SEABORN

May 23, 2023

[1]:
```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt #seaborn is based graph
sns.set(color_codes=True)#Adds nice background to graph
%matplotlib inline
#Tell python to actually display the graphs
```

[2]:
```
auto=pd.read_csv('Automobile.csv')
```

[3]:
```
auto.head()
```

[3]:

	symboling	normalized_losses	make	fuel_type	aspiration	\
0	3	168	alfa-romero	gas	std	
1	3	168	alfa-romero	gas	std	
2	1	168	alfa-romero	gas	std	
3	2	164	audi	gas	std	
4	2	164	audi	gas	std	

	number_of_doors	body_style	drive_wheels	engine_location	wheel_base	…	\
0	two	convertible	rwd	front	88.6	…	
1	two	convertible	rwd	front	88.6	…	
2	two	hatchback	rwd	front	94.5	…	
3	four	sedan	fwd	front	99.8	…	
4	four	sedan	4wd	front	99.4	…	

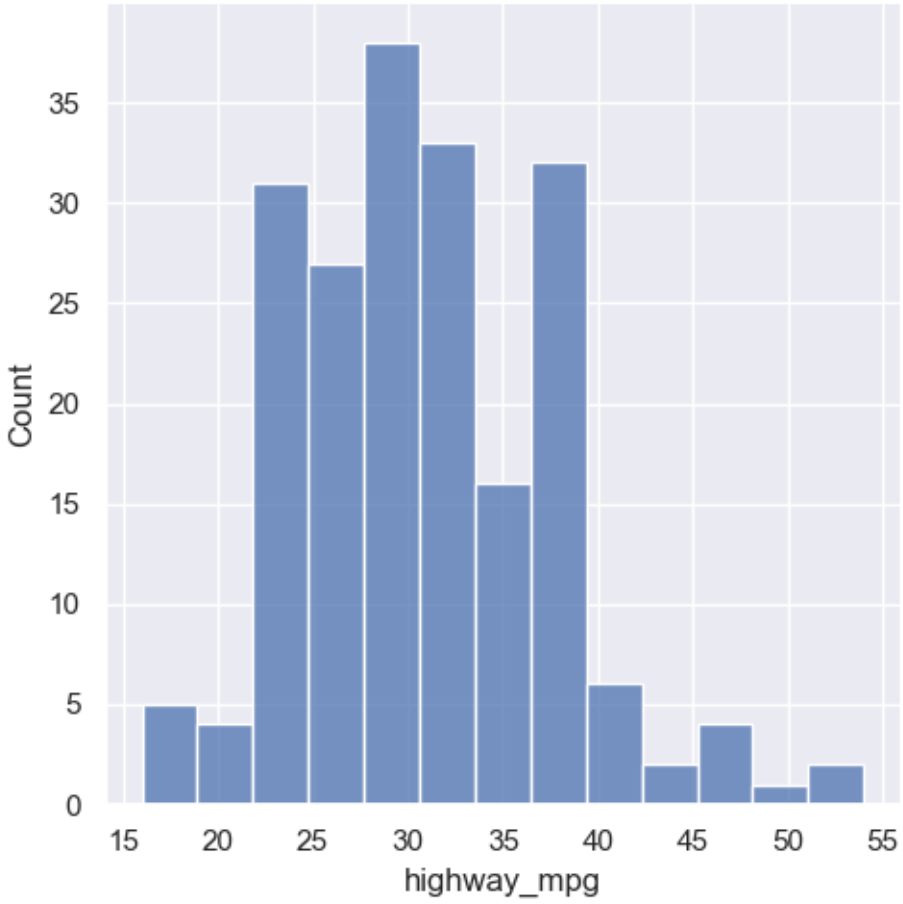
	engine_size	fuel_system	bore	stroke	compression_ratio	horsepower	\
0	130	mpfi	3.47	2.68	9.0	111	
1	130	mpfi	3.47	2.68	9.0	111	
2	152	mpfi	2.68	3.47	9.0	154	
3	109	mpfi	3.19	3.40	10.0	102	
4	136	mpfi	3.19	3.40	8.0	115	

	peak_rpm	city_mpg	highway_mpg	price
0	5000	21	27	13495
1	5000	21	27	16500
2	5000	19	26	16500
3	5500	24	30	13950
4	5500	18	22	17450

```
[5 rows x 26 columns]
```

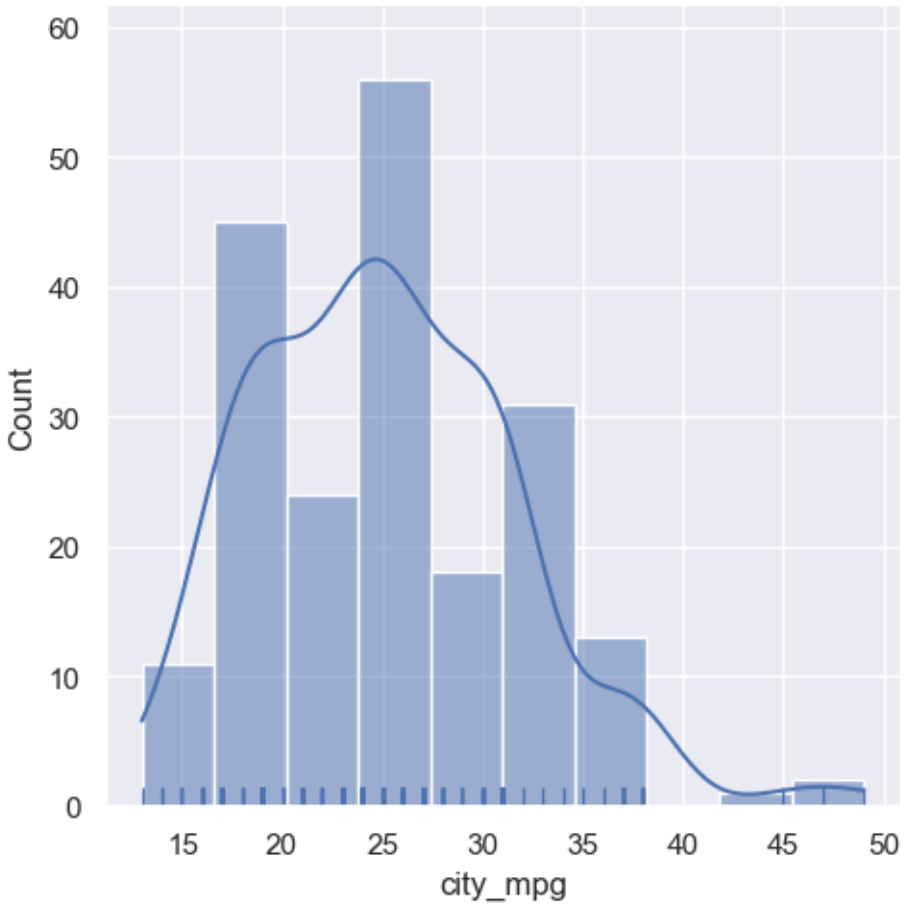
[4]:
```
sns.displot(auto['highway_mpg'])
```

[4]:
```
<seaborn.axisgrid.FacetGrid at 0x243ceb37f40>
```



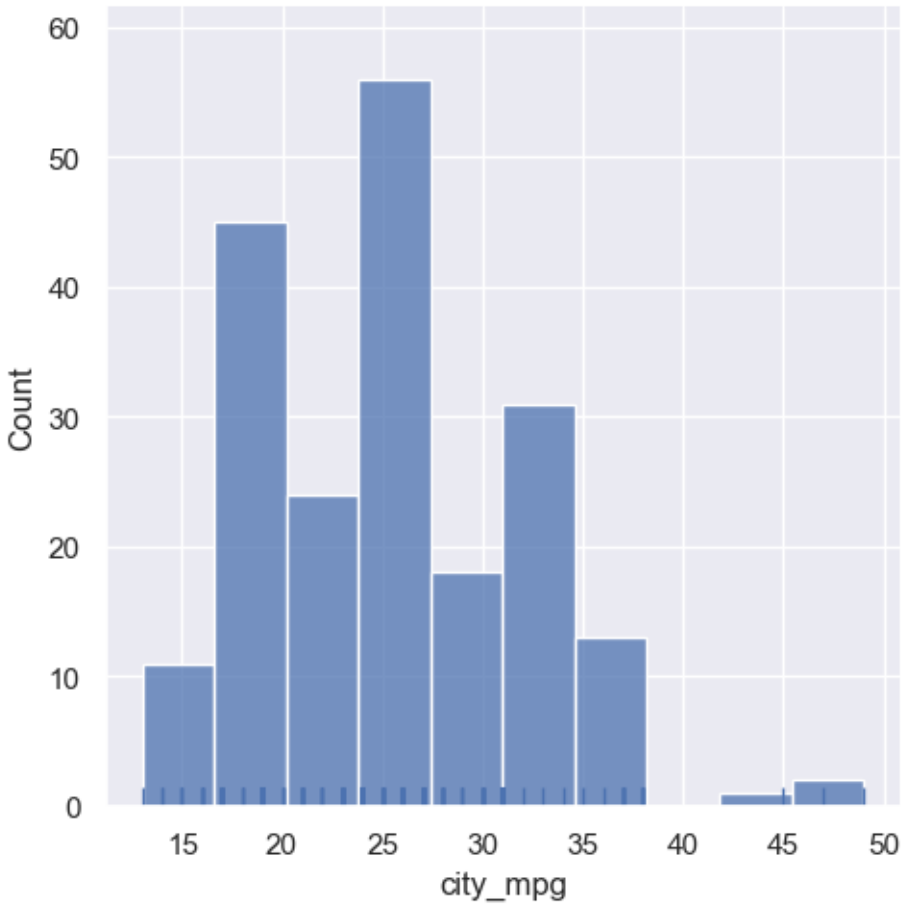
[5]:
```
sns.displot(auto['city_mpg'],kde=True,rug=True)
```

[5]:
```
<seaborn.axisgrid.FacetGrid at 0x243ceb7c580>
```



[6]:
```
sns.displot(auto['city_mpg'],kde=False,rug=True)
```

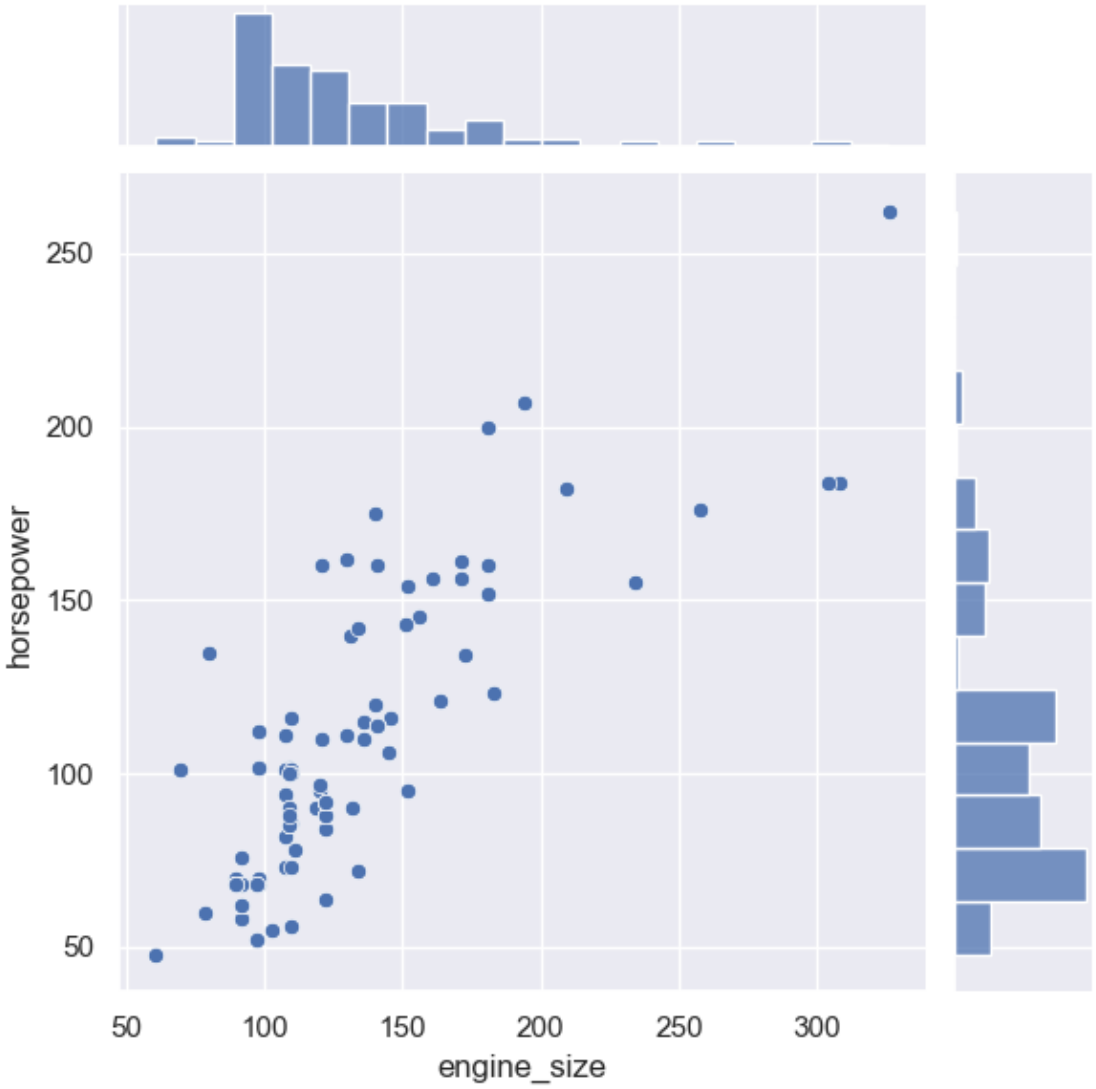
[6]:
```
<seaborn.axisgrid.FacetGrid at 0x243d0d67340>
```



[7]:
```
sns.jointplot(auto['engine_size'],auto['horsepower']) #jointplot creates␣
↪scatter plot of two varibles along with histogram
```

```
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\_decorators.py:36:
FutureWarning: Pass the following variables as keyword args: x, y. From version
0.12, the only valid positional argument will be `data`, and passing other
arguments without an explicit keyword will result in an error or
misinterpretation.
  warnings.warn(
```

[7]:
```
<seaborn.axisgrid.JointGrid at 0x243ab4d71c0>
```



[8]:
```
#Hexa Plot
sns.jointplot(auto['engine_size'],auto['horsepower'],kind="hex")
```

```
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\_decorators.py:36:
FutureWarning: Pass the following variables as keyword args: x, y. From version
0.12, the only valid positional argument will be `data`, and passing other
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  warnings.warn(
```
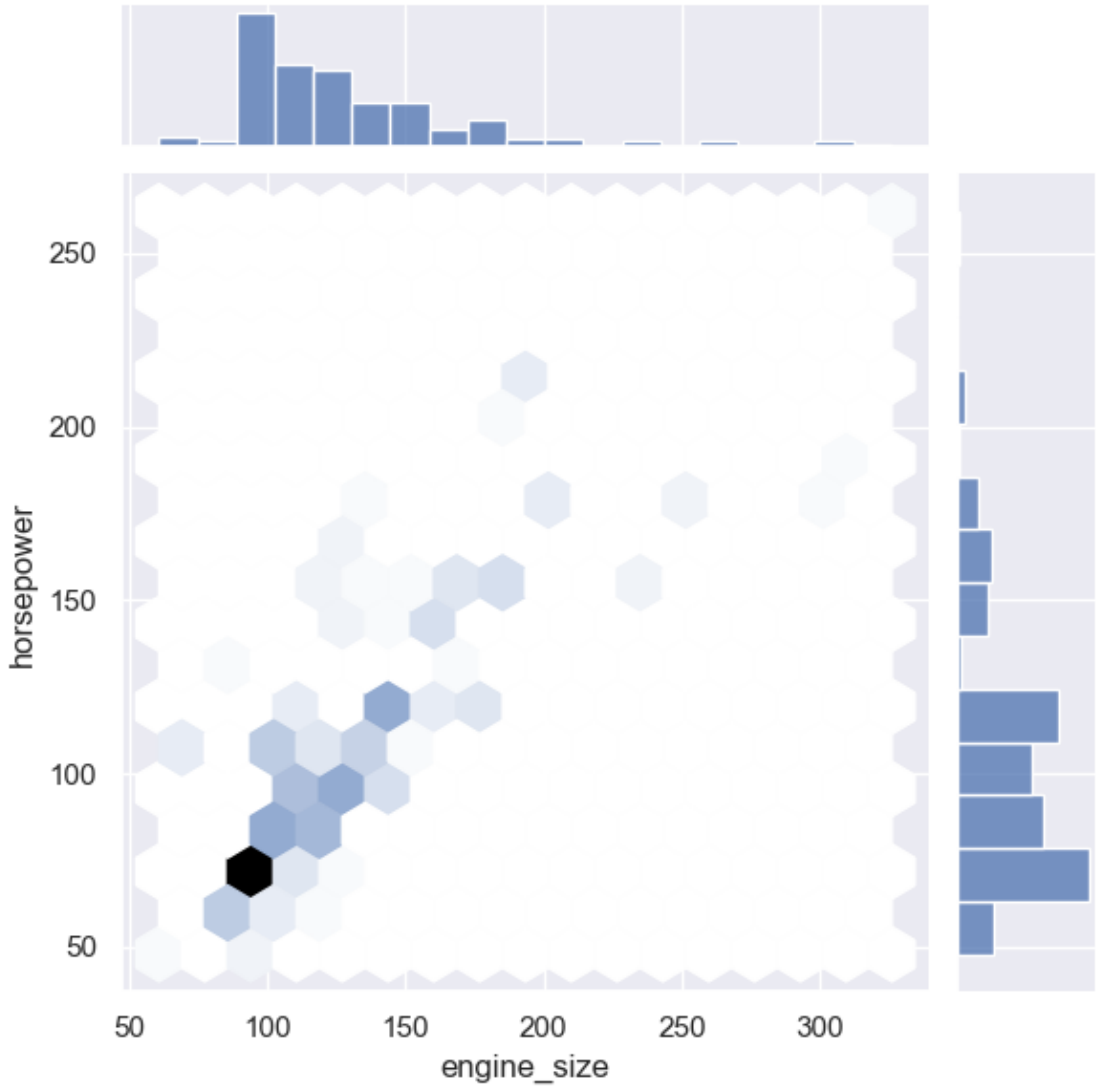

[8]: <seaborn.axisgrid.JointGrid at 0x243d0e07040>



[9]:
```
# 2D curve
sns.jointplot(auto['engine_size'],auto['horsepower'],kind="kde")
```

```
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\_decorators.py:36:
FutureWarning: Pass the following variables as keyword args: x, y. From version
0.12, the only valid positional argument will be `data`, and passing other
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  warnings.warn(
```
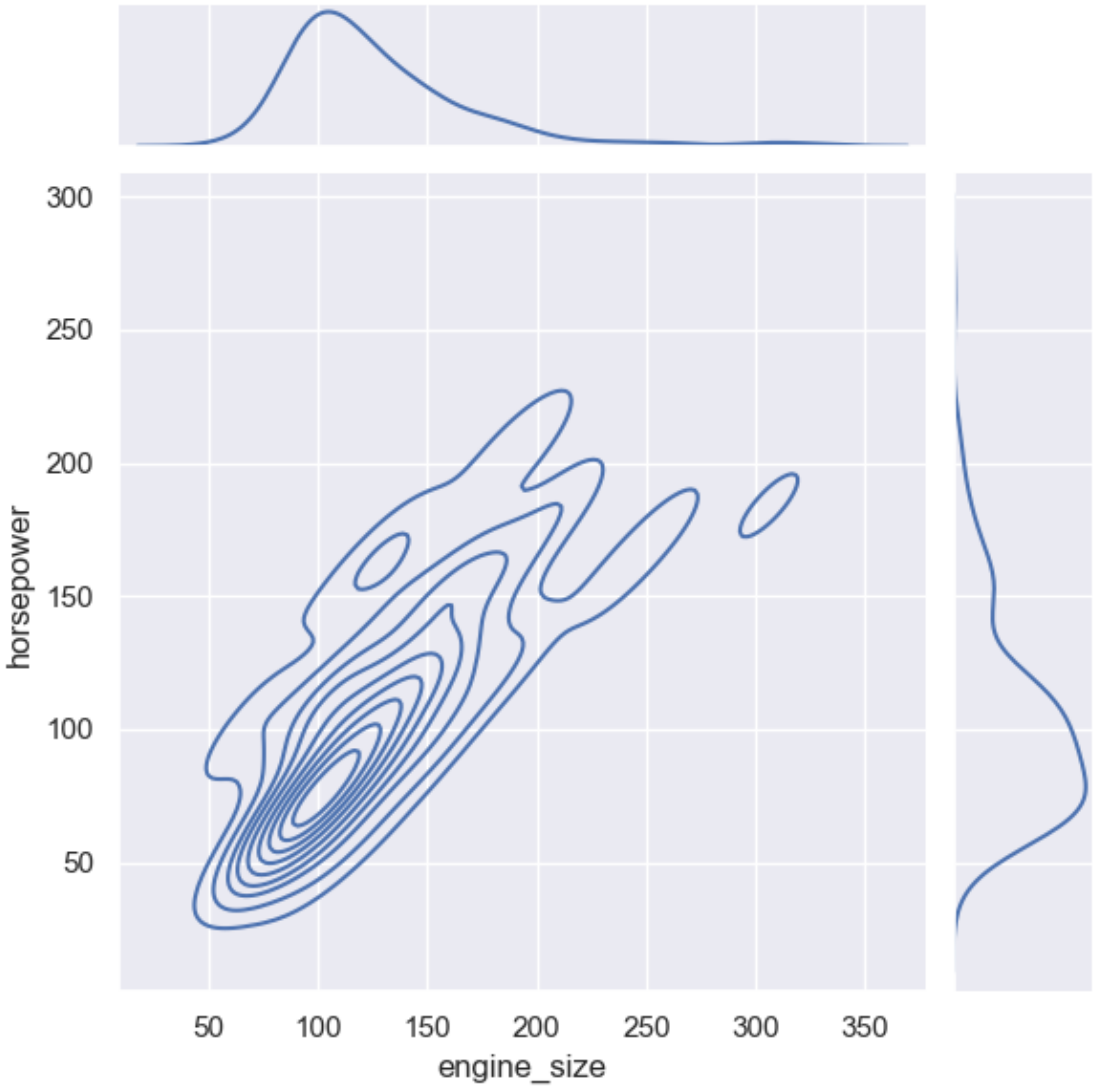
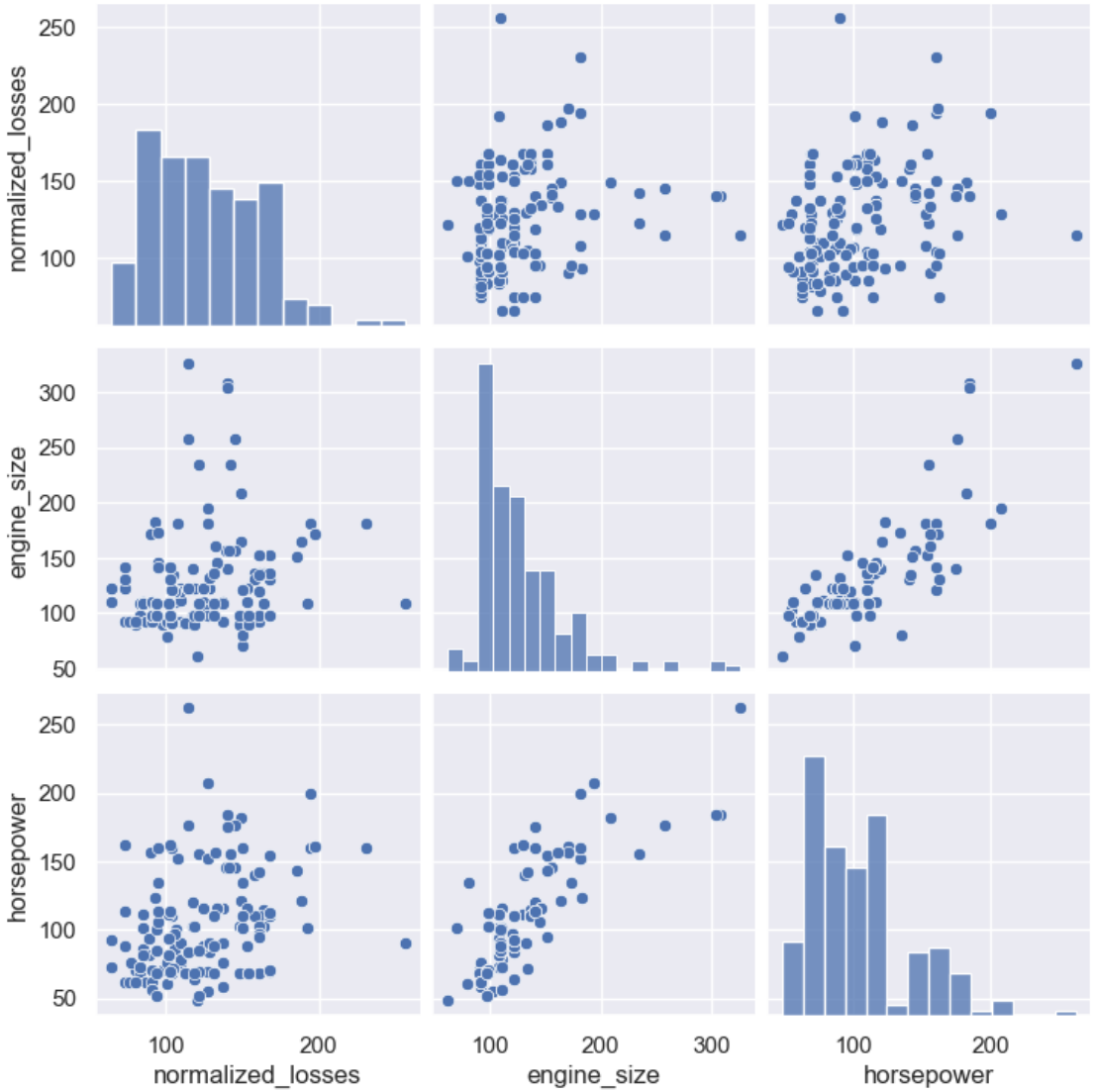

[9]:
```
<seaborn.axisgrid.JointGrid at 0x243d138ad30>
```



[10]:
```
sns.pairplot(auto[['normalized_losses','engine_size','horsepower']])
```

[10]: <seaborn.axisgrid.PairGrid at 0x243d17c6fd0>



[11]:
```
#pair wise plot
sns.stripplot(auto['fuel_type'],auto['horsepower'],jitter=True)
```

```
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\_decorators.py:36:
FutureWarning: Pass the following variables as keyword args: x, y. From version
0.12, the only valid positional argument will be `data`, and passing other
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  warnings.warn(
```
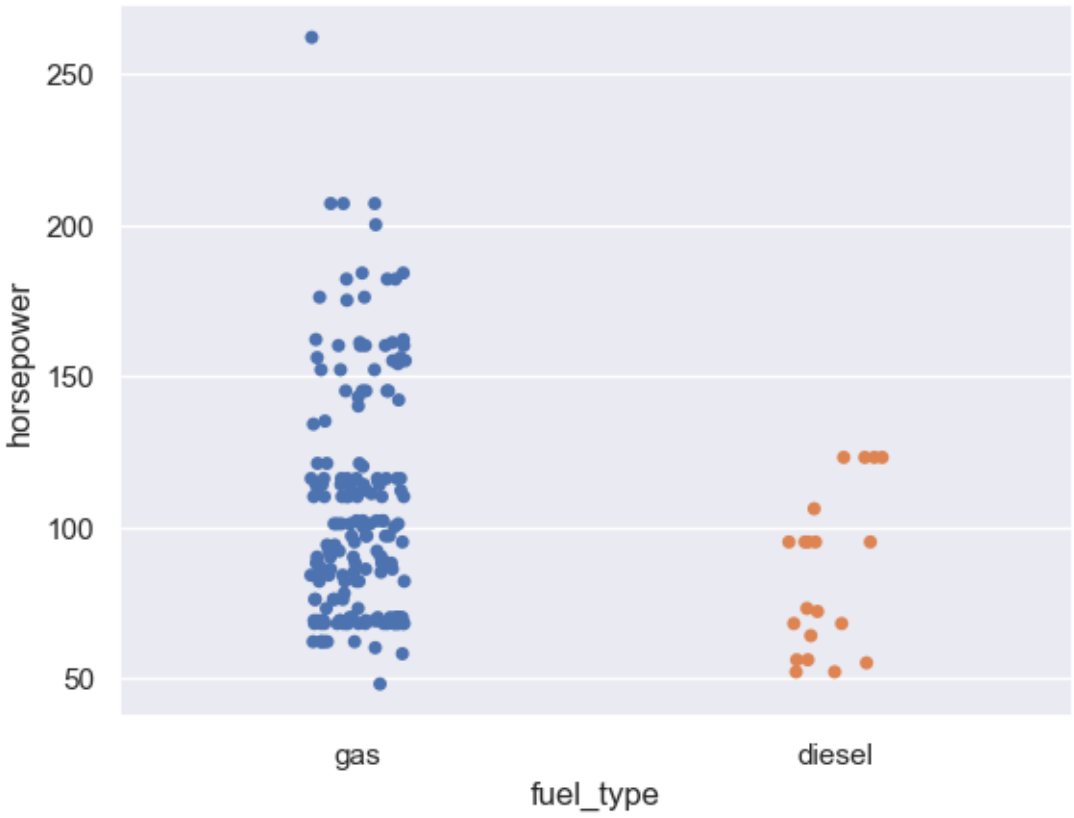
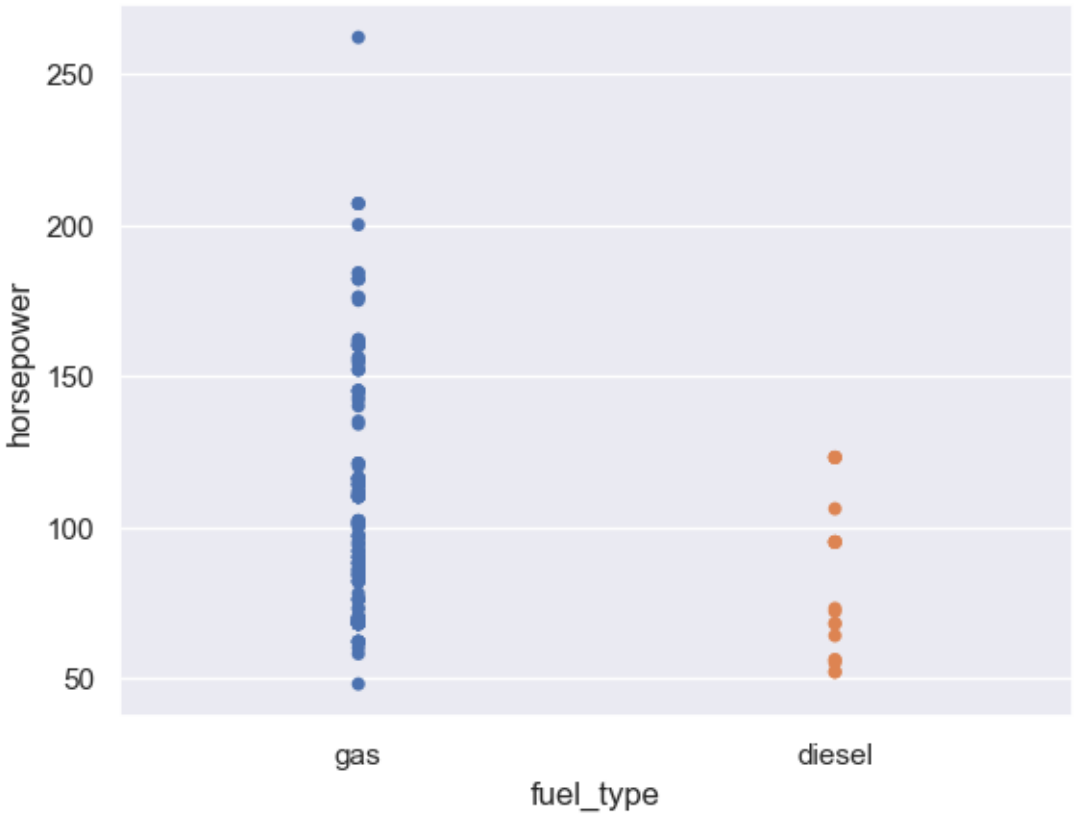

[11]: <AxesSubplot:xlabel='fuel_type', ylabel='horsepower'>



[12]:
```
#plotting with categorial data, adust position using jitters
sns.stripplot(auto['fuel_type'],auto['horsepower'],jitter=False)
```

```
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\_decorators.py:36:
FutureWarning: Pass the following variables as keyword args: x, y. From version
0.12, the only valid positional argument will be `data`, and passing other
arguments without an explicit keyword will result in an error or
misinterpretation.
  warnings.warn(
```

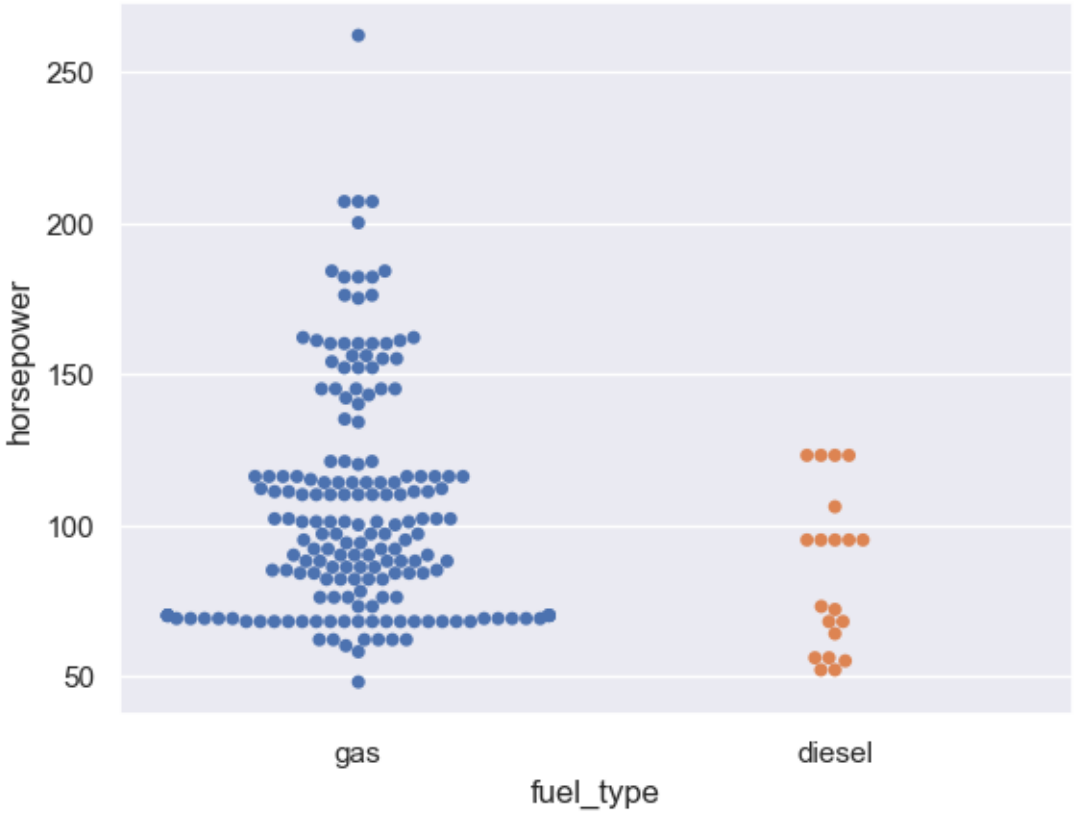
[12]: <AxesSubplot:xlabel='fuel_type', ylabel='horsepower'>



[13]:
```
#Swarmplot
sns.swarmplot(auto['fuel_type'],auto['horsepower'])
```

```
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\_decorators.py:36:
FutureWarning: Pass the following variables as keyword args: x, y. From version
0.12, the only valid positional argument will be `data`, and passing other
arguments without an explicit keyword will result in an error or
misinterpretation.
  warnings.warn(
```

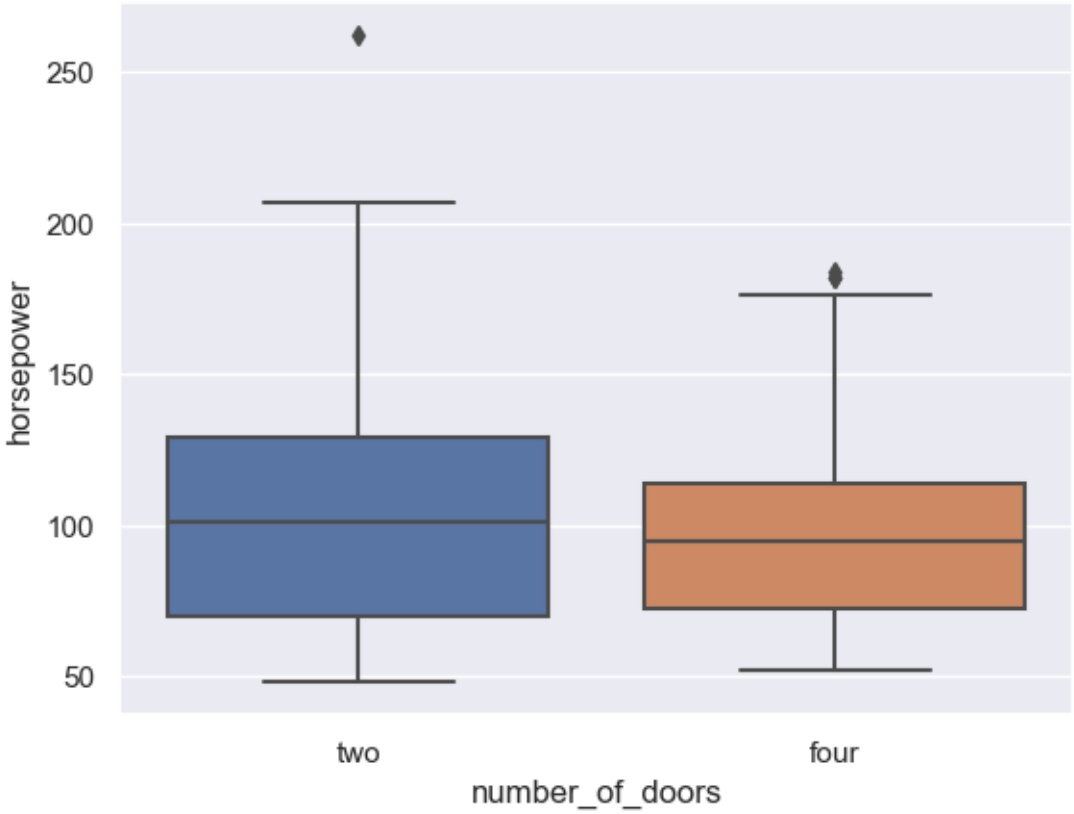
[13]:
```
<AxesSubplot:xlabel='fuel_type', ylabel='horsepower'>
```



[14]:
```
#Box Plot - this kind of box plot shows 3 quartiles values along with extreme␣
 ↪value.
#The "Wiskers" extend to point that lie within 1.5 IQRS of the lower and upper␣
 ↪quartile.-
sns.boxplot(auto['number_of_doors'],auto['horsepower'])
```

```
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\_decorators.py:36:
FutureWarning: Pass the following variables as keyword args: x, y. From version
0.12, the only valid positional argument will be `data`, and passing other
arguments without an explicit keyword will result in an error or
misinterpretation.
  warnings.warn(
```

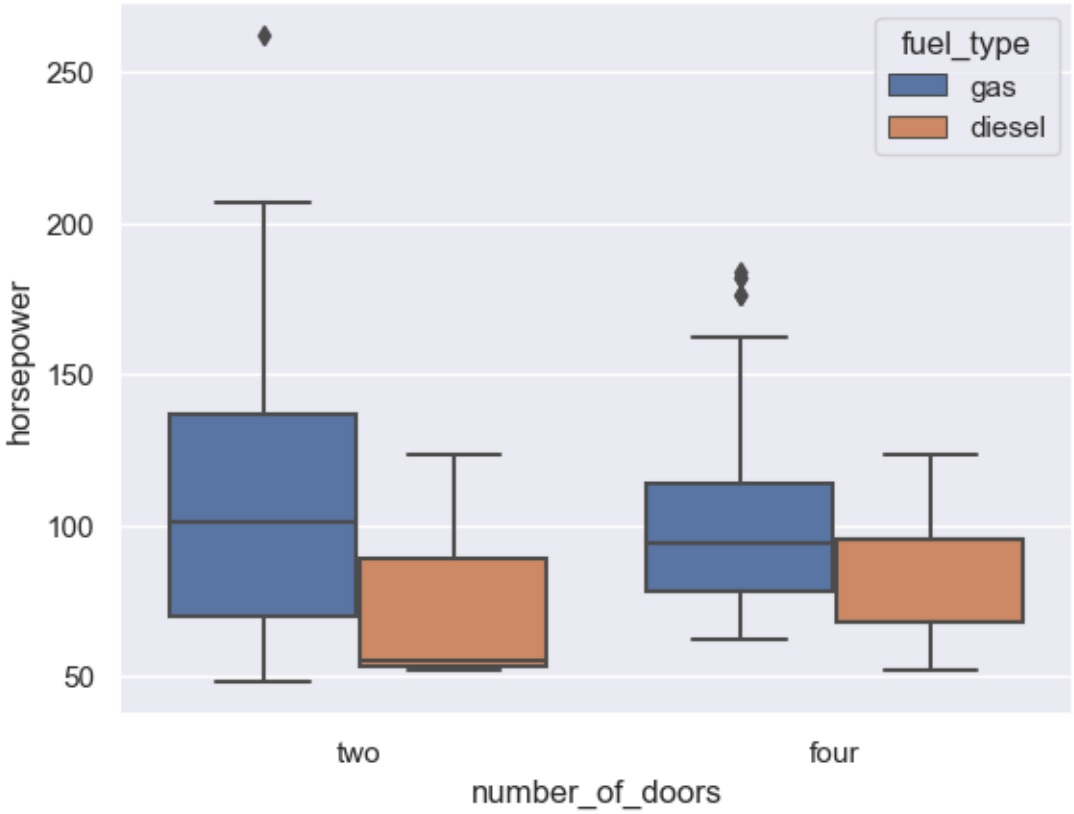
[14]: <AxesSubplot:xlabel='number_of_doors', ylabel='horsepower'>



[15]:
```
sns.boxplot(auto['number_of_doors'],auto['horsepower'],hue=auto['fuel_type'])
```

```
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\_decorators.py:36:
FutureWarning: Pass the following variables as keyword args: x, y. From version
0.12, the only valid positional argument will be `data`, and passing other
arguments without an explicit keyword will result in an error or
misinterpretation.
  warnings.warn(
```

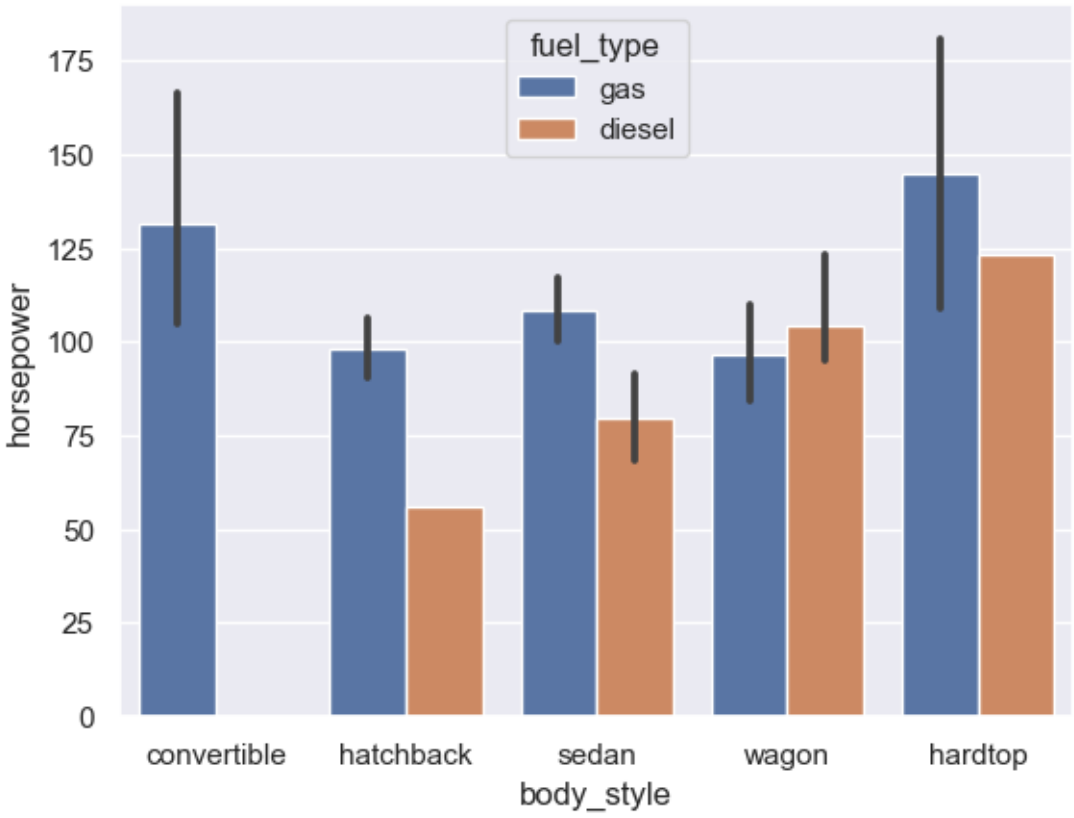
[15]:
```
<AxesSubplot:xlabel='number_of_doors', ylabel='horsepower'>
```



[16]:
```
#Bar plot using (HUE)
sns.barplot(auto['body_style'],auto['horsepower'],hue=auto['fuel_type'])
```

```
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\_decorators.py:36:
FutureWarning: Pass the following variables as keyword args: x, y. From version
0.12, the only valid positional argument will be `data`, and passing other
arguments without an explicit keyword will result in an error or
misinterpretation.
  warnings.warn(
```

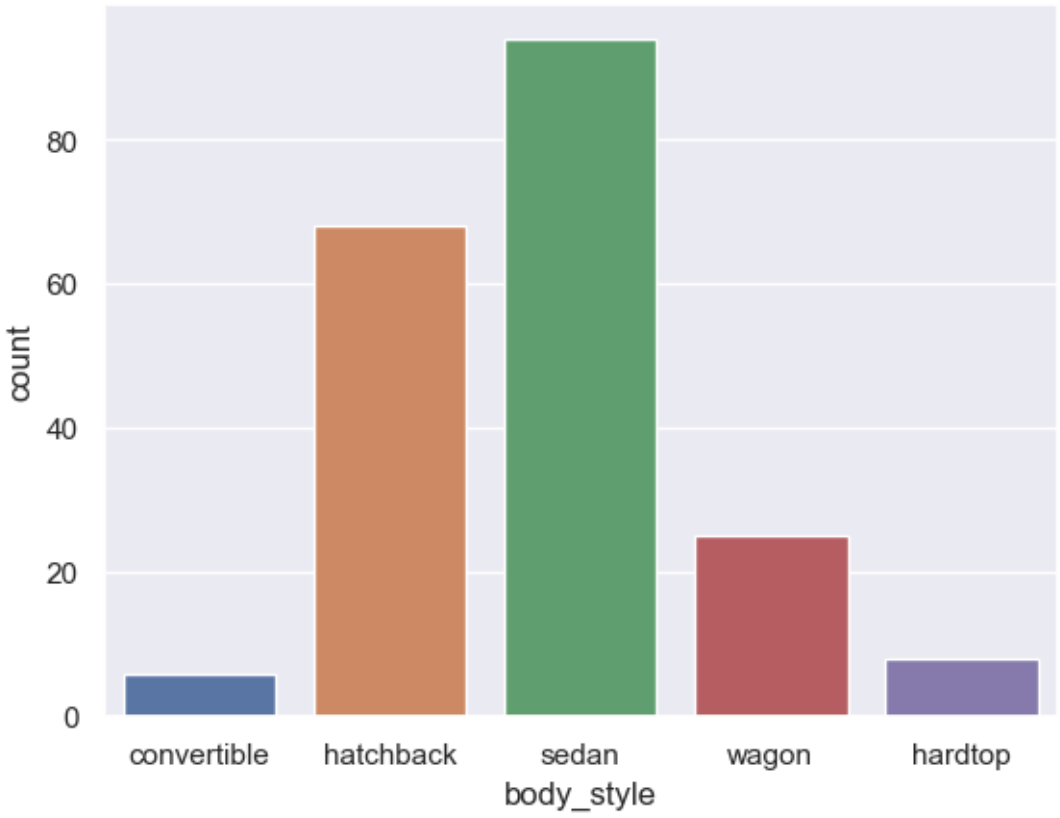
[16]: `<AxesSubplot:xlabel='body_style', ylabel='horsepower'>`



[17]:
```
#count plot
sns.countplot(auto['body_style'])
```

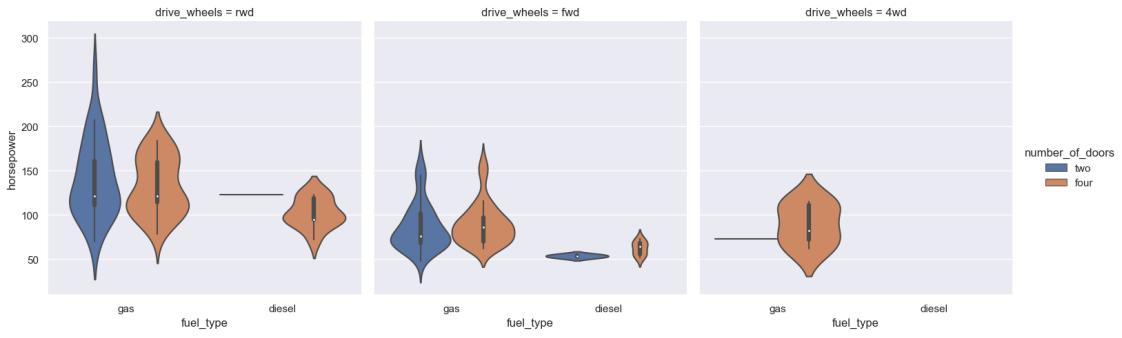
```
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\_decorators.py:36:
FutureWarning: Pass the following variable as a keyword arg: x. From version
0.12, the only valid positional argument will be `data`, and passing other
arguments without an explicit keyword will result in an error or
misinterpretation.
  warnings.warn(
```

[17]: `<AxesSubplot:xlabel='body_style', ylabel='count'>`



[18]:
```
sns.catplot(x="fuel_type",
            y="horsepower",
            hue="number_of_doors",
            col="drive_wheels",
            data=auto,kind="violin")
```

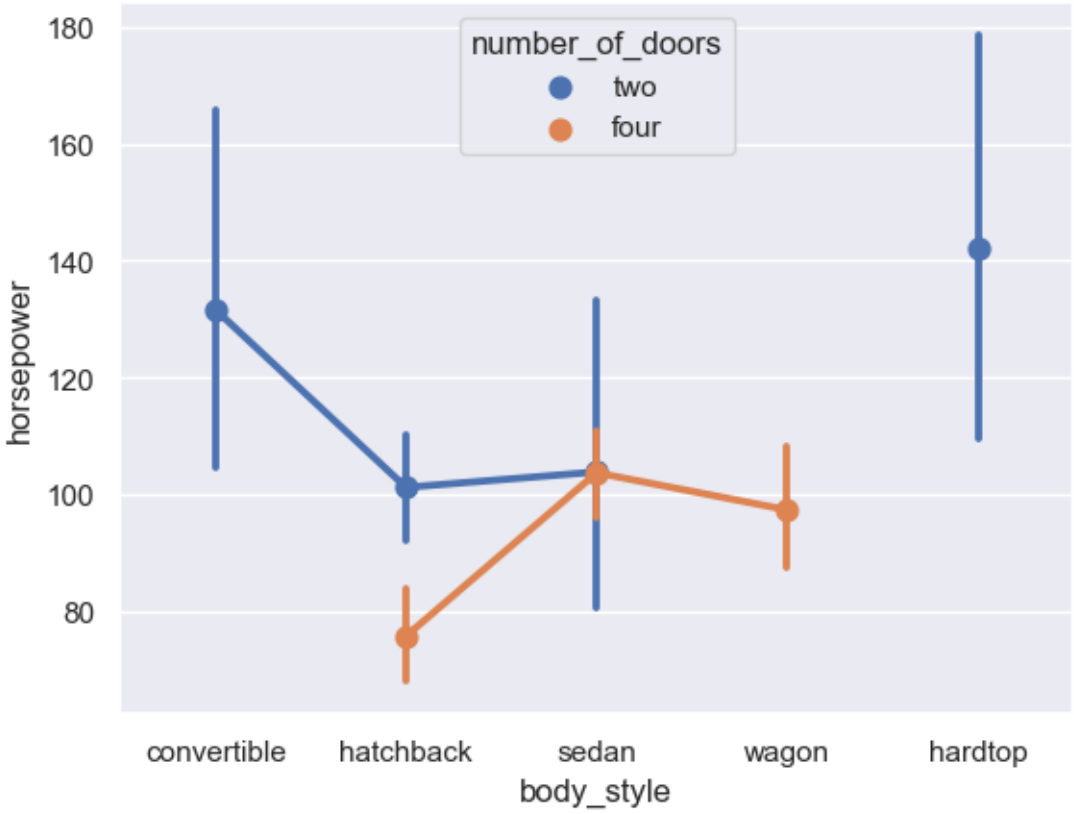
[18]: <seaborn.axisgrid.FacetGrid at 0x243d3461f70>



[19]:
```
#Point plot
sns.pointplot(auto['body_style'],auto['horsepower'],hue=auto['number_of_doors'])
```

```
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\_decorators.py:36:
FutureWarning: Pass the following variables as keyword args: x, y. From version
0.12, the only valid positional argument will be `data`, and passing other
arguments without an explicit keyword will result in an error or
misinterpretation.
  warnings.warn(
```

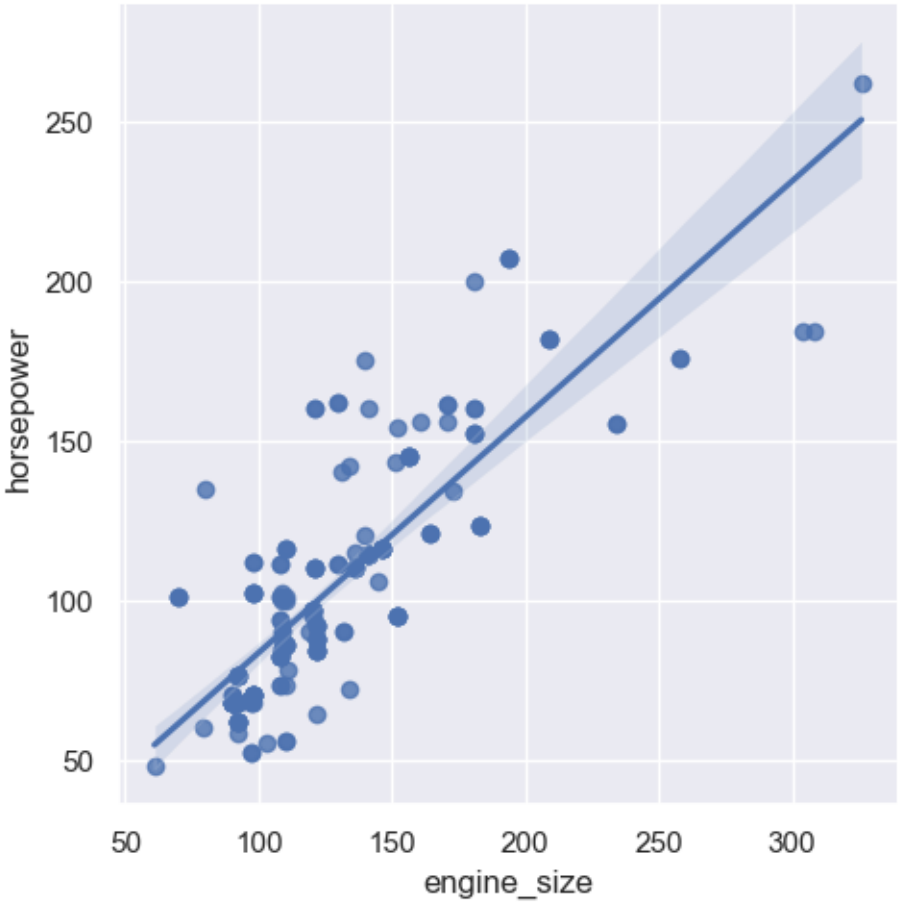
[19]:
```
<AxesSubplot:xlabel='body_style', ylabel='horsepower'>
```



[20]:
```
#Vairious types of inputs :(point ,bar,count,box,violin,strip)
```

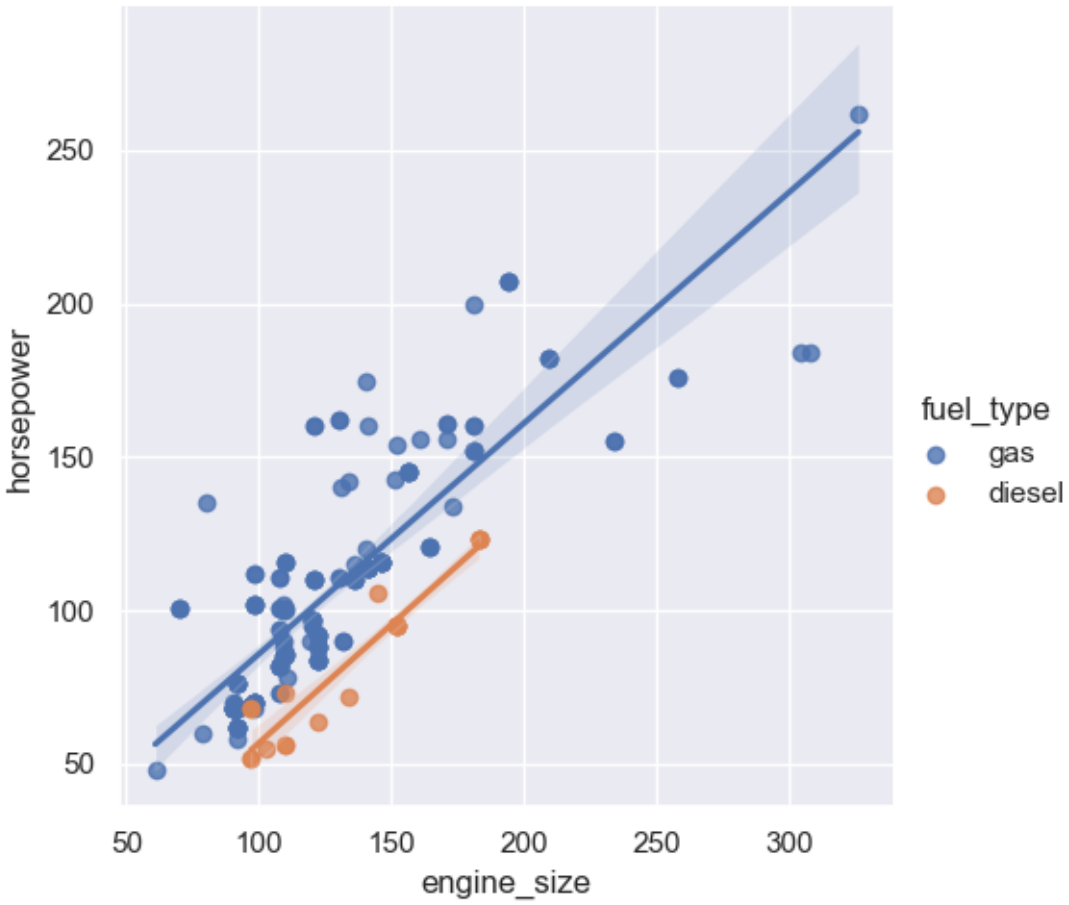
[21]:
```
#Linear regression plot
sns.lmplot(y="horsepower",x="engine_size",data=auto)
```

[21]:
```
<seaborn.axisgrid.FacetGrid at 0x243d3c23670>
```



[22]:
```
sns.lmplot(y="horsepower",x="engine_size",hue="fuel_type",data=auto)
```

[22]: <seaborn.axisgrid.FacetGrid at 0x243d3c33b20>


250
200
150
100
50
horsepower
50
100
150
200
250
300
engine_size
fuel_type
gas
diesel

[ ]: