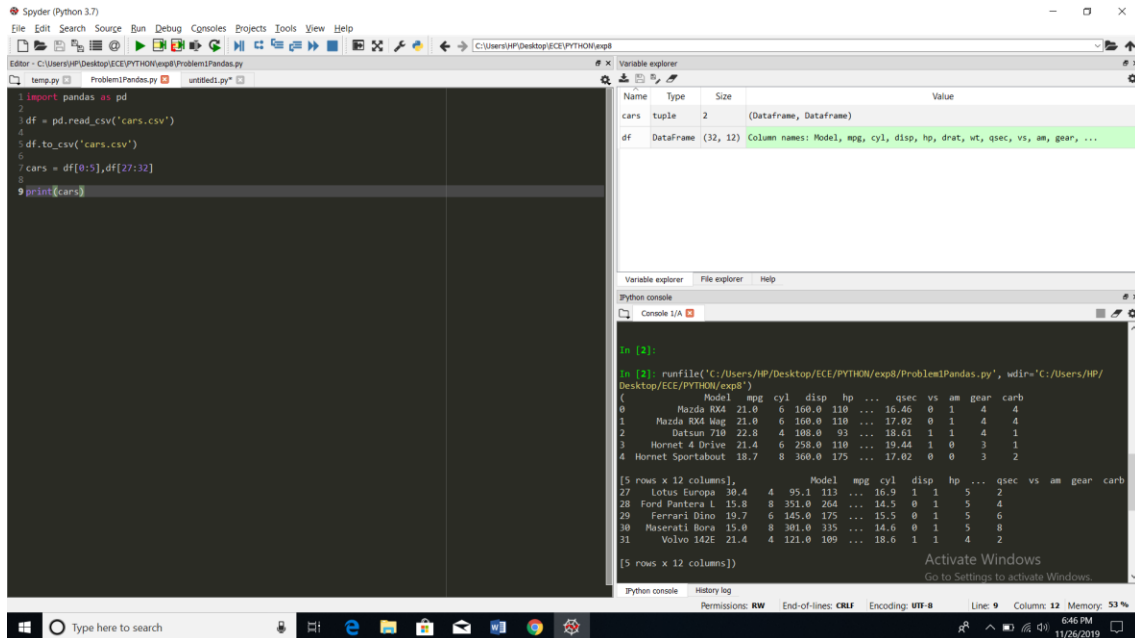


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2ECE-A

Problem 1.)



The screenshot shows the Spyder Python IDE interface. The editor window contains the following code:

```
1 import pandas as pd
2 df = pd.read_csv('cars.csv')
3
4 df.to_csv('cars.csv')
5
6 cars = df[0:5],df[27:32]
7
8 print(cars)
```

The Variable explorer on the right shows the variable 'cars' as a tuple of size 2, containing two DataFrames. The first DataFrame has 5 rows and 12 columns, and the second DataFrame has 5 rows and 12 columns. The Python console shows the output of the script, displaying the first 5 rows of the 'cars' DataFrame and the last 5 rows of the 'cars' DataFrame.

```
In [2]:
Out[2]: runfile('C:/Users/HP/Desktop/ECE/PYTHON/exp8/ProblemPandas.py', wdir='C:/Users/HP/Desktop/ECE/PYTHON/exp8')
(
   Model  mpg  cyl  disp  hp  ...  qsec  vs  am  gear  carb
0  Mazda RX4    21.0    6  160.0  110  ...  16.46  0    1    4    4
1  Mazda RX4 Wag    21.0    6  160.0  110  ...  17.02  0    1    4    4
2   Datsun 710   22.8    4  108.0   93  ...  18.61  1    1    4    1
3  Hornet 4 Drive  21.4    6  258.0  110  ...  19.44  1    0    3    1
4  Hornet Sportabout  18.7    8  360.0  175  ...  17.02  0    0    3    2

[5 rows x 12 columns],
   Model  mpg  cyl  disp  hp  ...  qsec  vs  am  gear  carb
27  Lotus Europa   30.4    4   95.1  113  ...  16.9  1    1    5    2
28  Ford Pantera L   15.8    8  351.0  264  ...  14.5  0    1    5    4
29   Ferrari Dino   19.7    6  145.0  175  ...  15.5  0    1    5    6
30  Maserati Bora   15.0    8  301.0  335  ...  14.6  0    1    5    8
31  Volvo 142E    21.4    4  121.0  109  ...  18.6  1    1    4    2

[5 rows x 12 columns])
```

*The whole Table 'cars.csv'



The screenshot shows the Spyder Python IDE interface with the 'cars' DataFrame displayed in a table view. The table has 32 rows and 12 columns. The columns are: Index, Model, mpg, cyl, disp, hp, drat, wt, qsec, vs, am, gear, carb. The data is as follows:

Index	Model	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
0	Mazda RX4	21	6	160	110	3.9	2.62	16.46	0	1	4	4
1	Mazda RX4 Wag	21	6	160	110	3.9	2.875	17.02	0	1	4	4
2	Datsun 710	22.8	4	108	93	3.85	2.32	18.61	1	1	4	1
3	Hornet 4 Drive	21.4	6	258	110	3.88	3.215	19.44	1	0	3	1
4	Hornet Sportabout	18.7	8	360	175	3.15	3.44	17.02	0	0	3	2
5	Valiant	18.1	6	225	105	2.78	3.46	20.22	1	0	3	1
6	Duster 360	14.3	8	360	245	3.21	3.57	15.84	0	0	3	4
7	Merc 240D	24.4	4	146.7	62	3.69	3.19	20	2	0	4	2
8	Merc 230	22.8	4	146.8	95	3.92	3.15	22.9	1	0	4	2
9	Merc 280	19.2	6	167.6	123	3.92	3.44	18.3	1	0	4	4
10	Merc 280C	17.8	6	167.6	123	3.92	3.44	18.9	1	0	4	4
11	Merc 450SE	16.4	8	275.8	180	3.07	4.07	17.4	0	0	3	3
12	Merc 450SL	17.3	8	275.8	180	3.07	3.73	17.6	0	0	3	3
13	Merc 450SLC	15.2	8	275.8	180	3.07	3.78	18	0	0	3	3
14	Cadillac Fleetwood	18.4	8	472	205	2.93	5.25	17.98	0	0	3	4
15	Lincoln Continental	18.4	8	460	215	3	5.424	17.82	0	0	3	4
16	Crysler Imperial	14.7	8	440	230	3.23	5.345	17.42	0	0	3	4
17	Fiat 128	32.4	4	78.7	66	4.08	2.2	19.47	1	1	4	1
18	Honda Civic	30.4	4	75.7	52	4.93	1.615	18.52	1	1	4	2
19	Toyota Corolla	33.9	4	71.1	65	4.22	1.835	15.9	1	1	4	1
20	Toyota Corona	21.5	4	120.1	97	3.7	2.465	20.01	1	0	3	1
21	Dodge Challenger	15.5	8	318	150	2.76	3.52	16.87	0	0	3	2
22	AMC Javelin	15.2	8	304	150	3.15	3.435	17.3	0	0	3	2

df - DataFrame

Index	Model	mpg	cyl	displ	hp	drat	wt	qsec	vs	am	gear	carb
9	Merc 280	19.2	6	167.6	123	3.92	3.44	18.3	1	0	4	4
10	Merc 280C	17.8	6	167.6	123	3.92	3.44	18.9	1	0	4	4
11	Merc 450SE	16.4	8	275.8	180	3.07	4.07	17.4	0	0	3	3
12	Merc 450SL	17.3	8	275.8	180	3.07	3.73	17.6	0	0	3	3
13	Merc 450SLC	15.2	8	275.8	180	3.07	3.78	18	0	0	3	3
14	Cailliac	18.4	8	472	205	2.93	5.25	17.98	0	0	3	4
15	Lincoln Continental	18.4	8	460	215	3	5.424	17.82	0	0	3	4
16	Chrysler Imperial	14.7	8	440	230	3.23	5.345	17.42	0	0	3	4
17	Fiat 128	32.4	4	78.7	66	4.08	2.2	19.47	1	1	4	1
18	Honda Civic	30.4	4	75.7	52	4.93	1.615	18.52	1	1	4	2
19	Toyota Corolla	33.9	4	71.1	65	4.22	1.835	19.9	1	1	4	1
20	Toyota Corona	21.5	4	120.1	97	3.7	2.465	20.01	1	0	3	1
21	Dodge Challenger	15.5	8	318	150	2.76	3.52	16.87	0	0	3	2
22	AMC Javelin	15.2	8	304	150	3.15	3.435	17.3	0	0	3	2
23	Camaro Z28	13.3	8	350	245	3.73	3.84	15.41	0	0	3	4
24	Pontiac Firebird	19.2	8	400	175	3.08	3.845	17.05	0	0	3	2
25	Fiat X1-9	27.3	4	79	66	4.08	1.935	18.9	1	1	4	1
26	Porsche 914-2	26	4	120.3	91	4.43	2.14	16.7	0	1	5	2
27	Lotus Europa	30.4	4	95.1	113	3.77	1.513	16.9	1	1	5	2
28	Ford Pantera L	15.8	8	351	264	4.22	3.17	14.5	0	1	5	4
29	Ferrari Dino	19.7	6	145	175	3.62	2.77	15.5	0	1	5	6
30	Maserati Bora	15	8	301	335	3.54	3.57	14.6	0	1	5	8
31	Volvo 142E	21.4	4	122	109	4.11	2.78	18.6	1	1	4	2

Activate Windows
Go to Settings to activate Windows.

Problem 2.)

Spyder (Python 3.7)

File Edit Search Source Run Debug Consoles Projects Tools View Help

Editor - C:\Users\HP\Desktop\ECE\PYTHON\expProblem2\Problem2Pandas.py

Problem2Pandas.py

```

1 import pandas as pd
2
3 df = pd.read_csv("cars.csv")
4
5 df.to_csv("cars.csv")
6
7 a = df.loc[[0,1,2,3,4],[1,3,5,7,9,11]]
8
9 b = df[1:]
10
11 c = df.loc[[23],["Model","cyl"]]
12
13 d = df.loc[[1,28,18],["Model","cyl","gear"]]

```

Variable explorer

Name	Type	Size	Value
a	DataFrame	(5, 6)	Column names: mpg, displ, drat, qsec, am, carb
b	DataFrame	(1, 12)	Column names: Model, mpg, cyl, displ, hp, drat, wt, qsec, vs, am, gear, ...
c	DataFrame	(1, 2)	Column names: Model, cyl
d	DataFrame	(3, 3)	Column names: Model, cyl, gear
df	DataFrame	(32, 12)	Column names: Model, mpg, cyl, displ, hp, drat, wt, qsec, vs, am, gear, ...

Variable explorer File explorer Help

Python console

Console I/O

Python 3.7.4 (default, Aug 9 2019, 18:34:13) [MSC v.1915 64 bit (AMD64)]
Type "copyright", "credits" or "license()" for more information.

IPython 7.8.0 -- An enhanced Interactive Python.

In [1]: runfile('C:/Users/HP/Desktop/ECE/PYTHON/expProblem2/Problem2Pandas.py', wdir='C:/Users/HP/Desktop/ECE/PYTHON/expProblem2')

In [2]:

Activate Windows
Go to Settings to activate Windows.

A.)

The screenshot shows a Jupyter Notebook interface with a Python 3.7 kernel. The code in the cell reads a CSV file and filters rows where 'cyl' is 4 or 6. The resulting DataFrame is displayed in a table view with 12 columns: index, mpg, disp, drat, qsec, vs, am, carb. The data is as follows:

Index	mpg	disp	drat	qsec	vs	am	carb
0	21	160	3.9	16.46	1	4	4
1	21	160	3.9	17.42	1	4	4
2	22.8	180	5.85	18.41	1	1	1
3	21.4	258	3.08	19.44	0	1	1

b.)

The screenshot shows the same Jupyter Notebook interface. The code is identical to the previous one. The resulting DataFrame is displayed in a table view. The data is as follows:

Index	mpg	disp	drat	qsec	vs	am	carb
0	21	160	3.9	16.46	1	4	4
1	21	160	3.9	17.42	1	4	4
2	22.8	180	5.85	18.41	1	1	1
3	21.4	258	3.08	19.44	0	1	1

c.)

The screenshot shows a Jupyter Notebook interface with a code cell containing the following pandas code:

```
1 import pandas as pd
2
3 df = pd.read_csv('cars.csv')
4
5 df.to_csv('cars.csv')
6
7 a = df.iloc[[0,1,2,3,4],[1,1,5,7,9,11]]
8
9 b = df[1:]
10
11 c = df.loc[[23],['Model','cyl']]
12
13 d = df.loc[[1,20,18],['Model','cyl','gear']]
```

A preview window for the DataFrame 'c' is open, showing the following data:

Index	Model	cyl
23	Camaro Z28	8

The Variable explorer on the right shows the following variables:

Name	Type	Size	Value
a	DataFrame	(5, 6)	Column names: mpg, disp, drat, spec, am, carb
b	DataFrame	(1, 12)	Column names: Model, mpg, cyl, disp, hp, drat, wt, spec, vs, am, gear, ...
c	DataFrame	(1, 2)	Column names: Model, cyl
d	DataFrame	(3, 3)	Column names: Model, cyl, gear
df	DataFrame	(32, 12)	Column names: Model, mpg, cyl, disp, hp, drat, wt, spec, vs, am, gear, ...

d.)

The screenshot shows a Jupyter Notebook interface with the same code as in the previous screenshot. A preview window for the DataFrame 'd' is open, showing the following data:

Index	Model	cyl	gear
1	Mazda RX4 Wag	6	4
20	Ford Pantera L	8	5
18	Honda Civic	4	4

The Variable explorer on the right shows the same variables as in the previous screenshot.