

# How can I convert a list into a data frame in R?

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## RECOMMENDED CITATION

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Converting a list into a data frame in R refers to the process of transforming a list object into a tabular data structure, where the elements of the list become columns in the data frame. This can be achieved by using the "as.data.frame()" function or the "data.frame()" function in R. This conversion is useful when working with large datasets or when performing statistical analysis, as data frames offer more efficient and organized data manipulation capabilities. With the flexibility and versatility of R, this conversion process can be easily accomplished, making it a popular choice among data scientists and analysts.

## Convert a List to a Data Frame in R

There are many cases in which you might want to convert a list to a data frame in R. This tutorial explains three different ways to do so.

### Method 1: Base R

The following code snippet shows how to convert a list to a data frame using only base R:

```
#create list
my_list <- list(letters, letters)
my_list

]
"a" "b" "c" "d" "e"

]
"f" "g" "h" "i" "j"
```

```
#convert list to data frame  
data.frame(t(sapply(my_list,c)))
```

```
X1 X2 X3 X4 X5  
1 a b c d e  
2 f g h i j
```

In this example, `sapply` converts the list to a matrix, then `data.frame` converts the matrix to a data frame. The end result is a data frame of two rows and five columns.

Method 2: Data Table

The following code snippet shows how to convert a list of two nested lists into a data frame with two rows and three columns using the function from the `data.table` library:

```
#load data.table library  
library(data.table)  
  
#create list  
my_list <- list(a = list(var1 = 1, var2 = 2, var3 = 3),  
b = list(var1 = 4, var2 = 5, var3 = 6))  
my_list
```

**\$a**

**\$a\$var1**

**1**

**\$a\$var2**

**2**

**\$a\$var3**

**3**

**\$b**

**\$b\$var1**

**4**

**\$b\$var2**

**5**

**\$b\$var3**

**6**

**#convert list to data frame**

**rbindlist(my\_list)**

**var1 var2 var3**

**1: 1 2 3**

**2: 4 5 6**

This results in a data table with two rows and three columns. If you'd like to convert this data table to a data frame, you can simply use `as.data.frame(DT)`.

This method converts a list to a data frame faster than the previous method if you're working with a very large dataset.

Method 3: Dplyr

The following code snippet shows how to convert a list of two nested lists into a data frame with two rows and three columns using the function from the dplyr library:

```
#load library
```

```
library(dplyr)
```

```
#create list
```

```
my_list <- list(a = list(var1 = 1, var2 = 2, var3 = 3),
```

```
b = list(var1 = 4, var2 = 5, var3 = 6))
```

```
my_list
```

```
$a
```

```
$a$var1
```

```
1
```

```
$a$var2
```

```
2
```

```
$a$var3
```

```
3
```

```
$b
```

```
$b$var1
```

```
4
```

```
$b$var2
```

```
5
```

```
$b$var3
```

```
6
```

```
#convert list to data frame
```

```
bind_rows(my_list)
```

```
# A tibble: 2 x 3
```

```
var1 var2 var3
```

```
1 1 2 3
```

```
2 4 5 6
```

**This results in a data frame with two rows and three**

**columns.**

**This method also tends to work faster than base R when you're working with large datasets.**

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