Homework-01

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1. The Iowa data set iowa.csv is a toy example that summarises the yield of wheat (bushels per acre) for the state of Iowa between 1930-1962. In addition to yield, year, rainfall and temperature were recorded as the main predictors of yield.
   a. First, we need to load the data set into R using the command `read.csv()`. Use the help function to learn what arguments this function takes. Once you have the necessary input, load the data set into R and make it a data frame called `iowa.df`.
   b. How many rows and columns does `iowa.df` have?
   c. What are the names of the columns of `iowa.df`?
   d. What is the value of row 5, column 7 of `iowa.df`?
   e. Display the second row of `iowa.df` in its entirety.

   Solve. Noticing that the data in iowa.csv

   a.
```r
iowa.df <- read.csv("data/iowa.csv", header = T, sep = ";")
```
   b.
```r
dim(iowa.df)
```
```
## [1] 33 10
```
   c.
```r
colnames(iowa.df)
```
```
##  [1] "Year"  "Rain0" "Temp1" "Rain1" "Temp2" "Rain2" "Temp3" "Rain3" "Temp4"
## [10] "Yield"
```
   d.
```r
iowa.df[5,7]
```
```
## [1] 79.7
```
   e.
```r
iowa.df[2,]
```
```
##   Year Rain0 Temp1 Rain1 Temp2 Rain2 Temp3 Rain3 Temp4 Yield
## 2 1931 14.76  57.5  3.83    75  2.72  77.2   3.3  72.6  32.9
```

2. Syntax and class-typing.
   a. For each of the following commands, either explain why they should be errors, or explain the non-erroneous result.
```r
vector1 <- c("5", "12", "7", "32")
max(vector1)
sort(vector1)
sum(vector1)
```
   b. For the next series of commands, either explain their results, or why they should produce errors.
```r
vector2 <- c("5",7,12)
vector2[2] + vector2[3]

dataframe3 <- data.frame(z1="5",z2=7,z3=12)
dataframe3[1,2] + dataframe3[1,3]
```

```r
list4 <- list(z1="6", z2=42, z3="49", z4=126)
list4[[2]]+list4[[4]]
list4[2]+list4[4]
```
Solve.

   a.

```r
vector1 <- c("5", "12", "7", "32")
```

```r
max(vector1)
```
```
## [1] "7"
```
```r
sort(vector1)
```
```
## [1] "12" "32" "5"  "7"
```
  b.

```r
vector2 <- c("5",7,12)
```