# Function Lab

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## Part 1

(a) Write a function that takes a vector as input and returns the difference between the maximum value in a vector and the minimum value in a vector

```
vec <- 1:30
fun_a <- function(x){
  max(x) - min(x)
}

fun_a(vec)
```

```
## [1] 29
```

```
#check
max(vec) - min(vec)
```

```
## [1] 29
```

(b) Make three vectors, on of the number 1 to 10, one of the even number 2 to 20, and one of the number 10 to 100 counting by 10s

```
vec1 <- 1:10
vec2 <- seq(2,20, 2)
vec3 <- seq(10,100,10)
```

(c) Run your function from part (a) on each of your vectors

```
fun_a(vec1)
```

```
## [1] 9
```

```
fun_a(vec2)
```

```
## [1] 18
```

```
fun_a(vec3)
```

```
## [1] 90
```

(d) Make a vector of strings, `c("my", "name", "is", "bob")`, run your function from part (a) on this vector, what happens? (Note, remember to comment out lines of code that throw errors before knitting.)

Error in max(x) - min(x) : non-numeric argument to binary operator. The vector input is non-binary which can't be interpreted by fun_a, the previously defined function

```
vecd <- as.vector(c("my", "name", "is", "bob"))
#fun_a(vecd)
```

(e) Make a matrix of the numbers 1 to 100 filled by row with 10 rows and 10 columns.

```
matrix1 <- matrix(1:100, nrow=10, ncol=10)
```

(f) Use `apply` to run your function from (a) on all the rows of your matrix in part `e`, then run your function on all the columns.

```
#apply(matrix1, nrow(matrix1), fun_a)
```

## Part 2

(a) Write a function that takes a string, convers it to lower case, removes the words "a", "an" and "the", removes extra white spaces, then returns the new string. (Hint: use the **stringr** package.)

```
library(stringr)
```

(b) Run your function on the **sentences** dataset (which comes with **stringr**). Print the first 10 new sentences.

(c) What happens if you run your function on a vector containing the numbers 1 through 10?