

Sheth I.u.j. And sir m.v. college of arts science and commerce

Practical no.11th

Aim: 11Reshaping data using PROC TRANSPOSE (SAS), Restructure Data Wizard (SPSS), and pivot_longer()/pivot_wider() (R).

The screenshot shows the RStudio interface with the following details:

- File Menu:** File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help.
- Toolbar:** Includes icons for file operations like Open, Save, Print, and Run.
- Project Explorer:** Shows files like 3rd.R, 11th.R, diamonds, long_data, original, wide_data, 13th.R, and elevator_traffic_dataset.
- Code Editor:** Displays R code for reshaping data using the tidyr and dplyr packages. The code includes a mutate call with a pipe operator and a select call.
- Console:** Shows the R session output. It starts with library(tidyr) and library(dplyr). Then it reads a CSV file named diamonds.csv, prints the original data, and prints the reshaped data (original) which is identical to the original data.
- Output:** The output shows the diamond dataset with 39 rows and 10 columns: carat, cut, color, clarity, depth, table, x, y, z, and price. The data is as follows:

	carat	cut	color	clarity	depth	table	x	y	z	price
1	0.23	Ideal	E	SI2	61.5	55.0	3.95	3.98	2.43	326
2	0.21	Premium	E	SI1	59.8	61.0	3.89	3.84	2.31	326
3	0.23	Good	E	VS1	56.9	65.0	4.05	4.07	2.31	327
4	0.29	Premium	I	VS2	62.4	58.0	4.20	4.23	2.63	334
5	0.31	Good	J	SI2	63.3	58.0	4.34	4.35	2.75	335
6	0.24	Very Good	J	VVS2	62.8	57.0	3.94	3.96	2.48	336
7	0.24	Very Good	I	VVS1	62.3	57.0	3.95	3.98	2.47	336
8	0.26	Very Good	H	SI1	61.9	55.0	4.07	4.11	2.53	337
9	0.22	Fair	E	VS2	65.1	61.0	3.87	3.78	2.49	337
10	0.23	Very Good	H	VS1	59.4	61.0	4.00	4.05	2.39	338
11	0.30	Good	J	SI1	64.0	55.0	4.25	4.28	2.73	339
12	0.23	Ideal	J	VS1	62.8	56.0	3.93	3.90	2.46	340
13	0.22	Premium	F	SI1	60.4	61.0	3.88	3.84	2.33	342
14	0.31	Ideal	J	SI2	62.2	54.0	4.35	4.37	2.71	344
15	0.20	Premium	E	SI2	60.2	62.0	3.79	3.75	2.27	345
16	0.32	Premium	E	I1	60.9	58.0	4.38	4.42	2.68	345
17	0.30	Ideal	I	SI2	62.0	54.0	4.31	4.34	2.68	348
18	0.30	Good	J	SI1	63.4	54.0	4.23	4.29	2.70	351

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The screenshot shows the RStudio interface with two panes of code and a sidebar.

Top Pane:

```

13   carat,
14   names_to = "Variable",
15   values_to = "Value",
16   values_transform = as.character
17 )
26:24 (Top Level) ◊

```

Console Output:

```

> # WIDE -> LONG
> long_data <- original %>%
+   pivot_longer(
+     cols = -carat,
+     names_to = "Variable",
+     values_to = "Value",
+     values_transform = as.character
+   )
>
> print("Long Data:")
[1] "Long Data:"
> print(long_data)
# A tibble: 485,460 × 3
  carat Variable Value
  <dbl> <chr>   <chr>
1 0.23  cut      Ideal
2 0.23  color    E
3 0.23  clarity  SI2
4 0.23  depth    61.5
5 0.23  table    55
6 0.23  x        3.95
7 0.23  y        3.98
8 0.23  z        2.43
9 0.23  price   326
10 0.21 cut     Premium
# i 485,450 more rows
# i Use `print(n = ...)` to see more rows

```

Bottom Pane:

```

13   carat,
14   names_to = "Variable",
15   values_to = "Value",
16   values_transform = as.character
17 )
26:24 (Top Level) ◊

```

Console Output:

```

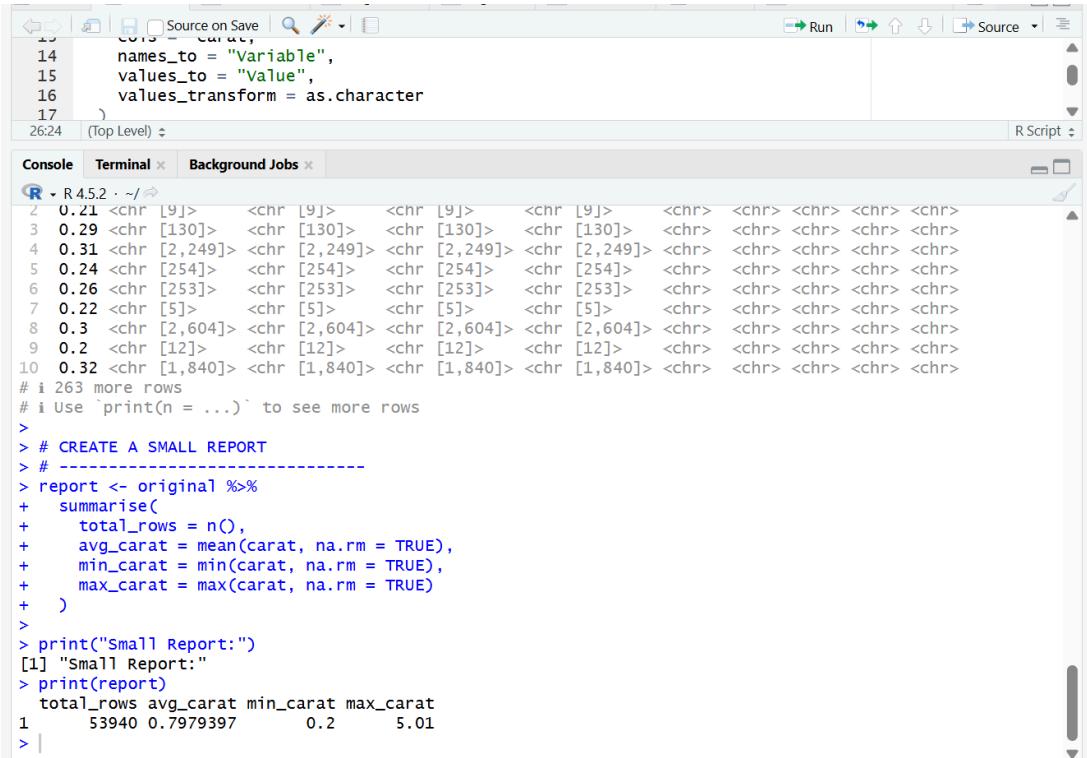
> print("Wide Data:")
[1] "Wide Data:"
> print(wide_data)
# A tibble: 273 × 10
  carat cut       color clarity depth   table    x     y     z   price
  <dbl> <list>    <list>   <list> <list>   <list> <list> <list> <list> <dbl>
1 0.23 <chr [293]> <chr [293]> <chr [293]> <chr [293]> <chr> <chr> <chr> <chr> <chr>
2 0.21 <chr [9]>   <chr [9]>   <chr [9]>   <chr [9]>   <chr> <chr> <chr> <chr> <chr>
3 0.29 <chr [130]> <chr [130]> <chr [130]> <chr [130]> <chr> <chr> <chr> <chr> <chr>
4 0.31 <chr [2,249]> <chr [2,249]> <chr [2,249]> <chr [2,249]> <chr> <chr> <chr> <chr> <chr>
5 0.24 <chr [254]> <chr [254]> <chr [254]> <chr [254]> <chr> <chr> <chr> <chr> <chr>
6 0.26 <chr [253]> <chr [253]> <chr [253]> <chr [253]> <chr> <chr> <chr> <chr> <chr>
7 0.22 <chr [5]>   <chr [5]>   <chr [5]>   <chr [5]>   <chr> <chr> <chr> <chr> <chr>
8 0.3  <chr [2,604]> <chr [2,604]> <chr [2,604]> <chr [2,604]> <chr> <chr> <chr> <chr> <chr>
9 0.2  <chr [12]>  <chr [12]>  <chr [12]>  <chr [12]>  <chr> <chr> <chr> <chr> <chr>
10 0.32 <chr [1,840]> <chr [1,840]> <chr [1,840]> <chr [1,840]> <chr> <chr> <chr> <chr> <chr>
# i 263 more rows
# i Use `print(n = ...)` to see more rows
> # CREATE A SMALL REPORT
> # -----
> report <- original %>%
+   summarise(
+     total_rows = n(),
+     avg_carat = mean(carat, na.rm = TRUE),
+     min_carat = min(carat, na.rm = TRUE),

```

Sidebar:

- Data
 - data (53)
 - long_data (48)
 - original (53)
 - report (1)
 - wide_data (27)
- Files
 - .Rhistory
 - 11th.R
 - 13th.R
 - 14th.R.pdf
 - 14th.R
 - 15th.R
 - apache-maven
 - apache-maven
 - apache-tomca
 - apache-tomca
 - Arduino
 - College_Marks
 - Default.rdp

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The screenshot shows an RStudio interface with the following details:

- Code Editor:** Shows a script named "car.r" with the following content:

```
13   names_to = "Variable",
14   values_to = "Value",
15   values_transform = as.character
16 }
17 )
26:24 (Top Level) ▾
```
- Console:** Displays the R session history:

```
R 4.5.2 -- / -->
2 0.21 <chr [9]>    <chr [9]>    <chr [9]>    <chr [9]>    <chr>    <chr>    <chr>    <chr>    <chr>
3 0.29 <chr [130]>   <chr [130]>   <chr [130]>   <chr [130]>   <chr>    <chr>    <chr>    <chr>    <chr>
4 0.31 <chr [2,249]> <chr [2,249]> <chr [2,249]> <chr [2,249]> <chr>    <chr>    <chr>    <chr>    <chr>
5 0.24 <chr [254]>   <chr [254]>   <chr [254]>   <chr [254]>   <chr>    <chr>    <chr>    <chr>    <chr>
6 0.26 <chr [253]>   <chr [253]>   <chr [253]>   <chr [253]>   <chr>    <chr>    <chr>    <chr>    <chr>
7 0.22 <chr [5]>     <chr [5]>     <chr [5]>     <chr [5]>     <chr>    <chr>    <chr>    <chr>    <chr>
8 0.3 <chr [2,604]>  <chr [2,604]> <chr [2,604]> <chr [2,604]> <chr>    <chr>    <chr>    <chr>    <chr>
9 0.2 <chr [12]>    <chr [12]>   <chr [12]>   <chr [12]>   <chr>    <chr>    <chr>    <chr>    <chr>
10 0.32 <chr [1,840]> <chr [1,840]> <chr [1,840]> <chr [1,840]> <chr>   <chr>    <chr>    <chr>    <chr>
# i 263 more rows
# i Use `print(n = ...)` to see more rows
>
> # CREATE A SMALL REPORT
> # -----
> report <- original %>%
+   summarise(
+     total_rows = n(),
+     avg_carat = mean(carat, na.rm = TRUE),
+     min_carat = min(carat, na.rm = TRUE),
+     max_carat = max(carat, na.rm = TRUE)
+   )
>
> print("Small Report:")
[1] "Small Report:"
> print(report)
  total_rows avg_carat min_carat max_carat
1      53940     0.7979397      0.2       5.01
> |
```