1. Most expensive car for each car company make.

2.Most expensive convertible vehicle for each company.

3.List all the cars which are automatic.

4. Premium cars of each car company

5. Average price of cars each car company make.

In [1]:
```
import pandas as pd
import numpy as np
df=pd.read_csv("car.csv")
```

In [3]:
```
df.head()
```

Out[3]:

	Make	Model	Year	Engine Fuel Type	Engine HP	Engine Cylinders	Transmission Type	Driven_Wheels	Nu
0	BMW	1 Series M	2011	premium unleaded (required)	335.0	6.0	MANUAL	rear wheel drive	
1	BMW	1 Series	2011	premium unleaded (required)	300.0	6.0	MANUAL	rear wheel drive	
2	BMW	1 Series	2011	premium unleaded (required)	300.0	6.0	MANUAL	rear wheel drive	
3	BMW	1 Series	2011	premium unleaded (required)	230.0	6.0	MANUAL	rear wheel drive	
4	BMW	1 Series	2011	premium unleaded (required)	230.0	6.0	MANUAL	rear wheel drive	

In [4]:
```
df.groupby('Make')['MSRP'].max()
# 1.Most expensive car for each car company make.
```

Out[4]:
```
Make
Acura              156000
Alfa Romeo          68400
Aston Martin       320695
Audi               199900
BMW                141200
Bentley            363000
Bugatti           2065902
Buick               49625
Cadillac           104215
Chevrolet           92395
Chrysler            49470
Dodge              120395
FIAT                31800
Ferrari            643330
Ford               149995
GMC                 71665
Genesis             54550
HUMMER              43130
Honda               47070
Hyundai             68750
Infiniti            88850
Kia                 61900
Lamborghini       1500000
Land Rover         199495
Lexus              375000
Lincoln             76650
Lotus               93225
Maserati           182009
Maybach           1382750
Mazda               44015
McLaren            280225
Mercedes-Benz      495000
Mitsubishi          38995
Nissan             149990
Oldsmobile          36795
Plymouth            44625
Pontiac             37610
Porsche            440000
Rolls-Royce        492425
Saab                51330
Scion               31090
Spyker             219990
Subaru              39995
Suzuki              31749
Tesla              134500
Toyota              84325
Volkswagen         101300
Volvo               65700
Name: MSRP, dtype: int64
```

In [15]:
```
# 2.Most expensive convertible vehicle for each company.
df[df['Vehicle Style']=='Convertible']
```

Out[15]:

	Make	Model	Year	Engine Fuel Type	Engine HP	Engine Cylinders	Transmission Type	Driven
1	BMW	1 Series	2011	premium unleaded (required)	300.0	6.0	MANUAL	re
4	BMW	1 Series	2011	premium unleaded (required)	230.0	6.0	MANUAL	re
6	BMW	1 Series	2012	premium unleaded (required)	300.0	6.0	MANUAL	re
8	BMW	1 Series	2012	premium unleaded (required)	230.0	6.0	MANUAL	re
9	BMW	1 Series	2013	premium unleaded (required)	230.0	6.0	MANUAL	re
...	...	...	...	...	...	...	...	
11901	BMW	Z4	2016	premium unleaded (required)	240.0	4.0	MANUAL	re
11902	BMW	Z4	2016	premium unleaded (required)	335.0	6.0	AUTOMATED_MANUAL	re
11903	BMW	Z8	2001	premium unleaded (required)	394.0	8.0	MANUAL	re
11904	BMW	Z8	2002	premium unleaded (required)	394.0	8.0	MANUAL	re
11905	BMW	Z8	2003	premium unleaded (required)	394.0	8.0	MANUAL	re

793 rows × 16 columns

In [14]:
```
df[df['Vehicle Style']=='Convertible'].groupby('Make').MSRP.max()
```

Out[14]:
```
Make
Alfa Romeo        65900
Aston Martin     320695
Audi             199600
BMW              136900
Bentley          363000
Buick             37065
Cadillac         104215
Chevrolet         92395
Chrysler          49470
Dodge              2000
FIAT              28195
Ferrari          294080
Ford              60110
Honda             37995
Infiniti          62100
Lamborghini      548800
Lexus             68405
Lotus             57950
Maserati         182009
Maybach         1382750
Mazda             32655
McLaren          280225
Mercedes-Benz    495000
Mitsubishi        32599
Nissan            49400
Oldsmobile         2000
Plymouth          44625
Pontiac           32300
Porsche          440000
Rolls-Royce      492000
Saab              51330
Spyker           219990
Toyota            30710
Volkswagen        42745
Volvo             41200
Name: MSRP, dtype: int64
```

In [23]:
```
# 3.List all the cars which are automatic for each company make and model.
df[df['Transmission Type']=='AUTOMATIC'].groupby(['Make','Model']).first()
```

Out[23]:

Make	Model	Year	Engine Fuel Type	Engine HP	Engine Cylinders	Transmission Type	Driven_Wheels
Acura	**CL**	2001	premium unleaded (required)	225.0	6.0	AUTOMATIC	front wheel drive
	ILX	2015	premium unleaded (recommended)	150.0	4.0	AUTOMATIC	front wheel drive
	ILX Hybrid	2014	premium unleaded (recommended)	111.0	4.0	AUTOMATIC	front wheel drive
	Integra	2001	regular unleaded	140.0	4.0	AUTOMATIC	front wheel drive
	Legend	1994	regular unleaded	200.0	6.0	AUTOMATIC	front wheel drive
...	**...**	...	...	...	...	...	...
Volvo	**V90**	1998	regular unleaded	181.0	6.0	AUTOMATIC	rear wheel drive
	XC	2002	premium unleaded (required)	197.0	5.0	AUTOMATIC	all wheel drive
	XC60	2015	regular unleaded	325.0	6.0	AUTOMATIC	all wheel drive
	XC70	2014	regular unleaded	240.0	6.0	AUTOMATIC	front wheel drive
	XC90	2014	regular unleaded	240.0	6.0	AUTOMATIC	front wheel drive

725 rows × 14 columns

In [44]:

```
# 4.Premium cars of each car company AND MODEL.
df[(df['Engine Fuel Type']=='premium unleaded (required)') | (df['Engine Fuel Type
```

Out[44]:

Make	Model	Year	Engine Fuel Type	Engine HP	Engine Cylinders	Transmission Type	Driven_Wheels
Acura	**CL**	2001	premium unleaded (required)	225.0	6.0	AUTOMATIC	front wheel drive
	ILX	2015	premium unleaded (recommended)	201.0	4.0	MANUAL	front wheel drive
	ILX Hybrid	2014	premium unleaded (recommended)	111.0	4.0	AUTOMATIC	front wheel drive
	Integra	2001	premium unleaded (required)	170.0	4.0	MANUAL	front wheel drive
	MDX	2015	premium unleaded (recommended)	290.0	6.0	AUTOMATIC	all wheel drive
...	**...**	...	...	...	...	...	...
Volvo	**V40**	2002	premium unleaded (required)	160.0	4.0	AUTOMATIC	front wheel drive
	V50	2009	premium unleaded (recommended)	168.0	5.0	AUTOMATIC	front wheel drive
	V70	2008	premium unleaded (recommended)	235.0	6.0	AUTOMATIC	front wheel drive
	XC	2002	premium unleaded (required)	197.0	5.0	AUTOMATIC	all wheel drive
	XC90	2016	premium unleaded (recommended)	250.0	4.0	AUTOMATIC	all wheel drive

415 rows × 14 columns

In [49]:

```
# 5.Average price of cars each car company make.
df.groupby('Make')['MSRP'].mean()
```

Out[49]:
```
Make
Acura            3.488759e+04
Alfa Romeo       6.160000e+04
Aston Martin     1.979104e+05
Audi             5.345211e+04
BMW              6.154676e+04
Bentley          2.471693e+05
Bugatti          1.757224e+06
Buick            2.820661e+04
Cadillac         5.623132e+04
Chevrolet        2.835039e+04
Chrysler         2.672296e+04
Dodge            2.239006e+04
FIAT             2.267024e+04
Ferrari          2.382188e+05
Ford             2.739927e+04
GMC              3.049330e+04
Genesis          4.661667e+04
HUMMER           3.646441e+04
Honda            2.667434e+04
Hyundai          2.459704e+04
Infiniti         4.239421e+04
Kia              2.531017e+04
Lamborghini      3.315673e+05
Land Rover       6.782322e+04
Lexus            4.754907e+04
Lincoln          4.283983e+04
Lotus            6.918828e+04
Maserati         1.142077e+05
Maybach          5.462219e+05
Mazda            2.003938e+04
McLaren          2.398050e+05
Mercedes-Benz    7.147623e+04
Mitsubishi       2.124054e+04
Nissan           2.858343e+04
Oldsmobile       1.154254e+04
Plymouth         3.122902e+03
Pontiac          1.932155e+04
Porsche          1.016224e+05
Rolls-Royce      3.511306e+05
Saab             2.741350e+04
Scion            1.993250e+04
Spyker           2.133233e+05
Subaru           2.482750e+04
Suzuki           1.790721e+04
Tesla            8.525556e+04
Toyota           2.903002e+04
Volkswagen       2.810238e+04
Volvo            2.854116e+04
Name: MSRP, dtype: float64
```

In [ ]: