LAB 2 (H GROUP) DM ML

```
import pandas as pd

import warnings
warnings.filterwarnings('ignore')
```

```
auto = pd.read_csv('/content/Automobile.csv')
```

HEAD OF DATASET

```
auto.head()
```

	symboling	normalized_losses	make	fuel_type	aspiration	number_of_doors	body_style	drive_wheels	engine_location
0	3	168	alfa-romero	gas	std	two	convertible	rwd	front
1	3	168	alfa-romero	gas	std	two	convertible	rwd	front
2	1	168	alfa-romero	gas	std	two	hatchback	rwd	front
3	2	164	audi	gas	std	four	sedan	fwd	front
4	2	164	audi	gas	std	four	sedan	4wd	front

5 rows × 26 columns

ROWS AND COLUMNS

```
auto.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 201 entries, 0 to 200
Data columns (total 26 columns):
 #   Column               Non-Null Count  Dtype
---  ------               --------------  -----
 0   symboling            201 non-null    int64
 1   normalized_losses    201 non-null    int64
 2   make                 201 non-null    object
 3   fuel_type            201 non-null    object
 4   aspiration           201 non-null    object
 5   number_of_doors      201 non-null    object
 6   body_style           201 non-null    object
 7   drive_wheels         201 non-null    object
 8   engine_location      201 non-null    object
 9   wheel_base           201 non-null    float64
 10  length               201 non-null    float64
 11  width                201 non-null    float64
 12  height               201 non-null    float64
 13  curb_weight          201 non-null    int64
 14  engine_type          201 non-null    object
 15  number_of_cylinders  201 non-null    object
 16  engine_size          201 non-null    int64
 17  fuel_system          201 non-null    object
 18  bore                 201 non-null    float64
 19  stroke               201 non-null    float64
 20  compression_ratio    201 non-null    float64
 21  horsepower           201 non-null    int64
 22  peak_rpm             201 non-null    int64
 23  city_mpg             201 non-null    int64
 24  highway_mpg          201 non-null    int64
 25  price                201 non-null    int64
dtypes: float64(7), int64(9), object(10)
memory usage: 41.0+ KB
```

AVERAGE PRIZE

```
auto.mean()[-1] #auto.mean() gives mean of all columns. we choose -1 index for last column which is price
```

```
13207.129353233831
```

COSTLIEST CAR

```
value=(auto['price'] == auto['price'].max())
auto[value]
```

	symboling	normalized_losses	make	fuel_type	aspiration	number_of_doors	bod
71	1	140	mercedes-benz	gas	std	two	

1 rows × 26 columns

CHEAPEST CAR

```
value=(auto['price'] == auto['price'].min())
auto[value]
```

	symboling	normalized_losses	make	fuel_type	aspiration	number_of_doors	body_
134	2	83	subaru	gas	std	two	hatc

1 rows × 26 columns

number OF CARS WITH HORSEPOWER >100

```
value=(auto['horsepower']>100)
auto[value].count()
```

```
symboling              90
normalized_losses      90
make                   90
fuel_type              90
aspiration             90
number_of_doors        90
body_style             90
drive_wheels           90
engine_location        90
wheel_base             90
length                 90
width                  90
height                 90
curb_weight            90
engine_type            90
number_of_cylinders    90
engine_size            90
fuel_system            90
bore                   90
stroke                 90
compression_ratio      90
horsepower             90
peak_rpm               90
city_mpg               90
highway_mpg            90
price                  90
dtype: int64
```

NUMBER OF HATCHBACK CARS

```
value=(auto['body_style']=='hatchback')
auto[value].info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 68 entries, 2 to 186
Data columns (total 26 columns):
 #   Column               Non-Null Count  Dtype 
---  ------               --------------  ----- 
 0   symboling            68 non-null     int64 
 1   normalized_losses    68 non-null     int64 
 2   make                 68 non-null     object
 3   fuel_type            68 non-null     object
 4   aspiration           68 non-null     object
 5   number_of_doors      68 non-null     object 
 6   body_style           68 non-null     object 
 7   drive_wheels         68 non-null     object 
 8   engine_location      68 non-null     object 
 9   wheel_base           68 non-null     float64
 10  length               68 non-null     float64
 11  width                68 non-null     float64
 12  height               68 non-null     float64
 13  curb_weight          68 non-null     int64  
 14  engine_type          68 non-null     object 
 15  number_of_cylinders  68 non-null     object 
 16  engine_size          68 non-null     int64  
 17  fuel_system          68 non-null     object 
 18  bore                 68 non-null     float64
 19  stroke               68 non-null     float64
 20  compression_ratio    68 non-null     float64
 21  horsepower           68 non-null     int64  
 22  peak_rpm             68 non-null     int64  
 23  city_mpg             68 non-null     int64  
 24  highway_mpg          68 non-null     int64  
 25  price                68 non-null     int64  
dtypes: float64(7), int64(9), object(10)
memory usage: 14.3+ KB
```

3 MOST COMMON CARS

```
auto['make'].value_counts().head(3)
```

```
toyota    32
nissan    18
mazda     17
Name: make, dtype: int64
```

MAKE OF CAR PURCHASED AT 7099

```
value=(auto['price']== 7099)
auto[value]['make']
```

```
87    nissan
Name: make, dtype: object
```

CAR PRICE>40000

```
auto[auto["price"]>40000]
```

	symboling	normalized_losses	make	fuel_type	aspiration	number_of_doors	body_style	drive_wheels	engine_locati
15	0	149	bmw	gas	std	two	sedan	rwd	frc
70	0	140	mercedes-benz	gas	std	four	sedan	rwd	frc
71	1	140	mercedes-benz	gas	std	two	hardtop	rwd	frc

3 rows × 26 columns

SEDAN AND PRIZE<7000

```
auto[(auto['body_style']=='sedan') & (auto['price']<7000)]
```

	symboling	normalized_losses	make	fuel_type	aspiration	number_of_doors	body_style	drive_wheels	engine_locati
19	0	81	chevrolet	gas	std	four	sedan	fwd	fr
24	1	148	dodge	gas	std	four	sedan	fwd	fr
42	0	110	isuzu	gas	std	four	sedan	rwd	fr
50	1	113	mazda	gas	std	four	sedan	fwd	fr
82	1	125	mitsubishi	gas	std	four	sedan	fwd	fr
86	1	128	nissan	gas	std	two	sedan	fwd	fr
88	1	128	nissan	gas	std	two	sedan	fwd	fr
[illegible]	[illegible]	[illegible]	plymouth	gas	std	four	sedan	fwd	fr
152	0	91	toyota	gas	std	four	sedan	fwd	fr

Double-click (or enter) to edit

10 rows × 26 columns