

# How can I use the map() function in R? Can you provide some examples?

Authored by  
**stats writer**

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## RECOMMENDED CITATION

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The `map()` function in R is a powerful tool that allows users to apply a specific function to each element of a vector or list. This function is particularly useful for performing repetitive tasks on large datasets, as it eliminates the need for manual iteration. To use the `map()` function, the user must first specify the function they want to apply and then provide the vector or list as the input. This function will then be applied to each element of the input, and the results will be returned as a list. Some examples of how the `map()` function can be used include converting temperature readings from Fahrenheit to Celsius, applying a mathematical formula to a set of numbers, or cleaning and formatting data from a dataset. Overall, the `map()` function is a versatile and efficient tool for performing operations on data in R.

## Use the map() Function in R (With Examples)

The `map()` function from the `purrr` package in R can be used to apply some function to each element in a vector or list and return a list as a result.

This function uses the following basic syntax:

```
map(.x, .f)
```

where:

**.x:** A vector or list.  
**.f:** A function

The following examples show how to use this function in different scenarios.

### Example 1: Use map() to Generate Random Variables

The following code shows how to use the `map()`

**function to generate three random variables that each contain five values that follow a standard normal distribution:**

```
library(purrr)
```

```
#define vector
```

```
data <- 1:3
```

```
#apply rnorm() function to each value in vector
```

```
data %>%
```

```
map(function(x) rnorm(5, x))
```

```
[
```

```
0.0556774 1.8053082 2.6489861 2.2640136 1.1062672
```

```
]
```

```
1.450175 1.123048 3.413677 3.055304 2.713801
```

```
[
```

```
2.936732 2.157129 3.693738 2.994391 2.567040
```

**For each element in the original vector, the map() function applied the rnorm() function to generate five random values that come from a .**

## Example 2: Use map() to Transform Each Value in a Vector

The following code shows how to use the map() function to calculate the square of each value in a vector:

```
library(purrr)
```

```
#define vector
```

```
data <- c(2, 4, 10, 15, 20)
```

```
#calculate square of each value in the vector
```

```
data %>%
```

```
map(function(x) x^2)
```

```
] 
```

```
4
```

```
] 
```

```
16
```

```
] 
```

```
100
```

```
] 
```

```
225
```

```
]
400
```

For each element in the original vector, the map() function applied a function that calculated the square of each value.

**Example 3: Use map() to Calculate Mean of Each Vector in List**

The following code shows how to use the map() function to calculate the mean value of each vector in a list:

```
library(purrr)

#define list of vectors
data <- list(c(1, 2, 3),
c(4, 5, 6),
c(7, 8, NA))

#calculate mean value of each vector in list
data %>%
map(mean, na.rm=TRUE)

]
2
```

```
]

```

```
5

```

```
]

```

```
7.5

```

**From the output we can see:**

**The mean value of the first vector in the list is 2. The mean value of the second vector in the list is 5. The mean value of the third vector in the list is 7.5.**

**Note: The argument na.rm=TRUE tells R to ignore NA values when calculating the mean.**

**How to Use the tapply() Function in R**