06_CorrelationAssignment

April 2, 2022

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

#import dataset

peng = sns.load_dataset('penguins')
peng.head()
```

[ ]:
```
  species     island  bill_length_mm  bill_depth_mm  flipper_length_mm  \
0  Adelie  Torgersen            39.1           18.7              181.0
1  Adelie  Torgersen            39.5           17.4              186.0
2  Adelie  Torgersen            40.3           18.0              195.0
3  Adelie  Torgersen             NaN            NaN                NaN
4  Adelie  Torgersen            36.7           19.3              193.0

   body_mass_g     sex
0       3750.0    Male
1       3800.0  Female
2       3250.0  Female
3          NaN     NaN
4       3450.0  Female
```

[ ]:
```
corr = peng.corr(method="pearson")
```

[ ]:
```
corr1 = peng.corr(method="spearman") # for non-guassian distribution
```

[ ]:
```
corr
```

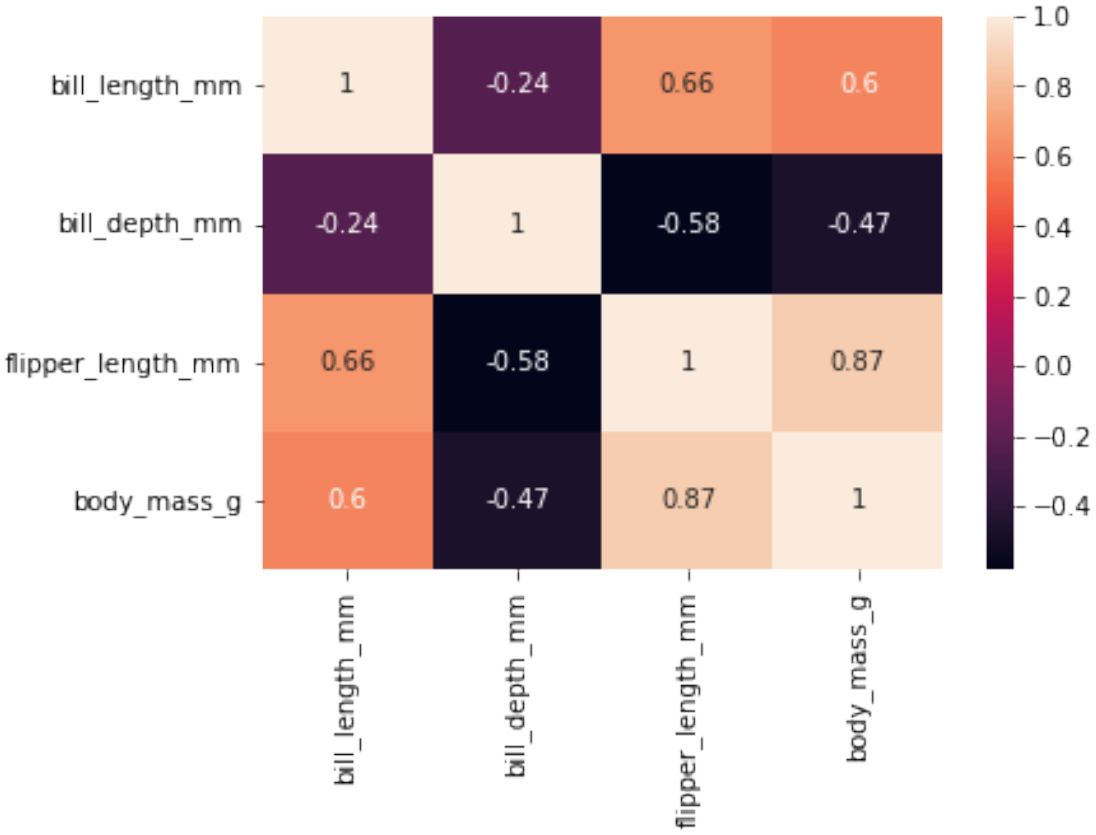
[ ]:
```
                   bill_length_mm  bill_depth_mm  flipper_length_mm  \
bill_length_mm           1.000000      -0.235053           0.656181
bill_depth_mm           -0.235053       1.000000          -0.583851
flipper_length_mm        0.656181      -0.583851           1.000000
body_mass_g              0.595110      -0.471916           0.871202

                   body_mass_g
```

```
bill_length_mm        0.595110
bill_depth_mm        -0.471916
flipper_length_mm     0.871202
body_mass_g           1.000000
```

[ ]:
```
# apply corr function
corr = peng.corr(method = 'pearson') # for normal data
# heat map
sns.heatmap(corr, annot =  True)
```

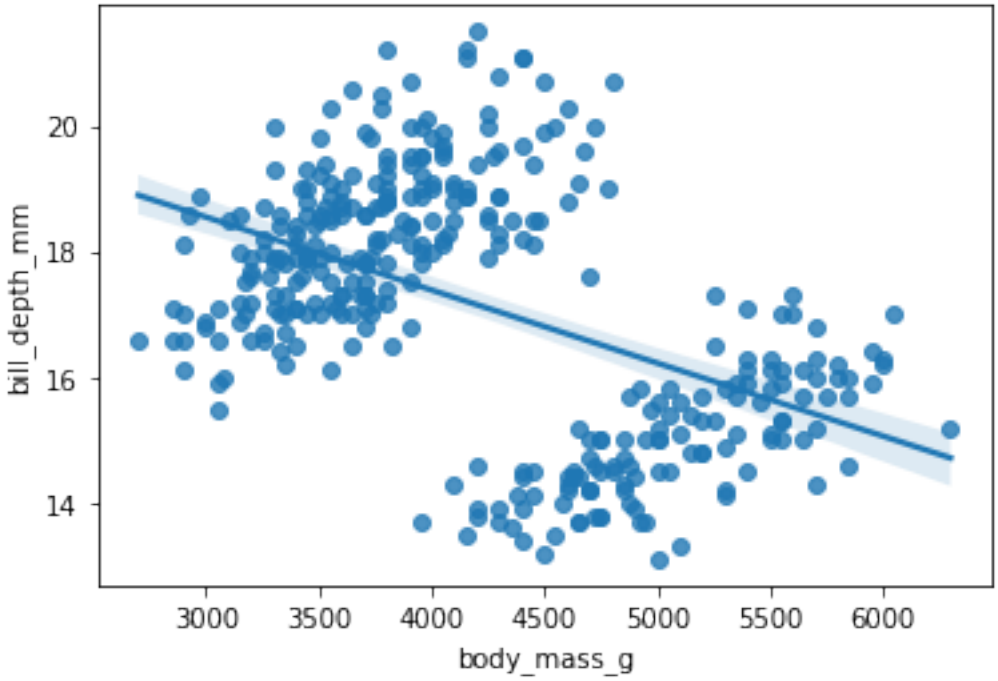
[ ]: <AxesSubplot:>



[ ]:
```
sns.regplot(peng['body_mass_g'], peng['bill_depth_mm'], data= peng)
```

```
C:\Users\Faiza\AppData\Local\Programs\Python\Python310\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(
```

[ ]: <AxesSubplot:xlabel='body_mass_g', ylabel='bill_depth_mm'>



[ ]:
```
sns.regplot(peng['flipper_length_mm'], peng['body_mass_g'], data= peng)
```

```
C:\Users\Faiza\AppData\Local\Programs\Python\Python310\lib\site-
packages\seaborn\_decorators.py:36: FutureWarning: Pass the following variables
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```
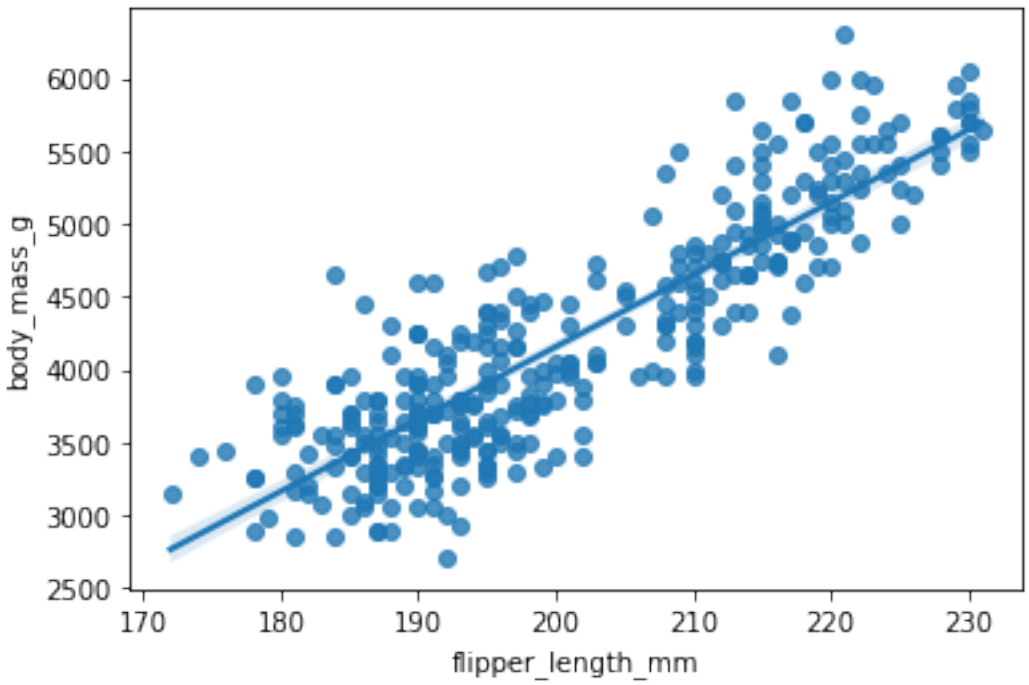

[ ]: <AxesSubplot:xlabel='flipper_length_mm', ylabel='body_mass_g'>



[ ]:
```
sns.regplot(peng['flipper_length_mm'], peng['bill_depth_mm'], data= peng)
```

```
C:\Users\Faiza\AppData\Local\Programs\Python\Python310\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
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  warnings.warn(
```
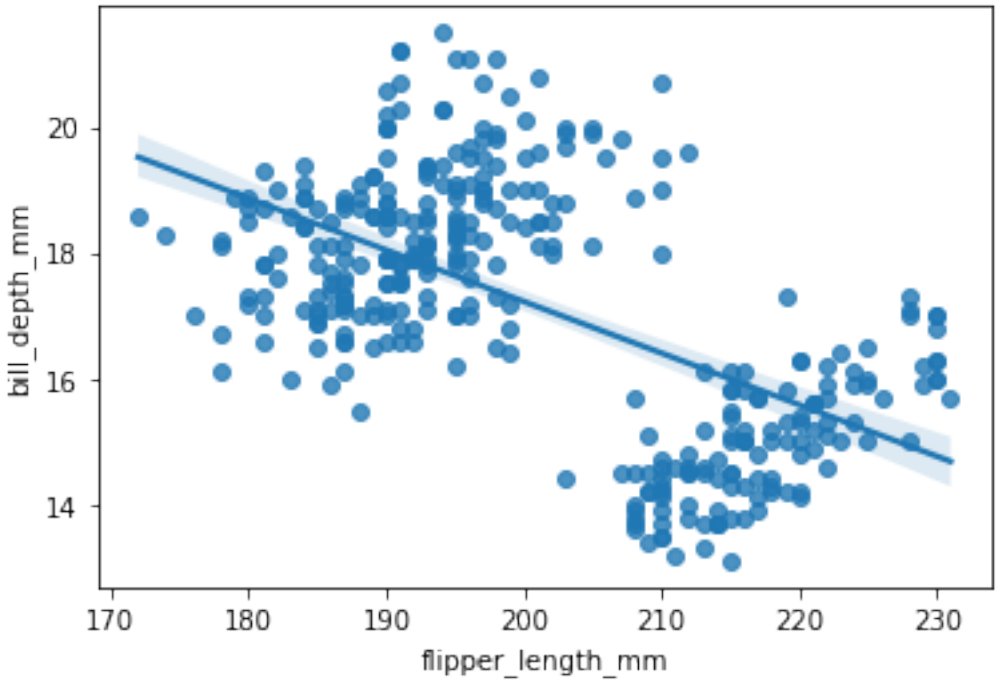

[ ]:
```
<AxesSubplot:xlabel='flipper_length_mm', ylabel='bill_depth_mm'>
```



[ ]:
```
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

[ ]:
```
corr2 = tips.corr(method="pearson")
```

[ ]:
```
corr3 = tips.corr(method="spearman")
```

[ ]:
```
tips.corr()
```

[ ]:

	total_bill	tip	size
total_bill	1.000000	0.675734	0.598315
tip	0.675734	1.000000	0.489299
size	0.598315	0.489299	1.000000

[ ]:
```
sns.regplot(tips['size'], tips['tip'], data= peng)
```

```
C:\Users\Faiza\AppData\Local\Programs\Python\Python310\lib\site-
packages\seaborn\_decorators.py:36: FutureWarning: Pass the following variables
```

```
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result in an error or misinterpretation.
  warnings.warn(
```

[ ]: <AxesSubplot:xlabel='size', ylabel='tip'>