

# Lab08

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## Question 1

`seq_len(n)` creates a sequence from 1 to n (hard coded number) `seq_along(x)` creates a sequence from 1 to the length of x.

## Question 2

```
x <- c(2, 4, 6, 8, 10)
y <- c(1, 3, 5, 7, 9)

z <- numeric(length = length(x))

for (i in seq_along(x)) {
  z[i] <- x[i] + y[i]
}

z

## [1] 3 7 11 15 19
```

## Question 3

```
fib <- numeric(length = 15)

fib[1] <- 1
fib[2] <- 1

for (i in 3:15) {
  fib[i] <- fib[i - 1] + fib[i - 2]
}

fib

## [1] 1 1 2 3 5 8 13 21 34 55 89 144 233 377 610
```

## Question 4

```
## List csv files
exp_files <- list.files(path = "../..//labs/fundir/hwk/", pattern = "csv", full.names = TRUE)
```

```

## Create storage vectors
subject_name <- character(length = length(exp_files))
sex <- character(length = length(exp_files))
group <- character(length = length(exp_files))
mean_value <- numeric(length = length(exp_files))

for (i in seq_along(exp_files)) {

  ## Read in ith file
  dat <- read.csv(exp_files[i])

  ## Compute subject mean
  mean_value[i] <- mean(dat[, 1])

  ## Remove .csv extension
  fname <- sub("\\.csv$", "", exp_files[i])

  ## Extract metadata from filename
  sex[i] <- sub(".*([MF])exp[ABC]$", "\\1", fname)
  group[i] <- sub(".*exp[ABC]$", "\\1", fname)
  subject_name[i] <- sub("([MF])exp[ABC]$", "", fname)
}

## Combine into data frame
results <- data.frame(
  name = subject_name,
  sex = sex,
  group = group,
  mean = mean_value
)

## Recreate plot
library(ggplot2)

ggplot(results, aes(x = mean, y = sex, fill = sex)) +
  geom_boxplot() +
  facet_wrap(~ group) +
  labs(
    x = "Value",
    y = "Sex"
  ) +
  theme_bw()

```

