

```
# Problem 1, Importing pandas and importing MPG data set.
```

```
import pandas as pd
```

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

Problem 2: Print car data *frame*

```
car
```

	mpg	cylinders	displacement	horsepower	weight	
acceleration \						
0	18.0	8	307.0	130.0	3504	12.0
1	15.0	8	350.0	165.0	3693	11.5
2	18.0	8	318.0	150.0	3436	11.0
3	16.0	8	304.0	150.0	3433	12.0
4	17.0	8	302.0	140.0	3449	10.5
..	...	...	...	...	...	...
393	27.0	4	140.0	86.0	2790	15.6
394	44.0	4	97.0	52.0	2130	24.6
395	32.0	4	135.0	84.0	2295	11.6
396	28.0	4	120.0	79.0	2625	18.6
397	31.0	4	119.0	82.0	2720	19.4

	model_year	origin	name
0	70	usa	chevrolet chevelle malibu
1	70	usa	buick skylark 320
2	70	usa	plymouth satellite
3	70	usa	amc rebel sst
4	70	usa	ford torino
..	...	...	...
393	82	usa	ford mustang gl
394	82	europe	vw pickup
395	82	usa	dodge rampage
396	82	usa	ford ranger
397	82	usa	chevy s-10

[398 rows x 9 columns]

Problem 3: Print rows of choice.

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

	mpg	cylinders	displacement	horsepower	weight	acceleration	\
0	18.0	8	307.0	130.0	3504	12.0	
1	15.0	8	350.0	165.0	3693	11.5	
2	18.0	8	318.0	150.0	3436	11.0	
3	16.0	8	304.0	150.0	3433	12.0	
4	17.0	8	302.0	140.0	3449	10.5	

	model_year	origin	name
0	70	usa	chevrolet chevelle malibu
1	70	usa	buick skylark 320
2	70	usa	plymouth satellite
3	70	usa	amc rebel sst
4	70	usa	ford torino

Problem 4: Inspect Last 5 Rows

```
car.tail()
```

	mpg	cylinders	displacement	horsepower	weight	acceleration	\
393	27.0	4	140.0	86.0	2790	15.6	
394	44.0	4	97.0	52.0	2130	24.6	
395	32.0	4	135.0	84.0	2295	11.6	
396	28.0	4	120.0	79.0	2625	18.6	
397	31.0	4	119.0	82.0	2720	19.4	

	model_year	origin	name
393	82	usa	ford mustang gl
394	82	europe	vw pickup
395	82	usa	dodge rampage
396	82	usa	ford ranger
397	82	usa	chevy s-10

Problem 5:View all rows.

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

```
car
```

	mpg	cylinders	displacement	horsepower	weight	
acceleration \						
0	18.0	8	307.0	130.0	3504	12.0
1	15.0	8	350.0	165.0	3693	11.5
2	18.0	8	318.0	150.0	3436	11.0
3	16.0	8	304.0	150.0	3433	12.0
4	17.0	8	302.0	140.0	3449	10.5
5	15.0	8	429.0	198.0	4341	10.0
6	14.0	8	454.0	220.0	4354	9.0
7	14.0	8	440.0	215.0	4312	8.5
8	14.0	8	455.0	225.0	4425	10.0
9	15.0	8	390.0	190.0	3850	8.5
10	15.0	8	383.0	170.0	3563	10.0
11	14.0	8	340.0	160.0	3609	8.0
12	15.0	8	400.0	150.0	3761	9.5
13	14.0	8	455.0	225.0	3086	10.0
14	24.0	4	113.0	95.0	2372	15.0
15	22.0	6	198.0	95.0	2833	15.5
16	18.0	6	199.0	97.0	2774	15.5
17	21.0	6	200.0	85.0	2587	16.0
18	27.0	4	97.0	88.0	2130	14.5
19	26.0	4	97.0	46.0	1835	20.5
20	25.0	4	110.0	87.0	2672	17.5
21	24.0	4	107.0	90.0	2430	14.5

22	25.0	4	104.0	95.0	2375	17.5
23	26.0	4	121.0	113.0	2234	12.5
24	21.0	6	199.0	90.0	2648	15.0
25	10.0	8	360.0	215.0	4615	14.0
26	10.0	8	307.0	200.0	4376	15.0
27	11.0	8	318.0	210.0	4382	13.5
28	9.0	8	304.0	193.0	4732	18.5
29	27.0	4	97.0	88.0	2130	14.5
30	28.0	4	140.0	90.0	2264	15.5
31	25.0	4	113.0	95.0	2228	14.0
32	25.0	4	98.0	NaN	2046	19.0
33	19.0	6	232.0	100.0	2634	13.0
34	16.0	6	225.0	105.0	3439	15.5
35	17.0	6	250.0	100.0	3329	15.5
36	19.0	6	250.0	88.0	3302	15.5
37	18.0	6	232.0	100.0	3288	15.5
38	14.0	8	350.0	165.0	4209	12.0
39	14.0	8	400.0	175.0	4464	11.5
40	14.0	8	351.0	153.0	4154	13.5
41	14.0	8	318.0	150.0	4096	13.0
42	12.0	8	383.0	180.0	4955	11.5
43	13.0	8	400.0	170.0	4746	12.0
44	13.0	8	400.0	175.0	5140	12.0
45	18.0	6	258.0	110.0	2962	13.5

46	22.0	4	140.0	72.0	2408	19.0
47	19.0	6	250.0	100.0	3282	15.0
48	18.0	6	250.0	88.0	3139	14.5
49	23.0	4	122.0	86.0	2220	14.0
50	28.0	4	116.0	90.0	2123	14.0
51	30.0	4	79.0	70.0	2074	19.5
52	30.0	4	88.0	76.0	2065	14.5
53	31.0	4	71.0	65.0	1773	19.0
54	35.0	4	72.0	69.0	1613	18.0
55	27.0	4	97.0	60.0	1834	19.0
56	26.0	4	91.0	70.0	1955	20.5
57	24.0	4	113.0	95.0	2278	15.5
58	25.0	4	97.5	80.0	2126	17.0
59	23.0	4	97.0	54.0	2254	23.5
60	20.0	4	140.0	90.0	2408	19.5
61	21.0	4	122.0	86.0	2226	16.5
62	13.0	8	350.0	165.0	4274	12.0
63	14.0	8	400.0	175.0	4385	12.0
64	15.0	8	318.0	150.0	4135	13.5
65	14.0	8	351.0	153.0	4129	13.0
66	17.0	8	304.0	150.0	3672	11.5
67	11.0	8	429.0	208.0	4633	11.0
68	13.0	8	350.0	155.0	4502	13.5
69	12.0	8	350.0	160.0	4456	13.5

70	13.0	8	400.0	190.0	4422	12.5
71	19.0	3	70.0	97.0	2330	13.5
72	15.0	8	304.0	150.0	3892	12.5
73	13.0	8	307.0	130.0	4098	14.0
74	13.0	8	302.0	140.0	4294	16.0
75	14.0	8	318.0	150.0	4077	14.0
76	18.0	4	121.0	112.0	2933	14.5
77	22.0	4	121.0	76.0	2511	18.0
78	21.0	4	120.0	87.0	2979	19.5
79	26.0	4	96.0	69.0	2189	18.0
80	22.0	4	122.0	86.0	2395	16.0
81	28.0	4	97.0	92.0	2288	17.0
82	23.0	4	120.0	97.0	2506	14.5
83	28.0	4	98.0	80.0	2164	15.0
84	27.0	4	97.0	88.0	2100	16.5
85	13.0	8	350.0	175.0	4100	13.0
86	14.0	8	304.0	150.0	3672	11.5
87	13.0	8	350.0	145.0	3988	13.0
88	14.0	8	302.0	137.0	4042	14.5
89	15.0	8	318.0	150.0	3777	12.5
90	12.0	8	429.0	198.0	4952	11.5
91	13.0	8	400.0	150.0	4464	12.0
92	13.0	8	351.0	158.0	4363	13.0
93	14.0	8	318.0	150.0	4237	14.5

94	13.0	8	440.0	215.0	4735	11.0
95	12.0	8	455.0	225.0	4951	11.0
96	13.0	8	360.0	175.0	3821	11.0
97	18.0	6	225.0	105.0	3121	16.5
98	16.0	6	250.0	100.0	3278	18.0
99	18.0	6	232.0	100.0	2945	16.0
100	18.0	6	250.0	88.0	3021	16.5
101	23.0	6	198.0	95.0	2904	16.0
102	26.0	4	97.0	46.0	1950	21.0
103	11.0	8	400.0	150.0	4997	14.0
104	12.0	8	400.0	167.0	4906	12.5
105	13.0	8	360.0	170.0	4654	13.0
106	12.0	8	350.0	180.0	4499	12.5
107	18.0	6	232.0	100.0	2789	15.0
108	20.0	4	97.0	88.0	2279	19.0
109	21.0	4	140.0	72.0	2401	19.5
110	22.0	4	108.0	94.0	2379	16.5
111	18.0	3	70.0	90.0	2124	13.5
112	19.0	4	122.0	85.0	2310	18.5
113	21.0	6	155.0	107.0	2472	14.0
114	26.0	4	98.0	90.0	2265	15.5
115	15.0	8	350.0	145.0	4082	13.0
116	16.0	8	400.0	230.0	4278	9.5
117	29.0	4	68.0	49.0	1867	19.5

118	24.0	4	116.0	75.0	2158	15.5
119	20.0	4	114.0	91.0	2582	14.0
120	19.0	4	121.0	112.0	2868	15.5
121	15.0	8	318.0	150.0	3399	11.0
122	24.0	4	121.0	110.0	2660	14.0
123	20.0	6	156.0	122.0	2807	13.5
124	11.0	8	350.0	180.0	3664	11.0
125	20.0	6	198.0	95.0	3102	16.5
126	21.0	6	200.0	NaN	2875	17.0
127	19.0	6	232.0	100.0	2901	16.0
128	15.0	6	250.0	100.0	3336	17.0
129	31.0	4	79.0	67.0	1950	19.0
130	26.0	4	122.0	80.0	2451	16.5
131	32.0	4	71.0	65.0	1836	21.0
132	25.0	4	140.0	75.0	2542	17.0
133	16.0	6	250.0	100.0	3781	17.0
134	16.0	6	258.0	110.0	3632	18.0
135	18.0	6	225.0	105.0	3613	16.5
136	16.0	8	302.0	140.0	4141	14.0
137	13.0	8	350.0	150.0	4699	14.5
138	14.0	8	318.0	150.0	4457	13.5
139	14.0	8	302.0	140.0	4638	16.0
140	14.0	8	304.0	150.0	4257	15.5
141	29.0	4	98.0	83.0	2219	16.5



142	26.0	4	79.0	67.0	1963	15.5
143	26.0	4	97.0	78.0	2300	14.5
144	31.0	4	76.0	52.0	1649	16.5
145	32.0	4	83.0	61.0	2003	19.0
146	28.0	4	90.0	75.0	2125	14.5
147	24.0	4	90.0	75.0	2108	15.5
148	26.0	4	116.0	75.0	2246	14.0
149	24.0	4	120.0	97.0	2489	15.0
150	26.0	4	108.0	93.0	2391	15.5
151	31.0	4	79.0	67.0	2000	16.0
152	19.0	6	225.0	95.0	3264	16.0
153	18.0	6	250.0	105.0	3459	16.0
154	15.0	6	250.0	72.0	3432	21.0
155	15.0	6	250.0	72.0	3158	19.5
156	16.0	8	400.0	170.0	4668	11.5
157	15.0	8	350.0	145.0	4440	14.0
158	16.0	8	318.0	150.0	4498	14.5
159	14.0	8	351.0	148.0	4657	13.5
160	17.0	6	231.0	110.0	3907	21.0
161	16.0	6	250.0	105.0	3897	18.5
162	15.0	6	258.0	110.0	3730	19.0
163	18.0	6	225.0	95.0	3785	19.0
164	21.0	6	231.0	110.0	3039	15.0
165	20.0	8	262.0	110.0	3221	13.5

166	13.0	8	302.0	129.0	3169	12.0
167	29.0	4	97.0	75.0	2171	16.0
168	23.0	4	140.0	83.0	2639	17.0
169	20.0	6	232.0	100.0	2914	16.0
170	23.0	4	140.0	78.0	2592	18.5
171	24.0	4	134.0	96.0	2702	13.5
172	25.0	4	90.0	71.0	2223	16.5
173	24.0	4	119.0	97.0	2545	17.0
174	18.0	6	171.0	97.0	2984	14.5
175	29.0	4	90.0	70.0	1937	14.0
176	19.0	6	232.0	90.0	3211	17.0
177	23.0	4	115.0	95.0	2694	15.0
178	23.0	4	120.0	88.0	2957	17.0
179	22.0	4	121.0	98.0	2945	14.5
180	25.0	4	121.0	115.0	2671	13.5
181	33.0	4	91.0	53.0	1795	17.5
182	28.0	4	107.0	86.0	2464	15.5
183	25.0	4	116.0	81.0	2220	16.9
184	25.0	4	140.0	92.0	2572	14.9
185	26.0	4	98.0	79.0	2255	17.7
186	27.0	4	101.0	83.0	2202	15.3
187	17.5	8	305.0	140.0	4215	13.0
188	16.0	8	318.0	150.0	4190	13.0
189	15.5	8	304.0	120.0	3962	13.9

190	14.5	8	351.0	152.0	4215	12.8
191	22.0	6	225.0	100.0	3233	15.4
192	22.0	6	250.0	105.0	3353	14.5
193	24.0	6	200.0	81.0	3012	17.6
194	22.5	6	232.0	90.0	3085	17.6
195	29.0	4	85.0	52.0	2035	22.2
196	24.5	4	98.0	60.0	2164	22.1
197	29.0	4	90.0	70.0	1937	14.2
198	33.0	4	91.0	53.0	1795	17.4
199	20.0	6	225.0	100.0	3651	17.7
200	18.0	6	250.0	78.0	3574	21.0
201	18.5	6	250.0	110.0	3645	16.2
202	17.5	6	258.0	95.0	3193	17.8
203	29.5	4	97.0	71.0	1825	12.2
204	32.0	4	85.0	70.0	1990	17.0
205	28.0	4	97.0	75.0	2155	16.4
206	26.5	4	140.0	72.0	2565	13.6
207	20.0	4	130.0	102.0	3150	15.7
208	13.0	8	318.0	150.0	3940	13.2
209	19.0	4	120.0	88.0	3270	21.9
210	19.0	6	156.0	108.0	2930	15.5
211	16.5	6	168.0	120.0	3820	16.7
212	16.5	8	350.0	180.0	4380	12.1
213	13.0	8	350.0	145.0	4055	12.0

214	13.0	8	302.0	130.0	3870	15.0
215	13.0	8	318.0	150.0	3755	14.0
216	31.5	4	98.0	68.0	2045	18.5
217	30.0	4	111.0	80.0	2155	14.8
218	36.0	4	79.0	58.0	1825	18.6
219	25.5	4	122.0	96.0	2300	15.5
220	33.5	4	85.0	70.0	1945	16.8
221	17.5	8	305.0	145.0	3880	12.5
222	17.0	8	260.0	110.0	4060	19.0
223	15.5	8	318.0	145.0	4140	13.7
224	15.0	8	302.0	130.0	4295	14.9
225	17.5	6	250.0	110.0	3520	16.4
226	20.5	6	231.0	105.0	3425	16.9
227	19.0	6	225.0	100.0	3630	17.7
228	18.5	6	250.0	98.0	3525	19.0
229	16.0	8	400.0	180.0	4220	11.1
230	15.5	8	350.0	170.0	4165	11.4
231	15.5	8	400.0	190.0	4325	12.2
232	16.0	8	351.0	149.0	4335	14.5
233	29.0	4	97.0	78.0	1940	14.5
234	24.5	4	151.0	88.0	2740	16.0
235	26.0	4	97.0	75.0	2265	18.2
236	25.5	4	140.0	89.0	2755	15.8
237	30.5	4	98.0	63.0	2051	17.0

238	33.5	4	98.0	83.0	2075	15.9
239	30.0	4	97.0	67.0	1985	16.4
240	30.5	4	97.0	78.0	2190	14.1
241	22.0	6	146.0	97.0	2815	14.5
242	21.5	4	121.0	110.0	2600	12.8
243	21.5	3	80.0	110.0	2720	13.5
244	43.1	4	90.0	48.0	1985	21.5
245	36.1	4	98.0	66.0	1800	14.4
246	32.8	4	78.0	52.0	1985	19.4
247	39.4	4	85.0	70.0	2070	18.6
248	36.1	4	91.0	60.0	1800	16.4
249	19.9	8	260.0	110.0	3365	15.5
250	19.4	8	318.0	140.0	3735	13.2
251	20.2	8	302.0	139.0	3570	12.8
252	19.2	6	231.0	105.0	3535	19.2
253	20.5	6	200.0	95.0	3155	18.2
254	20.2	6	200.0	85.0	2965	15.8
255	25.1	4	140.0	88.0	2720	15.4
256	20.5	6	225.0	100.0	3430	17.2
257	19.4	6	232.0	90.0	3210	17.2
258	20.6	6	231.0	105.0	3380	15.8
259	20.8	6	200.0	85.0	3070	16.7
260	18.6	6	225.0	110.0	3620	18.7
261	18.1	6	258.0	120.0	3410	15.1

262	19.2	8	305.0	145.0	3425	13.2
263	17.7	6	231.0	165.0	3445	13.4
264	18.1	8	302.0	139.0	3205	11.2
265	17.5	8	318.0	140.0	4080	13.7
266	30.0	4	98.0	68.0	2155	16.5
267	27.5	4	134.0	95.0	2560	14.2
268	27.2	4	119.0	97.0	2300	14.7
269	30.9	4	105.0	75.0	2230	14.5
270	21.1	4	134.0	95.0	2515	14.8
271	23.2	4	156.0	105.0	2745	16.7
272	23.8	4	151.0	85.0	2855	17.6
273	23.9	4	119.0	97.0	2405	14.9
274	20.3	5	131.0	103.0	2830	15.9
275	17.0	6	163.0	125.0	3140	13.6
276	21.6	4	121.0	115.0	2795	15.7
277	16.2	6	163.0	133.0	3410	15.8
278	31.5	4	89.0	71.0	1990	14.9
279	29.5	4	98.0	68.0	2135	16.6
280	21.5	6	231.0	115.0	3245	15.4
281	19.8	6	200.0	85.0	2990	18.2
282	22.3	4	140.0	88.0	2890	17.3
283	20.2	6	232.0	90.0	3265	18.2
284	20.6	6	225.0	110.0	3360	16.6
285	17.0	8	305.0	130.0	3840	15.4

286	17.6	8	302.0	129.0	3725	13.4
287	16.5	8	351.0	138.0	3955	13.2
288	18.2	8	318.0	135.0	3830	15.2
289	16.9	8	350.0	155.0	4360	14.9
290	15.5	8	351.0	142.0	4054	14.3
291	19.2	8	267.0	125.0	3605	15.0
292	18.5	8	360.0	150.0	3940	13.0
293	31.9	4	89.0	71.0	1925	14.0
294	34.1	4	86.0	65.0	1975	15.2
295	35.7	4	98.0	80.0	1915	14.4
296	27.4	4	121.0	80.0	2670	15.0
297	25.4	5	183.0	77.0	3530	20.1
298	23.0	8	350.0	125.0	3900	17.4
299	27.2	4	141.0	71.0	3190	24.8
300	23.9	8	260.0	90.0	3420	22.2
301	34.2	4	105.0	70.0	2200	13.2
302	34.5	4	105.0	70.0	2150	14.9
303	31.8	4	85.0	65.0	2020	19.2
304	37.3	4	91.0	69.0	2130	14.7
305	28.4	4	151.0	90.0	2670	16.0
306	28.8	6	173.0	115.0	2595	11.3
307	26.8	6	173.0	115.0	2700	12.9
308	33.5	4	151.0	90.0	2556	13.2
309	41.5	4	98.0	76.0	2144	14.7

310	38.1	4	89.0	60.0	1968	18.8
311	32.1	4	98.0	70.0	2120	15.5
312	37.2	4	86.0	65.0	2019	16.4
313	28.0	4	151.0	90.0	2678	16.5
314	26.4	4	140.0	88.0	2870	18.1
315	24.3	4	151.0	90.0	3003	20.1
316	19.1	6	225.0	90.0	3381	18.7
317	34.3	4	97.0	78.0	2188	15.8
318	29.8	4	134.0	90.0	2711	15.5
319	31.3	4	120.0	75.0	2542	17.5
320	37.0	4	119.0	92.0	2434	15.0
321	32.2	4	108.0	75.0	2265	15.2
322	46.6	4	86.0	65.0	2110	17.9
323	27.9	4	156.0	105.0	2800	14.4
324	40.8	4	85.0	65.0	2110	19.2
325	44.3	4	90.0	48.0	2085	21.7
326	43.4	4	90.0	48.0	2335	23.7
327	36.4	5	121.0	67.0	2950	19.9
328	30.0	4	146.0	67.0	3250	21.8
329	44.6	4	91.0	67.0	1850	13.8
330	40.9	4	85.0	NaN	1835	17.3
331	33.8	4	97.0	67.0	2145	18.0
332	29.8	4	89.0	62.0	1845	15.3
333	32.7	6	168.0	132.0	2910	11.4



334	23.7	3	70.0	100.0	2420	12.5
335	35.0	4	122.0	88.0	2500	15.1
336	23.6	4	140.0	NaN	2905	14.3
337	32.4	4	107.0	72.0	2290	17.0
338	27.2	4	135.0	84.0	2490	15.7
339	26.6	4	151.0	84.0	2635	16.4
340	25.8	4	156.0	92.0	2620	14.4
341	23.5	6	173.0	110.0	2725	12.6
342	30.0	4	135.0	84.0	2385	12.9
343	39.1	4	79.0	58.0	1755	16.9
344	39.0	4	86.0	64.0	1875	16.4
345	35.1	4	81.0	60.0	1760	16.1
346	32.3	4	97.0	67.0	2065	17.8
347	37.0	4	85.0	65.0	1975	19.4
348	37.7	4	89.0	62.0	2050	17.3
349	34.1	4	91.0	68.0	1985	16.0
350	34.7	4	105.0	63.0	2215	14.9
351	34.4	4	98.0	65.0	2045	16.2
352	29.9	4	98.0	65.0	2380	20.7
353	33.0	4	105.0	74.0	2190	14.2
354	34.5	4	100.0	NaN	2320	15.8
355	33.7	4	107.0	75.0	2210	14.4
356	32.4	4	108.0	75.0	2350	16.8
357	32.9	4	119.0	100.0	2615	14.8

358	31.6	4	120.0	74.0	2635	18.3
359	28.1	4	141.0	80.0	3230	20.4
360	30.7	6	145.0	76.0	3160	19.6
361	25.4	6	168.0	116.0	2900	12.6
362	24.2	6	146.0	120.0	2930	13.8
363	22.4	6	231.0	110.0	3415	15.8
364	26.6	8	350.0	105.0	3725	19.0
365	20.2	6	200.0	88.0	3060	17.1
366	17.6	6	225.0	85.0	3465	16.6
367	28.0	4	112.0	88.0	2605	19.6
368	27.0	4	112.0	88.0	2640	18.6
369	34.0	4	112.0	88.0	2395	18.0
370	31.0	4	112.0	85.0	2575	16.2
371	29.0	4	135.0	84.0	2525	16.0
372	27.0	4	151.0	90.0	2735	18.0
373	24.0	4	140.0	92.0	2865	16.4
374	23.0	4	151.0	NaN	3035	20.5
375	36.0	4	105.0	74.0	1980	15.3
376	37.0	4	91.0	68.0	2025	18.2
377	31.0	4	91.0	68.0	1970	17.6
378	38.0	4	105.0	63.0	2125	14.7
379	36.0	4	98.0	70.0	2125	17.3
380	36.0	4	120.0	88.0	2160	14.5
381	36.0	4	107.0	75.0	2205	14.5

382	34.0	4	108.0	70.0	2245	16.9
383	38.0	4	91.0	67.0	1965	15.0
384	32.0	4	91.0	67.0	1965	15.7
385	38.0	4	91.0	67.0	1995	16.2
386	25.0	6	181.0	110.0	2945	16.4
387	38.0	6	262.0	85.0	3015	17.0
388	26.0	4	156.0	92.0	2585	14.5
389	22.0	6	232.0	112.0	2835	14.7
390	32.0	4	144.0	96.0	2665	13.9
391	36.0	4	135.0	84.0	2370	13.0
392	27.0	4	151.0	90.0	2950	17.3
393	27.0	4	140.0	86.0	2790	15.6
394	44.0	4	97.0	52.0	2130	24.6
395	32.0	4	135.0	84.0	2295	11.6
396	28.0	4	120.0	79.0	2625	18.6
397	31.0	4	119.0	82.0	2720	19.4

	model_year	origin	name
0	70	usa	chevrolet chevelle malibu
1	70	usa	buick skylark 320
2	70	usa	plymouth satellite
3	70	usa	amc rebel sst
4	70	usa	ford torino
5	70	usa	ford galaxie 500
6	70	usa	chevrolet impala
7	70	usa	plymouth fury iii
8	70	usa	pontiac catalina
9	70	usa	amc ambassador dpl
10	70	usa	dodge challenger se
11	70	usa	plymouth 'cuda 340
12	70	usa	chevrolet monte carlo

13	70	usa	buick estate wagon (sw)
14	70	japan	toyota corona mark ii
15	70	usa	plymouth duster
16	70	usa	amc hornet
17	70	usa	ford maverick
18	70	japan	datson pl510
19	70	europa	volkswagen 1131 deluxe sedan
20	70	europa	peugeot 504
21	70	europa	audi 100 ls
22	70	europa	saab 99e
23	70	europa	bmw 2002
24	70	usa	amc gremlin
25	70	usa	ford f250
26	70	usa	chevy c20
27	70	usa	dodge d200
28	70	usa	hi 1200d
29	71	japan	datson pl510
30	71	usa	chevrolet vega 2300
31	71	japan	toyota corona
32	71	usa	ford pinto
33	71	usa	amc gremlin
34	71	usa	plymouth satellite custom
35	71	usa	chevrolet chevelle malibu
36	71	usa	ford torino 500
37	71	usa	amc matador
38	71	usa	chevrolet impala
39	71	usa	pontiac catalina brougham
40	71	usa	ford galaxie 500
41	71	usa	plymouth fury iii
42	71	usa	dodge monaco (sw)
43	71	usa	ford country squire (sw)
44	71	usa	pontiac safari (sw)
45	71	usa	amc hornet sportabout (sw)
46	71	usa	chevrolet vega (sw)
47	71	usa	pontiac firebird
48	71	usa	ford mustang
49	71	usa	mercury capri 2000
50	71	europa	opel 1900
51	71	europa	peugeot 304
52	71	europa	fiat 124b
53	71	japan	toyota corolla 1200
54	71	japan	datson 1200
55	71	europa	volkswagen model 111
56	71	usa	plymouth cricket
57	72	japan	toyota corona hardtop
58	72	usa	dodge colt hardtop
59	72	europa	volkswagen type 3
60	72	usa	chevrolet vega
61	72	usa	ford pinto runabout
62	72	usa	chevrolet impala

63	72	usa	pontiac catalina
64	72	usa	plymouth fury iii
65	72	usa	ford galaxie 500
66	72	usa	amc ambassador sst
67	72	usa	mercury marquis
68	72	usa	buick lesabre custom
69	72	usa	oldsmobile delta 88 royale
70	72	usa	chrysler newport royal
71	72	japan	mazda rx2 coupe
72	72	usa	amc matador (sw)
73	72	usa	chevrolet chevelle concours (sw)
74	72	usa	ford gran torino (sw)
75	72	usa	plymouth satellite custom (sw)
76	72	europa	volvo 145e (sw)
77	72	europa	volkswagen 411 (sw)
78	72	europa	peugeot 504 (sw)
79	72	europa	renault 12 (sw)
80	72	usa	ford pinto (sw)
81	72	japan	datsum 510 (sw)
82	72	japan	toyouta corona mark ii (sw)
83	72	usa	dodge colt (sw)
84	72	japan	toyota corolla 1600 (sw)
85	73	usa	buick century 350
86	73	usa	amc matador
87	73	usa	chevrolet malibu
88	73	usa	ford gran torino
89	73	usa	dodge coronet custom
90	73	usa	mercury marquis brougham
91	73	usa	chevrolet caprice classic
92	73	usa	ford ltd
93	73	usa	plymouth fury gran sedan
94	73	usa	chrysler new yorker brougham
95	73	usa	buick electra 225 custom
96	73	usa	amc ambassador brougham
97	73	usa	plymouth valiant
98	73	usa	chevrolet nova custom
99	73	usa	amc hornet
100	73	usa	ford maverick
101	73	usa	plymouth duster
102	73	europa	volkswagen super beetle
103	73	usa	chevrolet impala
104	73	usa	ford country
105	73	usa	plymouth custom suburb
106	73	usa	oldsmobile vista cruiser
107	73	usa	amc gremlin
108	73	japan	toyota carina
109	73	usa	chevrolet vega
110	73	japan	datsum 610
111	73	japan	maxda rx3
112	73	usa	ford pinto

113	73	usa	mercury capri v6
114	73	europe	fiat 124 sport coupe
115	73	usa	chevrolet monte carlo s
116	73	usa	pontiac grand prix
117	73	europe	fiat 128
118	73	europe	opel manta
119	73	europe	audi 100ls
120	73	europe	volvo 144ea
121	73	usa	dodge dart custom
122	73	europe	saab 99le
123	73	japan	toyota mark ii
124	73	usa	oldsmobile omega
125	74	usa	plymouth duster
126	74	usa	ford maverick
127	74	usa	amc hornet
128	74	usa	chevrolet nova
129	74	japan	datsum b210
130	74	usa	ford pinto
131	74	japan	toyota corolla 1200
132	74	usa	chevrolet vega
133	74	usa	chevrolet chevelle malibu classic
134	74	usa	amc matador
135	74	usa	plymouth satellite sebring
136	74	usa	ford gran torino
137	74	usa	buick century luxury (sw)
138	74	usa	dodge coronet custom (sw)
139	74	usa	ford gran torino (sw)
140	74	usa	amc matador (sw)
141	74	europe	audi fox
142	74	europe	volkswagen dasher
143	74	europe	opel manta
144	74	japan	toyota corona
145	74	japan	datsum 710
146	74	usa	dodge colt
147	74	europe	fiat 128
148	74	europe	fiat 124 tc
149	74	japan	honda civic
150	74	japan	subaru
151	74	europe	fiat x1.9
152	75	usa	plymouth valiant custom
153	75	usa	chevrolet nova
154	75	usa	mercury monarch
155	75	usa	ford maverick
156	75	usa	pontiac catalina
157	75	usa	chevrolet bel air
158	75	usa	plymouth grand fury
159	75	usa	ford ltd
160	75	usa	buick century
161	75	usa	chevroelt chevelle malibu
162	75	usa	amc matador

163	75	usa	plymouth fury
164	75	usa	buick skyhawk
165	75	usa	chevrolet monza 2+2
166	75	usa	ford mustang ii
167	75	japan	toyota corolla
168	75	usa	ford pinto
169	75	usa	amc gremlin
170	75	usa	pontiac astro
171	75	japan	toyota corona
172	75	europa	volkswagen dasher
173	75	japan	datsum 710
174	75	usa	ford pinto
175	75	europa	volkswagen rabbit
176	75	usa	amc pacer
177	75	europa	audi 100ls
178	75	europa	peugeot 504
179	75	europa	volvo 244dl
180	75	europa	saab 99le
181	75	japan	honda civic cvcc
182	76	europa	fiat 131
183	76	europa	opel 1900
184	76	usa	capri ii
185	76	usa	dodge colt
186	76	europa	renault 12tl
187	76	usa	chevrolet chevelle malibu classic
188	76	usa	dodge coronet brougham
189	76	usa	amc matador
190	76	usa	ford gran torino
191	76	usa	plymouth valiant
192	76	usa	chevrolet nova
193	76	usa	ford maverick
194	76	usa	amc hornet
195	76	usa	chevrolet chevette
196	76	usa	chevrolet woody
197	76	europa	vw rabbit
198	76	japan	honda civic
199	76	usa	dodge aspen se
200	76	usa	ford granada ghia
201	76	usa	pontiac ventura sj
202	76	usa	amc pacer d/l
203	76	europa	volkswagen rabbit
204	76	japan	datsum b-210
205	76	japan	toyota corolla
206	76	usa	ford pinto
207	76	europa	volvo 245
208	76	usa	plymouth volare premier v8
209	76	europa	peugeot 504
210	76	japan	toyota mark ii
211	76	europa	mercedes-benz 280s
212	76	usa	cadillac seville

213	76	usa	chevy c10
214	76	usa	ford f108
215	76	usa	dodge d100
216	77	japan	honda accord cvcc
217	77	usa	buick opel isuzu deluxe
218	77	europe	renault 5 gtl
219	77	usa	plymouth arrow gs
220	77	japan	datsum f-10 hatchback
221	77	usa	chevrolet caprice classic
222	77	usa	oldsmobile cutlass supreme
223	77	usa	dodge monaco brougham
224	77	usa	mercury cougar brougham
225	77	usa	chevrolet concours
226	77	usa	buick skylark
227	77	usa	plymouth volare custom
228	77	usa	ford granada
229	77	usa	pontiac grand prix lj
230	77	usa	chevrolet monte carlo landau
231	77	usa	chrysler cordoba
232	77	usa	ford thunderbird
233	77	europe	volkswagen rabbit custom
234	77	usa	pontiac sunbird coupe
235	77	japan	toyota corolla liftback
236	77	usa	ford mustang ii 2+2
237	77	usa	chevrolet chevette
238	77	usa	dodge colt m/m
239	77	japan	subaru dl
240	77	europe	volkswagen dasher
241	77	japan	datsum 810
242	77	europe	bmw 320i
243	77	japan	mazda rx-4
244	78	europe	volkswagen rabbit custom diesel
245	78	usa	ford fiesta
246	78	japan	mazda glc deluxe
247	78	japan	datsum b210 gx
248	78	japan	honda civic cvcc
249	78	usa	oldsmobile cutlass salon brougham
250	78	usa	dodge diplomat
251	78	usa	mercury monarch ghia
252	78	usa	pontiac phoenix lj
253	78	usa	chevrolet malibu
254	78	usa	ford fairmont (auto)
255	78	usa	ford fairmont (man)
256	78	usa	plymouth volare
257	78	usa	amc concord
258	78	usa	buick century special
259	78	usa	mercury zephyr
260	78	usa	dodge aspen
261	78	usa	amc concord d/l
262	78	usa	chevrolet monte carlo landau



263	78	usa	buick regal sport coupe (turbo)
264	78	usa	ford futura
265	78	usa	dodge magnum xe
266	78	usa	chevrolet chevette
267	78	japan	toyota corona
268	78	japan	datsum 510
269	78	usa	dodge omni
270	78	japan	toyota celica gt liftback
271	78	usa	plymouth sapporo
272	78	usa	oldsmobile starfire sx
273	78	japan	datsum 200-sx
274	78	europe	audi 5000
275	78	europe	volvo 264gl
276	78	europe	saab 99gle
277	78	europe	peugeot 604sl
278	78	europe	volkswagen scirocco
279	78	japan	honda accord lx
280	79	usa	pontiac lemans v6
281	79	usa	mercury zephyr 6
282	79	usa	ford fairmont 4
283	79	usa	amc concord dl 6
284	79	usa	dodge aspen 6
285	79	usa	chevrolet caprice classic
286	79	usa	ford ltd landau
287	79	usa	mercury grand marquis
288	79	usa	dodge st. regis
289	79	usa	buick estate wagon (sw)
290	79	usa	ford country squire (sw)
291	79	usa	chevrolet malibu classic (sw)
292	79	usa	chrysler lebaron town @ country (sw)
293	79	europe	vw rabbit custom
294	79	japan	maxda glc deluxe
295	79	usa	dodge colt hatchback custom
296	79	usa	amc spirit dl
297	79	europe	mercedes benz 300d
298	79	usa	cadillac eldorado
299	79	europe	peugeot 504
300	79	usa	oldsmobile cutlass salon brougham
301	79	usa	plymouth horizon
302	79	usa	plymouth horizon tc3
303	79	japan	datsum 210
304	79	europe	fiat strada custom
305	79	usa	buick skylark limited
306	79	usa	chevrolet citation
307	79	usa	oldsmobile omega brougham
308	79	usa	pontiac phoenix
309	80	europe	vw rabbit
310	80	japan	toyota corolla tercel
311	80	usa	chevrolet chevette
312	80	japan	datsum 310

313	80	usa	chevrolet citation
314	80	usa	ford fairmont
315	80	usa	amc concord
316	80	usa	dodge aspen
317	80	europe	audi 4000
318	80	japan	toyota corona liftback
319	80	japan	mazda 626
320	80	japan	datsum 510 hatchback
321	80	japan	toyota corolla
322	80	japan	mazda glc
323	80	usa	dodge colt
324	80	japan	datsum 210
325	80	europe	vw rabbit c (diesel)
326	80	europe	vw dasher (diesel)
327	80	europe	audi 5000s (diesel)
328	80	europe	mercedes-benz 240d
329	80	japan	honda civic 1500 gl
330	80	europe	renault lecar deluxe
331	80	japan	subaru dl
332	80	europe	vokswagen rabbit
333	80	japan	datsum 280-zx
334	80	japan	mazda rx-7 gs
335	80	europe	triumph tr7 coupe
336	80	usa	ford mustang cobra
337	80	japan	honda accord
338	81	usa	plymouth reliant
339	81	usa	buick skylark
340	81	usa	dodge aries wagon (sw)
341	81	usa	chevrolet citation
342	81	usa	plymouth reliant
343	81	japan	toyota starlet
344	81	usa	plymouth champ
345	81	japan	honda civic 1300
346	81	japan	subaru
347	81	japan	datsum 210 mpg
348	81	japan	toyota tercel
349	81	japan	mazda glc 4
350	81	usa	plymouth horizon 4
351	81	usa	ford escort 4w
352	81	usa	ford escort 2h
353	81	europe	volkswagen jetta
354	81	europe	renault 18i
355	81	japan	honda prelude
356	81	japan	toyota corolla
357	81	japan	datsum 200sx
358	81	japan	mazda 626
359	81	europe	peugeot 505s turbo diesel
360	81	europe	volvo diesel
361	81	japan	toyota cressida
362	81	japan	datsum 810 maxima

363	81	usa	buick century
364	81	usa	oldsmobile cutlass ls
365	81	usa	ford granada gl
366	81	usa	chrysler lebaron salon
367	82	usa	chevrolet cavalier
368	82	usa	chevrolet cavalier wagon
369	82	usa	chevrolet cavalier 2-door
370	82	usa	pontiac j2000 se hatchback
371	82	usa	dodge aries se
372	82	usa	pontiac phoenix
373	82	usa	ford fairmont futura
374	82	usa	amc concord dl
375	82	europe	volkswagen rabbit l
376	82	japan	mazda glc custom l
377	82	japan	mazda glc custom
378	82	usa	plymouth horizon miser
379	82	usa	mercury lynx l
380	82	japan	nissan stanza xe
381	82	japan	honda accord
382	82	japan	toyota corolla
383	82	japan	honda civic
384	82	japan	honda civic (auto)
385	82	japan	datsum 310 gx
386	82	usa	buick century limited
387	82	usa	oldsmobile cutlass ciera (diesel)
388	82	usa	chrysler lebaron medallion
389	82	usa	ford granada l
390	82	japan	toyota celica gt
391	82	usa	dodge charger 2.2
392	82	usa	chevrolet camaro
393	82	usa	ford mustang gl
394	82	europe	vw pickup
395	82	usa	dodge rampage
396	82	usa	ford ranger
397	82	usa	chevy s-10

Problem 6:How many missing values?

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

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

Problem 7: Drop all missing values.

```
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
```

Problem 8: Description of the data frame.

```
car.describe()
```

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

	acceleration	model_year
count	392.000000	392.000000
mean	15.541327	75.979592
std	2.758864	3.683737
min	8.000000	70.000000
25%	13.775000	73.000000
50%	15.500000	76.000000
75%	17.025000	79.000000
max	24.800000	82.000000

Problem 9: Data type in each column

```
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
```

Problem 10:Shape of dataframe

```
car.shape
```

```
(392, 9)
```