

PRACTICAL NO 11

AIM: Reshaping data using pivot_longer()/pivot_wider() (R).

The screenshot displays the RStudio interface with the following components:

- Source Panel:** Contains R code for creating a data frame, pivoting it to long format, and then back to wide format.
- Environment Panel:** Lists the objects in the global environment, including 'student_health_a', 'student_health_b', 'tips', 'tips_data', 'titanic', 'titanic_dataset', 'titanic_no_na', 'train', 'unique_students', and 'wide_df'.
- Files Panel:** Shows a list of files in the current directory, including 'test.py', 'test.sql', 'time series data.csv', 'time.py', 'tips.csv', 'TITANIC-Dataset.csv', 'TOC qb soln.pdf', 'Topaz VideoAI Projects', 'train.csv', 'userlog.sql', 'Viswanathan_Anand.docx', 'practical 11.R', 'student_health_b.csv', 'student_health_a.csv', 'practical 12.R', 'practical 13.R', 'practical 14.R', and 'practical 15.R'.

Code Snippets:

```

library(dplyr)
library(tidyr)

> fitness_df <- data.frame(
+   UserID = 1:5,
+   Steps = c(3500, 7800, 12000, 5600, 9100),
+   Calories = c(180, 320, 450, 250, 390)
+ )

> print("Original Wide Data:")
[1] "Original Wide Data:"
> print(fitness_df)
  UserID Steps Calories
1      1  3500     180
2      2  7800     320
3      3 12000     450
4      4  5600     250
5      5  9100     390

> long_df <- fitness_df %>%
+   pivot_longer(
+     cols = c(Steps, Calories),
+     names_to = "Activity_Type",
+     values_to = "Activity_Value"
+ )

> print("Long Format Data:")
[1] "Long Format Data:"
> print(long_df)
# A tibble: 10 x 3
  UserID Activity_Type Activity_Value
  <int> <chr>          <dbl>
1     1 1 Steps          3500
2     1 1 Calories        180
3     2 2 Steps          7800
4     2 2 Calories        320
5     3 3 Steps         12000
6     3 3 Calories        450
7     4 4 Steps          5600
8     4 4 Calories        250
9     5 5 Steps          9100
10    5 5 Calories        390

> wide_df <- long_df %>%
+   pivot_wider(
+     names_from = Activity_Type,
+     values_from = Activity_Value
+ )

> print("Wide Format (Back to original shape):")
[1] "Wide Format (Back to original shape):"
> print(wide_df)
# A tibble: 5 x 3
  UserID Steps Calories
  <int> <dbl> <dbl>
1     1  3500     180
2     2  7800     320
3     3 12000     450
4     4  5600     250
5     5  9100     390

> fitness_df$DayType <- c("weekend", "weekend", "weekday", "weekend", "weekday")
>
> day_pivot <- fitness_df %>%
+   select(UserID, DayType, Calories) %>%
+   pivot_wider(
+     names_from = DayType,
+     values_from = Calories
+ )

> print("Calories Based on Day Type:")
[1] "Calories Based on Day Type:"
> print(day_pivot)
# A tibble: 5 x 3
  UserID Weekend NA
  <int> <dbl> <dbl>
1     1  180  NA
2     2  320  NA
3     3  450  NA
4     4  250  NA
5     5  390  NA

```