

# EDS LAB ASSIGNMENT 4: -

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## Code :-

```
import pandas as pd

car=pd.read_csv("EDS Assignment 4.csv")

#1) print all records of dataset
print("1)",car)

#2) print model name and its manufacturing year
print("2)",car[['name','year']])

#3) describe
print("3)",car.describe())

#4) print the mean of selling price
print("4) Mean of car selling price is :",car['selling_price'].mean())

#5) print median of km driven
print("5) Median of kilometers driven : ",car['km_driven'].median())

#6) print most recent car year
print("6) Most recent car manufactured year :",car['year'].max())

#7) print correlation
print("7) The correlation is :",car.corr())

#8) aggregation
print("8) The aggregation is:",car.groupby('selling_price').sum())

#9) print name of cars in upper case
print("9)",car['name'].str.upper())

#10) Display the records of first 50 cars
print("10) Record of first 50 cas:",car.iloc[1:50])
```

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#11) Count of First owner
a=car.groupby('owner').get_group("First Owner")
print(a)
b=a.count()
print("11)",b)

#12) Display records of automatic car transmission
a=car['transmission']
b=car.groupby('transmission').get_group("Automatic")
print("12) Records of automatic car transmission :",b)

#13) print the name of the oldest car
a=car['year'].min()
b=car.loc[car['year']==a,'name'].iloc[0]
print("13) The name of the oldest car:",b)

#14) print the mode of selling type
print("14) Mode of car selling type is :",car['selling_price'].mode())

#15) Display missing value in years
miss=car['year']
print("15) The missing values in year is:",miss.isnull())

#16)Display variance of pH in wine
j=car['selling_price']
k=j.var()
print("16) Variance of selling price:",k)

#17) Duplicated names
print("17) Duplicated ",car["name"].duplicated())

#18) Convert km driven from int to float (data type conversion)
print("18) Conversion of km driven from int to float ",car["km_driven"].astype(float))

#19) Data transformation
car["km_driven_in_miles"] = round(car["km_driven"]*0.621, 1)
print("19)",car["km_driven_in_miles"].head(10))

#20)covariance
print("20)",car.cov())

```

# Output :-

```

1)
   name year selling_price km_driven \
0      Maruti 800 AC  2007      60000      70000
1      Maruti Wagon R LXI Minor  2007      135000      50000
2      Hyundai Verna 1.6 SX  2012      600000      100000
3      Datsun RediGO T Option  2017      250000      46000
4      Honda Amaze VX i-DTEC  2014      450000      141000
...
4335 Hyundai i20 Magna 1.4 CRDi (Diesel)  2014      409999      80000
4336 Hyundai i20 Magna 1.4 CRDi  2014      409999      80000
4337 Maruti 800 AC BSIII  2009      110000      83000
4338 Hyundai Creta 1.6 CRDi SX Option  2016      865000      90000
4339 Renault KWID RXT  2016      225000      40000

```

```

   fuel seller_type transmission owner
0  Petrol Individual Manual First Owner
1  Petrol Individual Manual First Owner
2  Diesel Individual Manual First Owner
3  Petrol Individual Manual First Owner
4  Diesel Individual Manual Second Owner
...
4335 Diesel Individual Manual Second Owner
4336 Diesel Individual Manual Second Owner
4337 Petrol Individual Manual Second Owner
4338 Diesel Individual Manual First Owner
4339 Petrol Individual Manual First Owner

```

[4340 rows x 8 columns]

```

2)
   name year
0      Maruti 800 AC  2007
1      Maruti Wagon R LXI Minor  2007
2      Hyundai Verna 1.6 SX  2012
3      Datsun RediGO T Option  2017
4      Honda Amaze VX i-DTEC  2014
...
4335 Hyundai i20 Magna 1.4 CRDi (Diesel)  2014
4336 Hyundai i20 Magna 1.4 CRDi  2014
4337 Maruti 800 AC BSIII  2009
4338 Hyundai Creta 1.6 CRDi SX Option  2016
4339 Renault KWID RXT  2016

```

[4340 rows x 2 columns]

```

3)
   year selling_price km_driven
count 4340.000000 4.340000e+03 4340.000000
mean 2013.090783 5.041273e+05 66215.777419
std 4.215344 5.785487e+05 46644.102194
min 1992.000000 2.000000e+04 1.000000
25% 2011.000000 2.087498e+05 35000.000000
50% 2014.000000 3.500000e+05 60000.000000
75% 2016.000000 6.000000e+05 90000.000000
max 2020.000000 8.900000e+06 806599.000000

```

4) Mean of car selling price is : 504127.3117511521

5) Median of kilometers driven : 60000.0

6) Most recent car manufactured year : 2020

```

7) The correlation is :
   year selling_price km_driven
year 1.000000 0.413922 -0.419688
selling_price 0.413922 1.000000 -0.192289
km_driven -0.419688 -0.192289 1.000000

```

```

8) The aggregation is:
selling_price      year  km_driven
20000      2005      25000
22000      2000      42743
30000      2004      60000
35000      6023     185000
37500      2004      90000
...
4800000     4037      22421
4950000     22209     330000
5500000     2016      77350
8150000     2017       6500
8900000     2016      13000

```

[445 rows x 2 columns]

```

9) 0      MARUTI 800 AC
1      MARUTI WAGON R LXI MINOR
2      HYUNDAI VERNA 1.6 SX
3      DATSUN REDIGO T OPTION
4      HONDA AMAZE VX I-DTEC
...
4335     HYUNDAI I20 MAGNA 1.4 CRDI (DIESEL)
4336     HYUNDAI I20 MAGNA 1.4 CRDI
4337     MARUTI 800 AC BSIII
4338     HYUNDAI CRETA 1.6 CRDI SX OPTION
4339     RENAULT KWID RXT
Name: name, Length: 4340, dtype: object

```

name, name, length, 4340, dtype, object

10) Record of first 50 cars:

1	Maruti Wagon R LXI Minor	2007	135000
2	Hyundai Verna 1.6 SX	2012	600000
3	Datsun RediGO T Option	2017	250000
4	Honda Amaze VX i-DTEC	2014	450000
5	Maruti Alto LX BSIII	2007	140000
6	Hyundai Xcent 1.2 Kappa S	2016	550000
7	Tata Indigo Grand Petrol	2014	240000
8	Hyundai Creta 1.6 VTVT S	2015	850000
9	Maruti Celerio Green VXI	2017	365000
10	Chevrolet Sail 1.2 Base	2015	260000
11	Tata Indigo Grand Petrol	2014	250000
12	Toyota Corolla Altis 1.8 VL CVT	2018	1650000
13	Maruti 800 AC	2007	60000
14	Maruti Wagon R LXI Minor	2007	135000
15	Hyundai Verna 1.6 SX	2012	600000
16	Datsun RediGO T Option	2017	250000
17	Honda Amaze VX i-DTEC	2014	450000
18	Maruti Alto LX BSIII	2007	140000
19	Hyundai Xcent 1.2 Kappa S	2016	550000
20	Tata Indigo Grand Petrol	2014	240000
21	Hyundai Creta 1.6 VTVT S	2015	850000
22	Maruti Celerio Green VXI	2017	365000
23	Chevrolet Sail 1.2 Base	2015	260000
24	Tata Indigo Grand Petrol	2014	250000
25	Toyota Corolla Altis 1.8 VL CVT	2018	1650000
26	Maruti Ciaz VXI Plus	2015	585000
27	Hyundai Venue SX Opt Diesel	2019	1195000
28	Chevrolet Enjoy TCDi LTZ 7 Seater	2013	390000
29	Jaguar XF 2.2 Litre Luxury	2014	1964999
30	Mercedes-Benz New C-Class 220 CDI AT	2013	1425000
31	Maruti Vitara Brezza ZDi Plus AMT	2018	975000
32	Audi Q5 2.0 TDI	2011	1190000
33	Honda City V MT	2018	930000
34	Tata Tigor 1.2 Revotron XT	2018	525000
35	Audi A6 2.0 TDI Design Edition	2013	1735000
36	Mercedes-Benz New C-Class C 220 CDI Avantgarde	2012	1375000
37	Skoda Superb Ambition 2.0 TDI CR AT	2011	450000
38	Toyota Corolla Altis G AT	2016	900000
39	Toyota Innova 2.5 G (Diesel) 7 Seater	2015	1300000
40	Jeep Compass 1.4 Sport Plus BSIV	2019	1400000
41	Mercedes-Benz E-Class E 200 CGI Elegance	2010	850000
42	Hyundai i10 Magna 1.1L	2014	229999
43	BMW 3 Series 320d Sport Line	2013	1550000
44	Audi Q7 3.5 TDI Quattro Premium	2009	1250000
45	Hyundai Elantra CRDi S	2012	625000
46	Mahindra Scorpio 1.99 S10	2014	1050000
47	Honda City i DTEC V	2014	560000
48	Maruti Wagon R VXI BS IV with ABS	2014	290000
49	Maruti Wagon R VXI BS IV	2012	275000

name year selling\_price \

	km_driven	fuel	seller_type	transmission	owner	
1	50000	Petrol	Individual	Manual	First Owner	
2	100000	Diesel	Individual	Manual	First Owner	
3	46000	Petrol	Individual	Manual	First Owner	
4	141000	Diesel	Individual	Manual	Second Owner	
5	125000	Petrol	Individual	Manual	First Owner	
6	25000	Petrol	Individual	Manual	First Owner	
7	60000	Petrol	Individual	Manual	Second Owner	
8	25000	Petrol	Individual	Manual	First Owner	
9	78000	CNG	Individual	Manual	First Owner	
10	35000	Petrol	Individual	Manual	First Owner	
11	100000	Petrol	Individual	Manual	First Owner	
12	25000	Petrol	Dealer	Automatic	First Owner	
13	70000	Petrol	Individual	Manual	First Owner	
14	50000	Petrol	Individual	Manual	First Owner	
15	100000	Diesel	Individual	Manual	First Owner	
16	46000	Petrol	Individual	Manual	First Owner	
17	141000	Diesel	Individual	Manual	Second Owner	
18	125000	Petrol	Individual	Manual	First Owner	
19	25000	Petrol	Individual	Manual	First Owner	
20	60000	Petrol	Individual	Manual	Second Owner	
21	25000	Petrol	Individual	Manual	First Owner	
22	78000	CNG	Individual	Manual	First Owner	
23	35000	Petrol	Individual	Manual	First Owner	
24	100000	Petrol	Individual	Manual	First Owner	
25	25000	Petrol	Dealer	Automatic	First Owner	
26	24000	Petrol	Dealer	Manual	First Owner	
27	5000	Diesel	Dealer	Manual	First Owner	
28	33000	Diesel	Individual	Manual	Second Owner	
29	28000	Diesel	Dealer	Automatic	First Owner	
30	59000	Diesel	Dealer	Automatic	First Owner	
31	4500	Diesel	Dealer	Automatic	First Owner	
32	175900	Diesel	Dealer	Automatic	First Owner	
33	14500	Petrol	Dealer	Manual	First Owner	
34	15000	Petrol	Individual	Manual	First Owner	
35	50000	Diesel	Dealer	Automatic	First Owner	
36	33800	Diesel	Dealer	Automatic	Second Owner	
37	130400	Diesel	Dealer	Automatic	Second Owner	
38	50000	Petrol	Individual	Automatic	First Owner	
39	80000	Diesel	Individual	Manual	First Owner	
40	10000	Petrol	Individual	Manual	First Owner	
41	119000	Petrol	Dealer	Automatic	First Owner	
42	60000	Petrol	Individual	Manual	Fourth & Above Owner	
43	75800	Diesel	Dealer	Automatic	Second Owner	
44	78000	Diesel	Dealer	Automatic	Third Owner	
45	40000	Diesel	Individual	Manual	First Owner	
46	50000	Diesel	Individual	Manual	First Owner	
47	74000	Diesel	Individual	Manual	Second Owner	
48	64000	Petrol	Individual	Manual	Second Owner	
49	60000	Petrol	Individual	Manual	Second Owner	
				name	year	selling price \

```

11) name          2832
year             2832
selling_price    2832
km_driven        2832
fuel             2832
seller_type      2832
transmission     2832
owner            2832
dtype: int64
12) Records of automatic car transmission :
\
12      Toyota Corolla Altis 1.8 VL CVT 2018      1650000      25000
25      Toyota Corolla Altis 1.8 VL CVT 2018      1650000      25000
29      Jaguar XF 2.2 Litre Luxury      2014      1964999      28000
30      Mercedes-Benz New C-Class 220 CDI AT 2013      1425000      59000
31      Maruti Vitara Brezza ZDi Plus AMT 2018      975000      4500
...
4300 Mercedes-Benz E-Class E250 CDI Elegance 2011      999000      49600
4302      BMW 7 Series 730Ld 2006      1050000      30000
4304      Audi Q5 3.0 TDI Quattro Technology 2018      3899000      22000
4311      Toyota Camry Hybrid 2.5 2017      1900000      20118
4313      Ford Endeavour 2.2 Titanium AT 4X2 2019      2800000      10000

      fuel seller_type transmission      owner
12      Petrol      Dealer      Automatic First Owner
25      Petrol      Dealer      Automatic First Owner
29      Diesel      Dealer      Automatic First Owner
30      Diesel      Dealer      Automatic First Owner
31      Diesel      Dealer      Automatic First Owner
...
4300 Diesel      Dealer      Automatic First Owner
4302 Diesel      Dealer      Automatic First Owner
4304 Diesel      Dealer      Automatic First Owner
4311 Petrol      Dealer      Automatic First Owner
4313 Diesel Individual      Automatic First Owner

[448 rows x 8 columns]
13) The name of the oldest car: Maruti 800 AC BSII
14) Mode of car selling type is : 0      300000

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15) The missing values in year is: 0      False
1      False
2      False
3      False
4      False
...
4335      False
4336      False
4337      False
4338      False
4339      False
Name: year, Length: 4340, dtype: bool

```

```

16) Variance of selling price: 334718640087.9015
17) Duplicated 0      False
1      False
2      False
3      False
4      False
...
4335   True
4336   False
4337   True
4338   True
4339   True
Name: name, Length: 4340, dtype: bool
18) Conversion of km driven from int to float 0      70000.0
1      50000.0
2      100000.0
3      46000.0
4      141000.0
...
4335   80000.0
4336   80000.0
4337   83000.0
4338   90000.0
4339   40000.0
Name: km_driven, Length: 4340, dtype: float64
19) 0      43470.0
1      31050.0
2      62100.0
3      28566.0
4      87561.0
5      77625.0
6      15525.0
7      37260.0
8      15525.0
9      48438.0
Name: km_driven_in_miles, dtype: float64

name: km_driven_in_miles, dtype: float64
20)
   year  selling_price  km_driven \
year      1.776912e+01  1.009465e+06 -8.251948e+04
selling_price      1.009465e+06  3.347186e+11 -5.189079e+09
km_driven      -8.251948e+04 -5.189079e+09  2.175672e+09
km_driven_in_miles -5.124459e+04 -3.222418e+09  1.351092e+09

           km_driven_in_miles
year      -5.124459e+04
selling_price      -3.222418e+09
km_driven      1.351092e+09
km_driven_in_miles      8.390284e+08

```