ----> step
```

```
sns.displot(data=tips, x='tip', kind='hist', hue='sex', element='step')
```



 <seaborn.axisgrid.FacetGrid at 0x7f936b433c50>



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

	survived	pclass	sex	age	sibsp	parch	fare	embarked	class	who	adult_male	deck	embark_town	alive	alone
0	0	3	male	22.0	1	0	7.2500	S	Third	man	True	NaN	Southampton	no	False
1	1	1	female	38.0	1	0	71.2833	C	First	woman	False	C	Cherbourg	yes	False
2	1	3	female	26.0	0	0	7.9250	S	Third	woman	False	NaN	Southampton	yes	True
3	1	1	female	35.0	1	0	53.1000	S	First	woman	False	C	Southampton	yes	False
4	0	3	male	35.0	0	0	8.0500	S	Third	man	True	NaN	Southampton	no	True
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
886	0	2	male	27.0	0	0	13.0000	S	Second	man	True	NaN	Southampton	no	True
887	1	1	female	19.0	0	0	30.0000	S	First	woman	False	B	Southampton	yes	True
888	0	3	female	NaN	1	2	23.4500	S	Third	woman	False	NaN	Southampton	no	False
889	1	1	male	26.0	0	0	30.0000	C	First	man	True	C	Cherbourg	yes	True
890	0	3	male	32.0	0	0	7.7500	Q	Third	man	True	NaN	Queenstown	no	True

891 rows × 15 columns

Next steps:

[Generate code with titanic](#)

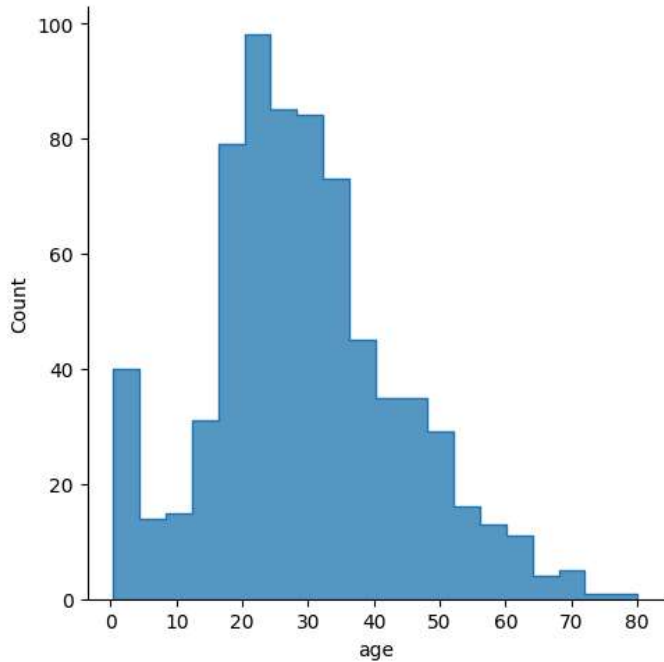
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Double-click (or enter) to edit

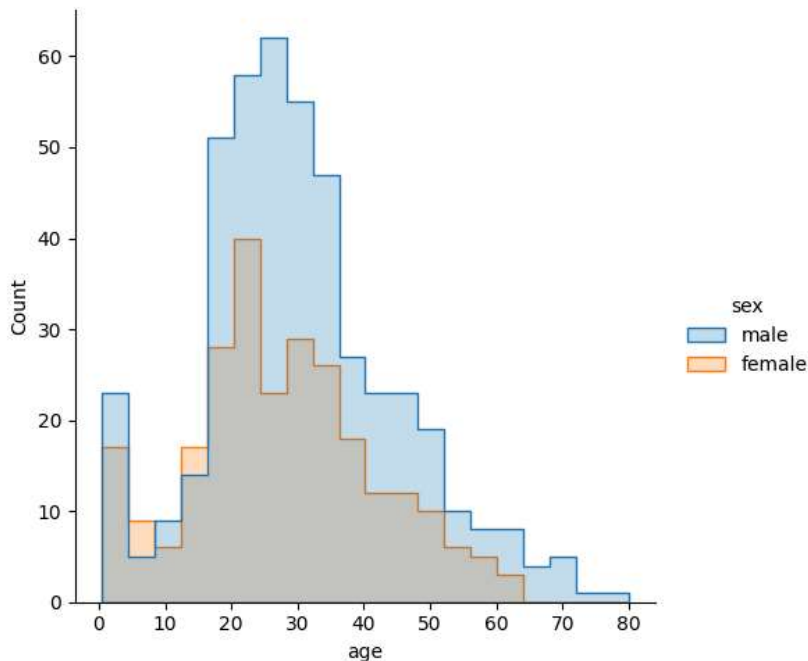
```
sns.displot(data=titanic, x='age', kind='hist',element='step')
```

 <seaborn.axisgrid.FacetGrid at 0x7f936b419890>



```
sns.displot(data=titanic, x='age', kind='hist',element='step',hue='sex')
```

 <seaborn.axisgrid.FacetGrid at 0x7f936b472450>



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## ✓ KDE Plot- Kernal Density Estimation

Rather than using discrete bins, a kde plot smoots the observations with a Gaussian kernal, Producing a continuous density estimate

tips

	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	

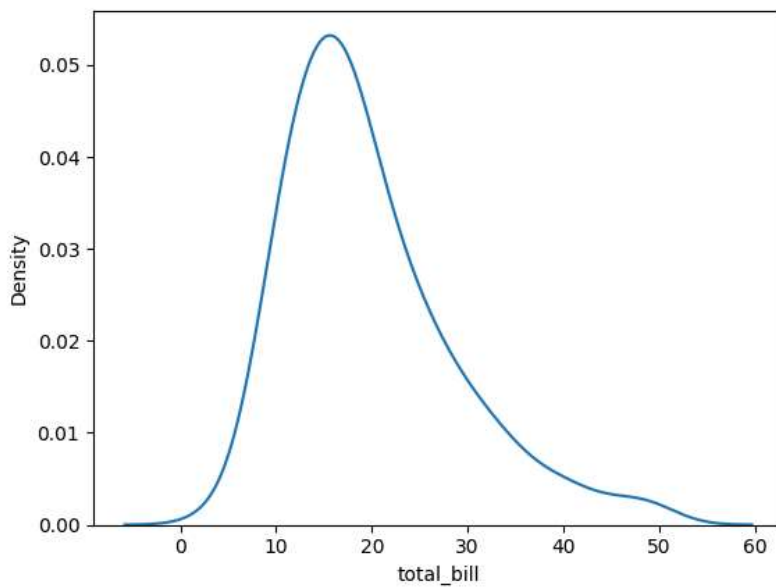
244 rows × 7 columns

Next steps:

[Generate code with tips](#)[View recommended plots](#)[New interactive sheet](#)

```
sns.kdeplot(data=tips, x="total_bill")
```

```
<Axes: xlabel='total_bill', ylabel='Density'>
```



```
sns.displot(data=tips, x="total_bill")
```