In []:
In [1]: import pandas as pd
data=pd.read_csv("/home/placement/Downloads/fiat500.csv")

In [2]: data.describe()

Out[2]:

	ID	engine_power	age_in_days	km	previous_owners	lat	lon	price
count	1538.000000	1538.000000	1538.000000	1538.000000	1538.000000	1538.000000	1538.000000	1538.000000
mean	769.500000	51.904421	1650.980494	53396.011704	1.123537	43.541361	11.563428	8576.003901
std	444.126671	3.988023	1289.522278	40046.830723	0.416423	2.133518	2.328190	1939.958641
min	1.000000	51.000000	366.000000	1232.000000	1.000000	36.855839	7.245400	2500.000000
25%	385.250000	51.000000	670.000000	20006.250000	1.000000	41.802990	9.505090	7122.500000
50%	769.500000	51.000000	1035.000000	39031.000000	1.000000	44.394096	11.869260	9000.000000
75%	1153.750000	51.000000	2616.000000	79667.750000	1.000000	45.467960	12.769040	10000.000000
max	1538.000000	77.000000	4658.000000	235000.000000	4.000000	46.795612	18.365520	11100.000000

In [3]: data.head(10)

Out[3]:

	ID	model	engine_power	age_in_days	km	previous_owners	lat	lon	price
0	1	lounge	51	882	25000	1	44.907242	8.611560	8900
1	2	рор	51	1186	32500	1	45.666359	12.241890	8800
2	3	sport	74	4658	142228	1	45.503300	11.417840	4200
3	4	lounge	51	2739	160000	1	40.633171	17.634609	6000
4	5	pop	73	3074	106880	1	41.903221	12.495650	5700
5	6	pop	74	3623	70225	1	45.000702	7.682270	7900
6	7	lounge	51	731	11600	1	44.907242	8.611560	10750
7	8	lounge	51	1521	49076	1	41.903221	12.495650	9190
8	9	sport	73	4049	76000	1	45.548000	11.549470	5600
9	10	sport	51	3653	89000	1	45.438301	10.991700	6000

```
In [4]: data.tail(10)
Out[4]:
                     model engine power age in days
                                                         km previous owners
                                                                                  lat
                                                                                           lon
                                                                                               price
           1528 1529 lounge
                                      51
                                                2861 126000
                                                                          1 43.841980 10.51531
                                                                                                5500
           1529 1530 lounge
                                      51
                                                 731
                                                      22551
                                                                          1 38.122070
                                                                                      13.36112
                                                                                                9900
           1530 1531 lounge
                                      51
                                                 670
                                                      29000
                                                                          1 45.764648
                                                                                       8.99450
                                                                                              10800
           1531 1532
                                      73
                                                4505
                                                     127000
                                                                          1 45.528511
                                                                                       9.59323
                                                                                                4750
                       sport
           1532 1533
                                                1917
                                                      52008
                                                                                      11.54947
                        pop
                                      51
                                                                          1 45.548000
                                                                                                9900
           1533 1534
                       sport
                                      51
                                                3712 115280
                                                                          1 45.069679
                                                                                       7.70492
                                                                                                5200
           1534 1535
                     lounge
                                      74
                                                3835
                                                    112000
                                                                          1 45.845692
                                                                                       8.66687
                                                                                                4600
           1535 1536
                                                2223
                        pop
                                      51
                                                      60457
                                                                          1 45.481541
                                                                                       9.41348
                                                                                                7500
           1536
               1537
                     lounge
                                      51
                                                2557
                                                      80750
                                                                          1 45.000702
                                                                                       7.68227
                                                                                                5990
           1537 1538
                                      51
                                                1766
                                                      54276
                                                                          1 40.323410 17.56827
                                                                                                7900
                        pop
In [5]: data['previous owners'].unique()
Out[5]: array([1, 2, 3, 4])
In [6]: list(data.columns)
Out[6]: ['ID',
           'model',
           'engine_power',
           'age_in_days',
           'km',
           'previous owners',
           'lat',
           'lon',
           'price'l
In [7]: data['model'].unique()
Out[7]: array(['lounge', 'pop', 'sport'], dtype=object)
```

```
In [8]: data.groupby(['previous owners']).count()
 Out[8]:
                              ID model engine power age in days
                                                                   km
                                                                         lat
                                                                              lon price
            previous_owners
                                                                 1389 1389 1389
                         1 1389
                                   1389
                                                1389
                                                            1389
                                                                                   1389
                         2
                             117
                                    117
                                                 117
                                                             117
                                                                   117
                                                                         117
                                                                              117
                                                                                    117
                              23
                                     23
                                                  23
                                                                                     23
                         3
                                                              23
                                                                    23
                                                                         23
                                                                               23
                                     9
                                                   9
                                                                     9
                                                                          9
                                                                                      9
                                                                                9
 In [9]: data.groupby(['model']).count()
 Out[9]:
                      ID engine_power age_in_days
                                                    km previous_owners
                                                                               Ion price
                                                                          lat
             model
            lounge 1094
                                 1094
                                             1094 1094
                                                                  1094
                                                                        1094
                                                                             1094
                                                                                   1094
               pop
                    358
                                  358
                                              358
                                                    358
                                                                   358
                                                                         358
                                                                               358
                                                                                    358
                                   86
              sport
                     86
                                               86
                                                    86
                                                                    86
                                                                          86
                                                                               86
                                                                                     86
In [10]:
           data.head(5)
Out[10]:
                  model engine_power age_in_days
               ID
                                                      km previous owners
                                                                                lat
                                                                                          Ion price
            0
               1
                  lounge
                                   51
                                              882
                                                    25000
                                                                       1 44.907242
                                                                                     8.611560
                                                                                              8900
               2
                     pop
                                   51
                                             1186
                                                    32500
                                                                          45.666359 12.241890
                                                                                              8800
                    sport
                                   74
                                             4658
                                                  142228
                                                                          45.503300 11.417840
                                                                                              4200
                                                  160000
                  lounge
                                   51
                                             2739
                                                                          40.633171 17.634609
                                                                                              6000
                                   73
                                             3074 106880
                                                                       1 41.903221 12.495650
                                                                                              5700
                    pop
In [11]: data1=data.drop(['lat','ID'],axis=1)
```

```
In [12]: data1.head()
```

Out[12]:

	model	engine_power	age_in_days	km	previous_owners	lon	price
0	lounge	51	882	25000	1	8.611560	8900
1	pop	51	1186	32500	1	12.241890	8800
2	sport	74	4658	142228	1	11.417840	4200
3	lounge	51	2739	160000	1	17.634609	6000
4	рор	73	3074	106880	1	12.495650	5700

```
In [13]: data['price'].sum()
```

Out[13]: 13189894

```
In [14]: data2=data.loc[(data.model=='lounge')]
```

In [15]: data2

Out[15]:

	ID	model	engine_power	age_in_days	km	previous_owners	lat	lon	price
0	1	lounge	51	882	25000	1	44.907242	8.611560	8900
3	4	lounge	51	2739	160000	1	40.633171	17.634609	6000
6	7	lounge	51	731	11600	1	44.907242	8.611560	10750
7	8	lounge	51	1521	49076	1	41.903221	12.495650	9190
11	12	lounge	51	366	17500	1	45.069679	7.704920	10990
1528	1529	lounge	51	2861	126000	1	43.841980	10.515310	5500
1529	1530	lounge	51	731	22551	1	38.122070	13.361120	9900
1530	1531	lounge	51	670	29000	1	45.764648	8.994500	10800
1534	1535	lounge	74	3835	112000	1	45.845692	8.666870	4600
1536	1537	lounge	51	2557	80750	1	45.000702	7.682270	5990

1094 rows × 9 columns

In [16]: | data3=data.loc[(data.km<=50000)]</pre>

In [17]: data3

Out[17]:

ID	model	engine_power	age_in_days	km	previous_owners	lat	lon	price
1	lounge	51	882	25000	1	44.907242	8.61156	8900
2	pop	51	1186	32500	1	45.666359	12.24189	8800
7	lounge	51	731	11600	1	44.907242	8.61156	10750
8	lounge	51	1521	49076	1	41.903221	12.49565	9190
11	pop	51	790	43286	1	40.871429	14.43896	8950
1526	lounge	51	790	41870	1	45.707249	11.47760	9500
1527	lounge	51	1705	23600	1	38.122070	13.36112	9300
1528	pop	51	517	3000	1	40.748241	14.52835	9999
1530	lounge	51	731	22551	1	38.122070	13.36112	9900
1531	lounge	51	670	29000	1	45.764648	8.99450	10800
	1 2 7 8 11 1526 1527 1528	1 lounge 2 pop 7 lounge 8 lounge 11 pop 1526 lounge 1527 lounge 1528 pop 1530 lounge	1 lounge 51 2 pop 51 7 lounge 51 8 lounge 51 11 pop 51 1526 lounge 51 1527 lounge 51 1528 pop 51 1530 lounge 51	1 lounge 51 882 2 pop 51 1186 7 lounge 51 731 8 lounge 51 1521 11 pop 51 790 1526 lounge 51 790 1527 lounge 51 1705 1528 pop 51 517 1530 lounge 51 731	1 lounge 51 882 25000 2 pop 51 1186 32500 7 lounge 51 731 11600 8 lounge 51 1521 49076 11 pop 51 790 43286 1526 lounge 51 790 41870 1527 lounge 51 1705 23600 1528 pop 51 517 3000 1530 lounge 51 731 22551	1 lounge 51 882 25000 1 2 pop 51 1186 32500 1 7 lounge 51 731 11600 1 8 lounge 51 1521 49076 1 11 pop 51 790 43286 1 1526 lounge 51 790 41870 1 1527 lounge 51 1705 23600 1 1528 pop 51 517 3000 1 1530 lounge 51 731 22551 1	1 lounge 51 882 25000 1 44.907242 2 pop 51 1186 32500 1 45.666359 7 lounge 51 731 11600 1 44.907242 8 lounge 51 1521 49076 1 41.903221 11 pop 51 790 43286 1 40.871429 1526 lounge 51 790 41870 1 45.707249 1527 lounge 51 1705 23600 1 38.122070 1528 pop 51 517 3000 1 40.748241 1530 lounge 51 731 22551 1 38.122070	1 lounge 51 882 25000 1 44.907242 8.61156 2 pop 51 1186 32500 1 45.666359 12.24189 7 lounge 51 731 11600 1 44.907242 8.61156 8 lounge 51 1521 49076 1 41.903221 12.49565 11 pop 51 790 43286 1 40.871429 14.43896

907 rows × 9 columns

In [18]: data2=data.loc[(data.model=='lounge')&(data.previous_owners==1)]

In [19]: data2

Out[19]:

ID	model	engine_power	age_in_days	km	previous_owners	lat	lon	price
1	lounge	51	882	25000	1	44.907242	8.611560	8900
4	lounge	51	2739	160000	1	40.633171	17.634609	6000
7	lounge	51	731	11600	1	44.907242	8.611560	10750
8	lounge	51	1521	49076	1	41.903221	12.495650	9190
12	lounge	51	366	17500	1	45.069679	7.704920	10990
1529	lounge	51	2861	126000	1	43.841980	10.515310	5500
1530	lounge	51	731	22551	1	38.122070	13.361120	9900
1531	lounge	51	670	29000	1	45.764648	8.994500	10800
1535	lounge	74	3835	112000	1	45.845692	8.666870	4600
1537	lounge	51	2557	80750	1	45.000702	7.682270	5990
	1 4 7 8 12 1529 1530 1531	1 lounge 4 lounge 7 lounge 8 lounge 12 lounge 1529 lounge 1530 lounge 1531 lounge	1 lounge 51 4 lounge 51 7 lounge 51 8 lounge 51 12 lounge 51 1529 lounge 51 1530 lounge 51 1531 lounge 51 1535 lounge 74	1 lounge 51 882 4 lounge 51 2739 7 lounge 51 731 8 lounge 51 1521 12 lounge 51 366 1529 lounge 51 2861 1530 lounge 51 731 1531 lounge 51 670 1535 lounge 74 3835	1 lounge 51 882 25000 4 lounge 51 2739 160000 7 lounge 51 731 11600 8 lounge 51 1521 49076 12 lounge 51 366 17500 1529 lounge 51 2861 126000 1530 lounge 51 731 22551 1531 lounge 51 670 29000 1535 lounge 74 3835 112000	1 lounge 51 882 25000 1 4 lounge 51 2739 160000 1 7 lounge 51 731 11600 1 8 lounge 51 1521 49076 1 12 lounge 51 366 17500 1 1529 lounge 51 2861 126000 1 1530 lounge 51 731 22551 1 1531 lounge 51 670 29000 1 1535 lounge 74 3835 112000 1	1 lounge 51 882 25000 1 44.907242 4 lounge 51 2739 160000 1 40.633171 7 lounge 51 731 11600 1 44.907242 8 lounge 51 1521 49076 1 41.903221 12 lounge 51 366 17500 1 45.069679 1529 lounge 51 2861 126000 1 43.841980 1530 lounge 51 731 22551 1 38.122070 1531 lounge 51 670 29000 1 45.764648 1535 lounge 74 3835 112000 1 45.845692	1 lounge 51 882 25000 1 44.907242 8.611560 4 lounge 51 2739 160000 1 40.633171 17.634609 7 lounge 51 731 11600 1 44.907242 8.611560 8 lounge 51 1521 49076 1 41.903221 12.495650 12 lounge 51 366 17500 1 45.069679 7.704920 1529 lounge 51 2861 126000 1 43.841980 10.515310 1530 lounge 51 731 22551 1 38.122070 13.361120 1531 lounge 51 670 29000 1 45.764648 8.994500 1535 lounge 74 3835 112000 1 45.845692 8.666870

993 rows × 9 columns

```
In [20]: data4=data.loc[(data.model=='lounge')|(data.model=='pop')]
```

In [21]: data4

Out[21]:

	ID	model	engine_power	age_in_days	km	previous_owners	lat	lon	price
0	1	lounge	51	882	25000	1	44.907242	8.611560	8900
1	2	pop	51	1186	32500	1	45.666359	12.241890	8800
3	4	lounge	51	2739	160000	1	40.633171	17.634609	6000
4	5	pop	73	3074	106880	1	41.903221	12.495650	5700
5	6	pop	74	3623	70225	1	45.000702	7.682270	7900
1532	1533	pop	51	1917	52008	1	45.548000	11.549470	9900
1534	1535	lounge	74	3835	112000	1	45.845692	8.666870	4600
1535	1536	pop	51	2223	60457	1	45.481541	9.413480	7500
1536	1537	lounge	51	2557	80750	1	45.000702	7.682270	5990
1537	1538	pop	51	1766	54276	1	40.323410	17.568270	7900

1452 rows × 9 columns

In []: