Practical Exercises for **Day 1**

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Exercise 1

- Open R Studio

- Open a new R-Script

- Load data set `chickwts`

```r
data(chickwts)
head(chickwts)
# ?chickwts
```

- Do summary statistic (numerically and graphically)

```r
summary(chickwts)
tapply(chickwts$weight, chickwts$feed, mean)
tapply(chickwts$weight, chickwts$feed, median)
tapply(chickwts$weight, chickwts$feed, sd)
table(chickwts$feed)
barplot(table(chickwts$feed))
boxplot(chickwts$weight ~ chickwts$feed)
# boxplot(weight ~ feed, data = chickwts)
hist(chickwts$weight)
boxplot(weight ~ feed, data = chickwts, col = "lightgray",
        varwidth = TRUE, notch = TRUE, main = "chickwt data",
        ylab = "Weight at six weeks (gm)")
```

Exercise 2

- Create a data frame with 3 columns.

```r
a <- c(1, 2, 3, 4)
b <- c("d", "h", "h", "d")
c <- factor(c("male", "female", "male", "female"),
            levels = c("female", "male"))
dat <- data.frame(a, b, c)
dat
```

Exercise 3

- Install package `MASS`.

```r
# install.packages("MASS")
library("MASS")
```

- Load data set `bacteria`.

```r
data(bacteria)
head(bacteria)
# ?bacteria
```

- Do summary statistic (numerically and graphically).

```r
summary(bacteria)
table(bacteria$week)
barplot(table(bacteria$week))
barplot(table(bacteria$trt))
table(bacteria$trt, bacteria$ap)
table(bacteria$trt, bacteria$y)


fisher.test(table(bacteria$trt, bacteria$y))


prop.table(table(bacteria$trt, bacteria$y))
prop.table(table(bacteria$trt, bacteria$y), margin = 1)
prop.table(table(bacteria$trt, bacteria$y), margin = 2)


plot(prop.table(table(bacteria$trt, bacteria$y)))
```

```
mosaicplot(~trt + y, data = bacteria)
barplot(prop.table(table(bacteria$y, bacteria$trt),margin=1), beside=TRUE)
barplot(prop.table(table(bacteria$trt, bacteria$y),margin=1), beside=TRUE)
barplot(prop.table(table(bacteria$y, bacteria$trt),margin=1), beside=FALSE)
barplot(prop.table(table(bacteria$trt, bacteria$y),margin=1), beside=FALSE)
?barplot
```

- Select only observations collected during the second week.

```
subset(bacteria, week == 2)
ss <- subset(bacteria, week == 2)
summary(ss)
# Check if we only have observations of week 2.
table(bacteria$week)
table(ss$week)
```