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```
import pandas as pd
data=pd.read_csv('/content/Automobile.csv')
print(data)
```

	name	mpg	cylinders	displacement	horsepower	\
0	chevrolet chevelle malibu	18	8	307.0	130.0	
1	buick skylark 320	15	8	350.0	165.0	
2	plymouth satellite	18	8	318.0	150.0	
3	amc rebel sst	16	8	304.0	150.0	
4	ford torino	17	8	302.0	140.0	
..	...	...	...	...	...	
145	datsum 710	32	4	83.0	61.0	
146	dodge colt	28	4	90.0	75.0	
147	fiat 128	24	4	90.0	75.0	
148	fiat 124 tc	26	4	116.0	75.0	
149	honda civic	24	4	120.0	97.0	

	weight	acceleration	model_year	origin
0	3504	12.0	70	usa
1	3693	11.5	70	usa
2	3436	11.0	70	usa
3	3433	12.0	70	usa
4	3449	10.5	70	usa
..	...	...	...	...
145	2003	19.0	74	japan
146	2125	14.5	74	usa
147	2108	15.5	74	europa
148	2246	14.0	74	europa
149	2489	15.0	74	japan

[150 rows x 9 columns]

```
#loading specific column from automobile.csv
ab=pd.read_csv('/content/Automobile.csv',usecols=['name','horsepower','origin'])
print(ab)
```

	name	horsepower	origin
0	chevrolet chevelle malibu	130.0	usa
1	buick skylark 320	165.0	usa
2	plymouth satellite	150.0	usa
3	amc rebel sst	150.0	usa
4	ford torino	140.0	usa
..	...	...	...
145	datsum 710	61.0	japan
146	dodge colt	75.0	usa
147	fiat 128	75.0	europa
148	fiat 124 tc	75.0	europa
149	honda civic	97.0	japan

[150 rows x 3 columns]

```
#print max horse power automobile and its origin
max_horsepower_automobile=ab.loc[ab['horsepower'].idxmax()]
print('max horse power automobile:')
print(max_horsepower_automobile)
```

```
max horse power automobile:
name      pontiac grand prix
horsepower      230.0
origin          usa
Name: 116, dtype: object
```

```
#automobile names with ccylinders that are less than 4
cd=pd.read_csv('/content/Automobile.csv',usecols=['name','cylinders'])
cylinder_lesssthan4=cd.loc[cd['cylinders']<4]
print(cylinder_lesssthan4)
```

```
name  cylinders
71  mazda rx2 coupe      3
111  maxda rx3           3
```

```
#count how many automobiles have origin as japan
ef=pd.read_csv('/content/Automobile.csv',usecols=['name','origin'])
origin_japan=ef.loc[ef['origin']=='japan']
```

```
print('total no.of automobiles originated from japan:',origin_japan.count())
```

```
total no.of automobiles originated from japan: name      20
origin      20
dtype: int64
```

```
#print automobiles havin 71 as model year
```

```
gh=pd.read_csv('/content/Automobile.csv',usecols=['name','model_year'])
automobile_71=gh.loc[gh['model_year']==71]
print(automobile_71)
```

	name	model_year
29	datson pl510	71
30	chevrolet vega 2300	71
31	toyota corona	71
32	ford pinto	71
33	amc gremlin	71
34	plymouth satellite custom	71
35	chevrolet chevelle malibu	71
36	ford torino 500	71
37	amc matador	71
38	chevrolet impala	71
39	pontiac catalina brougham	71
40	ford galaxie 500	71
41	plymouth fury iii	71
42	dodge monaco (sw)	71
43	ford country squire (sw)	71
44	pontiac safari (sw)	71
45	amc hornet sportabout (sw)	71
46	chevrolet vega (sw)	71
47	pontiac firebird	71
48	ford mustang	71
49	mercury capri 2000	71
50	opel 1900	71
51	peugeot 304	71
52	fiat 124b	71
53	toyota corolla 1200	71
54	datson 1200	71
55	volkswagen model 111	71
56	plymouth cricket	71

```
#print average displacement
```

```
jk=pd.read_csv('/content/Automobile.csv')
average_displacement=jk['displacement'].mean()
print('average displacement:',average_displacement)
```

```
average displacement: 232.49
```

```
#describe about data
```

```
qr=pd.read_csv('/content/Automobile.csv',usecols=['horsepower','displacement','mpg','weight','acceleration'])
print(qr.describe())
```

	mpg	displacement	horsepower	weight	acceleration
count	150.000000	150.000000	148.000000	150.000000	150.000000
mean	19.146667	232.490000	121.966216	3216.086667	14.676667
std	5.915951	120.943945	46.346582	974.868974	2.903444
min	9.000000	68.000000	46.000000	1613.000000	8.000000
25%	14.000000	113.250000	88.000000	2291.000000	12.625000
50%	18.000000	232.000000	102.500000	3094.000000	14.500000
75%	24.000000	350.000000	150.750000	4133.500000	16.500000
max	35.000000	455.000000	230.000000	5140.000000	23.500000

```
a = 140
```

```
b = 150
```

```
if a==150:
```

```
    print("b is horsepower of amc rebel sst" )
```

```
else:
```

```
    print("a is horsepower of ford torino ")
```

```
    a is horsepower of ford torino
```

```
#print starting 10 columns
```

```
print(data.head(10))
```

	name	mpg	cylinders	displacement	horsepower	\
0	chevrolet chevelle malibu	18	8	307.0	130.0	
1	buick skylark 320	15	8	350.0	165.0	
2	plymouth satellite	18	8	318.0	150.0	
3	amc rebel sst	16	8	304.0	150.0	
4	ford torino	17	8	302.0	140.0	
5	ford galaxie 500	15	8	429.0	198.0	
6	chevrolet impala	14	8	454.0	220.0	
7	plymouth fury iii	14	8	440.0	215.0	
8	pontiac catalina	14	8	455.0	225.0	
9	amc ambassador dpl	15	8	390.0	190.0	

	weight	acceleration	model_year	origin
0	3504	12.0	70	usa
1	3693	11.5	70	usa
2	3436	11.0	70	usa
3	3433	12.0	70	usa
4	3449	10.5	70	usa
5	4341	10.0	70	usa
6	4354	9.0	70	usa
7	4312	8.5	70	usa
8	4425	10.0	70	usa
9	3850	8.5	70	usa

```
#print tail 10 columns
print(data.tail(10))
```

	name	mpg	cylinders	displacement	horsepower	weight	\
140	amc matador (sw)	14	8	304.0	150.0	4257	
141	audi fox	29	4	98.0	83.0	2219	
142	volkswagen dasher	26	4	79.0	67.0	1963	
143	opel manta	26	4	97.0	78.0	2300	
144	toyota corona	31	4	76.0	52.0	1649	
145	datsum 710	32	4	83.0	61.0	2003	
146	dodge colt	28	4	90.0	75.0	2125	
147	fiat 128	24	4	90.0	75.0	2108	
148	fiat 124 tc	26	4	116.0	75.0	2246	
149	honda civic	24	4	120.0	97.0	2489	

	acceleration	model_year	origin
140	15.5	74	usa
141	16.5	74	europe
142	15.5	74	europe
143	14.5	74	europe
144	16.5	74	japan
145	19.0	74	japan
146	14.5	74	usa
147	15.5	74	europe
148	14.0	74	europe
149	15.0	74	japan

```
#automobile of model_year 73
print(gh.groupby('model_year').get_group(73))
```

	name	model_year
85	buick century 350	73
86	amc matador	73
87	chevrolet malibu	73
88	ford gran torino	73
89	dodge coronet custom	73
90	mercury marquis brougham	73
91	chevrolet caprice classic	73
92	ford ltd	73
93	plymouth fury gran sedan	73
94	chrysler new yorker brougham	73
95	buick electra 225 custom	73
96	amc ambassador brougham	73
97	plymouth valiant	73
98	chevrolet nova custom	73
99	amc hornet	73
100	ford maverick	73
101	plymouth duster	73
102	volkswagen super beetle	73
103	chevrolet impala	73
104	ford country	73
105	plymouth custom suburb	73
106	oldsmobile vista cruiser	73
107	amc gremlin	73
108	toyota carina	73
109	chevrolet vega	73
110	datsum 610	73
111	maxda rx3	73

112	ford pinto	73
113	mercury capri v6	73
114	fiat 124 sport coupe	73
115	chevrolet monte carlo s	73
116	pontiac grand prix	73
117	fiat 128	73
118	opel manta	73
119	audi 100ls	73
120	volvo 144ea	73
121	dodge dart custom	73
122	saab 99le	73
123	toyota mark ii	73
124	oldsmobile omega	73

```
#print sum of cylinders
ac=pd.read_csv('/content/Automobile.csv')
sum_of_cylinder=ac['cylinders'].sum()
print('sum of cylinders is:',sum_of_cylinder)
```

sum of cylinders is: 904

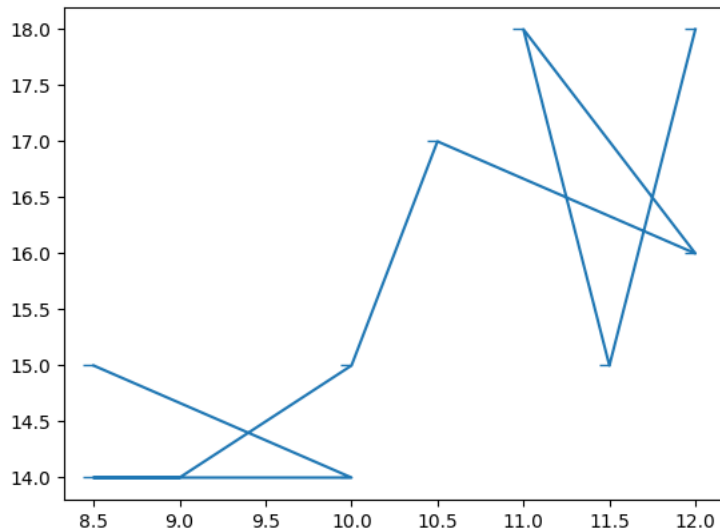
```
#print minimum mpg automobile and its origin
lm=pd.read_csv('/content/Automobile.csv',usecols=['name','mpg','origin','acceleration'])
min_mpg_automobile=lm.loc[lm['mpg'].idxmin()]
print('minimum mpg automobile:',min_mpg_automobile)
```

```
minimum mpg automobile: name      hi 1200d
mpg                        9
acceleration      18.5
origin            usa
Name: 28, dtype: object
```

```
import matplotlib.pyplot as plt
op=lm.head(10)
print(op)
x=op['acceleration']
y=op['mpg']
plt.plot(x,y,marker=0)
```

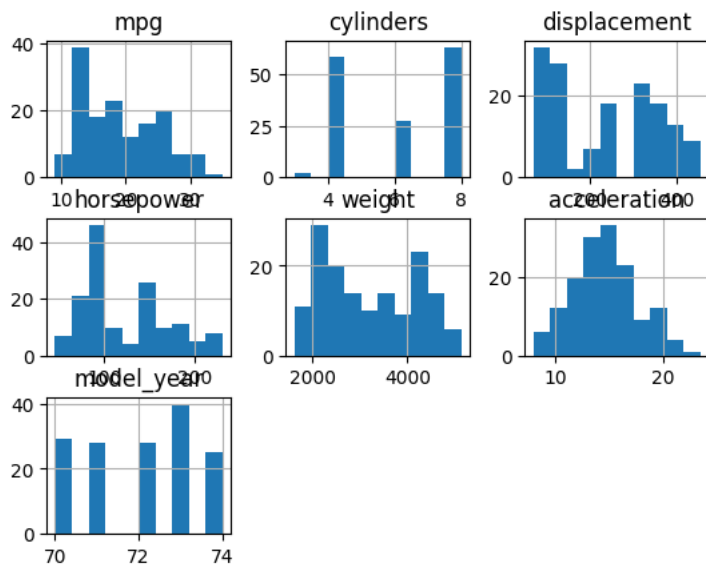
```

name mpg acceleration origin
0 chevrolet chevelle malibu 18 12.0 usa
1 buick skylark 320 15 11.5 usa
2 plymouth satellite 18 11.0 usa
3 amc rebel sst 16 12.0 usa
4 ford torino 17 10.5 usa
5 ford galaxie 500 15 10.0 usa
6 chevrolet impala 14 9.0 usa
7 plymouth fury iii 14 8.5 usa
8 pontiac catalina 14 10.0 usa
9 amc ambassador dpl 15 8.5 usa
[<matplotlib.lines.Line2D at 0x7f5221784e20>]
```

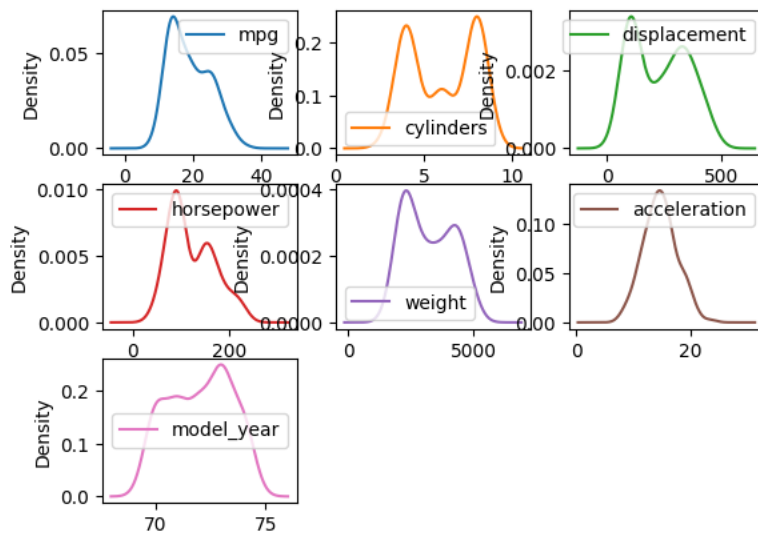


Double-click (or enter) to edit

```
import pandas as pd
from matplotlib import pyplot
an=pd.read_csv('/content/Automobile.csv')
an.hist()
pyplot.show()
```



```
an.plot(kind='density',subplots=True, layout=(3,3), sharex=False)
pyplot.show()
```



```
import matplotlib.pyplot as plt
import numpy as np
```

```
y = np.array([35, 25, 25, 15])
mylabels = ["chevrolet impala", "ford torino","plymouth satellite", "buick skylark 320"]
plt.pie(y, labels = mylabels)
plt.legend(title = "four cars:")
plt.show()
```

