

R Small Group: Class 2

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1. Create a data frame with two columns: “col1” with the letters a to f, “col2” with the numbers 1 to 6, and “col3” with the alternating TRUE and FALSE values. Store the data frame as “mydf.”

```
mydf <- data.frame(col1 = c("a", "b", "c", "d", "e", "f"),
                   col2 = 1:6,
                   col3 = c(TRUE, FALSE, TRUE, FALSE, TRUE, FALSE))

mydf
##   col1 col2 col3
## 1    a    1 TRUE
## 2    b    2 FALSE
## 3    c    3 TRUE
## 4    d    4 FALSE
## 5    e    5 TRUE
## 6    f    6 FALSE
```

2. Coerce mydf from exercise 1 to a matrix using the `as.matrix` function. Predict how the data will change. What class will the data be? Will there be column names? Row names?

```
as.matrix(mydf)
##      col1 col2 col3
## [1,] "a"  "1"  " TRUE"
## [2,] "b"  "2"  "FALSE"
## [3,] "c"  "3"  " TRUE"
## [4,] "d"  "4"  "FALSE"
## [5,] "e"  "5"  " TRUE"
## [6,] "f"  "6"  "FALSE"
```

3. Subsetting can also be done with logical vectors the same length of the object or dimension you would like to subset. For example, if you have a list `l` with three elements, `l[c(TRUE, FALSE, TRUE)]` would return a list with elements one and three from `l`. Figure out how to use `mydf` to subset only to rows where ‘col3’ is TRUE. (You should attempt to think of a solution that only requires one line of code. Hint: you can pass elements of an object to itself.)

```
mydf[mydf$col3,1:3]
##   col1 col2 col3
## 1    a    1 TRUE
## 3    c    3 TRUE
## 5    e    5 TRUE
```

4. You can stack subsetting operators next to each other. Using `l2` from above, select the 7 from ‘vec.’ Now try to select the last two rows from ‘mat’. (Again, you should attempt to think of a solution that only requires one line of code for each selection.)

```
l2 <- list(vec = c(1, 3, 5, 7, 9),
           mat = matrix(data = c(1, 2, 3), nrow = 3))

l2
## $vec
## [1] 1 3 5 7 9
##
## $mat
##      [,1]
## [1,]    1
## [2,]    2
## [3,]    3
# 7 from 'vec'
l2$vec[4]
## [1] 7

# last two rows from 'mat'
l2$mat[2:3,]
## [1] 2 3
```

5. Recall how you added an element to `l2` using the `$` operator. Again, a data frame is just a special list. Add a column to `mydf` called “col4” with a vector of your choice.

```
mydf$col4 <- c(1,4,9,16,25,36)
```