Final Exam Coding Problem Solution

February 17, 2021

[1]:
```
import pandas as pd
import numpy as np
import seaborn as sns
```

[2]:
```
data = pd.read_csv('cars.csv')
```

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

[3]:

	Acceleration	Cylinders	Displacement	Horsepower	Make	Model	Model Year	MPG	Origin	Weight
0	12.0	8	307	130.0	chevrolet	chevrolet chevelle malibu	70	18.0	USA	3504
1	11.5	8	350	165.0	buick	buick skylark 320	70	15.0	USA	3693
2	11.0	8	318	150.0	plymouth	plymouth satellite	70	18.0	USA	3436
3	12.0	8	304	150.0	amc	amc rebel sst	70	16.0	USA	3433
4	10.5	8	302	140.0	ford	ford torino	70	17.0	USA	3449

[39]:
```
select_cols = data.drop(columns=["Acceleration", "Cylinders", "Displacement",␣
↪"Horsepower", "Model", "Origin"])
```

[40]:
```
select_cols.head()
```

[40]:

	Make	Model Year	MPG	Weight
0	chevrolet	70	18.0	3504
1	buick	70	15.0	3693
2	plymouth	70	18.0	3436
3	amc	70	16.0	3433
4	ford	70	17.0	3449

[41]:
```
eco_mask = select_cols["MPG"] > 15
vals = np.zeros([100,1])
vals[eco_mask] = 1
select_cols["eco-friendler"] = vals
```

[42]:
```
select_cols.head()
```

[42]:

	Make	Model Year	MPG	Weight	eco-friendler
0	chevrolet	70	18.0	3504	1.0
1	buick	70	15.0	3693	0.0
2	plymouth	70	18.0	3436	1.0
3	amc	70	16.0	3433	1.0
4	ford	70	17.0	3449	1.0

[43]:
```
select_cols["Make"] = select_cols["Make"].astype("category")
```

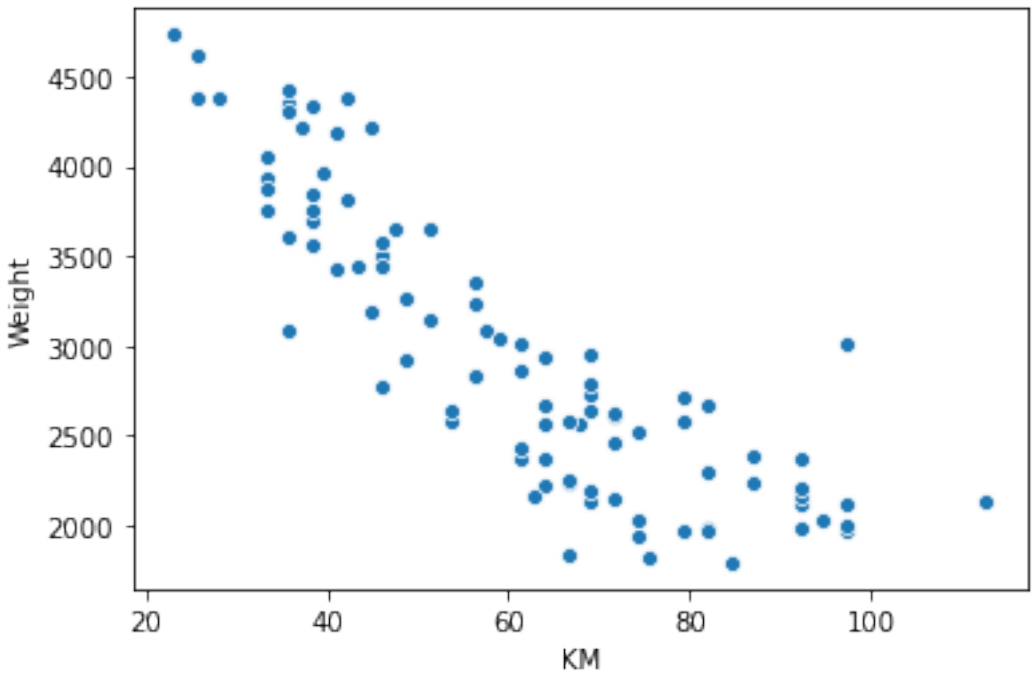
[44]:
```
select_cols.info(verbose=True)
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 100 entries, 0 to 99
Data columns (total 5 columns):
 #   Column         Non-Null Count  Dtype
---  ------         --------------  -----
 0   Make           100 non-null    category
 1   Model Year     100 non-null    int64
 2   MPG            94 non-null     float64
 3   Weight         100 non-null    int64
 4   eco-friendler  100 non-null    float64
dtypes: category(1), float64(2), int64(2)
memory usage: 4.8 KB
```

[47]:
```
mileage = select_cols["MPG"]
kilometers = mileage.map(lambda d: d*1.6)
select_cols["KM"] = kilometers
```

[48]:
```
sns.scatterplot(select_cols["KM"], select_cols["Weight"])
```

[48]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x2ab6b467f10>
```


Weight
4500
4000
3500
3000
2500
2000
20
40
60
80
100
KM

[ ]: