act3

```
knitr::opts_chunk$set(echo = TRUE)
act3 <- read.csv(file="~/actdata.csv")
```

```
ratio <- act3$second / act3$fourth

act3 <- data.frame(cbind(act3, ratio))

size <- rep(0, length(ratio))
size[ratio>1] <- "greater than one"
size[ratio<1] <- "less than one"
size[ratio==1] <- "exactly one"

act3 <- data.frame(cbind(act3, size))
```

TASK 1

First, the pre-processing code creates a new variable called ratio(dividing second finger length by fourth finger length). Then, it adds this new variable to the dataset. After doing that, the above creates another variable called size(depending on the ratio value) and adds this new variable to the dataset.

TASK 2

```
#We create a new table with using the size variable from dataset.
table2 <- table(act3$size)
#Then, we call prop.table function to show the proportion of ratio which has
#"greater than one" value.
prop.table(table2)
```

```
##
##      exactly one greater than one    less than one
##       0.06870229       0.45038168       0.48091603
```

TASK 3

```
#Now we know there are 38 females whose 2D:4D values are "less than one".
table(act3$sex[act3$size=="less than one"])
```

```
##
##  F  M
## 38 25
```

```
#Overall, we have n=131(first column is variables' names).
prop.test(x=38,n=131,conf.level=0.85)
```

```
##
##  1-sample proportions test with continuity correction
##
## data:  38 out of 131, null probability 0.5
## X-squared = 22.26, df = 1, p-value = 2.382e-06
## alternative hypothesis: true p is not equal to 0.5
## 85 percent confidence interval:
##  0.2330836 0.3540402
## sample estimates:
##         p
## 0.2900763
```

```
#There was not any specific thing about p value or alternative option, so that
#is why I did not use them here.
#I could use them like this p=0.5, alternative="less".
```

TASK 4

```
#degrees of freedom =  n-1
#0.03 = %97 confidence
qt(p=0.03, df=44)
```

```
## [1] -1.930542
```