Module 1: Lab 1

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October 25, 2023

Please complete all exercises below WITHOUT using any libraries/packages.

Exercise 1

Assign 10 to the variable x. Assign 5 to the variable y. Assign 20 to the variable z.

```r
x <- 10
y <- 5
z <- 20
```

Exercise 2

Show that x is less than z but greater than y.

Note: your output must be a SINGLE boolean, do not output a boolean for each expression.

```r
v_1 <- x < z & x > y
v_1
```

```
## [1] TRUE
```

Exercise 3

Show that x and y do not equal z.

Note: your output must be a SINGLE boolean, do not output a boolean for each expression.

```r
v_2 <- !(x == z | y == z)
v_2
```

```
## [1] TRUE
```

Exercise 4

Show that the formula `x + 2y = z`.

Note: your output must be a SINGLE boolean

```r
v_3 <- x + 2 * y == z
v_3
```

```
## [1] TRUE
```

Exercise 5

I have created a vector (test_vector) of integers for you. Determine if any of x, y, or z are in the vector.

Note: your output must be a SINGLE boolean, do not output a boolean for each expression.

```r
test_vector <- c(1,5,11:22)

x %in% test_vector | y %in% test_vector | z %in% test_vector
```

```
## [1] TRUE
```

Exercise 6

Show which value is contained in the test vector. To do this you will need to create an element-wise logical vector using operators. `x == vector`. Once you have done that you will need to use slicing to return all indices that have matches. **Note: your output should be two integers**

```r
test_vector [(x == test_vector) | (y == test_vector) |  (z == test_vector)]
```

```
## [1]  5 20
```