

SETH L.U.J and SIR M.V COLLEGE

PRAC 11

AIM:- Reshaping data using `pivot_longer()` and `pivot_wider()` (R).

INPUT:-

```
library(dplyr)
```

```
library(tidyr)
```

```
# 1. SETUP: Read student marks data and add StudentID
```

```
df <- read.csv("C:/Users/mvlui/Downloads/Student_Marks.csv", na.strings = c("", "NA"))  
%>%
```

```
  mutate(StudentID = row_number()) %>%
```

```
  select(StudentID, number_courses, time_study, Marks)
```

```
print("--- 1. Original Wide Data ---")
```

```
print(head(df))
```

```
# 2. PIVOT_LONGER: Stack study metrics and marks into long format
```

```
long_df <- df %>%
```

```
  pivot_longer(
```

```
    cols = c(number_courses, time_study, Marks),
```

```
    names_to = "Metric",
```

```
    values_to = "Value"
```

```
)
```

```
print("--- 2. Long Format (pivot_longer) ---")
```

```
print(head(long_df, 9)) # show first 9 rows (3 metrics per student)
```

```
# 3. PIVOT_WIDER: Spread back to wide format
```

```
wide_df <- long_df %>%
```

```
  pivot_wider(
```

```
    names_from = Metric,
```

```
    values_from = Value
```

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```
)  
print("--- 3. Wide Format (Back to Original) ---")  
print(head(wide_df))
```

4. ADVANCED EXAMPLE: Pivot by number_courses to see Marks distribution

```
category_pivot <- df %>%  
  select(StudentID, number_courses, Marks) %>%  
  pivot_wider(  
    names_from = number_courses,  
    values_from = Marks  
  )  
print("--- 4. Course Pivot (Spreading number_courses) ---")  
print(head(category_pivot))
```

OUTPUT:-

The screenshot shows the RStudio interface with the following content:

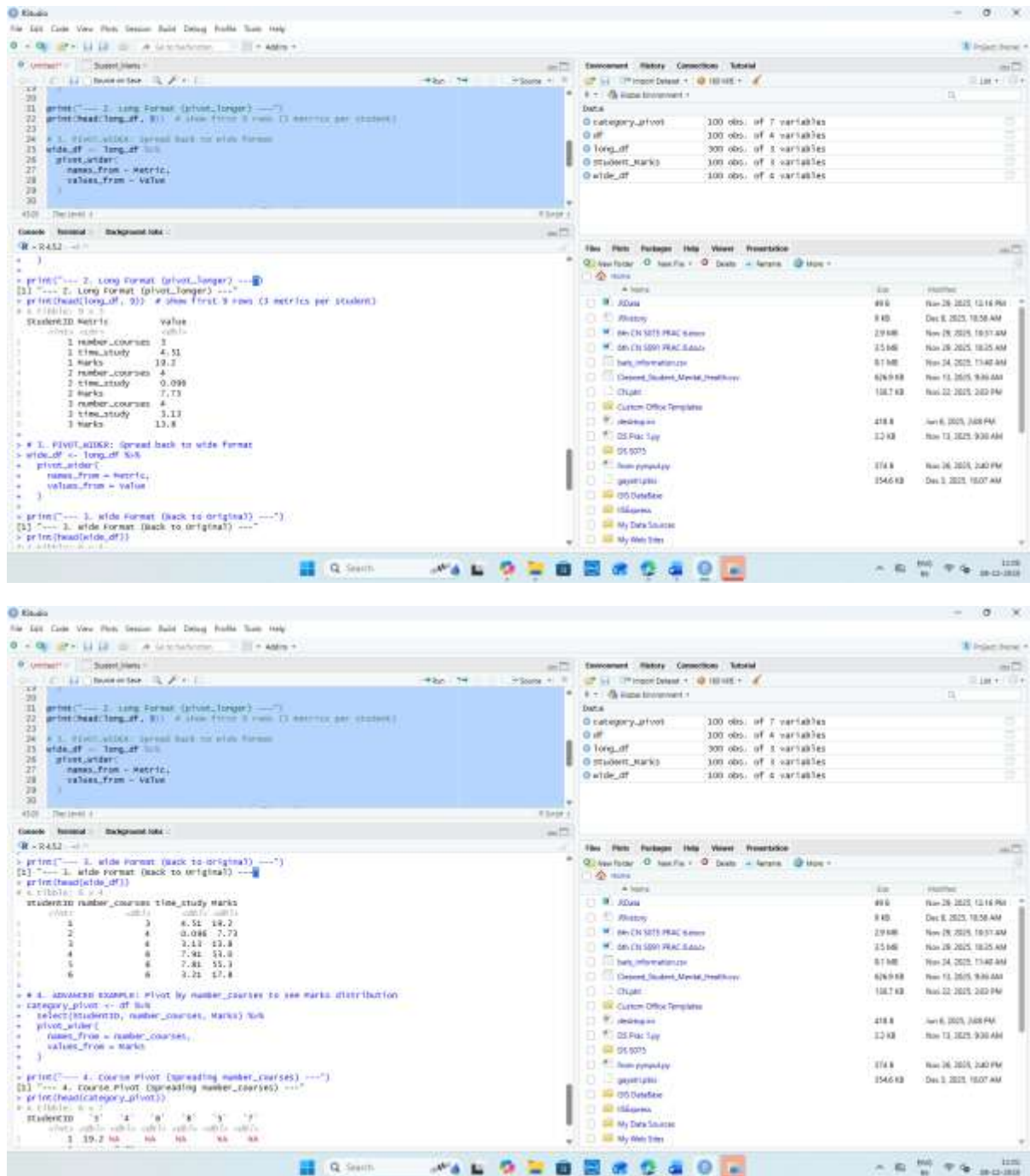
```
# 1. SETUP: Read student marks data and add studentID  
df <- read.csv("C:/Users/mvlu/downloads/student_marks.csv", na.strings = c("", "NA")) %>%  
  mutate(studentID = row_number()) %>%  
  select(studentID, number_courses, time_study, marks)  
  
# 2. PIVOT_LONGER: Stack study metrics and marks into long format  
long_df <- df %>%  
  pivot_longer(  
    cols = c(number_courses, time_study, marks),  
    names_to = "metric",  
    values_to = "value"  
  )  
  
# 3. PIVOT_WIDER: Spread back out wide format  
wide_df <- long_df %>%  
  pivot_wider(  
    names_from = metric,  
    values_from = value  
  )  
  
# 4. PIVOT_WIDER: Stack study metrics and marks into long format  
category_pivot <- df %>%  
  select(StudentID, number_courses, Marks) %>%  
  pivot_wider(  
    names_from = number_courses,  
    values_from = Marks  
  )
```

The console output shows the first 6 rows of the original wide data:

studentID	number_courses	time_study	Marks
1	3	3.038	18.392
2	3	0.098	7.730
3	3	3.133	11.811
4	4	7.909	11.018
5	4	7.411	15.299
6	6	3.211	17.822

The Environment pane on the right shows the following objects:

Object	Class	Attributes
category_pivot	data.frame	100 obs. of 7 variables
df	data.frame	100 obs. of 4 variables
long_df	data.frame	300 obs. of 3 variables
student_marks	data.frame	100 obs. of 4 variables
wide_df	data.frame	100 obs. of 4 variables

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