```r
################################################################################
# 11. STATISTICAL TESTS
################################################################################
## clear memory
rm(list = ls())

Mice = read.table("http://edu.sablab.net/data/txt/mice.txt",
                  header=T,sep="\t")
str(Mice)

## Let us see whether Weight change is different for M and F

plot(Mice$Weight.change ~ Mice$Sex, outline = F, col=c(2,4))

##------------------------------------------------------------------------------
##  11.1 t-Test
##------------------------------------------------------------------------------

t.test(Mice$Weight.change[Mice$Sex == "m"],
       Mice$Weight.change[Mice$Sex == "f"])


##------------------------------------------------------------------------------
##  11.2 Wilcox.test
##------------------------------------------------------------------------------

wilcox.test(Mice$Weight.change[Mice$Sex == "m"],
            Mice$Weight.change[Mice$Sex == "f"])


##------------------------------------------------------------------------------
##  11.3 Test for Variables
##------------------------------------------------------------------------------

var.test(Mice$Weight.change[Mice$Sex == "m"],
         Mice$Weight.change[Mice$Sex == "f"])


##------------------------------------------------------------------------------
##  11.4 Test for Normality
##------------------------------------------------------------------------------
x = Mice$Weight.change

shapiro.test(x)
ks.test(x,"pnorm", mean(x), sd(x))


## For fun: check central limit theorem
x=runif(100)
shapiro.test(x)  ## negative...

x=x*0
for (i in 1:12)
  x = x + runif(100)
shapiro.test(x)  ## positive! :)
```