

## EXPERIMENT 8

## PANDAS

## Problem 1:

The screenshot shows the Spyder Python IDE interface. The editor on the left contains a Python script for loading and displaying data from a CSV file. The variable explorer on the right shows the loaded data frames. The console on the bottom right displays the output of the script, including the first and last five rows of the 'cars.csv' file.

```
1 """
2 Created on Sat Nov 23 12:50:00 2019
3
4
5 @author: Angela Leenzae Edang
6 """
7
8 """ PROBLEM 1:
9 a) Load the corresponding .csv file into a data frame named cars using pandas
10 b) Display the first five and last five rows of the resulting cars. """
11
12 import pandas as pd
13
14 cars = pd.read_csv('cars.csv')
15 df = cars
16
17 print('\n')
18
19 print('First five rows of "cars.csv": \n')
20 print(cars.head()) # displays the first five rows of cars
21 print('Last five rows of "cars.csv": \n')
22 print(cars.tail()) # displays the last five rows of cars
23
```

Variable explorer

Name	Type	Size	Value
cars	DataFrame	(32, 12)	Column names: Model, mpg, cyl, disp, hp, drat, wt, qsec, vs, am, gear, ...
df	DataFrame	(32, 12)	Column names: Model, mpg, cyl, disp, hp, drat, wt, qsec, vs, am, gear, ...

Python console

```
In [50]: runfile('C:/Users/Maria Lourdes Edang/Documents/Python Scripts/PROBLEM 1.py', wdir='C:/Users/Maria Lourdes Edang/Documents/Python Scripts')
```

First five rows of "cars.csv":

	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]

Last five rows of "cars.csv":

	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]

```
In [40]: |
```

Python console History log

Permissions: RW End-of-lines: CRLF Encoding: UTF-8 Line: 23 Column: 1 Memory: 87 %

2:25 PM 23/11/2019

## Problem 2:

The screenshot shows the Spyder Python IDE interface. The main editor displays a Python script for 'Problem 2' that uses pandas to analyze a car dataset. The script includes comments for each step and corresponding print statements. The right-hand side of the IDE shows the 'Variable explorer' and the 'Python console' output.

**Variable explorer:**

Name	Type	Size	Value
cars	DataFrame	(32, 12)	Column names: Model, mpg, cyl, disp, hp, drat, wt, qsec, vs, am, gear, ...
df	DataFrame	(32, 12)	Column names: Model, mpg, cyl, disp, hp, drat, wt, qsec, vs, am, gear, ...

**Python console:**

```
In [41]: runfile('C:/Users/Maria Lourdes Edang/Documents/Python Scripts/PROBLEM2.py', wdir='C:/Users/Maria Lourdes Edang/Documents/Python Scripts')
First five rows with odd-numbered columns of cars:

   mpg  disp  drat  qsec  am  carb
0  21.0  160.0  3.90  16.46  1    4
1  21.0  160.0  3.90  17.02  1    4
2  22.8  100.0  3.85  18.61  1    1
3  21.4  258.0  3.08  19.44  0    1
4  18.7  360.0  3.15  17.02  0    2

Information about Model: Mazda RX4

   Model  mpg  cyl  disp  hp  drat  wt  qsec  vs  am  gear  carb
0  Mazda RX4  21.0    6  160.0  110  3.9  2.62  16.46  0  1    4    4

Number of cylinders of Camaro Z28:

cyl    8
Name: 23, dtype: object

Number of cylinders and Gear Type of 3 Car Models:

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

**Script Content (PROBLEM2.py):**

```
1 """
2 Created on Sat Nov 23 13:08:58 2019
3
4 @author: Angela Leenza Edang
5 """
6
7
8 import pandas as pd
9
10 """ PROBLEM 2:
11 Using dataframe cars in the previous problem, extract the following
12 information:
13 a) display the first five rows with odd-numbered columns of cars.
14 b) Display the row that contains the 'Model' of 'Mazda RX4'.
15 c) How many 'cyl' does the car model 'Camaro Z28' have?
16 d) How many 'cyl' and what 'gear' type do the car models 'Mazda
17    RX4 Wag', 'Ford Pantera L', and 'Honda Civic' have. """
18
19 # To display the first five rows with odd-numbered columns of cars
20 print("First five rows with odd-numbered columns of cars: \n")
21 print(df.iloc[0:5, [1,3,5,7,9,11]])
22 print("\n")
23
24 # To display the row that contains the 'Model' of 'Mazda RX4'
25 print("Information about Model: Mazda RX4 \n")
26 print(df[df['Model'] == 'Mazda RX4'])
27 print("\n")
28
29 # To display number of cylinders of Camaro Z28
30 print("Number of cylinders of Camaro Z28: \n")
31 print(df.loc[23, ['cyl']])
32 print("\n")
33
34 # To display the number of cylinders and gear type of Mazda RX4 Wag,
35 # Ford Pantera L, and Honda Civic
36 print("Number of cylinders and Gear Type of 3 Car Models: \n")
37 print(df.loc[[1,18,28], ['Model', 'cyl', 'gear']])
38 print("\n")
39
```