```
import pandas as pd
```

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

```
car
```

	mpg	cylinders	displacement	horsepower	weight	acceleration	model_year	ori
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	

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

	mpg	cylinders	displacement	horsepower	weight	acceleration	model_year	origi
0	18.0	8	307.0	130.0	3504	12.0	70	us
1	15.0	8	350.0	165.0	3693	11.5	70	us
2	18.0	8	318.0	150.0	3436	11.0	70	us
3	16.0	8	304.0	150.0	3433	12.0	70	us
4	17.0	8	302.0	140.0	3449	10.5	70	us
5	15.0	8	429.0	198.0	4341	10.0	70	us
6	14.0	8	454.0	220.0	4354	9.0	70	us
7	14.0	8	440.0	215.0	4312	8.5	70	us
8	14.0	8	455.0	225.0	4425	10.0	70	us

```
car.tail(5)
```

	mpg	cylinders	displacement	horsepower	weight	acceleration	model_year	ori
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	

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

```
car
```

	mpg	cylinders	displacement	horsepower	weight	acceleration	model_year	ori

	mpg	cylinders	displacement	horsepower	weight	acceleration	model_year	ori
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	ja
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	ja
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	ja
30	28.0	4	140.0	90.0	2264	15.5	71	
31	25.0	4	113.0	95.0	2228	14.0	71	ja
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	ja
54	35.0	4	72.0	69.0	1613	18.0	71	ja
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	ja
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	ja
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	eur
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	ja
109	21.0	4	140.0	72.0	2401	19.5	73	
110	22.0	4	108.0	94.0	2379	16.5	73	ja
111	18.0	3	70.0	90.0	2124	13.5	73	ja
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	eur

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	eui
118	24.0	4	116.0	75.0	2158	15.5	73	eui
119	20.0	4	114.0	91.0	2582	14.0	73	eui
120	19.0	4	121.0	112.0	2868	15.5	73	eui
121	15.0	8	318.0	150.0	3399	11.0	73	
122	24.0	4	121.0	110.0	2660	14.0	73	eui
123	20.0	6	156.0	122.0	2807	13.5	73	ja
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	eur
142	26.0	4	79.0	67.0	1963	15.5	74	eur
143	26.0	4	97.0	78.0	2300	14.5	74	eur
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	eur
148	26.0	4	116.0	75.0	2246	14.0	74	eur
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	ja
151	31.0	4	79.0	67.0	2000	16.0	74	eur
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	ja
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	ja
172	25.0	4	90.0	71.0	2223	16.5	75	eur
173	24.0	4	119.0	97.0	2545	17.0	75	ja
174	18.0	6	171.0	97.0	2984	14.5	75	
175	29.0	4	90.0	70.0	1937	14.0	75	eur
176	19.0	6	232.0	90.0	3211	17.0	75	
177	23.0	4	115.0	95.0	2694	15.0	75	eur
178	23.0	4	120.0	88.0	2957	17.0	75	eur
179	22.0	4	121.0	98.0	2945	14.5	75	eur
180	25.0	4	121.0	115.0	2671	13.5	75	eur
181	33.0	4	91.0	53.0	1795	17.5	75	ja
182	28.0	4	107.0	86.0	2464	15.5	76	eur
183	25.0	4	116.0	81.0	2220	16.9	76	eur
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	eur
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	ja
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	ja
205	28.0	4	97.0	75.0	2155	16.4	76	ja
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	ja
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	ja
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	ja
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	ja
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	ja
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	ja
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	ja
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	ja
247	39.4	4	85.0	70.0	2070	18.6	78	ja
248	36.1	4	91.0	60.0	1800	16.4	78	ja
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	
252	19.2	6	231.0	105.0	3535	19.2	78	
253	20.5	6	200.0	95.0	3155	18.2	78	
254	20.2	6	200.0	85.0	2965	15.8	78	
255	25.1	4	140.0	88.0	2720	15.4	78	
256	20.5	6	225.0	100.0	3430	17.2	78	
257	19.4	6	232.0	90.0	3210	17.2	78	
258	20.6	6	231.0	105.0	3380	15.8	78	
259	20.8	6	200.0	85.0	3070	16.7	78	
260	18.6	6	225.0	110.0	3620	18.7	78	
261	18.1	6	258.0	120.0	3410	15.1	78	
262	19.2	8	305.0	145.0	3425	13.2	78	
263	17.7	6	231.0	165.0	3445	13.4	78	
264	18.1	8	302.0	139.0	3205	11.2	78	
265	17.5	8	318.0	140.0	4080	13.7	78	
266	30.0	4	98.0	68.0	2155	16.5	78	

267	27.5	4	134.0	95.0	2560	14.2	78	ja
268	27.2	4	119.0	97.0	2300	14.7	78	ja
269	30.9	4	105.0	75.0	2230	14.5	78	
270	21.1	4	134.0	95.0	2515	14.8	78	ja
271	23.2	4	156.0	105.0	2745	16.7	78	
272	23.8	4	151.0	85.0	2855	17.6	78	
273	23.9	4	119.0	97.0	2405	14.9	78	ja
274	20.3	5	131.0	103.0	2830	15.9	78	eu

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

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

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

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

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

287	16.5	8	351.0	138.0	3955	13.2	79

```
car.describe()
```

	mpg	cylinders	displacement	horsepower	weight	acceleration	mc
count	392.000000	392.000000	392.000000	392.000000	392.000000	392.000000	39
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	

```
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
```

```
car.shape
```

```
(392, 9)
```

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```
import pandas as pd
```

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

```
mpg
```

	mpg	cylinders	displacement	horsepower	weight	acceleration	model_year	ori
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	

```
car=mpg.copy()
```

```
car
```

	mpg	cylinders	displacement	horsepower	weight	acceleration	model_year	ori
0	18.0	8	307.0	130.0	3504	12.0	70	

```
mpg = mpg.drop('cylinders' , axis= 1)
```

```
mpg.columns
```

```
Index(['mpg', 'displacement', 'horsepower', 'weight', 'acceleration',
       'model_year', 'origin', 'name'],
      dtype='object')
```

| 3 | 16.0 | 8 | 304.0 | 150.0 | 3433 | 12.0 | 70 | |

```
car.columns
```

```
Index(['mpg', 'cylinders', 'displacement', 'horsepower', 'weight',
       'acceleration', 'model_year', 'origin', 'name'],
      dtype='object')
```

```
car.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 398 entries, 0 to 397
Data columns (total 9 columns):
 #   Column        Non-Null Count  Dtype
---  ------        --------------  -----
 0   mpg           398 non-null    float64
 1   cylinders     398 non-null    int64
 2   displacement  398 non-null    float64
 3   horsepower    392 non-null    float64
 4   weight        398 non-null    int64
 5   acceleration  398 non-null    float64
 6   model_year    398 non-null    int64
 7   origin        398 non-null    object
 8   name          398 non-null    object
dtypes: float64(4), int64(3), object(2)
memory usage: 28.1+ KB
```

```
car.describe()
```

```
car[['cylinders','origin']].value_counts()
```

```
      cylinders  origin
      8          usa       103
      6          usa        74
      4          usa        72
                 japan      69
                 europe     63
      6          japan       6
      3          japan       4
      6          europe      4
      5          europe      3
      dtype: int64
```

| | **max** | 46.600000 | 8.000000 | 455.000000 | 230.000000 | 5140.000000 | 24.800000 | |

```
car[['origin']].value_counts()
```

```
      origin
      usa       249
      japan      79
      europe     70
      dtype: int64
```

```
car['origin'].unique()
```

```
      array(['usa', 'japan', 'europe'], dtype=object)
```

```
car['origin'].nunique()
```

```
      3
```

```
car.sort_values('displacement')
```

	mpg	cylinders	displacement	horsepower	weight	acceleration	model_year	ori

```
car.sort_values('displacement',ascending = False)
```

	mpg	cylinders	displacement	horsepower	weight	acceleration	model_year	ori
8	14.0	8	455.0	225.0	4425	10.0	70	
95	12.0	8	455.0	225.0	4951	11.0	73	
13	14.0	8	455.0	225.0	3086	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	
...	...	...	...	...	...	...	...	

```
car.sort_values(['displacement','weight'], ascending = False)
```

	mpg	cylinders	displacement	horsepower	weight	acceleration	model_year	ori
95	12.0	8	455.0	225.0	4951	11.0	73	
8	14.0	8	455.0	225.0	4425	10.0	70	
13	14.0	8	455.0	225.0	3086	10.0	70	
6	14.0	8	454.0	220.0	4354	9.0	70	
94	13.0	8	440.0	215.0	4735	11.0	73	

```
car.describe(include = 'all')
```

	mpg	cylinders	displacement	horsepower	weight	acceleration	
count	398.000000	398.000000	398.000000	392.000000	398.000000	398.000000	
unique	NaN	NaN	NaN	NaN	NaN	NaN	
top	NaN	NaN	NaN	NaN	NaN	NaN	
freq	NaN	NaN	NaN	NaN	NaN	NaN	
mean	23.514573	5.454774	193.425879	104.469388	2970.424623	15.568090	
std	7.815984	1.701004	104.269838	38.491160	846.841774	2.757689	
min	9.000000	3.000000	68.000000	46.000000	1613.000000	8.000000	
25%	17.500000	4.000000	104.250000	75.000000	2223.750000	13.825000	
50%	23.000000	4.000000	148.500000	93.500000	2803.500000	15.500000	
75%	29.000000	8.000000	262.000000	126.000000	3608.000000	17.175000	
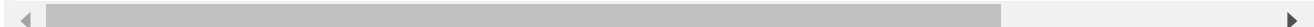
car.T

	0	1	2	3	4	5	6	7	
mpg	18.0	15.0	18.0	16.0	17.0	15.0	14.0	14.0	14
cylinders	8	8	8	8	8	8	8	8	
displacement	307.0	350.0	318.0	304.0	302.0	429.0	454.0	440.0	455
horsepower	130.0	165.0	150.0	150.0	140.0	198.0	220.0	215.0	225
weight	3504	3693	3436	3433	3449	4341	4354	4312	442
acceleration	12.0	11.5	11.0	12.0	10.5	10.0	9.0	8.5	10
model_year	70	70	70	70	70	70	70	70	7
origin	usa	usa	usa	usa	usa	usa	usa	usa	us
name	chevrolet chevelle malibu	buick skylark 320	plymouth satellite	amc rebel sst	ford torino	ford galaxie 500	chevrolet impala	plymouth fury iii	pontia catalir

9 rows × 398 columns
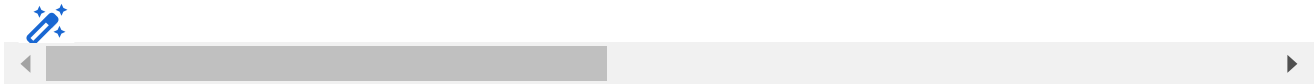
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```python
import pandas as pd
```

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

```python
titanic.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1309 entries, 0 to 1308
Data columns (total 14 columns):
 #   Column     Non-Null Count  Dtype
---  ------     --------------  -----
 0   pclass     1309 non-null   int64
 1   survived   1309 non-null   int64
 2   name       1309 non-null   object
 3   sex        1309 non-null   object
 4   age        1046 non-null   float64
 5   sibsp      1309 non-null   int64
 6   parch      1309 non-null   int64
 7   ticket     1309 non-null   object
 8   fare       1308 non-null   float64
 9   cabin      295 non-null    object
 10  embarked   1307 non-null   object
 11  boat       486 non-null    object
 12  body       121 non-null    float64
 13  home.dest  745 non-null    object
dtypes: float64(3), int64(4), object(7)
memory usage: 143.3+ KB
```

```python
titanic.columns
```

```
Index(['pclass', 'survived', 'name', 'sex', 'age', 'sibsp', 'parch', 'ticket',
       'fare', 'cabin', 'embarked', 'boat', 'body', 'home.dest'],
      dtype='object')
```

```python
titanic.name
```

```
0                    Allen, Miss. Elisabeth Walton
1                   Allison, Master. Hudson Trevor
2                     Allison, Miss. Helen Loraine
3            Allison, Mr. Hudson Joshua Creighton
4        Allison, Mrs. Hudson J C (Bessie Waldo Daniels)
                           ...
1304                       Zabour, Miss. Hileni
1305                      Zabour, Miss. Thamine
1306                  Zakarian, Mr. Mapriededer
1307                        Zakarian, Mr. Ortin
1308                        Zimmerman, Mr. Leo
Name: name, Length: 1309, dtype: object
```

```python
type(titanic.name)
```

```
pandas.core.series.Series
```

```
name = titanic['name']
```

```
name
```

```
0                        Allen, Miss. Elisabeth Walton
1                        Allison, Master. Hudson Trevor
2                        Allison, Miss. Helen Loraine
3              Allison, Mr. Hudson Joshua Creighton
4      Allison, Mrs. Hudson J C (Bessie Waldo Daniels)
                              ...
1304                             Zabour, Miss. Hileni
1305                             Zabour, Miss. Thamine
1306                          Zakarian, Mr. Mapriededer
1307                                 Zakarian, Mr. Ortin
1308                                 Zimmerman, Mr. Leo
Name: name, Length: 1309, dtype: object
```

```
name.shape
```

```
(1309,)
```

```
type(name)
```

```
pandas.core.series.Series
```

```
name=titanic[['name']]
```

```
name
```

	name
0	Allen, Miss. Elisabeth Walton
1	Allison, Master. Hudson Trevor
2	Allison, Miss. Helen Loraine
3	Allison, Mr. Hudson Joshua Creighton
4	Allison, Mrs. Hudson J C (Bessie Waldo Daniels)
...	...
1304	Zabour, Miss. Hileni
1305	Zabour, Miss. Thamine
1306	Zakarian, Mr. Mapriededer
1307	Zakarian, Mr. Ortin
1308	Zimmerman, Mr. Leo

1309 rows × 1 columns

```
type(name)
```

```
pandas.core.frame.DataFrame
```

```
name.shape
```

```
(1309, 1)
```

```
titanic.iloc[100,:]
```

```
pclass                                            1
survived                                          1
name          Duff Gordon, Sir. Cosmo Edmund ("Mr Morgan")
sex                                            male
age                                            49.0
sibsp                                             1
parch                                             0
ticket                                    PC 17485
fare                                        56.9292
cabin                                           A20
embarked                                          C
boat                                              1
body                                            NaN
home.dest                          London / Paris
Name: 100, dtype: object
```

```
titanic.loc[100,:]
```

```
pclass                                            1
survived                                          1
name          Duff Gordon, Sir. Cosmo Edmund ("Mr Morgan")
sex                                            male
age                                            49.0
sibsp                                             1
parch                                             0
ticket                                    PC 17485
fare                                        56.9292
cabin                                           A20
embarked                                          C
boat                                              1
body                                            NaN
home.dest                          London / Paris
Name: 100, dtype: object
```

```
titanic.iloc[:,[2,8]]
```

	name	fare
0	Allen, Miss. Elisabeth Walton	211.3375
1	Allison, Master. Hudson Trevor	151.5500
2	Allison, Miss. Helen Loraine	151.5500
3	Allison, Mr. Hudson Joshua Creighton	151.5500
4	Allison, Mrs. Hudson J C (Bessie Waldo Daniels)	151.5500
...	...	...

```
titanic.loc[:,['name','fare']]
```

	name	fare
0	Allen, Miss. Elisabeth Walton	211.3375
1	Allison, Master. Hudson Trevor	151.5500
2	Allison, Miss. Helen Loraine	151.5500
3	Allison, Mr. Hudson Joshua Creighton	151.5500
4	Allison, Mrs. Hudson J C (Bessie Waldo Daniels)	151.5500
...	...	...
1304	Zabour, Miss. Hileni	14.4542
1305	Zabour, Miss. Thamine	14.4542
1306	Zakarian, Mr. Mapriededer	7.2250
1307	Zakarian, Mr. Ortin	7.2250
1308	Zimmerman, Mr. Leo	7.8750

1309 rows × 2 columns

```
titanic.loc[[50,25,15],['pclass','fare','age']]
```

	pclass	fare	age
50	1	512.3292	58.0
25	1	26.0000	25.0
15	1	25.9250	NaN

```
titanic.iloc[[50,25,15],[0,8,4]]
```

	pclass	fare	age
50	1	512.3292	58.0

```
titanic.loc[10:25,['pclass','fare','age']]
```

	pclass	fare	age
10	1	227.5250	47.0
11	1	227.5250	18.0
12	1	69.3000	24.0
13	1	78.8500	26.0
14	1	30.0000	80.0
15	1	25.9250	NaN
16	1	247.5208	24.0
17	1	247.5208	50.0
18	1	76.2917	32.0
19	1	75.2417	36.0
20	1	52.5542	37.0
21	1	52.5542	47.0
22	1	30.0000	26.0
23	1	227.5250	42.0
24	1	221.7792	29.0
25	1	26.0000	25.0

```
titanic.iloc[10:26,[0,8,4]]
```

	pclass	fare	age
10	1	227.5250	47.0
11	1	227.5250	18.0
12	1	69.3000	24.0
13	1	78.8500	26.0
14	1	30.0000	80.0
15	1	25.9250	NaN

```
titanic.loc[10:15,'pclass':'age']
```

	pclass	survived	name	sex	age
10	1	0	Astor, Col. John Jacob	male	47.0
11	1	1	Astor, Mrs. John Jacob (Madeleine Talmadge Force)	female	18.0
12	1	1	Aubart, Mme. Leontine Pauline	female	24.0
13	1	1	Barber, Miss. Ellen "Nellie"	female	26.0
14	1	1	Barkworth, Mr. Algernon Henry Wilson	male	80.0
15	1	0	Baumann, Mr. John D	male	NaN

```
titanic.iloc[10:16,0:5]
```

	pclass	survived	name	sex	age
10	1	0	Astor, Col. John Jacob	male	47.0
11	1	1	Astor, Mrs. John Jacob (Madeleine Talmadge Force)	female	18.0
12	1	1	Aubart, Mme. Leontine Pauline	female	24.0
13	1	1	Barber, Miss. Ellen "Nellie"	female	26.0
14	1	1	Barkworth, Mr. Algernon Henry Wilson	male	80.0
15	1	0	Baumann, Mr. John D	male	NaN

```
titanic[titanic['age']>=35]
```

	pclass	survived	name	sex	age	sibsp	parch	ticket	fare	cabi
5	1	1	Anderson, Mr. Harry	male	48.0	0	0	19952	26.5500	E1:
6	1	1	Andrews, Miss. Kornelia Theodosia	female	63.0	1	0	13502	77.9583	D
7	1	0	Andrews, Mr. Thomas Jr	male	39.0	0	0	112050	0.0000	A3

```
titanic.loc[(titanic['age']>=35),'pclass':'age']
```

	pclass	survived	name	sex	age
5	1	1	Anderson, Mr. Harry	male	48.0
6	1	1	Andrews, Miss. Kornelia Theodosia	female	63.0
7	1	0	Andrews, Mr. Thomas Jr	male	39.0
8	1	1	Appleton, Mrs. Edward Dale (Charlotte Lamson)	female	53.0
9	1	0	Artagaveytia, Mr. Ramon	male	71.0
...	...	...	...	...	...
1286	3	1	Whabee, Mrs. George Joseph (Shawneene Abi-Saab)	female	38.0
1287	3	0	Widegren, Mr. Carl/Charles Peter	male	51.0
1290	3	1	Wilkes, Mrs. James (Ellen Needs)	female	47.0
1298	3	0	Wittevrongel, Mr. Camille	male	36.0
1301	3	0	Youseff, Mr. Gerious	male	45.5

345 rows × 5 columns

```
titanic.loc[(titanic['age']>=35) & (titanic['sex']=='female')]
```

	pclass	survived	name	sex	age	sibsp	parch	ticket	fare	cal
6	1	1	Andrews, Miss. Kornelia Theodosia	female	63.0	1	0	13502	77.9583	
			Appleton, (Charlotte							
			Baxter, Mrs. DeLaudeniere					17000		E
21	1	1	Beckwith, Mrs. Richard Leonard (Sallie Monypeny)	female	47.0	1	1	11751	52.5542	E

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```python
import pandas as pd
```

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

```python
tips.head()
```

	total_bill	tip	sex	smoker	day	time	size
0	16.99	1.01	Female	No	Sun	Dinner	2
1	10.34	1.66	Male	No	Sun	Dinner	3
2	21.01	3.50	Male	No	Sun	Dinner	3
3	23.68	3.31	Male	No	Sun	Dinner	2
4	24.59	3.61	Female	No	Sun	Dinner	4

```python
tips['tip']/tips['total_bill']*100
```

```
0        5.944673
1       16.054159
2       16.658734
3       13.978041
4       14.680765
          ...
239     20.392697
240      7.358352
241      8.822232
242      9.820426
243     15.974441
Length: 244, dtype: float64
```

```python
tip_percentage = tips['tip']/tips['total_bill']*100
```

```python
tip_percentage
```

```
0        5.944673
1       16.054159
2       16.658734
3       13.978041
4       14.680765
          ...
239     20.392697
240      7.358352
241      8.822232
242      9.820426
243     15.974441
Length: 244, dtype: float64
```

```python
tips['tip_percentage'] = tips['tip']/tips['total_bill']*100
```

```
tips.head()
```

	total_bill	tip	sex	smoker	day	time	size	tip_percentage
0	16.99	1.01	Female	No	Sun	Dinner	2	5.944673
1	10.34	1.66	Male	No	Sun	Dinner	3	16.054159
2	21.01	3.50	Male	No	Sun	Dinner	3	16.658734
3	23.68	3.31	Male	No	Sun	Dinner	2	13.978041
4	24.59	3.61	Female	No	Sun	Dinner	4	14.680765

```
tips['tip_percentage'] = tips['tip_percentage'].round(1)
```

```
tips.head()
```

	total_bill	tip	sex	smoker	day	time	size	tip_percentage
0	16.99	1.01	Female	No	Sun	Dinner	2	5.9
1	10.34	1.66	Male	No	Sun	Dinner	3	16.1
2	21.01	3.50	Male	No	Sun	Dinner	3	16.7
3	23.68	3.31	Male	No	Sun	Dinner	2	14.0
4	24.59	3.61	Female	No	Sun	Dinner	4	14.7

```
tips = tips.drop(['size'],axis = 1)
```

```
tips.head()
```

	total_bill	tip	sex	smoker	day	time	tip_percentage
0	16.99	1.01	Female	No	Sun	Dinner	5.9
1	10.34	1.66	Male	No	Sun	Dinner	16.1
2	21.01	3.50	Male	No	Sun	Dinner	16.7
3	23.68	3.31	Male	No	Sun	Dinner	14.0
4	24.59	3.61	Female	No	Sun	Dinner	14.7

```
tips.set_index('tip_percentage')
```

tip_percentage	total_bill	tip	sex	smoker	day	time
5.9	16.99	1.01	Female	No	Sun	Dinner
16.1	10.34	1.66	Male	No	Sun	Dinner
16.7	21.01	3.50	Male	No	Sun	Dinner
14.0	23.68	3.31	Male	No	Sun	Dinner
14.7	24.59	3.61	Female	No	Sun	Dinner
...	...	...	...	...	...	...
20.4	29.03	5.92	Male	No	Sat	Dinner
7.4	27.18	2.00	Female	Yes	Sat	Dinner

```python
tips.head()
```

	total_bill	tip	sex	smoker	day	time	tip_percentage
0	16.99	1.01	Female	No	Sun	Dinner	5.9
1	10.34	1.66	Male	No	Sun	Dinner	16.1
2	21.01	3.50	Male	No	Sun	Dinner	16.7
3	23.68	3.31	Male	No	Sun	Dinner	14.0
4	24.59	3.61	Female	No	Sun	Dinner	14.7

```python
tips = tips.reset_index()
```

```python
tips.head()
```

	index	total_bill	tip	sex	smoker	day	time	tip_percentage
0	0	16.99	1.01	Female	No	Sun	Dinner	5.9
1	1	10.34	1.66	Male	No	Sun	Dinner	16.1
2	2	21.01	3.50	Male	No	Sun	Dinner	16.7
3	3	23.68	3.31	Male	No	Sun	Dinner	14.0
4	4	24.59	3.61	Female	No	Sun	Dinner	14.7

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