

Week 2 Lab

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Instructions

- Create a new R Markdown document. Number each of the following exercises. Write your code solutions in code chunks.
- Don't keep extraneous code. Only what is minimally sufficient to answer the questions to stay in the file.

Exercises

1. Take the absolute value of a vector of 100 random draws from the standard normal distribution, then take the square root of these values. Finally, calculate the largest integers smaller than these values. Use pipes. Useful functions: `sqrt()`, `floor()`, `rnorm()`, `abs()`.
2. Create a function that takes a numeric vector (say `x`) and a numeric scalar (say `y`) as arguments. It should return a numeric vector where the first half of the returned vector is the same as the first half of `x`, and the second half of the returned vector is the same as the second half of `x + y`. If the length of `x` is odd, then it randomly chooses the middle value of the returned vector to be the same as the middle value `x` or the same as the middle value of `x + y`. Think up a good name and write documentation. Check the inputs of the function for correctness.

Useful functions: `length()`, `%%` (to check for even vs odd), `floor()`, `sample()`, `c()`.

You will also need to use conditionals and logicals to write this function.

Here are some example evaluations when

```
x <- c(1, 1, 1, 1, 1)
y <- 1
```

```
## [1] 1 1 1 2 2
```

```
## [1] 1 1 2 2 2
```

```
## [1] 1 1 2 2 2
```

```
## [1] 1 1 1 2 2
```

Here is the evaluation when

```
x <- c(1, 1, 1, 1)
y <- 1
```

```
## [1] 1 1 2 2
```

Here is the evaluation when

```
x <- c(1, 1, 1, 1)
y <- c(1, 2)
```

```
## Error in add_half(x, y): length(y) == 1 is not TRUE
```