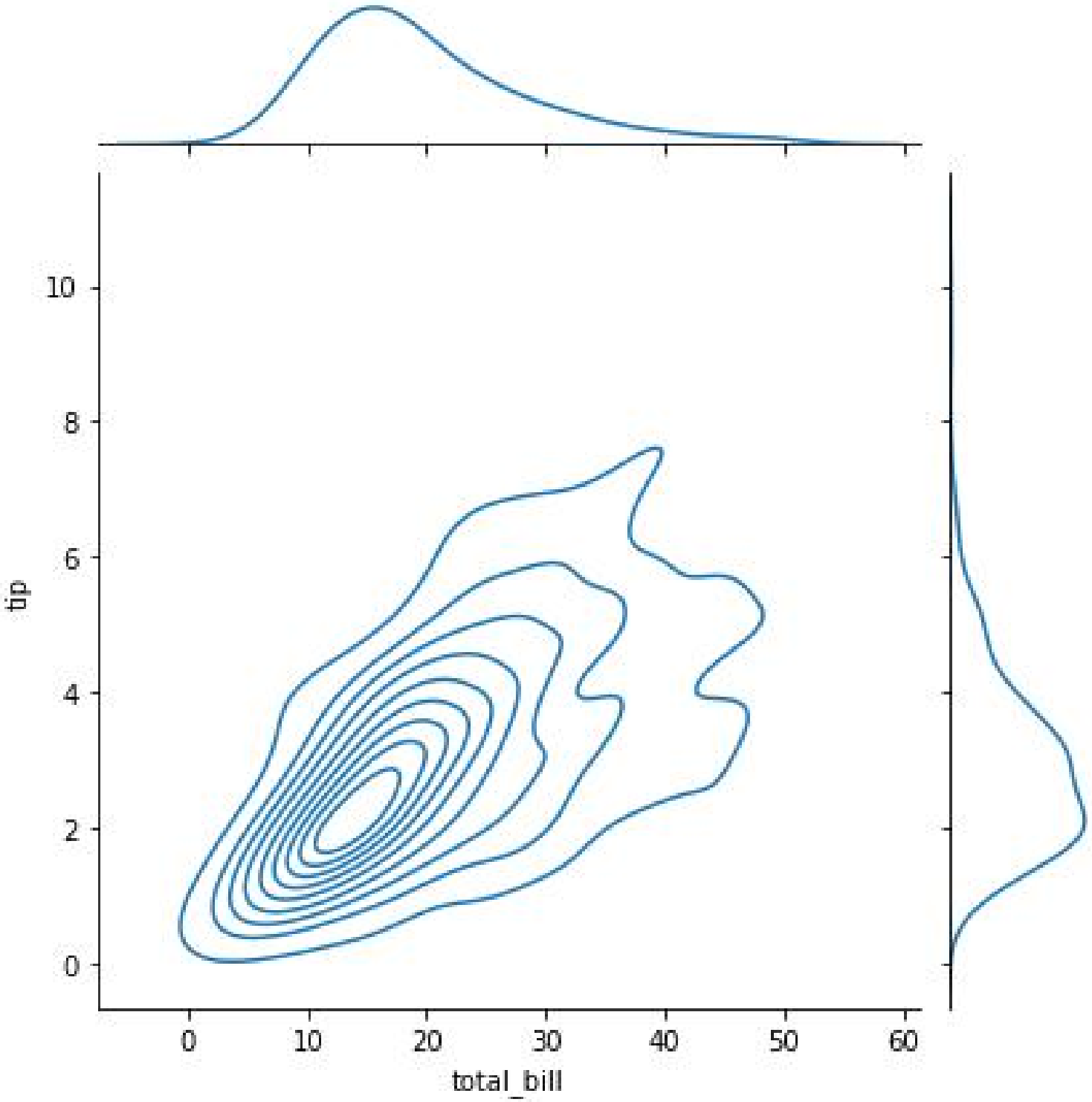

10
8
6
4
2
0
tip
0
10
20
30
40
50
60
total_bill

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import cv2
%matplotlib inline
```

✓ 0.1s

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

✓ 0.7s

```
tips.head()
```

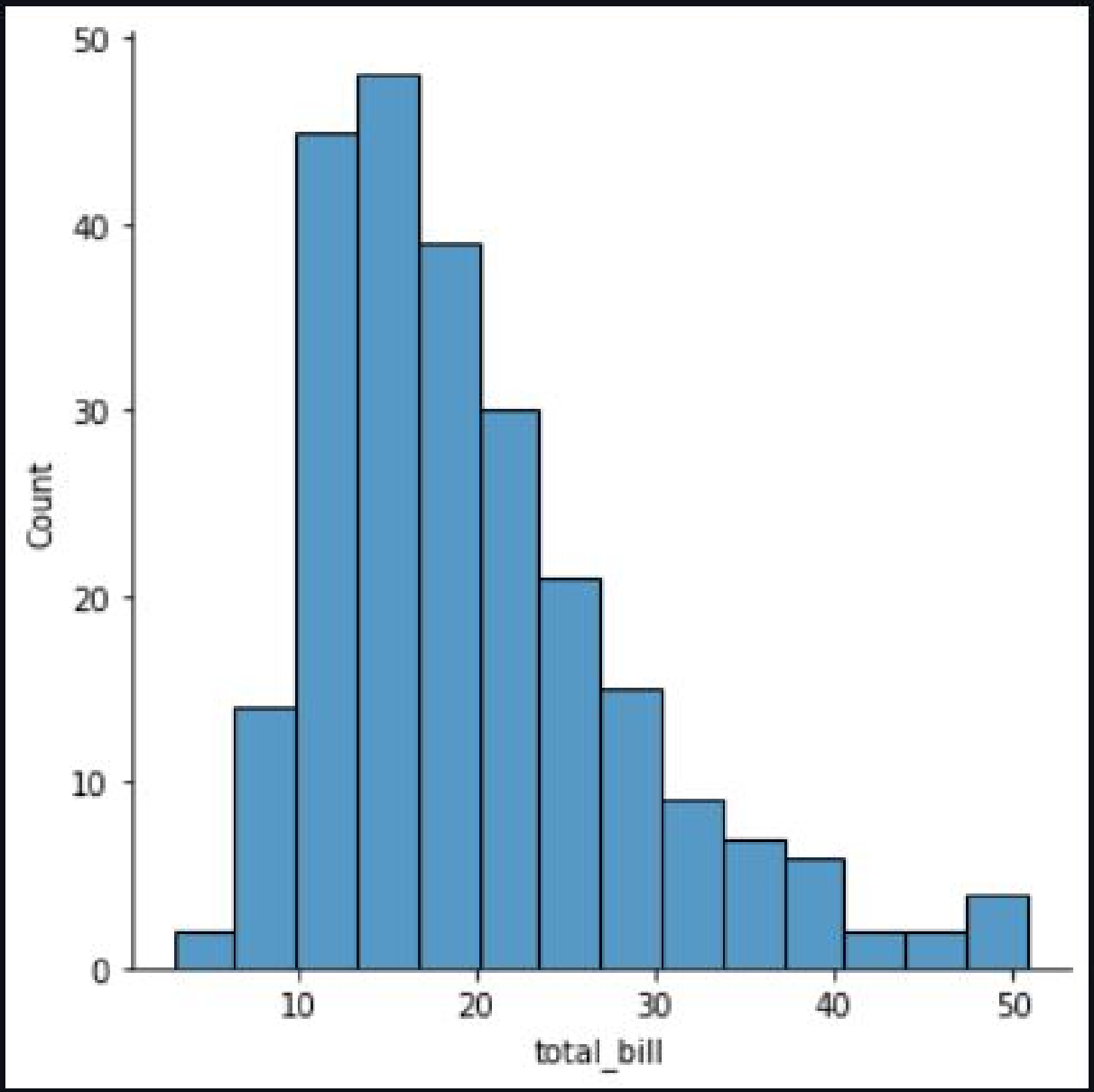
✓ 0.7s

	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.displot(tips['total_bill'])
```

✓ 0.3s

```
<seaborn.axisgrid.FacetGrid at 0x15771df96f0>
```



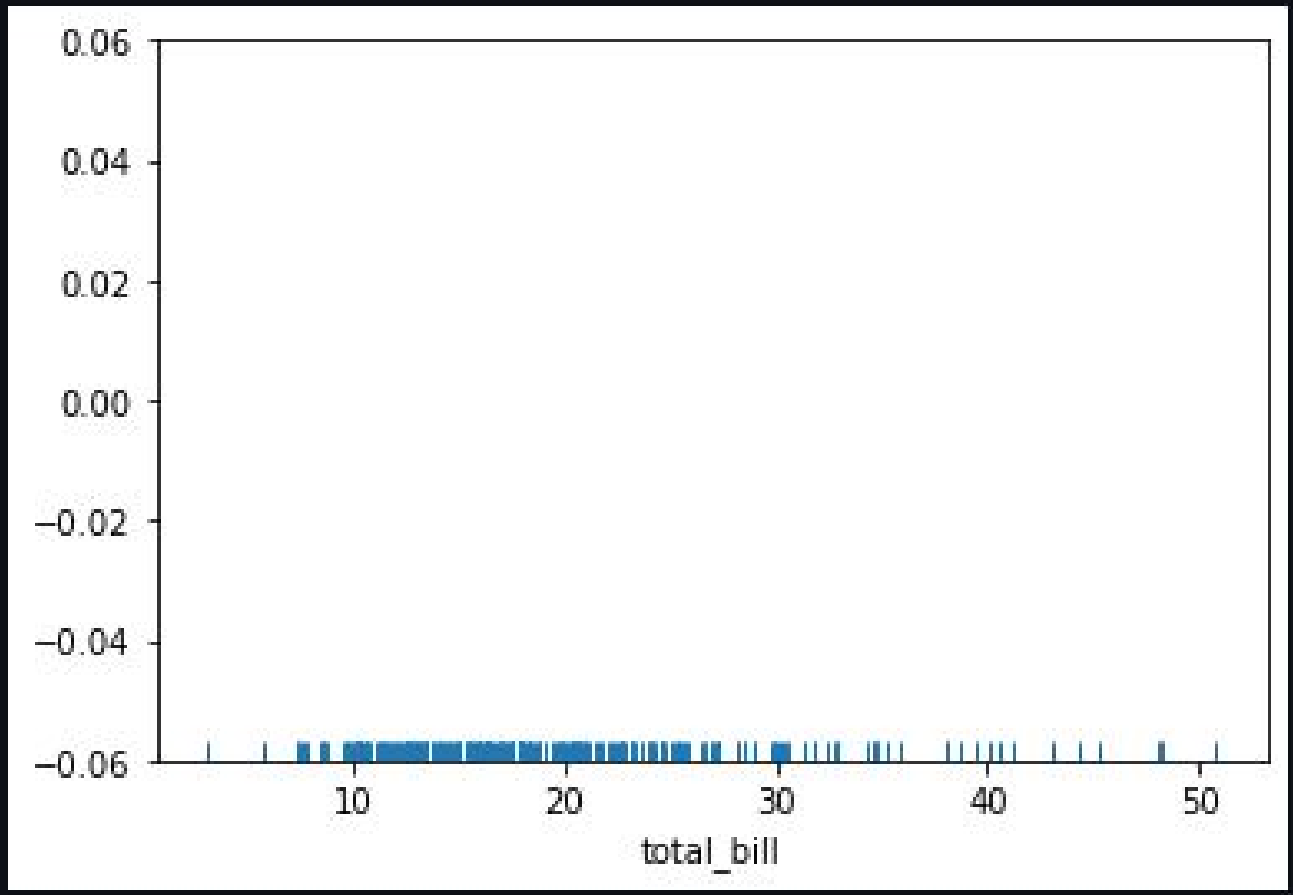
```
from scipy import stats

# Dataset
dataset = np.random.randn(25)

# another rugplot
sns.rugplot(dataset);

# set up the x-axis for the plot

x_min = dataset.min() - 2
x_max = dataset.max() + 2

# 100 equally sapced points from x_min to x_max

x_axis = np.linspace(x_min,x_max,100)

# bandwidh

bandwidth = ((4*dataset.std()**5)/(3*len(dataset)))**2

# empty kernel list
kernel_list = []

#plot each basis function
for data_point in dataset:

    kernel = stats.norm(data_point,bandwidth).pdf(x_axis)
    kernel_list.append(kernel)

    #scale for ploting
```

main*+ 0↓ 4↑ ⊗ 0 ⚠ 0 Login Configure

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

[28] ✓ 0.2s

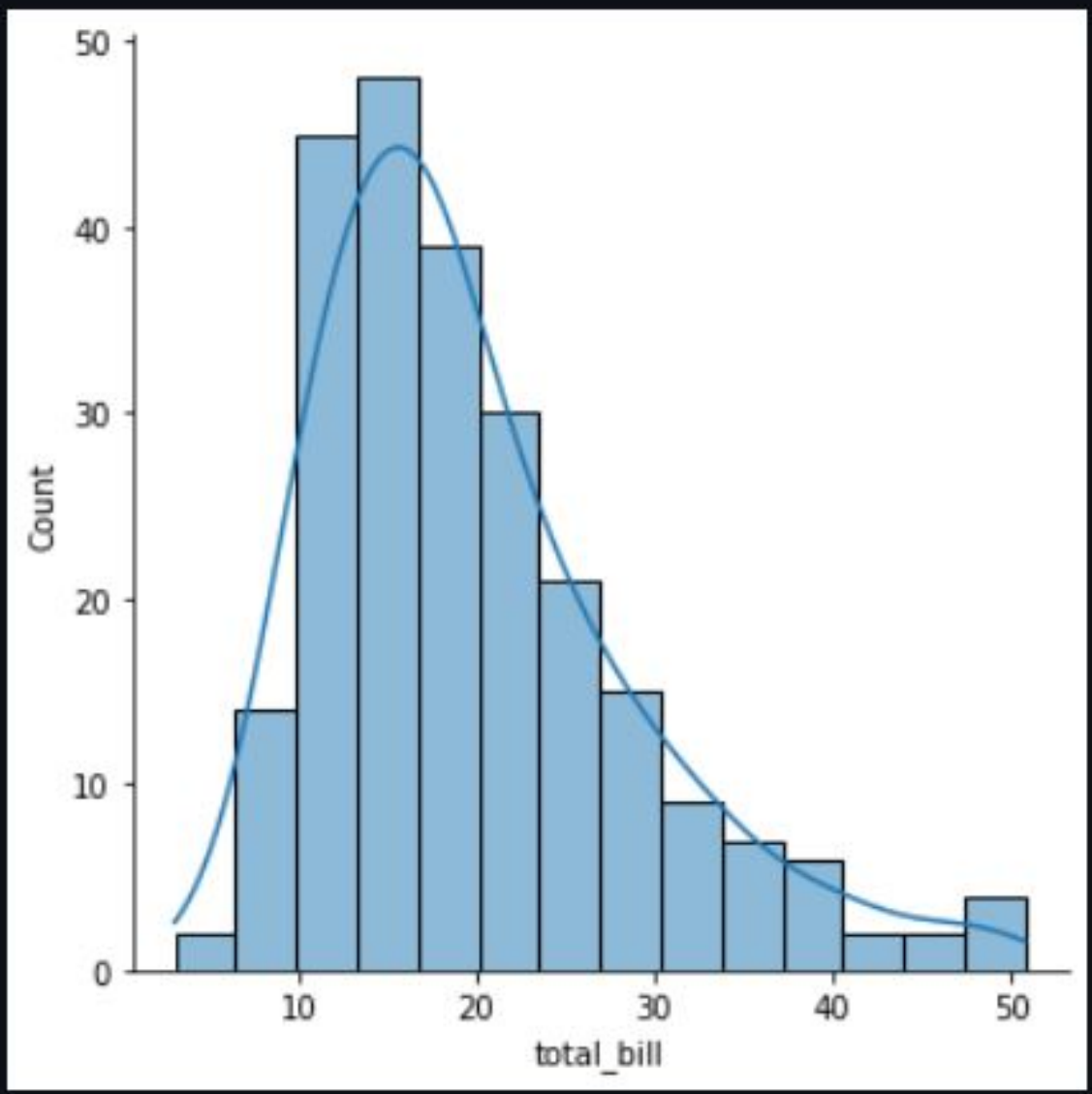
```
<AxesSubplot:xlabel='total_bill'>
```



```
sns.displot(tips['total_bill'], kde= True)
```

✓ 0.3s

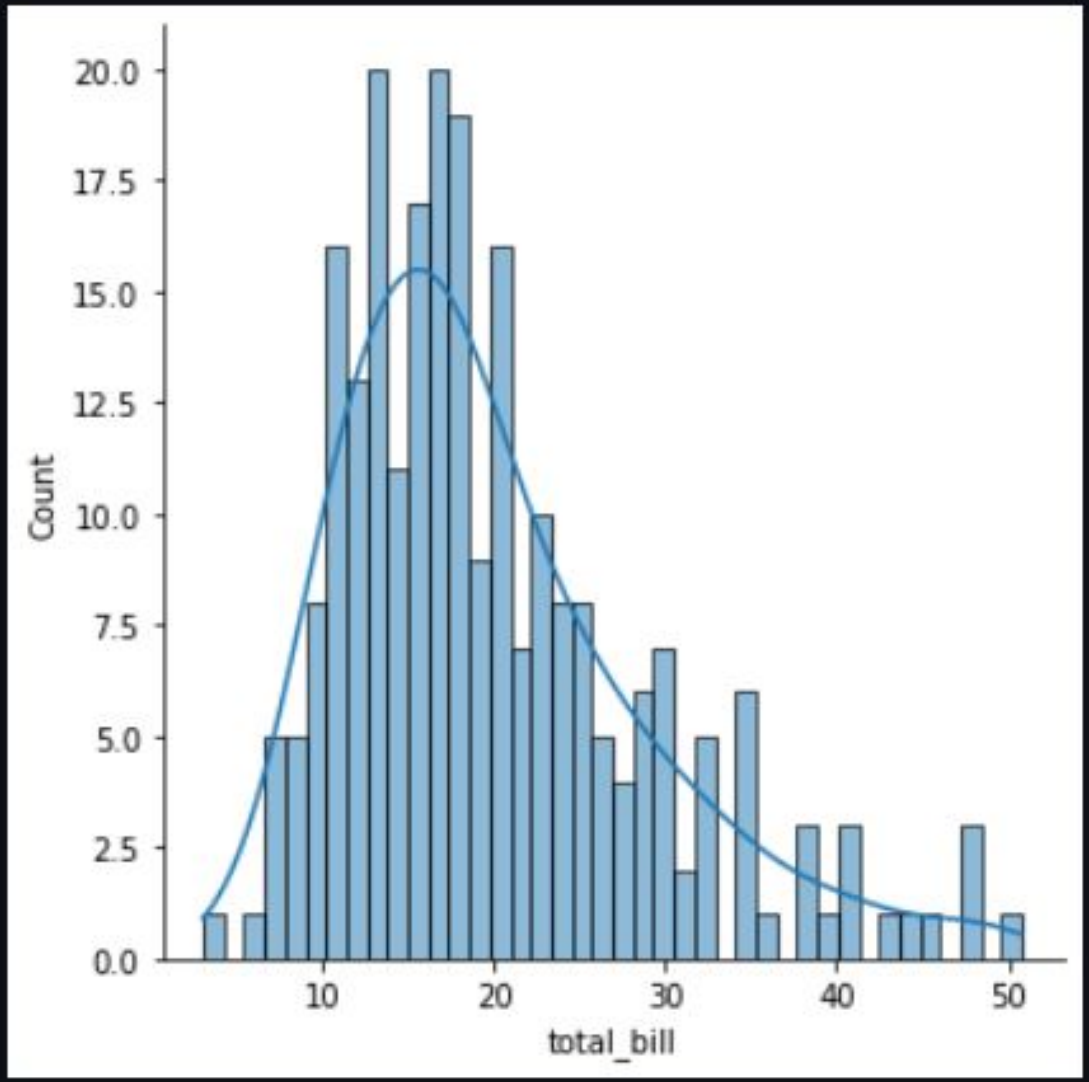
```
<seaborn.axisgrid.FacetGrid at 0x15772034970>
```



```
sns.displot(tips['total_bill'], kde= True, bins= 40)
```

✓ 0.4s

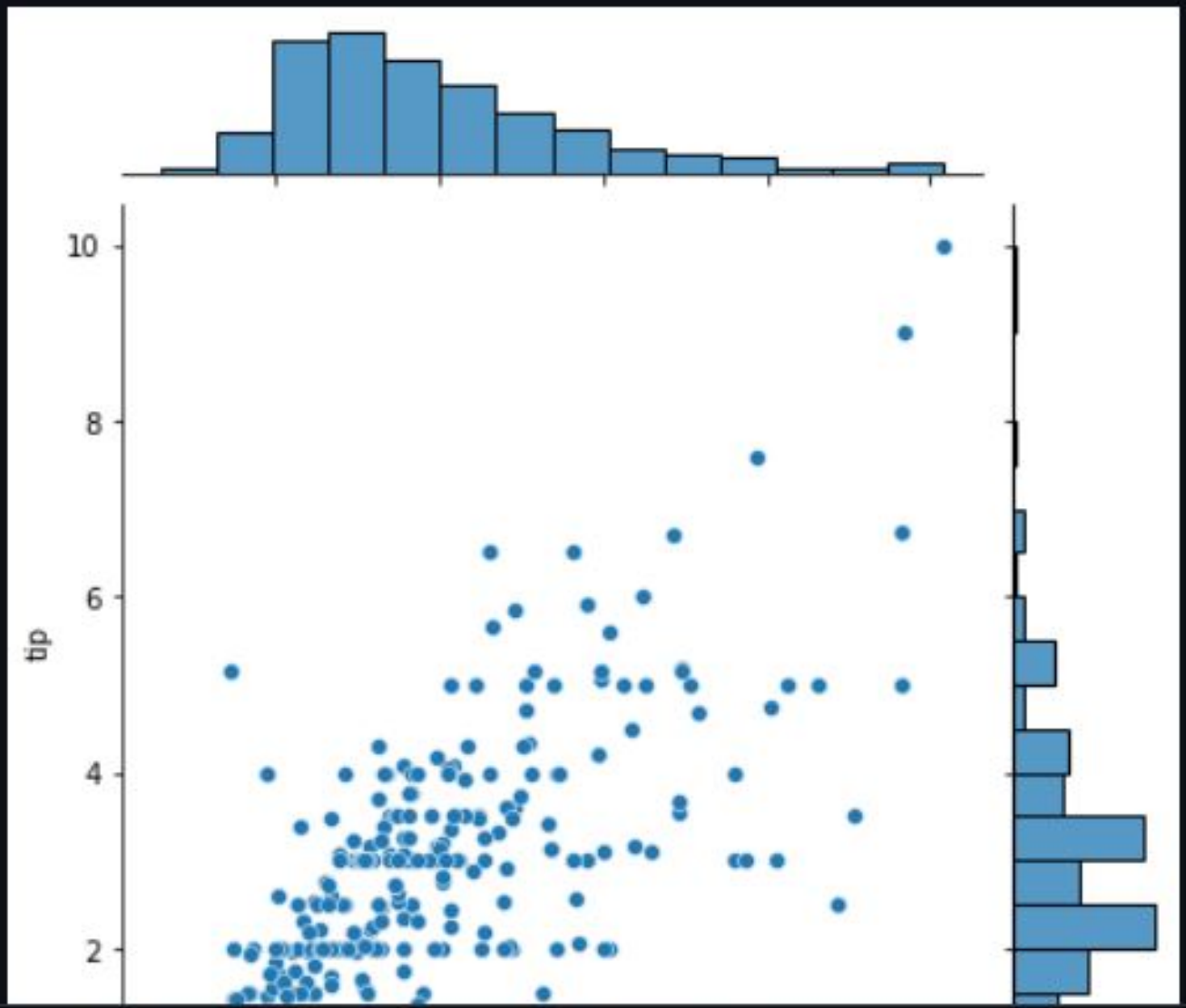
```
<seaborn.axisgrid.FacetGrid at 0x15771dfaf20>
```



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

✓ 0.8s

```
<seaborn.axisgrid.JointGrid at 0x15772244bb0>
```



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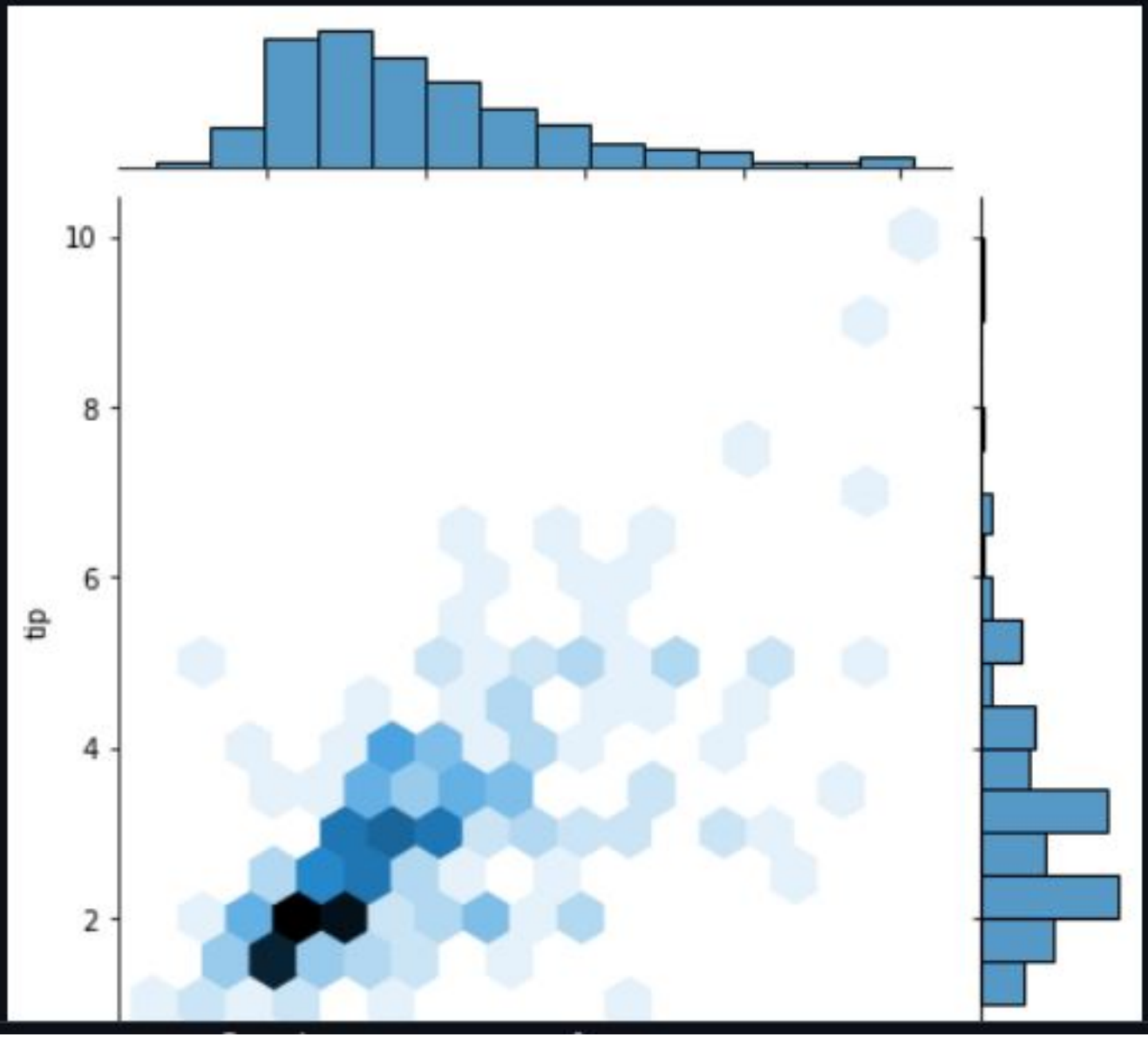
```
sns.jointplot(x='total_bill', y= 'tip', data=tips, kind='hex')
```

[24] ✓ 0.6s

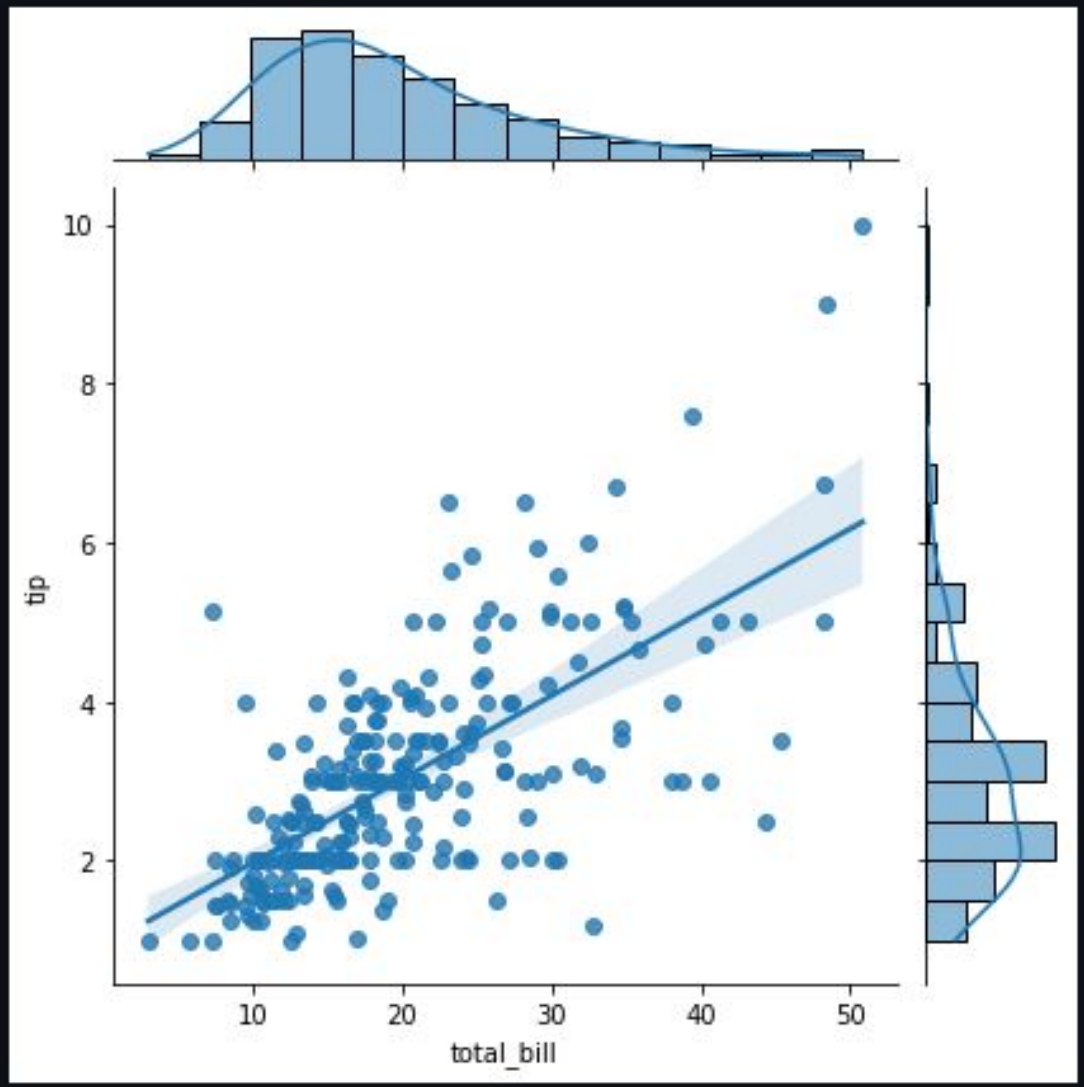
```
<seaborn.axisgrid.JointGrid at 0x157720ada20>
```



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

[25] ✓ 0.8s

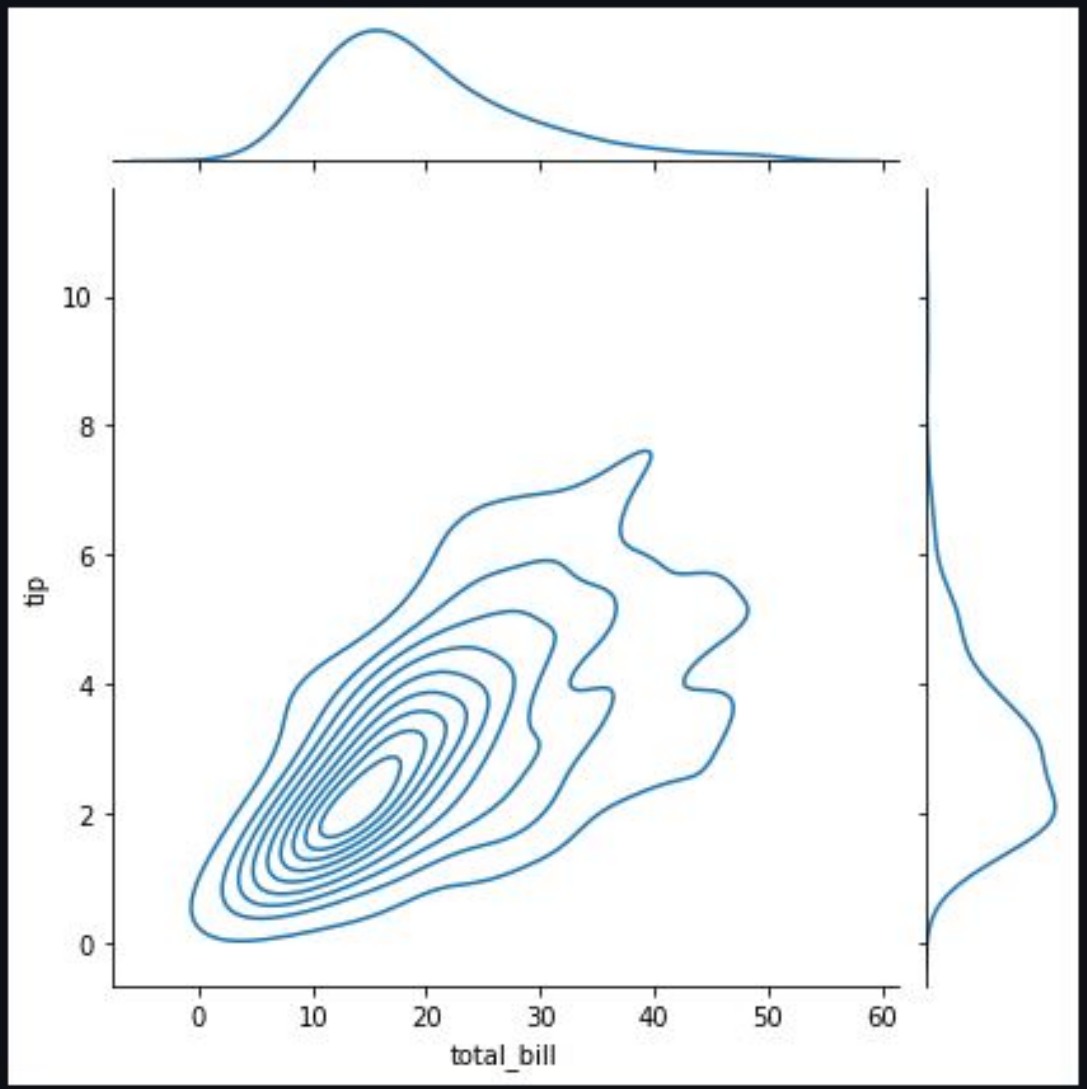
```
<seaborn.axisgrid.JointGrid at 0x15772088b80>
```



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

[26] ✓ 0.8s

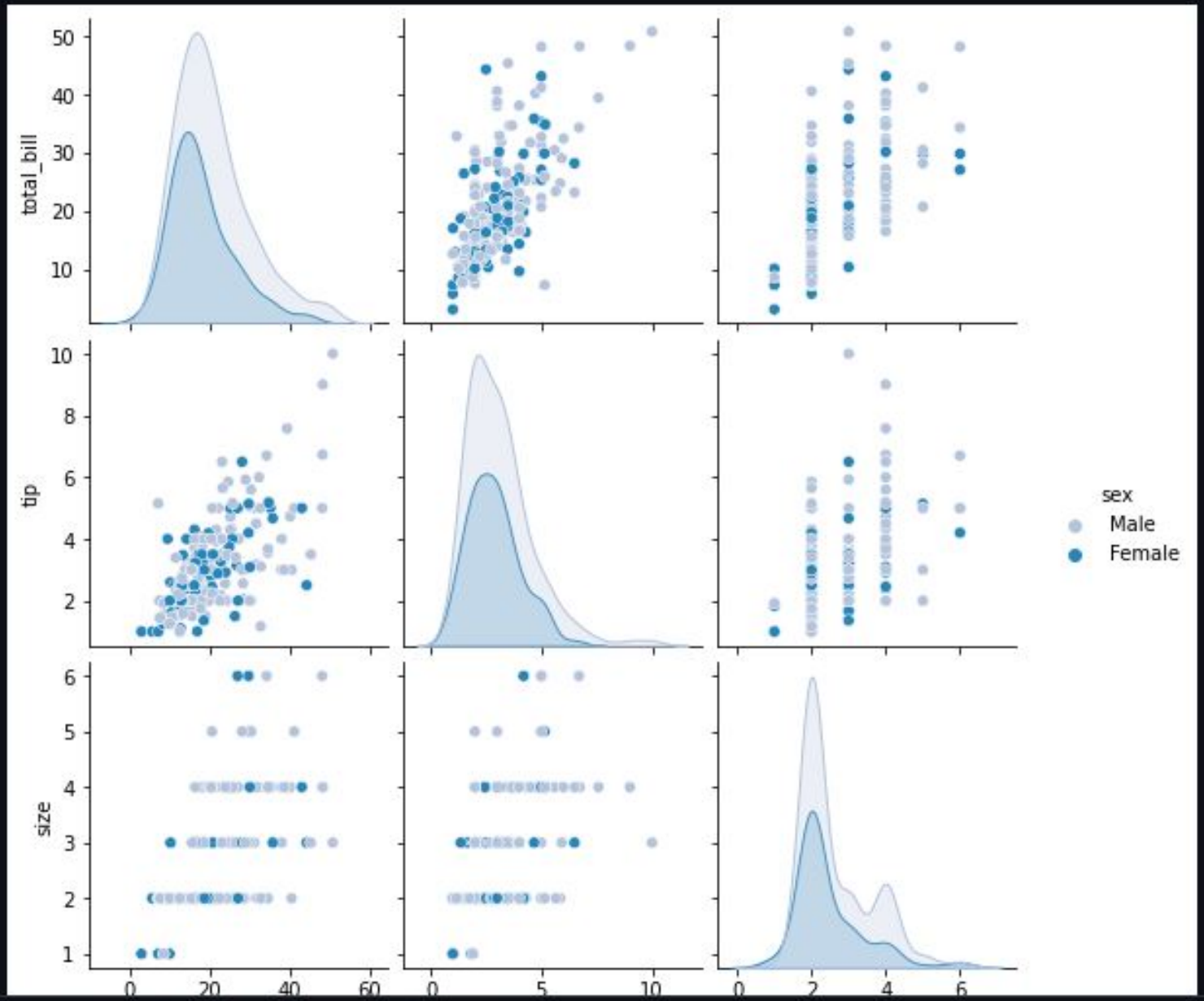
```
<seaborn.axisgrid.JointGrid at 0x157723cb190>
```



```
sns.pairplot(tips, hue='sex', palette='PuBu')
```

[27] ✓ 3.5s

```
<seaborn.axisgrid.PairGrid at 0x15773550c40>
```



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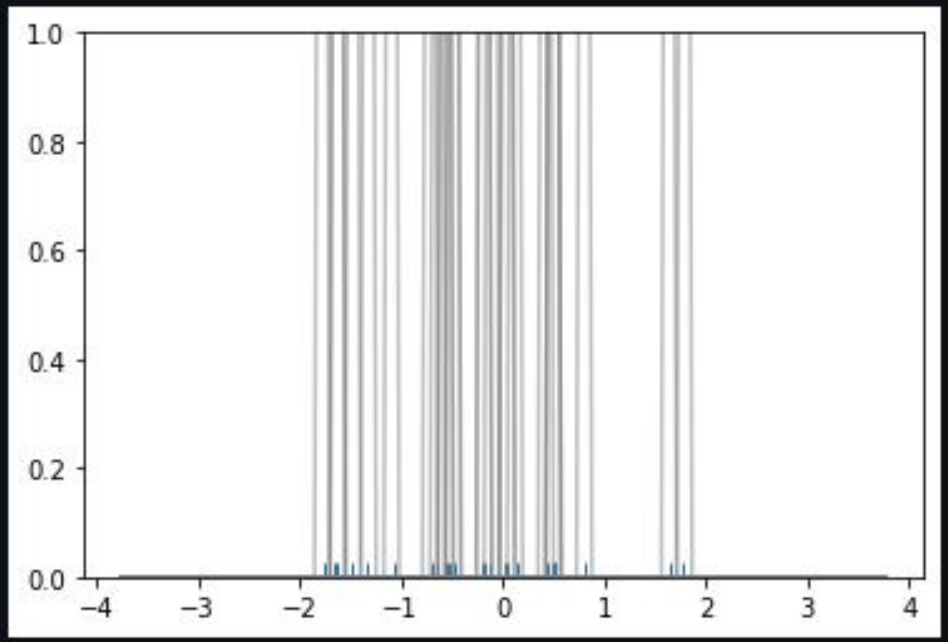
```python
#plot each basis function
for data_point in dataset:

    kernel = stats.norm(data_point,bandwidth).pdf(x_axis)
    kernel_list.append(kernel)

    #scale for ploting
    kernel = kernel / kernel.max()
    kernel = kernel * 4
    plt.plot(x_axis, kernel, color='gray', alpha=0.5)

plt.ylim(0,1)
```

[29] ✓ 0.4s

```
(0.0, 1.0)
```