In [1]:
```
import pandas as pd
```

In [2]:
```
car=pd.read_csv(r'C:\Users\Sachin.K.C\Downloads\2. Cars Data1.csv')
```

In [3]:
```
car
```

Out[3]:

	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders	Horsepower	MPG_City	MPG_Highway	Weight	Wh
0	Acura	MDX	SUV	Asia	All	$36,945	$33,337	3.5	6.0	265.0	17.0	23.0	4451.0	
1	Acura	RSX Type S 2dr	Sedan	Asia	Front	$23,820	$21,761	2.0	4.0	200.0	24.0	31.0	2778.0	
2	Acura	TSX 4dr	Sedan	Asia	Front	$26,990	$24,647	2.4	4.0	200.0	22.0	29.0	3230.0	
3	Acura	TL 4dr	Sedan	Asia	Front	$33,195	$30,299	3.2	6.0	270.0	20.0	28.0	3575.0	
4	Acura	3.5 RL 4dr	Sedan	Asia	Front	$43,755	$39,014	3.5	6.0	225.0	18.0	24.0	3880.0	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	
427	Volvo	C70 LPT convertible 2dr	Sedan	Europe	Front	$40,565	$38,203	2.4	5.0	197.0	21.0	28.0	3450.0	
428	Volvo	C70 HPT convertible 2dr	Sedan	Europe	Front	$42,565	$40,083	2.3	5.0	242.0	20.0	26.0	3450.0	
429	Volvo	S80 T6 4dr	Sedan	Europe	Front	$45,210	$42,573	2.9	6.0	268.0	19.0	26.0	3653.0	
430	Volvo	V40	Wagon	Europe	Front	$26,135	$24,641	1.9	4.0	170.0	22.0	29.0	2822.0	
431	Volvo	XC70	Wagon	Europe	All	$35,145	$33,112	2.5	5.0	208.0	20.0	27.0	3823.0	

432 rows × 15 columns

In [4]:
```
car.shape
```

Out[4]:
```
(432, 15)
```

Finding all the null values in the dataset

In [10]:
```
car.isnull().sum()
```

Out[10]:
```
Make           0
Model          4
Type           4
Origin         4
DriveTrain     4
MSRP           4
Invoice        4
EngineSize     4
Cylinders      6
Horsepower     4
MPG_City       4
MPG_Highway    4
Weight         4
Wheelbase      4
Length         4
dtype: int64
```

Filling the null values

In [11]:
```
car['Make'].fillna('no information avialable',inplace=True)
car['Model'].fillna('no information avialable',inplace=True)
car['Type'].fillna('no information avialable',inplace=True)
car['Origin'].fillna('no information avialable',inplace=True)
car['DriveTrain'].fillna('no information avialable',inplace=True)
car['MSRP'].fillna(0,inplace=True)
car['Invoice'].fillna(0,inplace=True)
car['EngineSize'].fillna(0,inplace=True)
car['Cylinders'].fillna(0,inplace=True)
car['Horsepower'].fillna(0,inplace=True)
```

```
car['MPG_City'].fillna(0,inplace=True)
car['MPG_Highway'].fillna(0,inplace=True)
car['Weight'].fillna(0,inplace=True)
car['Wheelbase'].fillna(0,inplace=True)
car['Length'].fillna(0,inplace=True)
```

In [14]:
```
car.isnull().sum()
```

Out[14]:
```
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
```

Checked what are the different types of make are there in dataset and what is the count of each make in the dataset

In [15]:
```
car.head(2)
```

Out[15]:

	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders	Horsepower	MPG_City	MPG_Highway	Weight	Wheelbase
0	Acura	MDX	SUV	Asia	All	$36,945	$33,337	3.5	6.0	265.0	17.0	23.0	4451.0	106.0
1	Acura	RSX Type S 2dr	Sedan	Asia	Front	$23,820	$21,761	2.0	4.0	200.0	24.0	31.0	2778.0	101.0

In [16]:
```
car['Make'].value_counts()
```

Out[16]:
```
Toyota                    28
Chevrolet                 27
Mercedes-Benz             26
Ford                      23
BMW                       20
Audi                      19
Nissan                    17
Honda                     17
Chrysler                  15
Volkswagen                15
Mitsubishi                13
Dodge                     13
Volvo                     12
Hyundai                   12
Jaguar                    12
Kia                       11
Pontiac                   11
Mazda                     11
Lexus                     11
Subaru                    11
Mercury                    9
Lincoln                    9
Buick                      9
Suzuki                     8
GMC                        8
Saturn                     8
Cadillac                   8
Infiniti                   8
Saab                       7
Porsche                    7
Acura                      7
no information avialable   4
Land Rover                 3
Oldsmobile                 3
Jeep                       3
Scion                      2
Isuzu                      2
```

```
MINI                      2
Hummer                    1
Name: Make, dtype: int64
```

Showing all the records where origin is Asia or Europe

In [18]:
```
car[car['Origin'].isin(['Asia','Europe'])]
```

Out[18]:

	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders	Horsepower	MPG_City	MPG_Highway	Weight	Wh
0	Acura	MDX	SUV	Asia	All	$36,945	$33,337	3.5	6.0	265.0	17.0	23.0	4451.0	
1	Acura	RSX Type S 2dr	Sedan	Asia	Front	$23,820	$21,761	2.0	4.0	200.0	24.0	31.0	2778.0	
2	Acura	TSX 4dr	Sedan	Asia	Front	$26,990	$24,647	2.4	4.0	200.0	22.0	29.0	3230.0	
3	Acura	TL 4dr	Sedan	Asia	Front	$33,195	$30,299	3.2	6.0	270.0	20.0	28.0	3575.0	
4	Acura	3.5 RL 4dr	Sedan	Asia	Front	$43,755	$39,014	3.5	6.0	225.0	18.0	24.0	3880.0	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	
427	Volvo	C70 LPT convertible 2dr	Sedan	Europe	Front	$40,565	$38,203	2.4	5.0	197.0	21.0	28.0	3450.0	
428	Volvo	C70 HPT convertible 2dr	Sedan	Europe	Front	$42,565	$40,083	2.3	5.0	242.0	20.0	26.0	3450.0	
429	Volvo	S80 T6 4dr	Sedan	Europe	Front	$45,210	$42,573	2.9	6.0	268.0	19.0	26.0	3653.0	
430	Volvo	V40	Wagon	Europe	Front	$26,135	$24,641	1.9	4.0	170.0	22.0	29.0	2822.0	
431	Volvo	XC70	Wagon	Europe	All	$35,145	$33,112	2.5	5.0	208.0	20.0	27.0	3823.0	

281 rows × 15 columns

**Removed all the records where weight is above 4000*

In [19]:
```
car[~(car['Weight']>4000)]
```

Out[19]:

	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice	EngineSize	Cylinders	Horsepower	MPG_City	MPG_Highway	Weight	W
1	Acura	RSX Type S 2dr	Sedan	Asia	Front	$23,820	$21,761	2.0	4.0	200.0	24.0	31.0	2778.0	
2	Acura	TSX 4dr	Sedan	Asia	Front	$26,990	$24,647	2.4	4.0	200.0	22.0	29.0	3230.0	
3	Acura	TL 4dr	Sedan	Asia	Front	$33,195	$30,299	3.2	6.0	270.0	20.0	28.0	3575.0	
4	Acura	3.5 RL 4dr	Sedan	Asia	Front	$43,755	$39,014	3.5	6.0	225.0	18.0	24.0	3880.0	
5	Acura	3.5 RL w/Navigation 4dr	Sedan	Asia	Front	$46,100	$41,100	3.5	6.0	225.0	18.0	24.0	3893.0	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	
427	Volvo	C70 LPT convertible 2dr	Sedan	Europe	Front	$40,565	$38,203	2.4	5.0	197.0	21.0	28.0	3450.0	
428	Volvo	C70 HPT convertible 2dr	Sedan	Europe	Front	$42,565	$40,083	2.3	5.0	242.0	20.0	26.0	3450.0	
429	Volvo	S80 T6 4dr	Sedan	Europe	Front	$45,210	$42,573	2.9	6.0	268.0	19.0	26.0	3653.0	
430	Volvo	V40	Wagon	Europe	Front	$26,135	$24,641	1.9	4.0	170.0	22.0	29.0	2822.0	
431	Volvo	XC70	Wagon	Europe	All	$35,145	$33,112	2.5	5.0	208.0	20.0	27.0	3823.0	

329 rows × 15 columns

In [ ]:

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