

# The Map Function in R: Takeaways

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## Syntax

- Creating a custom function and using `map()` to vectorize it:

```
format_score <- function(score) {  
  fmt_string <- str_replace(score, "%", "")  
  num <- as.numeric(fmt_string)  
  return(num)  
}  
  
example_scores <- c("19%", "81%", "100%")  
map_result <- map(example_scores, format_score)
```

- Using `map2()` to vectorize a function that takes in two inputs:

```
first_inputs <- c(1, 2, 3)  
second_inputs <- c(4, 5, 6)  
add_inputs <- function(x, y) {  
  return(x + y)  
}  
  
output <- map2(first_inputs, second_inputs, add_inputs)
```

- Using the `map()` and `mutate()` functions to create a new column in your dataset:

```
format_score <- function(score) {  
  fmt_string <- str_replace(score, "%", "")  
  num <- as.numeric(fmt_string)  
  return(num)  
}  
  
scores <- scores %>%  
  mutate(  
    new_writing_score = unlist(map(writing_score, format_score))  
  )
```

- Using lists as an input to the `map()` function:

```
input_list <- list(  
  c(1, 2),  
  c(3, 4),  
  c(5, 6),  
  c(7, 8),  
  c(9, 10)  
)  
  
output <- map(input_list, sum)
```

- Using `group_by()` and `summarize()` together to vectorize a summary function across groups in a dataset:

```
avg_score_by_student <- student_scores %>%  
  group_by(names) %>%
```

```
summarize(  
  avg_writing = mean(new_writing_score)  
)
```

## Concepts

- The `purrr` package has a family of functions that can accommodate any number of inputs and data types. Each of these functions work out similarly, so learning one can make learning the others easier.
- We use the `map()` function to vectorize a given function. You can use any function, whether it's one from R itself or a custom function that you've made yourself.
- We use the `map2()` function to vectorize a given function that uses two inputs.
- We can use the `group_by()` and `summarize()` functions together to create powerful analyses. These two work well when a dataset has two or more groups that we would like to compare against each other.