

**SHETH L.U.J AND SIR M.V. COLLEGE**  
**SUBJECT NAME: Data Analysis with SAS / SPSS /R**  
**Practical No. 3**

## Aim: Exploring data:

## Output-

The screenshot illustrates a dual-monitor setup. The top monitor displays the RStudio interface, which includes a left pane for code and a right pane for data frames. The bottom monitor displays a Microsoft Teams window and the Windows taskbar.

**RStudio Environment:**

- Code Editor:** Shows R code for reading a CSV file and performing initial data processing.
- Data Frame View:** Displays the `CL_in_15_minute_new` data frame with 5987 rows and 7 variables, and a smaller `reg_nmae` data frame with 2 rows and 1 variable.

**Microsoft Teams:**

- A Microsoft Teams window is open on the bottom monitor.
- The Windows taskbar is visible at the bottom, showing various pinned icons and the date/time.

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RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Console Terminal Background Jobs

```
R 4.1.2 - /
```

```
> # Get the dimensions (rows and columns)
> cat("Dimensions (Rows, Columns): ", dim(CL_in_15_minute_new), "\n")
Dimensions (Rows, Columns): 5987 7
> # Get the structure (variable types and number of observations)
> str(CL_in_15_minute_new)
'data.frame': 5987 obs. of 7 variables:
$ datetime: Factor w/ 6062 levels "2025-07-31 22:00:00",..: 1 2 3 4 5 6 8 9 10 11 ...
$ symbol : Factor w/ 1 level "NMEX:CL1": 1 1 1 1 1 1 1 1 ...
$ open   : num 69.3 69.4 69.3 69.4 69.4 ...
$ high   : num 69.0 69.3 69.3 69.4 69.4 ...
$ low    : num 69.2 69.3 69.3 69.4 69.4 ...
$ close  : num 69.4 69.3 69.4 69.4 69.4 ...
$ volume : num 449 91 44 45 71 61 108 624 169 127 ...
> # See a summary of the dataset
> summary(CL_in_15_minute_new)
```

	symbol	open	high	low	close
2025-07-31 22:00:00:	1 NMEX:CL1:5987	Min. :56.17	Min. :55.96	Min. :55.96	Min. :56.16
2025-07-31 22:15:00:	1	1st Qu.:61.55	1st Qu.:61.63	1st Qu.:61.46	1st Qu.:61.55
2025-07-31 22:30:00:	1	Median :62.90	Median :62.98	Median :62.83	Median :62.90
2025-07-31 22:45:00:	1	Mean   :62.53	Mean   :62.60	Mean   :62.45	Mean   :62.53
2025-07-31 23:00:00:	1	3rd Qu.:63.87	3rd Qu.:63.95	3rd Qu.:63.80	3rd Qu.:63.87
2025-07-31 23:15:00:	1	Max.   :69.47	Max.   :69.38	Max.   :69.44	Max.   :69.47
(Other)					
volume		Min. : 41			
		1st Qu.:34.8			
		Median : 969			
		Mean   :1679			
		3rd Qu.:2260			
		Max.  :23680			

```
> cat("Column Names: ", names(CL_in_15_minute_new), "\n")
column names: datetime symbol open high low close volume
> # Use the 'psych' package for more detailed descriptive statistics
> # "describe" provides: n, mean, sd, median, trimmed mean, mad, min, max, range, skew, kurtosis, and se.
> describe(CL_in_15_minute_new)
```

	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
datetime*	1 5987	3040.99	1752.52	3050.00	3042.81	2252.07	1.00	6062.00	6061.00	-0.01	-1.20	22.65
symbol*	2 5987	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	NAN	NAN	0.00
open	3 5987	62.53	2.30	62.90	62.67	1.70	56.17	69.40	13.30	-0.46	0.69	0.03
high	4 5987	62.50	2.29	62.97	62.75	1.70	56.39	69.58	13.19	-0.45	0.71	0.03
low	5 5987	62.45	2.30	62.83	62.40	1.70	56.15	69.44	13.30	-0.47	0.69	0.03
close	6 5987	62.53	2.30	62.90	62.67	1.70	56.16	69.47	13.31	-0.47	0.69	0.03

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