Salidas del R para los laboratorios (clase práctica del 13/11/2012)

```
> laboratorios<-read.table("laboratorios.txt", header=T, quote="\"")

> names(laboratorios)
[1] "lab"      "contenido"

> lab.f<-factor(lab)
> salida<- aov(contenido~lab.f)
> summary(salida)
            Df  Sum Sq  Mean Sq F value    Pr(>F)
lab.f        6 0.12474 0.020789  5.6601 9.453e-05 ***
Residuals   63 0.23140 0.003673
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

> boxplot(salida$res,main="boxplot de los residuos")
> qqnorm(salida$res)
> boxplot(contenido~lab.f,main="boxplot de los contenidos para distintos
laboratorios")
> plot(salida$fitted,salida$res,main="residuos versus valores ajustados")
```
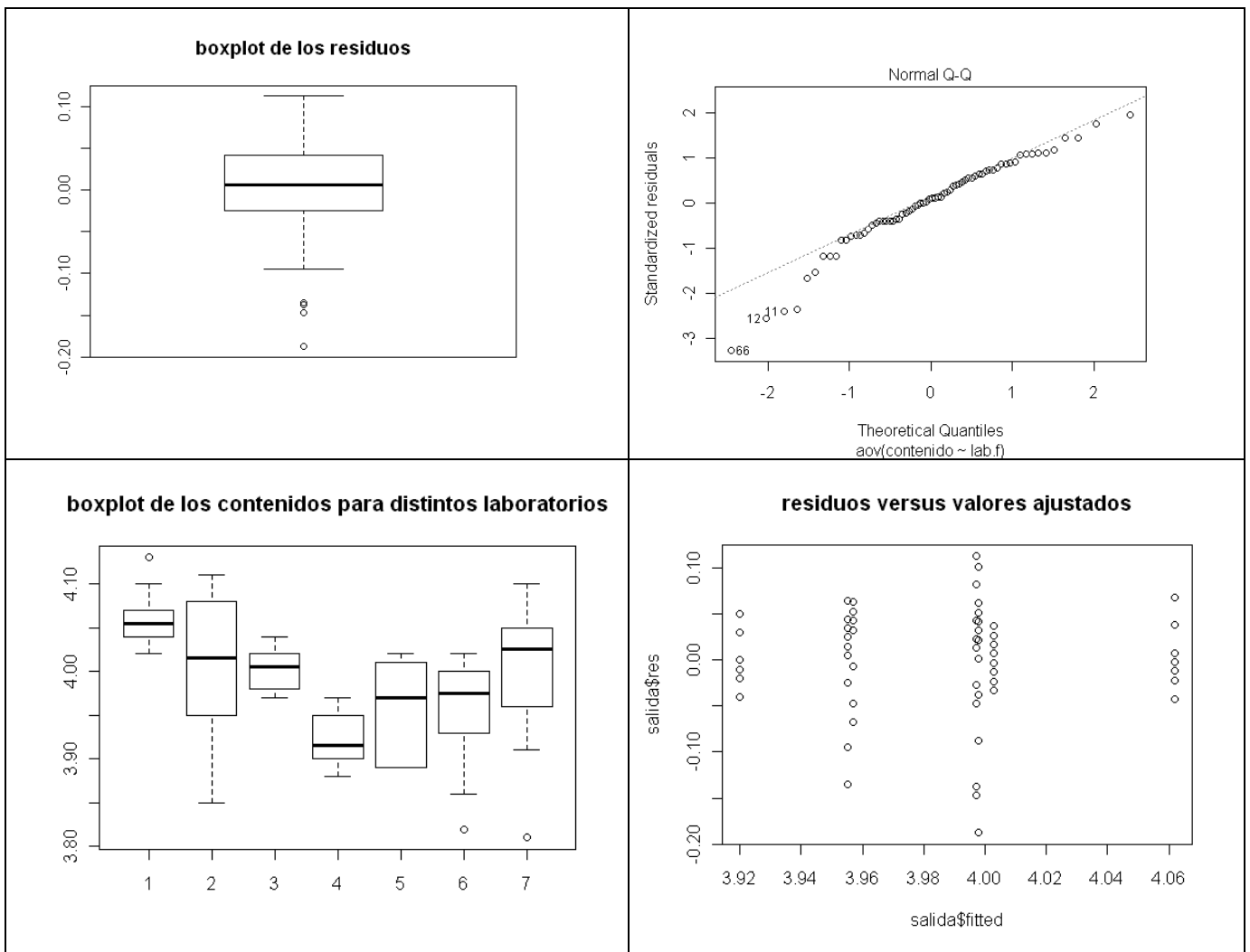
```
> shapiro.test(salida$res)

        Shapiro-Wilk normality test

data:  salida$res
W = 0.9525, p-value = 0.009873

> bartlett.test(contenido,lab.f)

        Bartlett test of homogeneity of variances

data:  contenido and lab.f
Bartlett's K-squared = 24.3697, df = 6, p-value = 0.0004465

> install.packages("lawstat")
> library("lawstat")
> levene.test(contenido,lab.f)

        modified robust Brown-Forsythe Levene-type test based on the
        absolute deviations from the median

data:  contenido
Test Statistic = 2.2445, p-value = 0.05018

> kruskal.test(contenido,lab.f)

        Kruskal-Wallis rank sum test

data:  contenido and lab.f
Kruskal-Wallis chi-squared = 29.606, df = 6, p-value = 4.67e-05

> library(pgirmess)
> install.packages("pgirmess")

>  kruskalmc(contenido,lab.f,probs=0.05)
Multiple comparison test after Kruskal-Wallis
p.value: 0.05
Comparisons
     obs.dif critical.dif difference
1-2    20.25     27.65037      FALSE
1-3    20.85     27.65037      FALSE
1-4    44.35     27.65037       TRUE
1-5    33.45     27.65037       TRUE
1-6    33.30     27.65037       TRUE
1-7    18.25     27.65037      FALSE
2-3     0.60     27.65037      FALSE
2-4    24.10     27.65037      FALSE
2-5    13.20     27.65037      FALSE
2-6    13.05     27.65037      FALSE
2-7     2.00     27.65037      FALSE
3-4    23.50     27.65037      FALSE
3-5    12.60     27.65037      FALSE
3-6    12.45     27.65037      FALSE
3-7     2.60     27.65037      FALSE
4-5    10.90     27.65037      FALSE
4-6    11.05     27.65037      FALSE
4-7    26.10     27.65037      FALSE
5-6     0.15     27.65037      FALSE
5-7    15.20     27.65037      FALSE
6-7    15.05     27.65037      FALSE
```