Import library and Read Csv File

```
import pandas as pd
import numpy as np
car = pd.read_csv(r"C:\Users\Ashish\OneDrive\Pyhton Project file ALL\
Project 2 - Car Dataset.csv")
car.head(2)
    Make
                   Model Type Origin DriveTrain
                                                        MSRP
                                                               Invoice
  Acura
                     MDX
                            SUV
                                  Asia
                                              All
                                                    $36,945
                                                              $33,337
1 Acura RSX Type S 2dr Sedan
                                                              $21,761
                                  Asia
                                             Front $23,820
                                      MPG_City
                                                MPG Highway
   EngineSize Cylinders
                          Horsepower
                                                              Weight \
0
          3.5
                     6.0
                                             17
                                                                4451
                                 265
          2.0
                     4.0
                                 200
                                             24
                                                          31
1
                                                                2778
   Wheelbase
              Length
0
                 189
         106
1
         101
                 172
```

Find all the Null Value and fill it with the MEAN of that coloumn!!

```
car.isnull().sum()
Make
                0
Model
                0
Type
                0
Origin
DriveTrain
                0
MSRP
Invoice
                0
                0
EngineSize
                2
Cylinders
                0
Horsepower
MPG City
                0
MPG Highway
Weight
                0
Wheelbase
                0
Length
dtype: int64
```

```
car["Cylinders"].fillna(car["Cylinders"].mean(), inplace = True)
car.isnull().sum()
C:\Users\Ashish\AppData\Local\Temp\ipykernel 26596\3393790091.py:1:
FutureWarning: A value is trying to be set on a copy of a DataFrame or
Series through chained assignment using an inplace method.
The behavior will change in pandas 3.0. This inplace method will never
work because the intermediate object on which we are setting values
always behaves as a copy.
For example, when doing 'df[col].method(value, inplace=True)', try
using 'df.method({col: value}, inplace=True)' or df[col] =
df[col].method(value) instead, to perform the operation inplace on the
original object.
  car["Cylinders"].fillna(car["Cylinders"].mean(), inplace = True)
Make
               0
Model
               0
               0
Type
Origin
               0
DriveTrain
               0
MSRP
               0
               0
Invoice
EngineSize
               0
               0
Cvlinders
Horsepower
               0
MPG City
               0
MPG Highway
               0
               0
Weiaht
Wheelbase
               0
               0
Length
dtype: int64
```

What are the diffrent type of make are their in our dataset, and how many time dose they oocure?

```
car.head(2)
   Make
                   Model
                           Type Origin DriveTrain
                                                       MSRP
                                                              Invoice
/
  Acura
                     MDX
                            SUV
                                  Asia
                                              All
                                                   $36,945
                                                              $33,337
1 Acura RSX Type S 2dr Sedan
                                  Asia
                                            Front $23,820
                                                              $21,761
  EngineSize Cylinders
                          Horsepower
                                      MPG_City
                                                MPG Highway
                                                              Weight \
          3.5
                                                                4451
                     6.0
                                 265
                                            17
```

```
2.0
                      4.0
1
                                   200
                                               24
                                                             31
                                                                    2778
   Wheelbase
               Length
0
         106
                  189
1
         101
                  172
car["Make"].value_counts()
Make
Toyota
                  28
Chevrolet
                  27
Mercedes-Benz
                  26
Ford
                  23
                  20
BMW
Audi
                  19
Honda
                  17
                  17
Nissan
Volkswagen
                  15
Chrysler
                  15
Dodge
                  13
Mitsubishi
                  13
Volvo
                  12
Jaguar
                  12
Hyundai
                  12
Subaru
                  11
Pontiac
                  11
                  11
Mazda
                  11
Lexus
                  11
Kia
                   9
Buick
                   9
Mercury
                   9
Lincoln
                   8
Saturn
                   8
Cadillac
                   8
Suzuki
                   8
Infiniti
                   8
GMC
Acura
                   7
                   7
Porsche
                   7
Saab
                   3
Land Rover
Oldsmobile
                   3
2
2
Jeep
Scion
Isuzu
                   2
MINI
Hummer
Name: count, dtype: int64
car.groupby("Make").size()
```

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

Show all the record where orgin is ASIA/EUROPE?

ca	r.head(<mark>2</mark>)						
\	Make	Model	Type	Origin	DriveTrain	MSRP	Invoice
ò	Acura	MDX	SUV	Asia	All	\$36,945	\$33,337

1	Acura	RSX 1	Гуре S	2dr	Sedan	As	ia	Front	\$23,820	\$21,761
0	Engine	Size 3.5 2.0	Cylin	ders 6.0 4.0	Horse	oower 265 200	MPG_C	City MP0 17 24	G_Highway 23 31	Weight \ 4451 2778
0		ase L 106 101	ength. 189 172							
cai	r[car["	Origir	n"].is	in(["	Asia",	"Euro	pe"])]			
мсг	Mak	е			Мо	odel	Type	Origin	DriveTrai	n
MSF 0	RP \ Acur	а				MDX	SUV	Asia	Al	l \$36,945
1	Acur	a		RSX	Type S	2dr	Sedan	Asia	Fron	t \$23,820
2	Acur	а			TSX	4dr	Sedan	Asia	Fron [.]	t \$26,990
3	Acur	a			TL	4dr	Sedan	Asia	Fron [.]	t \$33,195
4	Acur	а			3.5 RL	4dr	Sedan	Asia	Fron [.]	t \$43,755
423) I PT	CONVA	rtible		Sedan	Europe	Fron [.]	
424					rtible		Sedan	Europe	Fron	
			IIFI		S80 T6			·		
425					580 10		Sedan	Europe	Fron [.]	
426						V40	Wagon	Europe	Fron	
427	7 Volv	0)	KC70	Wagon	Europe	Al	l \$35,145
MP(Inv Highw	oice	Engin	eSize	Cyli	nders	Horse	epower 1	MPG_City	
0	\$33,			3.5		6.0		265	17	
23	\$21,	761		2.0		4.0		200	24	
31	\$24,	647		2.4		4.0		200	22	
29 3	\$30,	299		3.2		6.0		270	20	
28 4 24	\$39,	014		3.5		6.0		225	18	

423	\$38,203	2.4		5.0	197	21
28	±40 003	2.2		F 0	242	20
424 26	\$40,083	2.3		5.0	242	20
425	\$42,573	2.9		6.0	268	19
26						
426	\$24,641	1.9		4.0	170	22
29 427	\$33,112	2.5		5.0	208	20
27	455,111	2.0		3.0	200	
O	Weight V 4451		gth 189			
0 1 2 3 4	2778		172			
2	3230	105	183			
3	3575		186			
	3880		197			
423	3450	105	186			
424	3450		186			
425	3653		190			
426 427	2822 3823		180 186			
421	3023	109	100			
[281	rows x 15	o columns]				

Remove all the record where weight is above 4000.

ca	r.head(2)									
\	Make		Mod	el	Type	Origin	Driv	eTrain	MSRP	Invoice	е
0	Acura		М	DX	SUV	Asia		All	\$36,945	\$33,337	
1	Acura	RSX	Type S 2	dr	Sedan	Asia		Front	\$23,820	\$21,761	
	F	c :	C. 1 to de				MDC C	' to MD	C 112 - h	Madalah	,
0	Engine	3.5	6	. 0	Horsep	265	MPG_C	17	G_Highway 23	4451	\
1		2.0	4	. 0		200		24	31	2778	
0	Wheelb	ase 106	Length 189								
1		101	172								
ca	r[~(car	["We	ight"] >	4000)]						
MSI	Mak RP \	е			Мс	del	Type	0rigin	DriveTrai	in	
. 101	\										

1	Acura			RSX	Туре	S	2dr	Sedan	Asia	a Front	\$23,820
2	Acura				7. TS	5X	4dr	Sedan	Asia		\$26,990
3	Acura						4dr	Sedan	Asia		\$33,195
4	Acura				3.5 F			Sedan	Asia		\$43,755
5		2 5	DI v	/Nov							\$46,100
5	Acura	3.3	KL \	w/ Nav	igatio	ווע	401	Sedan	Asia	a Front	\$40,100
							• • •		• • •		
423	Volvo	C70	LPT	conv	ertibl	le	2dr	Sedan	Europe	e Front	\$40,565
424	Volvo	C70	HPT	conv	ertibl	le	2dr	Sedan	Europe	e Front	\$42,565
425	Volvo				S80 T	Г6	4dr	Sedan	Europe	e Front	\$45,210
426	Volvo						V40	Wagon	Europe	e Front	\$26,135
427	Volvo					>	<c70< td=""><td>Wagon</td><td>Europe</td><td>e All</td><td>\$35,145</td></c70<>	Wagon	Europe	e All	\$35,145
1 _	Invoid Highway \$21,76	\	Engi	neSiz 2.	e Cyl	lir	nders 4.0	Horse	power 200	MPG_City 24	
31	\$24,64	7		2.	4		4.0		200	22	
29 3	\$30,299	9		3.	2		6.0		270	20	
28 4	\$39,01	4		3.	5		6.0		225	18	
24 5	\$41,100	9		3.	5		6.0		225	18	
24											
423	\$38,203	3		2.	4		5.0		197	21	
28 424	\$40,083	3		2.	3		5.0		242	20	
26 425	\$42,57			2.			6.0		268	19	
26											
426 29	\$24,64			1.			4.0		170	22	
427 27	\$33,112	2		2.	5		5.0		208	20	
1	Weight 2778	Whe	eelb	ase 101	Length 172						

2 3 4 5	3230 3575 3880 3893	105 108 115 115	183 186 197 197
423	3450	105	186
424	3450	105	186
425 426	3653 2822	110 101	190 180
427	3823	109	186
[325	rows x 15	columns]	

Increase all the value of "MPG City" Coloumn by 3?

///C	i Cas	Call		vatu	C 01	/ / / (City	COLO	uiiiii by .	J.
car.	head(2	2)								
\	Make		l	Model	Type	Orig:	in Driv	/eTrain	MSRP	Invoice
	cura			MDX	SUV	As	ia	All	\$36,945	\$33,337
1 A	cura	RSX	Type :	S 2dr	Sedan	As	ia	Front	\$23,820	\$21,761
0 1 W 0 1		3.5 2.0 ase 106 101	Cyli Lengt 18 17] = c	6.0 4.0 h 9	Horse	265 200	MPG_0	City MP 17 24 nbda x:x	G_Highway 23 31 +3)	Weight \ 4451 2778
MSRP	Make	9			Mo	odel	Type	0rigin	DriveTrai	n
0	Acura	Э				MDX	SUV	Asia	Al	l \$36,945
1	Acura	Э		RSX	Type S	2dr	Sedan	Asia	Fron	t \$23,820
2	Acura	Э			TSX	4dr	Sedan	Asia	Fron	t \$26,990
3	Acura	Э			TL	4dr	Sedan	Asia	Fron	t \$33,195
4	Acura	€			3.5 RL	4dr	Sedan	Asia	Fron	t \$43,755
423	Volvo	o C7	0 LPT	conve	ertible	2dr	Sedan	Europe	Fron	t \$40,565

424	Volvo	C70	HPT	conver	tible	2dr	Sedan	Europe	e Front	\$42,565
425	Volvo				80 T6		Sedan	Europe		\$45,210
				,	00 10					
426	Volvo					V40	Wagon	Europ	e Front	\$26,135
427	Volvo)	XC70	Wagon	Europ	e All	\$35,145
	Invoid	20	Engin	eSize	Cv1i	ndorc	Horco	power	MPG City	
MPG_	Highway	\	Eligili		СУСТ		пот ѕе		_	
0 23	\$33,337	7		3.5		6.0		265	20	
1	\$21,762	l		2.0		4.0		200	27	
31 2	\$24,647	7		2.4		4.0		200	25	
29 3	\$30,299	a		3.2		6.0		270	23	
28										
4 24	\$39,014	4		3.5		6.0		225	21	
423	\$38,203	3		2.4		5.0		197	24	
28 424	\$40,083	3		2.3		5.0		242	23	
26 425	\$42,573	2		2.9		6.0		268	22	
26										
426 29	\$24,641	L		1.9		4.0		170	25	
427 27	\$33,112	2		2.5		5.0		208	23	
21										
0	Weight 4451	Wh	eelba 1	ise Le .06	ngth 189					
1	2778 3230			.01 .05	172 183					
2 3 4	3575		1	.08	186					
4	3880			.15	197					
423 424	3450 3450		1	.05 .05	186 186					
425	3653		1	.10	190					
426 427	2822 3823			.01 .09	180 186					
	rows x	15								
[120	I OWS X	10	co cum							