Cars Dataset

Here, the data of different cars is given with their specifications.

This data is available as a CSV file. I am going to analyze this dataset using the Pandas DataFrame.

In [2]:

```
import pandas as pd
```

In [3]:

```
car = pd.read_csv(r"C:\Users\harsh\Desktop\Projects\Python\Cars Dataset Analysis\Cars Da
```

In [4]:

```
car.head()
```

Out[4]:

	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders	Horsep
0	Acura	MDX	SUV	Asia	All	$36,945	$33,337	3.5	6.0	
1	Acura	RSX Type S 2dr	Sedan	Asia	Front	$23,820	$21,761	2.0	4.0	
2	Acura	TSX 4dr	Sedan	Asia	Front	$26,990	$24,647	2.4	4.0	
3	Acura	TL 4dr	Sedan	Asia	Front	$33,195	$30,299	3.2	6.0	
4	Acura	3.5 RL 4dr	Sedan	Asia	Front	$43,755	$39,014	3.5	6.0	

In [5]:

```
car.shape
```

Out[5]:

```
(428, 15)
```

Q1) Find all null values in the dataset. If there is any null value in any column, then fill it with the mean of that column.

In [6]:

```
car.isnull().sum()
```

Out[6]:

```
Make           0
Model          0
Type           0
Origin         0
DriveTrain     0
MSRP           0
Invoice        0
EngineSize     0
Cylinders      2
Horsepower     0
MPG_City       0
MPG_Highway    0
Weight         0
Wheelbase      0
Length         0
dtype: int64
```

In [7]:

```
car['Cylinders'].fillna(car['Cylinders'].mean(), inplace = True)
```

In [8]:

```
car.isnull().sum()
```

Out[8]:

```
Make           0
Model          0
Type           0
Origin         0
DriveTrain     0
MSRP           0
Invoice        0
EngineSize     0
Cylinders      0
Horsepower     0
MPG_City       0
MPG_Highway    0
Weight         0
Wheelbase      0
Length         0
dtype: int64
```

Q2) Check what are the different types of Make are there in our dataset. And, what is the count (occurrence) of each Make in the data?

In [9]:

```
car.head(2)
```

Out[9]:

	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders	Horsepo
0	Acura	MDX	SUV	Asia	All	$36,945	$33,337	3.5	6.0	
1	Acura	RSX Type S 2dr	Sedan	Asia	Front	$23,820	$21,761	2.0	4.0	

In [10]:

```
car['Make'].value_counts()
```

Out[10]:

```
Toyota           28
Chevrolet        27
Mercedes-Benz    26
Ford             23
BMW              20
Audi             19
Honda            17
Nissan           17
Volkswagen       15
Chrysler         15
Dodge            13
Mitsubishi       13
Volvo            12
Jaguar           12
Hyundai          12
Subaru           11
Pontiac          11
Mazda            11
Lexus            11
Kia              11
Buick             9
Mercury           9
Lincoln           9
Saturn            8
Cadillac          8
Suzuki            8
Infiniti          8
GMC               8
Acura             7
Porsche           7
Saab              7
Land Rover        3
Oldsmobile        3
Jeep              3
Scion             2
Isuzu             2
MINI              2
Hummer            1
Name: Make, dtype: int64
```

Q3) Show all the records where Origin is Asia or Europe.

In [12]:

```
car[car['Origin'].isin(['Asia','Europe'])]
```

Out[12]:

	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders
0	Acura	MDX	SUV	Asia	All	$36,945	$33,337	3.5	6.0
1	Acura	RSX Type S 2dr	Sedan	Asia	Front	$23,820	$21,761	2.0	4.0
2	Acura	TSX 4dr	Sedan	Asia	Front	$26,990	$24,647	2.4	4.0
3	Acura	TL 4dr	Sedan	Asia	Front	$33,195	$30,299	3.2	6.0
4	Acura	3.5 RL 4dr	Sedan	Asia	Front	$43,755	$39,014	3.5	6.0
...	...	...	...	...	...	...	...	...	...
423	Volvo	C70 LPT convertible 2dr	Sedan	Europe	Front	$40,565	$38,203	2.4	5.0
424	Volvo	C70 HPT convertible 2dr	Sedan	Europe	Front	$42,565	$40,083	2.3	5.0
425	Volvo	S80 T6 4dr	Sedan	Europe	Front	$45,210	$42,573	2.9	6.0
426	Volvo	V40	Wagon	Europe	Front	$26,135	$24,641	1.9	4.0
427	Volvo	XC70	Wagon	Europe	All	$35,145	$33,112	2.5	5.0

281 rows × 15 columns

Q4) Remove all the records (rows) where weight is above 4000.

In [15]:

```
car[~(car['Weight'] > 4000)]
```

Out[15]:

	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders	Horsepower
1	Acura	RSX Type S 2dr	Sedan	Asia	Front	$23,820	$21,761	2.0	4.0	200
2	Acura	TSX 4dr	Sedan	Asia	Front	$26,990	$24,647	2.4	4.0	200
3	Acura	TL 4dr	Sedan	Asia	Front	$33,195	$30,299	3.2	6.0	270
4	Acura	3.5 RL 4dr	Sedan	Asia	Front	$43,755	$39,014	3.5	6.0	225
5	Acura	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	$46,100	$41,100	3.5	6.0	225
...	...	...	...	...	...	...	...	...	...	...
423	Volvo	C70 LPT convertible 2dr	Sedan	Europe	Front	$40,565	$38,203	2.4	5.0	197

Q5) Increase all the values of 'MPG_City' column by 3.

In [16]:

```
car['MPG_City'] = car['MPG_City'].apply(lambda x:x+3)
```

In [17]:

```
car.head(2)
```

Out[17]:

	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders	Horsep
0	Acura	MDX	SUV	Asia	All	$36,945	$33,337	3.5	6.0	
1	Acura	RSX Type S 2dr	Sedan	Asia	Front	$23,820	$21,761	2.0	4.0	