```
In [1]:
            import pandas as pd
            import numpy as np
            ''' Dataset info :
In [11]:
             Old Car Price Data (https://www.kaggle.com/datasets/rickyrrii/old-car-pr
             ' Dataset info : \n Old Car Price Data (https://www.kaggle.com/datasets/r
Out[11]:
            ickyrrii/old-car-price-data)\n'
            df = pd.read_csv('imports-85.data.txt')
 In [1]:
            df
 In [2]:
                              alfa-
 Out[2]:
                  3
                        ?
                                      gas
                                             std
                                                  two
                                                        convertible
                                                                    rwd
                                                                          front
                                                                                88.60
                                                                                            130
                                                                                                 mpfi 3.47
                                                                                       ...
                           romero
                              alfa-
                                                                                                  mpfi 3.47
                  3
                        ?
              0
                                      gas
                                             std
                                                  two
                                                         convertible
                                                                     rwd
                                                                           front
                                                                                  88.6
                                                                                       ...
                                                                                            130
                            romero
                              alfa-
                                                                                                        2.68
                  1
                                                         hatchback
                                                                           front
                                                                                  94.5
                                                                                            152
                                                                                                  mpfi
                                      gas
                                             std
                                                  two
                                                                     rwd
                                                                                       ...
                           romero
              2
                  2
                     164
                              audi
                                      gas
                                             std
                                                  four
                                                             sedan
                                                                     fwd
                                                                           front
                                                                                  99.8
                                                                                            109
                                                                                                  mpfi
                                                                                                       3.19
                  2
              3
                     164
                                                                                            136
                              audi
                                      gas
                                             std
                                                  four
                                                             sedan
                                                                     4wd
                                                                           front
                                                                                  99.4
                                                                                                  mpfi
                                                                                                        3.19
                  2
                        ?
              4
                              audi
                                             std
                                                  two
                                                             sedan
                                                                     fwd
                                                                           front
                                                                                  99.8
                                                                                            136
                                                                                                  mpfi
                                                                                                        3.19
              ...
                  ...
                       ...
                                ...
                                        ...
                                              ...
                                                    ...
                                                                 ...
                                                                       ...
                                                                             ...
                                                                                    ...
                                                                                              ...
                                                                                                    ...
                                                                                                          ...
            199
                  -1
                       95
                                                                                 109.1
                                                                                            141
                                                                                                        3.78
                             volvo
                                      gas
                                             std
                                                  four
                                                             sedan
                                                                     rwd
                                                                           front
                                                                                                  mpfi
            200
                 -1
                       95
                             volvo
                                           turbo
                                                             sedan
                                                                           front
                                                                                 109.1
                                                                                            141
                                                                                                  mpfi
                                                                                                        3.78
                                                  four
                                                                     rwd
                                      gas
            201
                 -1
                       95
                             volvo
                                                  four
                                                             sedan
                                                                     rwd
                                                                           front
                                                                                 109.1
                                                                                            173
                                                                                                  mpfi
                                                                                                        3.58
                                      gas
                                             std
            202
                      95
                                                                                 109.1
                                                                                                        3.01
                 -1
                                    diesel
                                                             sedan
                                                                                            145
                                                                                                    idi
                             volvo
                                           turbo
                                                  four
                                                                     rwd
                                                                           front
            203
                                                                                                  mpfi 3.78
                       95
                                                                                 109.1
                                                                                            141
                 -1
                             volvo
                                      gas
                                           turbo
                                                  four
                                                             sedan
                                                                     rwd
                                                                           front
           204 rows × 26 columns
            df.head()
 In [3]:
                           alfa-
 Out[3]:
               3
                                 gas
                                                              rwd front 88.60 ...
                                       std
                                           two
                                                 convertible
                                                                                     130
                                                                                          mpfi 3.47 2.68
                        romero
                           alfa-
            0
               3
                     ?
                                                  convertible
                                                                            88.6
                                                                                     130
                                                                                           mpfi
                                                                                                3.47
                                                                                                       2.68
                                       std
                                                               rwd
                                                                    front
                                 gas
                                            two
                         romero
                           alfa-
               1
                     ?
                                                   hatchback
                                                                            94.5
                                                                                     152
                                                                                           mpfi 2.68
                                                                                                       3.47
            1
                                       std
                                                               rwd
                                                                    front
                                 gas
                                            two
                         romero
            2
              2
                  164
                                                                            99.8
                                                                                     109
                                                               fwd
                                                                    front
                                                                                           mpfi 3.19
                                                                                                       3.40
                           audi
                                 gas
                                       std
                                            four
                                                       sedan
            3
               2
                  164
                                                                            99.4
                                                                                      136
                                                                                                 3.19
                                                                                                       3.40
                           audi
                                 gas
                                       std
                                            four
                                                       sedan
                                                              4wd
                                                                    front
                                                                                           mpfi
               2
                     ?
                                                                            99.8
                           audi
                                 gas
                                       std
                                            two
                                                       sedan
                                                               fwd
                                                                    front
                                                                                     136
                                                                                           mpfi 3.19 3.40
           5 rows × 26 columns
            df.tail()
 In [4]:
```

Out[4]:		3	?	alfa- romero	gas	std	two	convertible	rwd	front	88.60	 130	mpfi	3.47	2
	199	-1	95	volvo	gas	std	four	sedan	rwd	front	109.1	 141	mpfi	3.78	3
	200	-1	95	volvo	gas	turbo	four	sedan	rwd	front	109.1	 141	mpfi	3.78	3
	201	-1	95	volvo	gas	std	four	sedan	rwd	front	109.1	 173	mpfi	3.58	2
	202	-1	95	volvo	diesel	turbo	four	sedan	rwd	front	109.1	 145	idi	3.01	3
	203	-1	95	volvo	gas	turbo	four	sedan	rwd	front	109.1	 141	mpfi	3.78	3

5 rows × 26 columns

Ιn	[5]:	<pre>df.dropna()</pre>
----	------	------------------------

Out[5]:		3	?	alfa- romero	gas	std	two	convertible	rwd	front	88.60	 130	mpfi	3.47
	0	3	?	alfa- romero	gas	std	two	convertible	rwd	front	88.6	 130	mpfi	3.47
	1	1	?	alfa- romero	gas	std	two	hatchback	rwd	front	94.5	 152	mpfi	2.68
	2	2	164	audi	gas	std	four	sedan	fwd	front	99.8	 109	mpfi	3.19
	3	2	164	audi	gas	std	four	sedan	4wd	front	99.4	 136	mpfi	3.19
	4	2	?	audi	gas	std	two	sedan	fwd	front	99.8	 136	mpfi	3.19
	199	-1	95	volvo	gas	std	four	sedan	rwd	front	109.1	 141	mpfi	3.78
	200	-1	95	volvo	gas	turbo	four	sedan	rwd	front	109.1	 141	mpfi	3.78
	201	-1	95	volvo	gas	std	four	sedan	rwd	front	109.1	 173	mpfi	3.58
	202	-1	95	volvo	diesel	turbo	four	sedan	rwd	front	109.1	 145	idi	3.01
	203	-1	95	volvo	gas	turbo	four	sedan	rwd	front	109.1	 141	mpfi	3.78

204 rows × 26 columns

In [6]:	df.de	df.describe()									
Out[6]:		3	88.60	168.80	64.10	48.80	2548	130			
	count	204.000000	204.000000	204.000000	204.000000	204.000000	204.000000	204.000000			
	mean	0.823529	98.806373	174.075000	65.916667	53.749020	2555.602941	126.892157			
	std	1.239035	5.994144	12.362123	2.146716	2.424901	521.960820	41.744569			
	min	-2.000000	86.600000	141.100000	60.300000	47.800000	1488.000000	61.000000			
	25%	0.000000	94.500000	166.300000	64.075000	52.000000	2145.000000	97.000000			
	50%	1.000000	97.000000	173.200000	65.500000	54.100000	2414.000000	119.500000			
	75%	2.000000	102.400000	183.200000	66.900000	55.500000	2939.250000	142.000000			
	max	3.000000	120.900000	208.100000	72.300000	59.800000	4066.000000	326.000000			

In [7]: df.isnull()

							_							_
Out[7]:		3	?	alfa- romero	gas	std	two	convertible	rwd	front	88.60		130	mţ
	0	False	False	False	False	False	False	False	False	False	False		False	Fals
	1	False	False	False	False	False	False	False	False	False	False		False	Fals
	2	False	False	False	False	False	False	False	False	False	False		False	Fals
	3	False	False	False	False	False	False	False	False	False	False		False	Fals
	4	False	False	False	False	False	False	False	False	False	False		False	Fals
	199	False	False	False	False	False	False	False	False	False	False		False	Fals
	200	False	False	False	False	False	False	False	False	False	False		False	Fals
	201	False	False	False	False	False	False	False	False	False	False		False	Fals
	202	False	False	False	False	False	False	False	False	False	False		False	Fals
	203	False	False	False	False	False	False	False	False	False	False		False	Fals
204 rows × 26 columns														
In [9]:	df.	info())											
	<pre><class 'pandas.core.frame.dataframe'=""> RangeIndex: 204 entries, 0 to 203 Data columns (total 26 columns): # Column Non-Null Count Dtype</class></pre>													
	0	3		204	l non-	null	int	64						

```
204 non-null
0
                                    int64
1
                   204 non-null
                                    object
 2
                   204 non-null
                                    object
     alfa-romero
 3
     gas
                   204 non-null
                                    object
4
     std
                   204 non-null
                                    object
5
     two
                   204 non-null
                                    object
 6
     convertible
                   204 non-null
                                    object
7
     rwd
                   204 non-null
                                    object
8
     front
                   204 non-null
                                    object
9
     88.60
                   204 non-null
                                    float64
10
     168.80
                   204 non-null
                                    float64
 11
     64.10
                   204 non-null
                                    float64
 12
     48.80
                   204 non-null
                                    float64
 13
     2548
                   204 non-null
                                    int64
 14
     dohc
                   204 non-null
                                    object
 15
     four
                   204 non-null
                                    object
 16
     130
                   204 non-null
                                    int64
 17
     mpfi
                   204 non-null
                                    object
 18
     3.47
                   204 non-null
                                    object
 19
     2.68
                   204 non-null
                                    object
 20
     9.00
                   204 non-null
                                    float64
 21
     111
                   204 non-null
                                    object
 22
     5000
                   204 non-null
                                    object
23
     21
                   204 non-null
                                    int64
 24
     27
                   204 non-null
                                    int64
25
    13495
                   204 non-null
                                    object
dtypes: float64(5), int64(5), object(16)
memory usage: 41.6+ KB
```

3 of 5 01/02/23, 15:14

In [14]: | df = df.astype({'gas':'string'})

```
In [15]: | df.info()
         <class 'pandas.core.frame.DataFrame'>
         RangeIndex: 204 entries, 0 to 203
         Data columns (total 26 columns):
               Column
                            Non-Null Count Dtype
                            -----
                                             ----
                                             int64
          0
               3
                            204 non-null
          1
                            204 non-null
                                             object
          2
              alfa-romero
                            204 non-null
                                             object
          3
              gas
                            204 non-null
                                             string
          4
               std
                            204 non-null
                                             object
          5
                            204 non-null
                                             object
               two
          6
               convertible 204 non-null
                                             object
          7
               rwd
                            204 non-null
                                             object
          8
               front
                            204 non-null
                                             object
          9
              88.60
                            204 non-null
                                             float64
          10
              168.80
                            204 non-null
                                             float64
          11
              64.10
                            204 non-null
                                             float64
          12
              48.80
                            204 non-null
                                             float64
          13
                            204 non-null
              2548
                                             int64
          14
              dohc
                            204 non-null
                                             object
          15
              four
                            204 non-null
                                             object
          16
              130
                            204 non-null
                                             int64
          17
              mpfi
                            204 non-null
                                             object
                            204 non-null
          18
              3.47
                                             object
          19
              2.68
                            204 non-null
                                             object
          20
              9.00
                            204 non-null
                                             float64
          21
              111
                            204 non-null
                                             object
          22
                            204 non-null
              5000
                                             object
          23
              21
                            204 non-null
                                             int64
          24
              27
                            204 non-null
                                             int64
          25
              13495
                            204 non-null
                                             object
         dtypes: float64(5), int64(5), object(15), string(1)
         memory usage: 41.6+ KB
In [17]: | pd.get dummies(df['gas'])
0
```

Out[17]:		diesel	gas
	0	0	1
	1	0	1
	2	0	1
	3	0	1
	4	0	1
	199	0	1
	200	0	1
	201	0	1
	202	1	0
	203	0	1

204 rows × 2 columns

In []:		