```
import pandas as pd
```

importing MPG dataset as cardataframe

```
car=pd.read_csv('https://github.com/YBI-Foundation/Dataset/raw/main/MPG.csv')
```

printing car dataframe

```
car
```

	mpg	cylinders	displacement	horsepower	weight	acceleration	model_year	or
0	18.0	8	307.0	130.0	3504	12.0	70	
1	15.0	8	350.0	165.0	3693	11.5	70	
2	18.0	8	318.0	150.0	3436	11.0	70	
3	16.0	8	304.0	150.0	3433	12.0	70	
4	17.0	8	302.0	140.0	3449	10.5	70	
...	...	...	...	...	...	...	...	
393	27.0	4	140.0	86.0	2790	15.6	82	
394	44.0	4	97.0	52.0	2130	24.6	82	eu
395	32.0	4	135.0	84.0	2295	11.6	82	

display top 10 rows

```
car.head(10)
```

	mpg	cylinders	displacement	horsepower	weight	acceleration	model_year	orig
0	18.0	8	307.0	130.0	3504	12.0	70	u
1	15.0	8	350.0	165.0	3693	11.5	70	u

display last 5 rows

```
car.tail()
```

	mpg	cylinders	displacement	horsepower	weight	acceleration	model_year	or
393	27.0	4	140.0	86.0	2790	15.6	82	
394	44.0	4	97.0	52.0	2130	24.6	82	eu
395	32.0	4	135.0	84.0	2295	11.6	82	
396	28.0	4	120.0	79.0	2625	18.6	82	

to view all rows

```
pd.options.display.max_rows = 400
```

```
car
```

	mpg	cylinders	displacement	horsepower	weight	acceleration	model_year	or
0	18.0	8	307.0	130.0	3504	12.0	70	
1	15.0	8	350.0	165.0	3693	11.5	70	
2	18.0	8	318.0	150.0	3436	11.0	70	
3	16.0	8	304.0	150.0	3433	12.0	70	
4	17.0	8	302.0	140.0	3449	10.5	70	
5	15.0	8	429.0	198.0	4341	10.0	70	
6	14.0	8	454.0	220.0	4354	9.0	70	
7	14.0	8	440.0	215.0	4312	8.5	70	
8	14.0	8	455.0	225.0	4425	10.0	70	
9	15.0	8	390.0	190.0	3850	8.5	70	
10	15.0	8	383.0	170.0	3563	10.0	70	
11	14.0	8	340.0	160.0	3609	8.0	70	
12	15.0	8	400.0	150.0	3761	9.5	70	
13	14.0	8	455.0	225.0	3086	10.0	70	
14	24.0	4	113.0	95.0	2372	15.0	70	j
15	22.0	6	198.0	95.0	2833	15.5	70	
16	18.0	6	199.0	97.0	2774	15.5	70	
17	21.0	6	200.0	85.0	2587	16.0	70	
18	27.0	4	97.0	88.0	2130	14.5	70	j
19	26.0	4	97.0	46.0	1835	20.5	70	eu

20	25.0	4	110.0	87.0	2672	17.5	70	eu
21	24.0	4	107.0	90.0	2430	14.5	70	eu
22	25.0	4	104.0	95.0	2375	17.5	70	eu
23	26.0	4	121.0	113.0	2234	12.5	70	eu
24	21.0	6	199.0	90.0	2648	15.0	70	
25	10.0	8	360.0	215.0	4615	14.0	70	
26	10.0	8	307.0	200.0	4376	15.0	70	
27	11.0	8	318.0	210.0	4382	13.5	70	
28	9.0	8	304.0	193.0	4732	18.5	70	
29	27.0	4	97.0	88.0	2130	14.5	71	j
30	28.0	4	140.0	90.0	2264	15.5	71	
31	25.0	4	113.0	95.0	2228	14.0	71	j
32	25.0	4	98.0	NaN	2046	19.0	71	
33	19.0	6	232.0	100.0	2634	13.0	71	
34	16.0	6	225.0	105.0	3439	15.5	71	
35	17.0	6	250.0	100.0	3329	15.5	71	
36	19.0	6	250.0	88.0	3302	15.5	71	
37	18.0	6	232.0	100.0	3288	15.5	71	
38	14.0	8	350.0	165.0	4209	12.0	71	
39	14.0	8	400.0	175.0	4464	11.5	71	
40	14.0	8	351.0	153.0	4154	13.5	71	
41	14.0	8	318.0	150.0	4096	13.0	71	
42	12.0	8	383.0	180.0	4955	11.5	71	
43	13.0	8	400.0	170.0	4746	12.0	71	

44	13.0	8	400.0	175.0	5140	12.0	71	
45	18.0	6	258.0	110.0	2962	13.5	71	
46	22.0	4	140.0	72.0	2408	19.0	71	
47	19.0	6	250.0	100.0	3282	15.0	71	
48	18.0	6	250.0	88.0	3139	14.5	71	
49	23.0	4	122.0	86.0	2220	14.0	71	
50	28.0	4	116.0	90.0	2123	14.0	71	eu
51	30.0	4	79.0	70.0	2074	19.5	71	eu
52	30.0	4	88.0	76.0	2065	14.5	71	eu
53	31.0	4	71.0	65.0	1773	19.0	71	j
54	35.0	4	72.0	69.0	1613	18.0	71	j
55	27.0	4	97.0	60.0	1834	19.0	71	eu
56	26.0	4	91.0	70.0	1955	20.5	71	
57	24.0	4	113.0	95.0	2278	15.5	72	j
58	25.0	4	97.5	80.0	2126	17.0	72	
59	23.0	4	97.0	54.0	2254	23.5	72	eu
60	20.0	4	140.0	90.0	2408	19.5	72	
61	21.0	4	122.0	86.0	2226	16.5	72	
62	13.0	8	350.0	165.0	4274	12.0	72	
63	14.0	8	400.0	175.0	4385	12.0	72	
64	15.0	8	318.0	150.0	4135	13.5	72	
65	14.0	8	351.0	153.0	4129	13.0	72	

66	17.0	8	304.0	150.0	3672	11.5	72	
67	11.0	8	429.0	208.0	4633	11.0	72	
68	13.0	8	350.0	155.0	4502	13.5	72	
69	12.0	8	350.0	160.0	4456	13.5	72	
70	13.0	8	400.0	190.0	4422	12.5	72	
71	19.0	3	70.0	97.0	2330	13.5	72	ja
72	15.0	8	304.0	150.0	3892	12.5	72	
73	13.0	8	307.0	130.0	4098	14.0	72	
74	13.0	8	302.0	140.0	4294	16.0	72	
75	14.0	8	318.0	150.0	4077	14.0	72	
76	18.0	4	121.0	112.0	2933	14.5	72	eu
77	22.0	4	121.0	76.0	2511	18.0	72	eu
78	21.0	4	120.0	87.0	2979	19.5	72	eu
79	26.0	4	96.0	69.0	2189	18.0	72	eu
80	22.0	4	122.0	86.0	2395	16.0	72	
81	28.0	4	97.0	92.0	2288	17.0	72	ja
82	23.0	4	120.0	97.0	2506	14.5	72	ja
83	28.0	4	98.0	80.0	2164	15.0	72	

84	27.0	4	97.0	88.0	2100	16.5	72	j
85	13.0	8	350.0	175.0	4100	13.0	73	
86	14.0	8	304.0	150.0	3672	11.5	73	
87	13.0	8	350.0	145.0	3988	13.0	73	
88	14.0	8	302.0	137.0	4042	14.5	73	
89	15.0	8	318.0	150.0	3777	12.5	73	
90	12.0	8	429.0	198.0	4952	11.5	73	
91	13.0	8	400.0	150.0	4464	12.0	73	
92	13.0	8	351.0	158.0	4363	13.0	73	
93	14.0	8	318.0	150.0	4237	14.5	73	
94	13.0	8	440.0	215.0	4735	11.0	73	
95	12.0	8	455.0	225.0	4951	11.0	73	
96	13.0	8	360.0	175.0	3821	11.0	73	
97	18.0	6	225.0	105.0	3121	16.5	73	
98	16.0	6	250.0	100.0	3278	18.0	73	
99	18.0	6	232.0	100.0	2945	16.0	73	
100	18.0	6	250.0	88.0	3021	16.5	73	
101	23.0	6	198.0	95.0	2904	16.0	73	
102	26.0	4	97.0	46.0	1950	21.0	73	eu

103	11.0	8	400.0	150.0	4997	14.0	73	
104	12.0	8	400.0	167.0	4906	12.5	73	
105	13.0	8	360.0	170.0	4654	13.0	73	
106	12.0	8	350.0	180.0	4499	12.5	73	
107	18.0	6	232.0	100.0	2789	15.0	73	
108	20.0	4	97.0	88.0	2279	19.0	73	j
109	21.0	4	140.0	72.0	2401	19.5	73	
110	22.0	4	108.0	94.0	2379	16.5	73	j
111	18.0	3	70.0	90.0	2124	13.5	73	j
112	19.0	4	122.0	85.0	2310	18.5	73	
113	21.0	6	155.0	107.0	2472	14.0	73	
114	26.0	4	98.0	90.0	2265	15.5	73	eu
115	15.0	8	350.0	145.0	4082	13.0	73	
116	16.0	8	400.0	230.0	4278	9.5	73	
117	29.0	4	68.0	49.0	1867	19.5	73	eu
118	24.0	4	116.0	75.0	2158	15.5	73	eu
119	20.0	4	114.0	91.0	2582	14.0	73	eu
120	19.0	4	121.0	112.0	2868	15.5	73	eu
121	15.0	8	318.0	150.0	3399	11.0	73	
122	24.0	4	121.0	110.0	2660	14.0	73	eu
123	20.0	6	156.0	122.0	2807	13.5	73	j
124	11.0	8	350.0	180.0	3664	11.0	73	
125	20.0	6	198.0	95.0	3102	16.5	74	
126	21.0	6	200.0	NaN	2875	17.0	74	

127	19.0	6	232.0	100.0	2901	16.0	74	
128	15.0	6	250.0	100.0	3336	17.0	74	
129	31.0	4	79.0	67.0	1950	19.0	74	ja
130	26.0	4	122.0	80.0	2451	16.5	74	
131	32.0	4	71.0	65.0	1836	21.0	74	ja
132	25.0	4	140.0	75.0	2542	17.0	74	
133	16.0	6	250.0	100.0	3781	17.0	74	
134	16.0	6	258.0	110.0	3632	18.0	74	
135	18.0	6	225.0	105.0	3613	16.5	74	
136	16.0	8	302.0	140.0	4141	14.0	74	
137	13.0	8	350.0	150.0	4699	14.5	74	
138	14.0	8	318.0	150.0	4457	13.5	74	
139	14.0	8	302.0	140.0	4638	16.0	74	
140	14.0	8	304.0	150.0	4257	15.5	74	
141	29.0	4	98.0	83.0	2219	16.5	74	eu
142	26.0	4	79.0	67.0	1963	15.5	74	eu
143	26.0	4	97.0	78.0	2300	14.5	74	eu
144	31.0	4	76.0	52.0	1649	16.5	74	ja
145	32.0	4	83.0	61.0	2003	19.0	74	ja
146	28.0	4	90.0	75.0	2125	14.5	74	
147	24.0	4	90.0	75.0	2108	15.5	74	eu
148	26.0	4	116.0	75.0	2246	14.0	74	eu
149	24.0	4	120.0	97.0	2489	15.0	74	ja

150	26.0	4	108.0	93.0	2391	15.5	74	j
151	31.0	4	79.0	67.0	2000	16.0	74	eu
152	19.0	6	225.0	95.0	3264	16.0	75	
153	18.0	6	250.0	105.0	3459	16.0	75	
154	15.0	6	250.0	72.0	3432	21.0	75	
155	15.0	6	250.0	72.0	3158	19.5	75	
156	16.0	8	400.0	170.0	4668	11.5	75	
157	15.0	8	350.0	145.0	4440	14.0	75	
158	16.0	8	318.0	150.0	4498	14.5	75	
159	14.0	8	351.0	148.0	4657	13.5	75	
160	17.0	6	231.0	110.0	3907	21.0	75	
161	16.0	6	250.0	105.0	3897	18.5	75	
162	15.0	6	258.0	110.0	3730	19.0	75	
163	18.0	6	225.0	95.0	3785	19.0	75	
164	21.0	6	231.0	110.0	3039	15.0	75	
165	20.0	8	262.0	110.0	3221	13.5	75	
166	13.0	8	302.0	129.0	3169	12.0	75	
167	29.0	4	97.0	75.0	2171	16.0	75	j
168	23.0	4	140.0	83.0	2639	17.0	75	
169	20.0	6	232.0	100.0	2914	16.0	75	
170	23.0	4	140.0	78.0	2592	18.5	75	
171	24.0	4	134.0	96.0	2702	13.5	75	j
172	25.0	4	90.0	71.0	2223	16.5	75	eu

173	24.0	4	119.0	97.0	2545	17.0	75	j
174	18.0	6	171.0	97.0	2984	14.5	75	
175	29.0	4	90.0	70.0	1937	14.0	75	eu
176	19.0	6	232.0	90.0	3211	17.0	75	
177	23.0	4	115.0	95.0	2694	15.0	75	eu
178	23.0	4	120.0	88.0	2957	17.0	75	eu
179	22.0	4	121.0	98.0	2945	14.5	75	eu
180	25.0	4	121.0	115.0	2671	13.5	75	eu
181	33.0	4	91.0	53.0	1795	17.5	75	j
182	28.0	4	107.0	86.0	2464	15.5	76	eu
183	25.0	4	116.0	81.0	2220	16.9	76	eu
184	25.0	4	140.0	92.0	2572	14.9	76	
185	26.0	4	98.0	79.0	2255	17.7	76	
186	27.0	4	101.0	83.0	2202	15.3	76	eu
187	17.5	8	305.0	140.0	4215	13.0	76	
188	16.0	8	318.0	150.0	4190	13.0	76	
189	15.5	8	304.0	120.0	3962	13.9	76	
190	14.5	8	351.0	152.0	4215	12.8	76	
191	22.0	6	225.0	100.0	3233	15.4	76	
192	22.0	6	250.0	105.0	3353	14.5	76	
193	24.0	6	200.0	81.0	3012	17.6	76	
194	22.5	6	232.0	90.0	3085	17.6	76	
195	29.0	4	85.0	52.0	2035	22.2	76	
196	24.5	4	98.0	60.0	2164	22.1	76	
197	29.0	4	90.0	70.0	1937	14.2	76	eu

198	33.0	4	91.0	53.0	1795	17.4	76	j
199	20.0	6	225.0	100.0	3651	17.7	76	
200	18.0	6	250.0	78.0	3574	21.0	76	
201	18.5	6	250.0	110.0	3645	16.2	76	
202	17.5	6	258.0	95.0	3193	17.8	76	
203	29.5	4	97.0	71.0	1825	12.2	76	eu
204	32.0	4	85.0	70.0	1990	17.0	76	j
205	28.0	4	97.0	75.0	2155	16.4	76	j
206	26.5	4	140.0	72.0	2565	13.6	76	
207	20.0	4	130.0	102.0	3150	15.7	76	eu
208	13.0	8	318.0	150.0	3940	13.2	76	
209	19.0	4	120.0	88.0	3270	21.9	76	eu
210	19.0	6	156.0	108.0	2930	15.5	76	j
211	16.5	6	168.0	120.0	3820	16.7	76	eu
212	16.5	8	350.0	180.0	4380	12.1	76	
213	13.0	8	350.0	145.0	4055	12.0	76	
214	13.0	8	302.0	130.0	3870	15.0	76	
215	13.0	8	318.0	150.0	3755	14.0	76	
216	31.5	4	98.0	68.0	2045	18.5	77	j
217	30.0	4	111.0	80.0	2155	14.8	77	
218	36.0	4	79.0	58.0	1825	18.6	77	eu
219	25.5	4	122.0	96.0	2300	15.5	77	
220	33.5	4	85.0	70.0	1945	16.8	77	j
221	17.5	8	305.0	145.0	3880	12.5	77	

221	17.5	8	305.0	145.0	3880	12.5	77	
222	17.0	8	260.0	110.0	4060	19.0	77	
223	15.5	8	318.0	145.0	4140	13.7	77	
224	15.0	8	302.0	130.0	4295	14.9	77	
225	17.5	6	250.0	110.0	3520	16.4	77	
226	20.5	6	231.0	105.0	3425	16.9	77	
227	19.0	6	225.0	100.0	3630	17.7	77	
228	18.5	6	250.0	98.0	3525	19.0	77	
229	16.0	8	400.0	180.0	4220	11.1	77	
230	15.5	8	350.0	170.0	4165	11.4	77	
231	15.5	8	400.0	190.0	4325	12.2	77	
232	16.0	8	351.0	149.0	4335	14.5	77	
233	29.0	4	97.0	78.0	1940	14.5	77	eu
234	24.5	4	151.0	88.0	2740	16.0	77	
235	26.0	4	97.0	75.0	2265	18.2	77	j
236	25.5	4	140.0	89.0	2755	15.8	77	
237	30.5	4	98.0	63.0	2051	17.0	77	
238	33.5	4	98.0	83.0	2075	15.9	77	
239	30.0	4	97.0	67.0	1985	16.4	77	j

240	30.5	4	97.0	78.0	2190	14.1	77	eu
241	22.0	6	146.0	97.0	2815	14.5	77	j
242	21.5	4	121.0	110.0	2600	12.8	77	eu
243	21.5	3	80.0	110.0	2720	13.5	77	j
244	43.1	4	90.0	48.0	1985	21.5	78	eu
245	36.1	4	98.0	66.0	1800	14.4	78	
246	32.8	4	78.0	52.0	1985	19.4	78	j
247	39.4	4	85.0	70.0	2070	18.6	78	j
248	36.1	4	91.0	60.0	1800	16.4	78	j
249	19.9	8	260.0	110.0	3365	15.5	78	
250	19.4	8	318.0	140.0	3735	13.2	78	
251	20.2	8	302.0	139.0	3570	12.8	78	

for finding any missing values

252	19.2	6	231.0	105.0	3535	19.2	78	

```
car.isna().sum()
```

```
mpg             0
cylinders       0
displacement    0
horsepower      6
weight          0
acceleration    0
model_year      0
origin          0
name            0
dtype: int64
```

256	26.8	6	225.0	100.0	3430	17.2	78	

drop all the missing values

```
car=car.dropna()
```

256	26.8	6	231.0	105.0	3535	19.2	78	

```
car.isna().sum()
```

```
mpg             0
```

```
cylinders       0
displacement    0
horsepower      0
weight          0
acceleration    0
model_year      0
origin          0
name            0
dtype: int64
```

description of dataframe

```
car.describe()
```

	mpg	cylinders	displacement	horsepower	weight	acceleration	m
count	392.000000	392.000000	392.000000	392.000000	392.000000	392.000000	3
mean	23.445918	5.471939	194.411990	104.469388	2977.584184	15.541327	
std	7.805007	1.705783	104.644004	38.491160	849.402560	2.758864	
min	9.000000	3.000000	68.000000	46.000000	1613.000000	8.000000	
25%	17.000000	4.000000	105.000000	75.000000	2225.250000	13.775000	
50%	22.750000	4.000000	151.000000	93.500000	2803.500000	15.500000	
75%	29.000000	8.000000	275.750000	126.000000	3614.750000	17.025000	
max	46.600000	8.000000	455.000000	230.000000	5140.000000	24.800000	

data type in each column

```
car.info()
```

```
car.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 392 entries, 0 to 397
Data columns (total 9 columns):
 #   Column        Non-Null Count  Dtype  
---  ------        --------------  -----  
 0   mpg           392 non-null    float64
 1   cylinders     392 non-null    int64  
 2   displacement  392 non-null    float64
 3   horsepower    392 non-null    float64
 4   weight        392 non-null    int64  
 5   acceleration  392 non-null    float64
 6   model_year    392 non-null    int64  
 7   origin        392 non-null    object 
 8   name          392 non-null    object 
dtypes: float64(4), int64(3), object(2)
memory usage: 30.6+ KB
```

shape of dataframe

```
car.shape
```

```
(392, 9)
```

✓ 0s completed at 10:44 PM