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In [1]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as pp
```

Problem Statement

LINEAR REGRESSION

In [2]:
```
a = pd.read_csv("uber.csv")
```

Out[2]:

	Age	Sex	BP	Cholesterol	Na_to_K	Drug
0	23	F	HIGH	HIGH	25.355	drugY
1	47	M	LOW	HIGH	13.093	drugC
2	47	M	LOW	HIGH	10.114	drugC
3	28	F	NORMAL	HIGH	7.798	drugX
4	61	F	LOW	HIGH	18.043	drugY
...	...	...	...	...	...	...
195	56	F	LOW	HIGH	11.567	drugC
196	16	M	LOW	HIGH	12.006	drugC
197	52	M	NORMAL	HIGH	9.894	drugX
198	23	M	NORMAL	NORMAL	14.020	drugX
199	40	F	LOW	NORMAL	11.349	drugX

200 rows × 6 columns

HEAD

In [3]:

Out[3]:

	Age	Sex	BP	Cholesterol	Na_to_K	Drug
0	23	F	HIGH	HIGH	25.355	drugY
1	47	M	LOW	HIGH	13.093	drugC
2	47	M	LOW	HIGH	10.114	drugC
3	28	F	NORMAL	HIGH	7.798	drugX
4	61	F	LOW	HIGH	18.043	drugY

Data Cleaning and Preprocessing

In [4]:

Out[4]:

	Age	Sex	BP	Cholesterol	Na_to_K	Drug
0	23	F	HIGH	HIGH	25.355	drugY
1	47	M	LOW	HIGH	13.093	drugC
2	47	M	LOW	HIGH	10.114	drugC
3	28	F	NORMAL	HIGH	7.798	drugX
4	61	F	LOW	HIGH	18.043	drugY

In [5]:

Out[5]:

	Age	Na_to_K
count	200.000000	200.000000
mean	44.315000	16.084485
std	16.544315	7.223956
min	15.000000	6.269000
25%	31.000000	10.445500
50%	45.000000	13.936500
75%	58.000000	19.380000
max	74.000000	38.247000

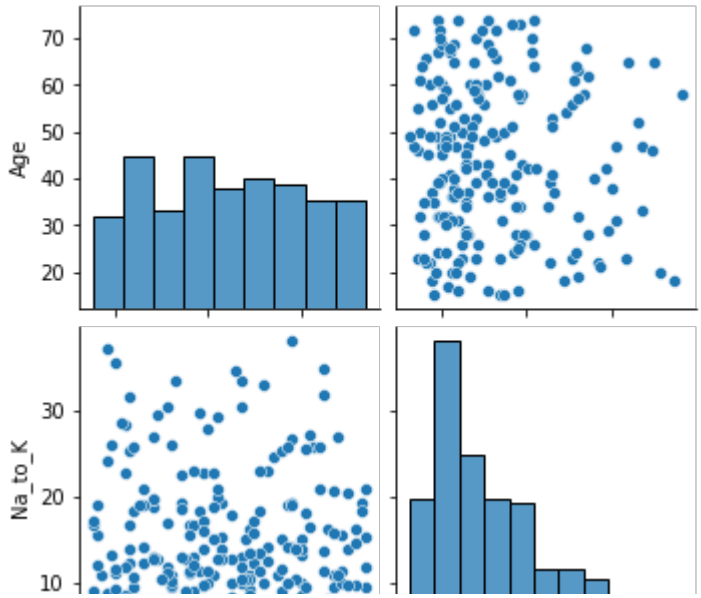
To display heading

In [6]:

Out[6]:
```
Index(['Age', 'Sex', 'BP', 'Cholesterol', 'Na_to_K', 'Drug'], dtype='object')
```

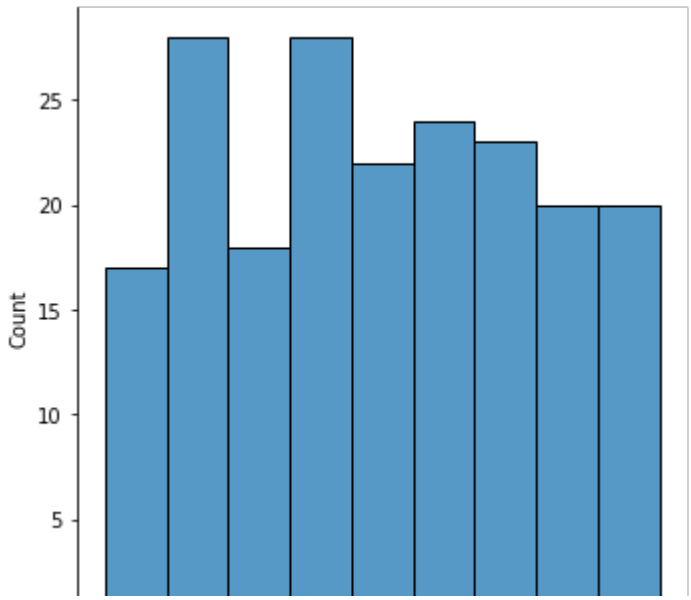
In [7]:

Out[7]: <seaborn.axisgrid.PairGrid at 0x1ab1b4a4be0>



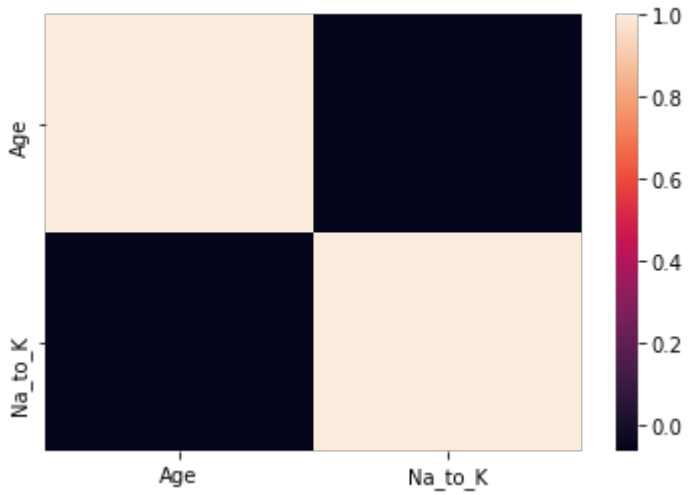
In [8]:

Out[8]: <seaborn.axisgrid.FacetGrid at 0x1ab1bd6e880>



In [9]:

Out[9]: <AxesSubplot:>



TO TRAIN THE MODEL - MODEL BUILDING

In [10]:
```
x = a[['Age']]
```

In [11]:
```
# to split my dataset into training and test data
from sklearn.model_selection import train_test_split
```

In [12]:
```
from sklearn.linear_model import LinearRegression
lr = LinearRegression()
```

Out[12]: LinearRegression()

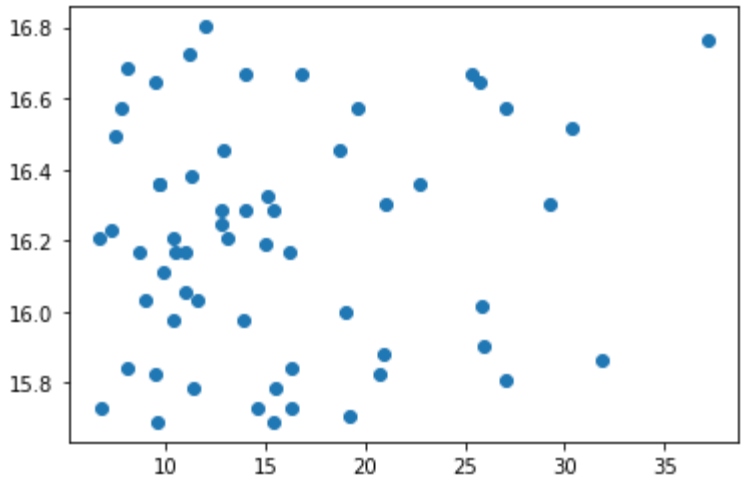
In [13]:
```
coeff = pd.DataFrame(lr.coef_,x.columns,columns=['Co-efficient'])
```

Out[13]:

	Co-efficient
Age	-0.019161

In [14]:
```
prediction= lr.predict(x_test)
```

Out[14]: <matplotlib.collections.PathCollection at 0x1ab1d71a280>



In [15]:

Out[15]: -0.00026897328465191883

LASSO & RIDGE

In [16]:
```
from sklearn.linear_model import Ridge,Lasso
rr=Ridge(alpha=10)
```

Out[16]: Ridge(alpha=10)

In [17]:

Out[17]: -0.00027071646583842757

In [18]:
```
la=Lasso(alpha=10)
```

Out[18]: Lasso(alpha=10)

In [19]:

Out[19]: -0.008883331262525829

In [20]:
```
from sklearn.linear_model import ElasticNet
a=ElasticNet()
```

Out[20]: ElasticNet()

In [21]:
```
print(a.coef_)
print(a.intercept_)
print(a.score(x_test,y_test))
```

```
[-0.01722679]
17.025175504034777
-0.0009392736929447754
[15.88820764 16.24997014 16.49114514 16.47391836 16.64618621 16.07770228
 15.93988799 16.00879514 16.61173264 16.74954693 16.5428255  15.75039335
 16.3016505  16.181063   16.61173264 16.35333086 16.62895943 16.43946478
 15.75039335 16.71509336 16.28442371 15.76762014 15.90543442 16.00879514
 16.02602192 16.181063   16.21551657 16.23274335 16.37055764 16.5428255
 15.87098085 16.5428255  15.78484692 16.35333086 16.62895943 15.92266121
 16.04324871 16.43946478 16.181063   16.31887728 15.78484692 15.83652728
 16.62895943 16.35333086 16.28442371 15.78484692 16.21551657 16.21551657
 16.181063   16.68063979 16.3016505  15.87098085 16.19828978 15.83652728
 16.0604755  16.12938264 15.85375407 15.88820764 16.0604755  16.28442371]
```

In [22]:
```
from sklearn import metrics
print(" Mean Absolute Error :",metrics.mean_absolute_error(y_test,prediction))
print(" Mean Squared Error :",metrics.mean_squared_error(y_test,prediction))
```

```
 Mean Absolute Error : 5.813193064840617
 Mean Squared Error : 50.19892316183593
 Root Mean Absolute Error : 2.4110564209160716
```