

How can we utilize the with() and within() functions in R?

Authored by
stats writer

June 29, 2024

RECOMMENDED CITATION

stats writer (2024). *How can we utilize the with() and within() functions in R?*.

PSYCHOLOGICAL SCALES. Retrieved from <https://scales.arabpsychology.com/?p=158221>

The with() and within() functions in R are powerful tools that allow for efficient and concise manipulation of data frames and environments. The with() function takes a data frame as its first argument and allows the user to refer to the columns of the data frame directly, without the need for repetitively typing the data frame name. This simplifies the code and makes it easier to read and understand.

The within() function, on the other hand, takes an environment as its first argument and allows for the creation and modification of objects within that environment. This is particularly useful when working with large and complex datasets, as it allows for the creation of new variables and the modification of existing ones without having to constantly specify the environment name.

Overall, the with() and within() functions are essential tools for efficient and organized data manipulation in R, making it easier for users to work with data frames and environments.

Use with() and within() Functions in R

The with() and within() functions in R can be used to evaluate some expression based on a data frame.

These functions use the following syntax:

with(data, expression)

within(data, expression)

where:

data: The name of the data frame
expression: The expression to evaluate

Here's the difference between the two functions:

with() evaluates the expression without modifying the original data frame.**within()** evaluates the expression and creates a copy of the original data frame.

The following examples show how to use each function in practice with the following data frame:

```
#create data frame
```

```
df <- data.frame(x=c(3, 5, 5, 7, 6, 10),  
y=c(2, 2, 0, 5, 9, 4))
```

```
#view data frame
```

```
df
```

```
x y
```

```
1 3 2
```

```
2 5 2
```

```
3 5 0
```

```
4 7 5
```

```
5 6 9
```

```
6 10 4
```

Example 1: Use with() Function

We can use the following with() function to multiply the values between the two columns in the data frame:

```
#multiply values between x and y  
with(df, x*y)
```

```
6 10 0 35 54 40
```

The values from column x and column y in the data frame are multiplied together and the result is a vector of length 6.

Example 2: Use within() Function

We can use the following within() function to multiply the values between the two columns in the data frame and assign the results to a new column in the data frame:

```
#multiply values in x and y and assign results to new  
column z  
within(df, z <- x*y)
```

```
x y z  
1 3 2 6  
2 5 2 10  
3 5 0 0  
4 7 5 35  
5 6 9 54
```

```
6 10 4 40
```

The results of the multiplication are now stored in a new column named z.

```
#view original data frame
```

```
df
```

```
x y
```

```
1 3 2
```

```
2 5 2
```

```
3 5 0
```

```
4 7 5
```

```
5 6 9
```

```
6 10 4
```

To permanently store the results of the multiplication, we must assign the results to a new data frame:

```
#multiply values in x and y and assign results to new data frame
```

```
df_new <- within(df, z <- x*y)
```

```
#view new data frame
```

```
df_new
```

x y z

1 3 2 6

2 5 2 10

3 5 0 0

4 7 5 35

5 6 9 54

6 10 4 40

Additional Resources

The following tutorials explain how to perform other common tasks in R:

ARABPSYCHOLOGY.COM