

Functionals - Tutorial

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Required packages

```
library(tidyverse)
library(purrr)
```

Dataset

```
library(palmerpenguins)
data(penguins, package = 'palmerpenguins')
head(penguins)
```

```
# A tibble: 6 x 7
  species island bill_length_mm bill_depth_mm flipper_length_~ body_mass_g sex
  <fct>   <fct>         <dbl>         <dbl>         <int>         <int> <fct>
1 Adelie Torge~           39.1           18.7           181           3750 male
2 Adelie Torge~           39.5           17.4           186           3800 fema~
3 Adelie Torge~           40.3            18            195           3250 fema~
4 Adelie Torge~           NA              NA              NA              NA <NA>
5 Adelie Torge~           36.7           19.3           193           3450 fema~
6 Adelie Torge~           39.3           20.6           190           3650 male
```

Extract numeric columns only

```
penguins.numeric <- penguins %>% select(-c(species, island, sex))
```

Help

Explore the following command before attempt the question.

```
# Create a blank vector of size 2
output1 <- vector("double", 2)
output1
```

```
[1] 0 0
```

```
# Create a blank list of size 3
output2 <- vector("list", 3)
output2
```

```
[[1]]  
NULL
```

```
[[2]]  
NULL
```

```
[[3]]  
NULL
```

```
# find number of unique values is a vector  
a <- c(1, 1, 2, 3, 4, 5)  
n_distinct(a)
```

```
[1] 5
```

Useful map function

map and map_dbl

Questions

1. Write code using for loop to compute the mean of every column in `penguins.numeric`.
2. Write code that uses one of the map functions to compute the mean of every column in `penguins.numeric`.
3. Write for loop to generate 10 random normals for each of $\mu = 10, 20, 30, 40, 50$.
4. Write code that uses one of the map functions to generate 10 random normals for each of $\mu = 10, 20, 30, 40, 50$.
5. Write code that used for loop to compute the number of unique values in each column of the `penguins.numeric` dataset.
6. Write code that uses one of the map functions to compute the number of unique values in each column of the `penguins.numeric` dataset.

This tutorial is based on R4DS.