Lab 1- Answers

1.)

a) No, they can be word/number combinations, but cannot start with a number

b) The object you are trying to call doesn’t exist. You are likely misspelling something.

c) No, you must use the \* sign

d) Yes

2.)

a) exp(1)

b) pi will be overwritten as the new variable. Watch out for this. If you change the value stored for pi, and then write some code that assumes that pi is still 3.14159… you could get yourself in trouble. Try not to use variable names that are already used as variables or function names already.

3.)

a) R will number factors into “levels” or categories starting at 1. If you change factors directly to numeric values, you will get these level numbers, not the original values.

b) If you don’t correctly change your data into numeric data, your subsequent analysis could be very wrong, especially if you end up using the level numbers instead of the original numbers by accident.

c) Different classes streamline the amount of memory that an object takes up. For instance a Boolean or true/false value can only take 1 of 2 values, so the computer can allocate less memory to storing this than a numeric object.

4.)

a) vector1[2]

b) No, many languages like Matlab and Java start indexing from 0 instead of 1.

5.)

a) You want to be able to read it easily when you come back to it, and you want others to be able to read it as well.

b) You can set your working directory to a certain folder if you will be using data files from this folder and/or want to save data files and graphs to this folder.

6.)

a) You need a logical statement in the which function, thus you need a double equals symbol”

> water<-100

> dry<-F

> timevar<-0

> while(dry==F) {

water<-water-sample(c(1,2,3,4),1)

timevar=timevar+1

if(water<20) {dry=T}

}

b)

> times<-numeric(50)

> for(i in 1:50) {

> water<-100

> dry<-F

> timevar<-0

> while(dry==F) {

water<-water-sample(c(1,2,3,4),1)

timevar=timevar+1

if(water<20) {dry=T}

}

> times[i]<-timevar

> }

7.)

a) hist(mice$length)

b) Use a barplot. barplot(tapply(mice$weight,mice$color,mean))

8.)

a) To get access to functions written by others that do an analytical or graphical technique that you would like to use.

b) Dependencies are other packages that a certain package builds off of. Install dependencies when you install a package, or you will be stuck installing all packages that it depends on one by one, which is a waste of time.

9.)

a)

plantFunction<-function(water) {

water=water

dry=F

timevar=0

if(water>=20){

while(dry==F){

water<-water-sample(c(1,2,3,4),1)

timevar=timevar+1

if(water<20) {dry=T}

}

}

return(timevar)

}

b)

plantFunction<-function(water,droughtRes=F) {

water=water

dry=F

timevar=0

if(water>=20){

while(dry==F){

x<-sample(c(1,2,3,4),1)

if(droughtRes){

x<-x/2

}

water<-water-x

timevar=timevar+1

if(water<20) {dry=T}

}

}

return(timevar)

}

10.)

a) pch indicates the shape to use to plot points, col indicates color, cex indicates magnification, and lwd indicates line width.