Índice general

Capítulo 1

Resumen Descriptivo Parte 2

```
datos <- uno
dim(datos)
```

```
[1] 56 6
```

```
library(knitr)
library(data.table)
library(pastecs)
kable(head(datos),caption="Emcabezado de Datos")
```

Tabla 1.1: Emcabezado de Datos

V1	V2	V3	V4	V5	V6
3.9	51	0.20	7.06	12.19	Wilhelm
2.7	49	0.07	7.14	12.23	Wilhelm
2.8	36	0.30	7.00	11.30	Wilhelm
3.1	45	0.08	7.20	13.01	Wilhelm
3.5	46	0.10	7.81	12.63	Wilhelm
3.9	43	0.07	6.25	10.42	Wilhelm

```
kable(datos,caption="Datos completos")
```

Tabla 1.2: Datos completos

V1	V2	V3	V4	V5	V6
3.9	51.0	0.20	7.06	12.19	Wilhelm
2.7	49.0	0.07	7.14	12.23	Wilhelm
2.8	36.0	0.30	7.00	11.30	Wilhelm
3.1	45.0	0.08	7.20	13.01	Wilhelm
3.5	46.0	0.10	7.81	12.63	Wilhelm
3.9	43.0	0.07	6.25	10.42	Wilhelm
2.7	35.0	0.00	5.11	9.00	Wilhelm
5.0	47.0	0.07	7.06	6.10	SubMuli
3.4	32.0	0.20	5.82	4.69	SubMuli
1.2	12.0	0.00	5.54	3.15	SubMuli
8.4	17.0	0.07	6.31	4.55	SubMuli
4.2	36.0	0.50	9.25	4.95	SubMuli
4.2	35.0	0.50	5.69	2.22	SubMuli
3.9	41.0	0.10	5.63	2.94	SubMuli
3.9	36.0	0.07	6.19	2.27	SubMuli
7.3	32.0	0.30	8.02	12.92	SubMuli
4.4	46.0	0.07	7.54	5.76	SubMuli
3.0	30.0	0.00	5.12	10.77	SubMuli
6.3	13.0	0.50	4.24	8.27	Upper
1.7	5.6	1.00	5.69	4.64	Upper
7.3	24.0	0.00	4.34	2.99	Upper
7.8	18.0	0.50	3.92	6.09	Upper
7.8	25.0	0.70	5.39	6.20	Upper
7.8	26.0	1.00	5.02	2.50	Upper
9.5	17.0	0.05	3.52	5.71	Upper
7.7	14.0	0.30	4.65	8.63	Upper
11.0	20.0	0.50	4.27	8.40	Upper
8.0	14.0	0.30	4.32	7.87	Upper
8.4	18.0	0.20	4.38	7.98	Upper
10.0	18.0	0.10	3.06	7.67	Upper
7.3	15.0	0.05	3.76	6.84	Upper
9.5	22.0	0.30	3.98	5.02	Upper
8.4	15.0	0.20	5.02	10.12	Upper
8.4	17.0	0.20	4.42	8.25	Upper
9.5	25.0	0.50	4.44	5.95	Upper
7.2	22.0	1.00	4.70	3.49	Upper
4.0	12.0	0.50	5.71	6.32	Upper
6.7	52.0	0.50	4.80	3.20	Upper
9.0	27.0	0.30	3.69	3.30	Upper
7.8	29.0	1.50	6.72	5.75	Upper
4.5	41.0	0.50	3.33	2.27	Upper
6.2	34.0	0.70	7.56	6.93	Upper

V1	V2	V3	V4	V5	V6
5.6	20.0	0.50	5.07	6.70	Upper
9.0	17.0	0.20	4.39	8.33	Upper
8.4	20.0	0.10	3.74	3.77	Upper
9.5	19.0	0.50	3.72	7.37	Upper
9.0	20.0	0.50	5.97	11.17	Upper
6.2	16.0	0.05	4.23	4.18	Upper
7.3	20.0	0.50	4.39	3.50	Upper
3.6	15.0	0.70	7.00	4.82	Upper
6.2	34.0	0.07	4.84	2.37	Upper
7.3	22.0	0.00	4.13	2.70	Upper
4.1	29.0	0.70	5.78	7.76	Upper
5.4	29.0	0.20	4.64	2.65	Upper
5.0	34.0	0.70	4.21	6.50	Upper
6.2	27.0	0.30	3.97	2.97	Upper

```
#library(xtable)
#print(xtable(datos[1:28,]))
#print(xtable(datos[29:56,]))
```

	V1	V2	V3	V4	V5	V6
1	3.90	51.00	0.20	7.06	12.19	Wilhelm
2	2.70	49.00	0.07	7.14	12.23	Wilhelm
3	2.80	36.00	0.30	7.00	11.30	Wilhelm
4	3.10	45.00	0.08	7.20	13.01	Wilhelm
5	3.50	46.00	0.10	7.81	12.63	Wilhelm
6	3.90	43.00	0.07	6.25	10.42	Wilhelm
7	2.70	35.00	0.00	5.11	9.00	Wilhelm
8	5.00	47.00	0.07	7.06	6.10	SubMuli
9	3.40	32.00	0.20	5.82	4.69	SubMuli
10	1.20	12.00	0.00	5.54	3.15	SubMuli
11	8.40	17.00	0.07	6.31	4.55	SubMuli
12	4.20	36.00	0.50	9.25	4.95	SubMuli
13	4.20	35.00	0.50	5.69	2.22	SubMuli
14	3.90	41.00	0.10	5.63	2.94	SubMuli
15	3.90	36.00	0.07	6.19	2.27	SubMuli
16	7.30	32.00	0.30	8.02	12.92	SubMuli
17	4.40	46.00	0.07	7.54	5.76	SubMuli
18	3.00	30.00	0.00	5.12	10.77	SubMuli
19	6.30	13.00	0.50	4.24	8.27	Upper
20	1.70	5.60	1.00	5.69	4.64	Upper
21	7.30	24.00	0.00	4.34	2.99	Upper
22	7.80	18.00	0.50	3.92	6.09	Upper
23	7.80	25.00	0.70	5.39	6.20	Upper
24	7.80	26.00	1.00	5.02	2.50	Upper
25	9.50	17.00	0.05	3.52	5.71	Upper
26	7.70	14.00	0.30	4.65	8.63	Upper
27	11.00	20.00	0.50	4.27	8.40	Upper
28	8.00	14.00	0.30	4.32	7.87	Upper

	V1	V2	V3	V4	V5	V6
29	8.40	18.00	0.20	4.38	7.98	Upp
30	10.00	18.00	0.10	3.06	7.67	Upp
31	7.30	15.00	0.05	3.76	6.84	Upp
32	9.50	22.00	0.30	3.98	5.02	Upp
33	8.40	15.00	0.20	5.02	10.12	Upp
34	8.40	17.00	0.20	4.42	8.25	Upp
35	9.50	25.00	0.50	4.44	5.95	Upp
36	7.20	22.00	1.00	4.70	3.49	Upp
37	4.00	12.00	0.50	5.71	6.32	Upp
38	6.70	52.00	0.50	4.80	3.20	Upp
39	9.00	27.00	0.30	3.69	3.30	Upp
40	7.80	29.00	1.50	6.72	5.75	Upp
41	4.50	41.00	0.50	3.33	2.27	Upp
42	6.20	34.00	0.70	7.56	6.93	Upp
43	5.60	20.00	0.50	5.07	6.70	Upp
44	9.00	17.00	0.20	4.39	8.33	Upp
45	8.40	20.00	0.10	3.74	3.77	Upp
46	9.50	19.00	0.50	3.72	7.37	Upp
47	9.00	20.00	0.50	5.97	11.17	Upp
48	6.20	16.00	0.05	4.23	4.18	Upp
49	7.30	20.00	0.50	4.39	3.50	Upp
50	3.60	15.00	0.70	7.00	4.82	Upp
51	6.20	34.00	0.07	4.84	2.37	Upp
52	7.30	22.00	0.00	4.13	2.70	Upp
53	4.10	29.00	0.70	5.78	7.76	Upp
54	5.40	29.00	0.20	4.64	2.65	Upp
55	5.00	34.00	0.70	4.21	6.50	Upp
56	6.20	27.00	0.30	3.97	2.97	Upp

1.1. RESUMENES DESCRIPTIVOS DE UNA VARIABEL

```
fivenum(datos[,1])        #estadisticos de tukey:min,q1,median,q3,max
```

[1] 1.20 3.95 6.25 8.20 11.00

```
library(Hmisc)
describe(datos[,1])       #fucntion describe de Hmisc
```

datos[, 1] n missing distinct Info Mean Gmd .05 .10 56 0 31 0.997 6.18 2.799 2.700 3.050 .25 .50 .75 .90 .95 3.975 6.250 8.100 9.250 9.500

lowest : 1.2 1.7 2.7 2.8 3.0, highest: 8.4 9.0 9.5 10.0 11.0

```
library(pastecs)
stat.desc(datos[,1])      #fucntion stat,desc de pstecs
```

nbr.val nbr.null nbr.na min max range

56.0000000 0.0000000 0.0000000 1.2000000 11.0000000 9.8000000 sum median mean SE.mean CI.mean.0.95 var 346.1000000 6.2500000 6.1803571 0.3239611 0.6492325 5.8772435 std.dev coef.var 2.4243027 0.3922593

```
library(psych)
describe(datos[,1] )      #fucntion describe de psych
```

vars n mean sd median trimmed mad min max range skew kurtosis se X1 1 56 6.18 2.42 6.25 6.21 3.19 1.2 11 9.8 -0.1 -1.14 0.32

1.2. RESUMENES DESCRIPTIVOS PARA TODOS LOS DATOS

```
library(pastecs)
tablita<-stat.desc(datos[,1:5])
kable(tablita,caption="Resumen de Datos con stat.desc de PASTECS",digits=3)
```

Tabla 1.3: Resumen de Datos con stat.desc de PASTECS

	V1	V2	V3	V4	V5
nbr.val	56.000	56.000	56.000	56.000	56.000
nbr.null	0.000	0.000	5.000	0.000	0.000
nbr.na	0.000	0.000	0.000	0.000	0.000
min	1.200	5.600	0.000	3.060	2.220
max	11.000	52.000	1.500	9.250	13.010
range	9.800	46.400	1.500	6.190	10.790
sum	346.100	1514.600	19.120	296.750	360.280
median	6.250	25.000	0.300	5.020	6.095
mean	6.180	27.046	0.341	5.299	6.434
SE.mean	0.324	1.551	0.042	0.185	0.422
CI.mean.0.95	0.649	3.108	0.084	0.372	0.845
var	5.877	134.688	0.099	1.924	9.951
std.dev	2.424	11.606	0.314	1.387	3.155
coef.var	0.392	0.429	0.919	0.262	0.490

```
library(data.table)
tablita2<-data.table(Estadisticos=rownames(tablita),tablita)
kable(tablita2,caption="Resumen de Datos con data.table de DATA.TABLE",digits=4)
```

Tabla 1.4: Resumen de Datos con data.table de DATA.TABLE

Estadisticos	V1	V2	V3	V4	V5
nbr.val	56.0000	56.0000	56.0000	56.0000	56.0000
nbr.null	0.0000	0.0000	5.0000	0.0000	0.0000
nbr.na	0.0000	0.0000	0.0000	0.0000	0.0000
min	1.2000	5.6000	0.0000	3.0600	2.2200
max	11.0000	52.0000	1.5000	9.2500	13.0100
range	9.8000	46.4000	1.5000	6.1900	10.7900
sum	346.1000	1514.6000	19.1200	296.7500	360.2800
median	6.2500	25.0000	0.3000	5.0200	6.0950
mean	6.1804	27.0464	0.3414	5.2991	6.4336
SE.mean	0.3240	1.5509	0.0419	0.1854	0.4215
CI.mean.0.95	0.6492	3.1080	0.0841	0.3715	0.8448
var	5.8772	134.6880	0.0985	1.9244	9.9512
std.dev	2.4243	11.6055	0.3139	1.3872	3.1546

Estadisticos	V1	V2	V3	V4	V5
coef.var	0.3923	0.4291	0.9194	0.2618	0.4903

```
library(stargazer)
stargazer(datos,header=FALSE,title = "Resumen de Datos con stargazer",digits=4)
```

Tabla 1.5: Resumen de Datos con stargazer

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
V1	56	6.1804	2.4243	1.2000	3.9750	8.1000	11.0000
V2	56	27.0464	11.6055	6	17.8	35	52
V3	56	0.3414	0.3139	0.0000	0.0700	0.5000	1.5000
V4	56	5.2991	1.3872	3.0600	4.2625	6.2050	9.2500
V5	56	6.4336	3.1546	2.2200	3.4975	8.2850	13.0100

1.3. RESUMEN PARA CRUCE DA VBLES CUANTI CON VBLES CUALI

```
library(reporttools)                          #para cruzar continuasxcategoricas
titulo<-"Resumen de los Datos con reporttools (cruce de cuantixcuali)"
vbles<-datos[,1:4]
estadisticas<-list("mean","s",
                   "c$_{\\mathrm{v}}\\%$"=
                     function(x){
                     return((sd(x)/mean(x))*100)
                     },
                   "min","median","max","iqr","n", "na",
                   "skewness"=function(x) {
                         m3=mean((x-mean(x))^3)
                         skew=m3/(sd(x)^3)
                         return(skew)},
                    "kurtosis"=function(x) {
                         m4=mean((x-mean(x))^4)
                         kurt=m4/(sd(x)^4)
                         return(kurt)}
                     )
#Cruece da vbles_cont con vbles_nominal
tableContinuous(vars = vbles, group = datos[,6], stats = estadisticas,cap=titulo,
                print.pval = "kruskal",longtable=FALSE)
```

% latex table generated in R 4.1.1 by xtable 1.8-4 package % Thu Oct 14 09:42:58 2021

Variable	Levels	$\bar{x}$	s	c_v %	Min	$\tilde{x}$	Max	IQR	n	#NA	skewness	kurtosis
V1	SubMuli	4.4	2.0	44.2	1.2	4.2	8.4	1.1	11	0	0.6	2.6
	Upper	7.2	2.0	27.6	1.7	7.5	11.0	2.2	38	0	-0.6	3.0
	Wilhelm	3.2	0.5	16.7	2.7	3.1	3.9	1.0	7	0	0.2	1.0
$p < 0.0001$	all	6.2	2.4	39.2	1.2	6.2	11.0	4.1	56	0	-0.1	1.9
V2	SubMuli	33.1	10.8	32.5	12.0	35.0	47.0	7.5	11	0	-0.6	2.3
	Upper	22.3	8.8	39.4	5.6	20.0	52.0	9.8	38	0	1.1	4.9
	Wilhelm	43.6	6.1	14.0	35.0	45.0	51.0	8.0	7	0	-0.3	1.3
$p < 0.0001$	all	27.0	11.6	42.9	5.6	25.0	52.0	17.2	56	0	0.5	2.2
V3	SubMuli	0.2	0.2	107.6	0.0	0.1	0.5	0.2	11	0	0.9	2.1
	Upper	0.4	0.3	76.4	0.0	0.5	1.5	0.3	38	0	1.0	4.0
	Wilhelm	0.1	0.1	85.5	0.0	0.1	0.3	0.1	7	0	0.7	1.9
$p = 0.0039$	all	0.3	0.3	91.9	0.0	0.3	1.5	0.4	56	0	1.3	4.8
V4	SubMuli	6.6	1.3	19.3	5.1	6.2	9.2	1.6	11	0	0.8	2.3
	Upper	4.7	1.0	21.3	3.1	4.4	7.6	1.0	38	0	1.1	3.8
	Wilhelm	6.8	0.9	12.8	5.1	7.1	7.8	0.5	7	0	-0.8	2.3
$p < 0.0001$	all	5.3	1.4	26.2	3.1	5.0	9.2	1.9	56	0	0.7	2.7

Tabla 1.6: Resumen de los Datos con reporttools (cruce de cuantixcuali)

```
library(reporttools)                          #para cruzar continuasxcategoricas
titulo<-"Resumen de los Datos con reporttools (cruce de cuantixcuali)"
vbles<-datos[,1:4]
estadisticas<-list("mean","s",
                   "c$_{\\mathrm{v}}\\%$"=
                     function(x){
                     return((sd(x)/mean(x))*100)
                     },
                   "min","median","max","iqr","n", "na",
                   "skewness"=function(x) {
                         m3=mean((x-mean(x))^3)
                         skew=m3/(sd(x)^3)
                         return(skew)},
                    "kurtosis"=function(x) {
                         m4=mean((x-mean(x))^4)
                         kurt=m4/(sd(x)^4)
                         return(kurt)}
                    )
#Cruece da vbles_cont con vbles_nominal
tableContinuous(vars = vbles, stats = estadisticas,cap=titulo,longtable=FALSE)
```

% latex table generated in R 4.1.1 by xtable 1.8-4 package % Thu Oct 14 09:42:58 2021

Variable	$\bar{x}$	s	c_v %	Min	$\tilde{x}$	Max	IQR	n	#NA	skewness	kurtosis
V1	6.2	2.4	39.2	1.2	6.2	11.0	4.1	56	0	-0.1	1.9
V2	27.0	11.6	42.9	5.6	25.0	52.0	17.2	56	0	0.5	2.2
V3	0.3	0.3	91.9	0.0	0.3	1.5	0.4	56	0	1.3	4.8
V4	5.3	1.4	26.2	3.1	5.0	9.2	1.9	56	0	0.7	2.7

Tabla 1.7: Resumen de los Datos con reporttools (cruce de cuantixcuali)

1.4. CRUCE DE VBLES CUALITATIVAS (cualixcuali)

```
library(reporttools)              #para cruzar continuasxcategoricas
cate<-factor(rep(c("A","B","C","D"),c(15,8,15,18)))
data2<-cbind(datos,cate)
# solo tabla de vbles_nominales
titulo2<-"Caracteristicas de las variables nominales"
tableNominal(vars = data2[,6:7],cap=titulo2,vertical = FALSE,font.size = "scriptsize"
             lab = "tab:nominal1",longtable = FALSE,cumsum = TRUE)
```

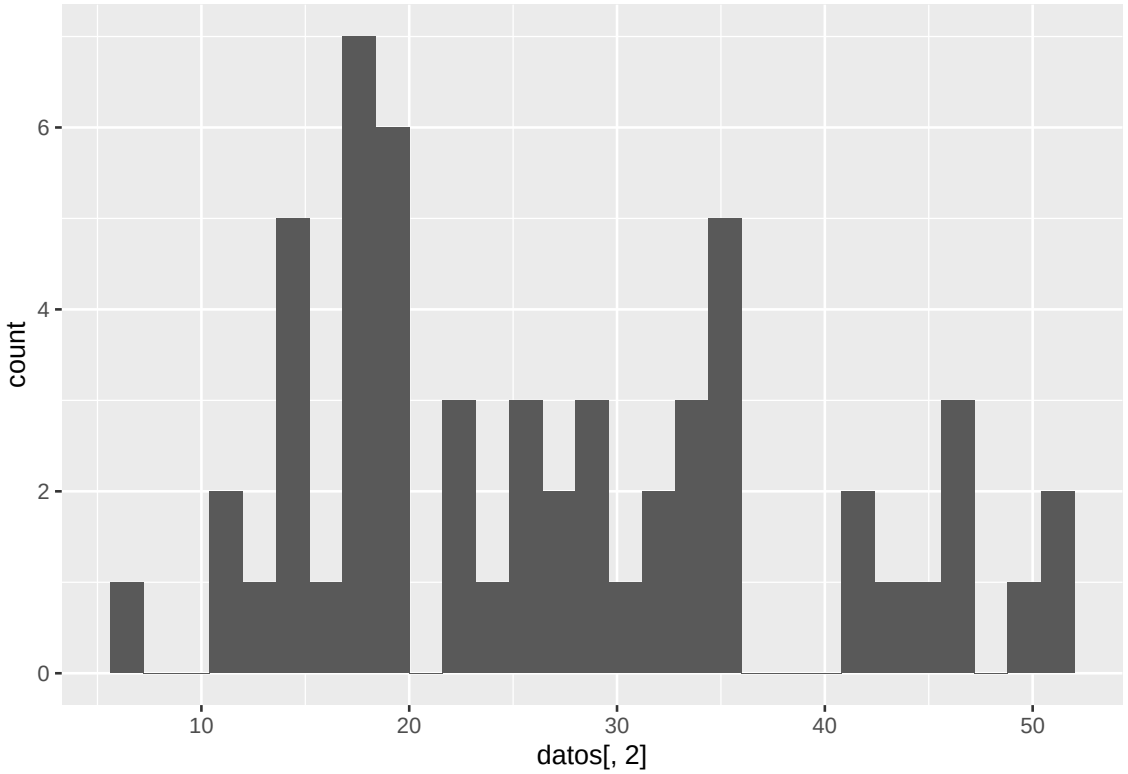
% latex table generated in R 4.1.1 by xtable 1.8-4 package % Thu Oct 14 09:42:58 2021

Variable	Levels	n	%	$\sum$ %
V6	SubMuli	11	19.6	19.6
	Upper	38	67.9	87.5
	Wilhelm	7	12.5	100.0
	all	56	100.0	
cate	A	15	26.8	26.8
	B	8	14.3	41.1
	C	15	26.8	67.9
	D	18	32.1	100.0
	all	56	100.0	

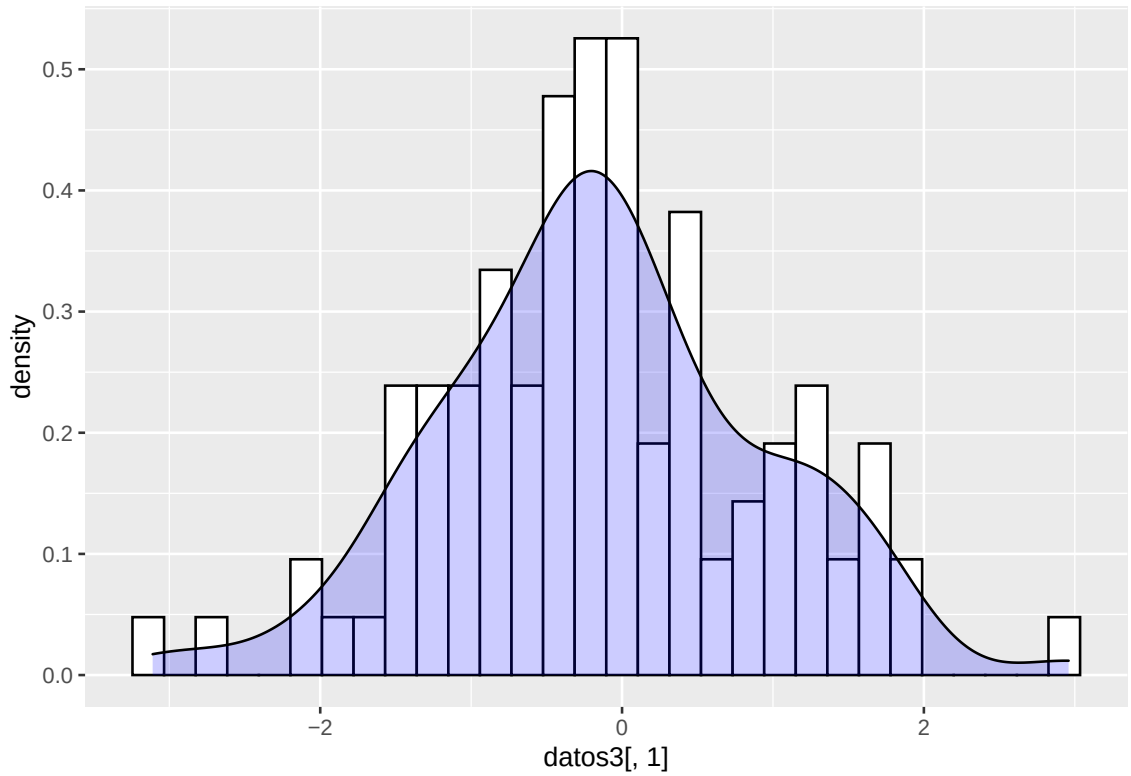
Tabla 1.8: Caracteristicas de las variables nominales

1.5. GRÁFICOS CON GGPLOT2

```
library(ggplot2)                #para cruzar continuasxcategoricas
ggplot(datos,aes(x=datos[,2]))+geom_histogram()
```

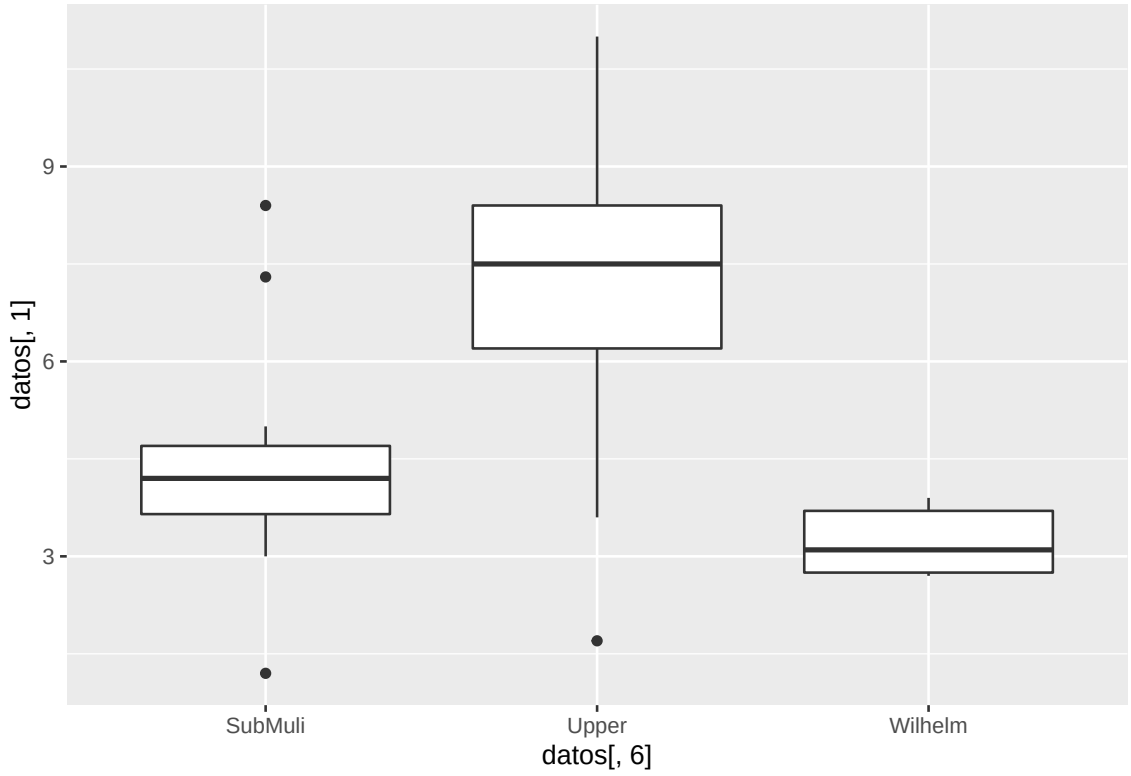



```
library(ggplot2)                #para cruzar continuasxcategoricas
datos3<-data.frame(cbind(rnorm(100,0,1) , rnorm(100,0,1)))
ggplot(datos3,aes(x=datos3[,1])) +
  geom_histogram(aes(y =  ..density..) , color="black", fill="white") + geom_density(
```

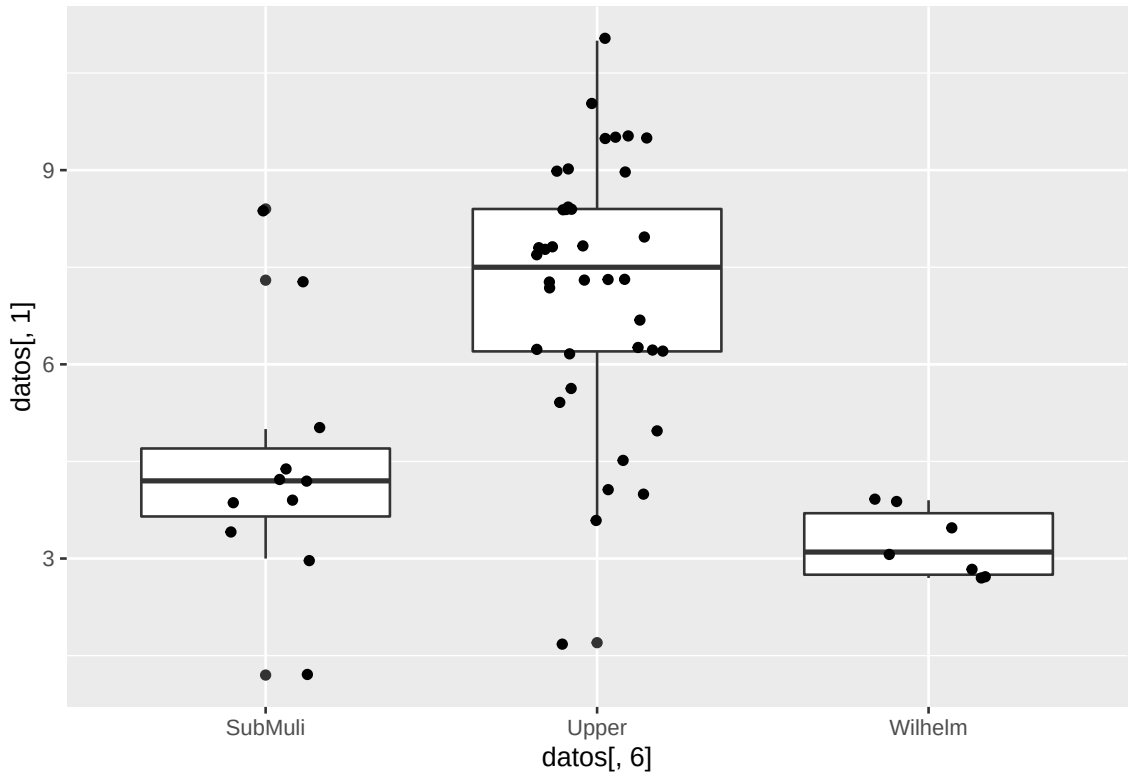

0.5
0.4
0.3
0.2
0.1
0.0
density
−2
0
2
datos3[, 1]

1.6. Box_plot

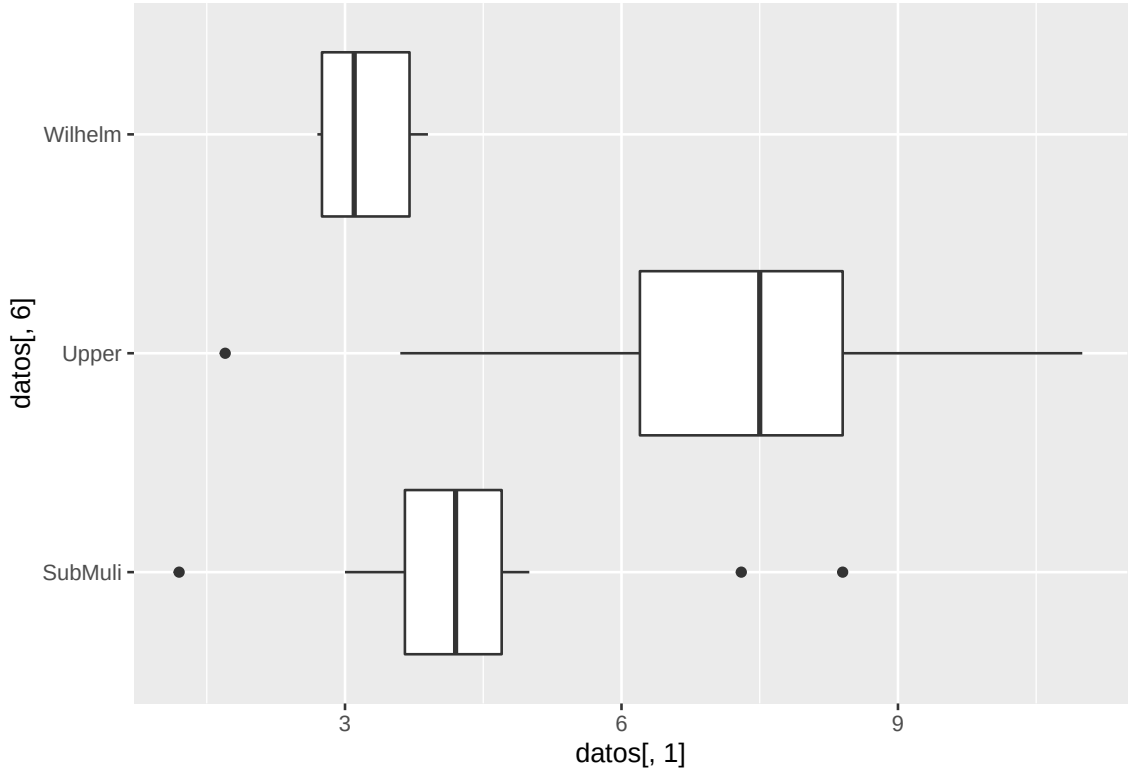
```
library(ggplot2)              #para cruzar continuasxcategoricas
ggplot(datos, aes(datos[,6],datos[,1])) +
  geom_boxplot()
```




```
library(ggplot2)              #para cruzar continuasxcategoricas
p<-ggplot(datos, aes(datos[,6],datos[,1]))
p+geom_boxplot()+geom_jitter(width = 0.2)
```

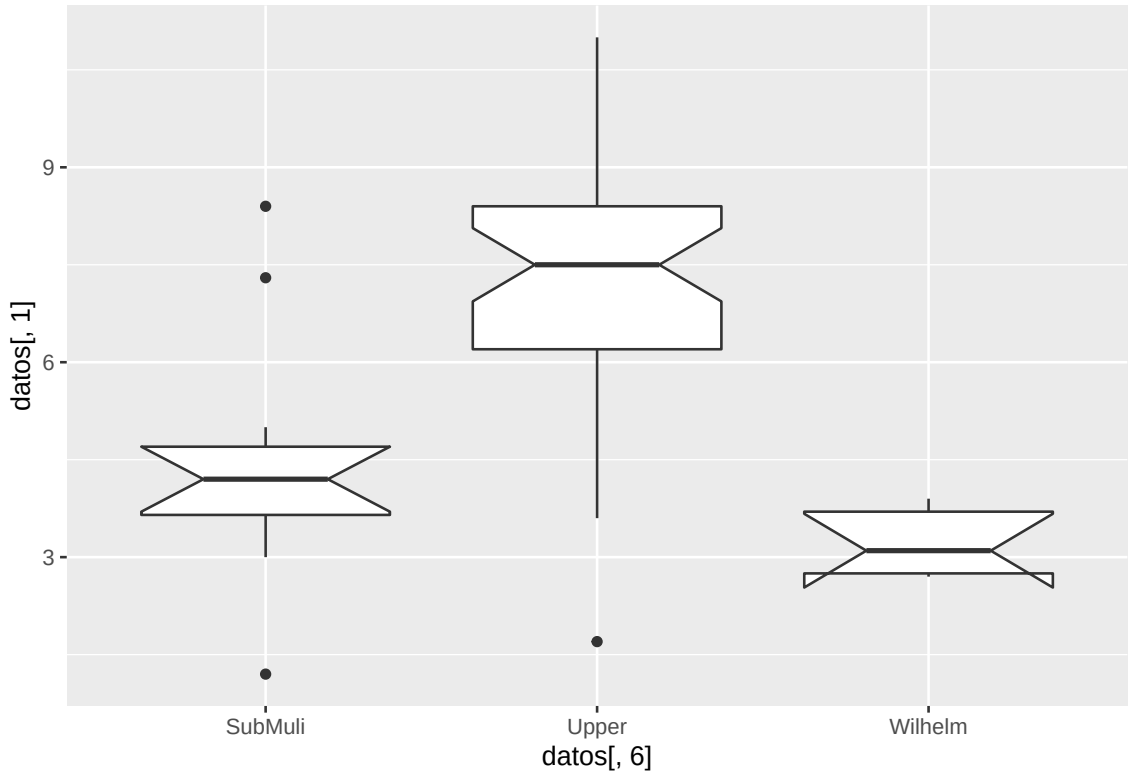



```
library(ggplot2)              #para cruzar continuasxcategoricas
p<-ggplot(datos, aes(datos[,6],datos[,1]))
  p + geom_boxplot() + coord_flip()
```

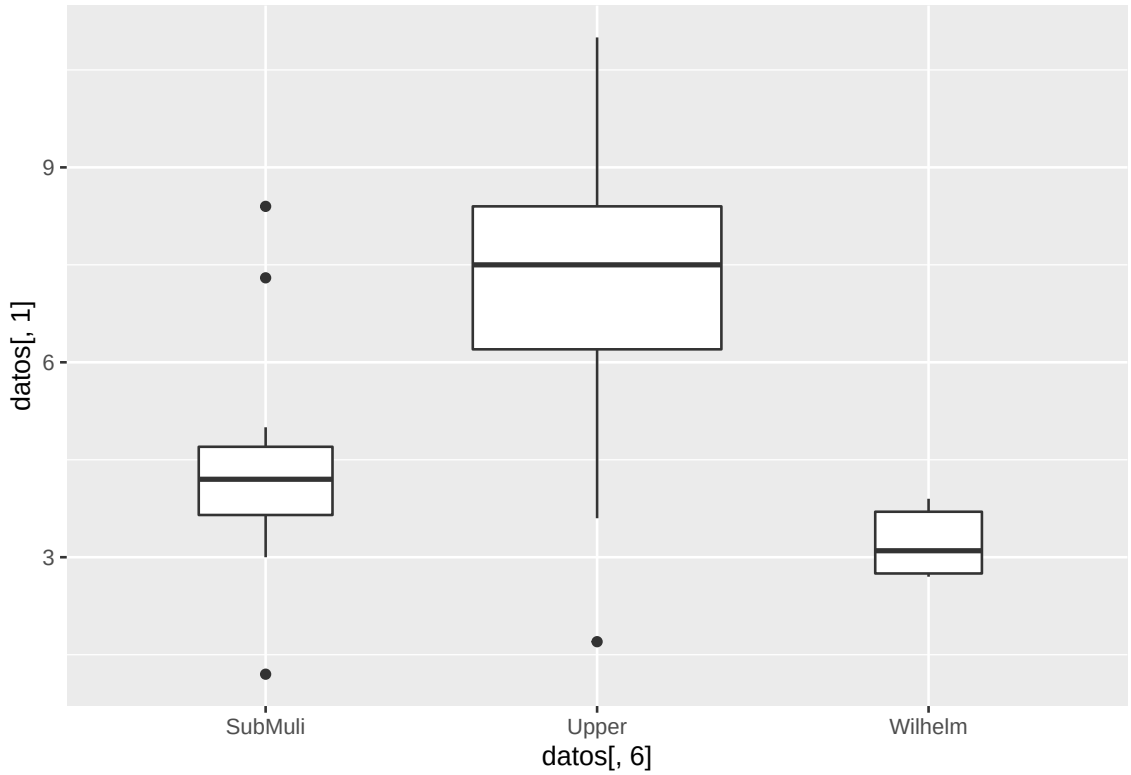



```
library(ggplot2)              #para cruzar continuasxcategoricas
p<-ggplot(datos, aes(datos[,6],datos[,1]))
```

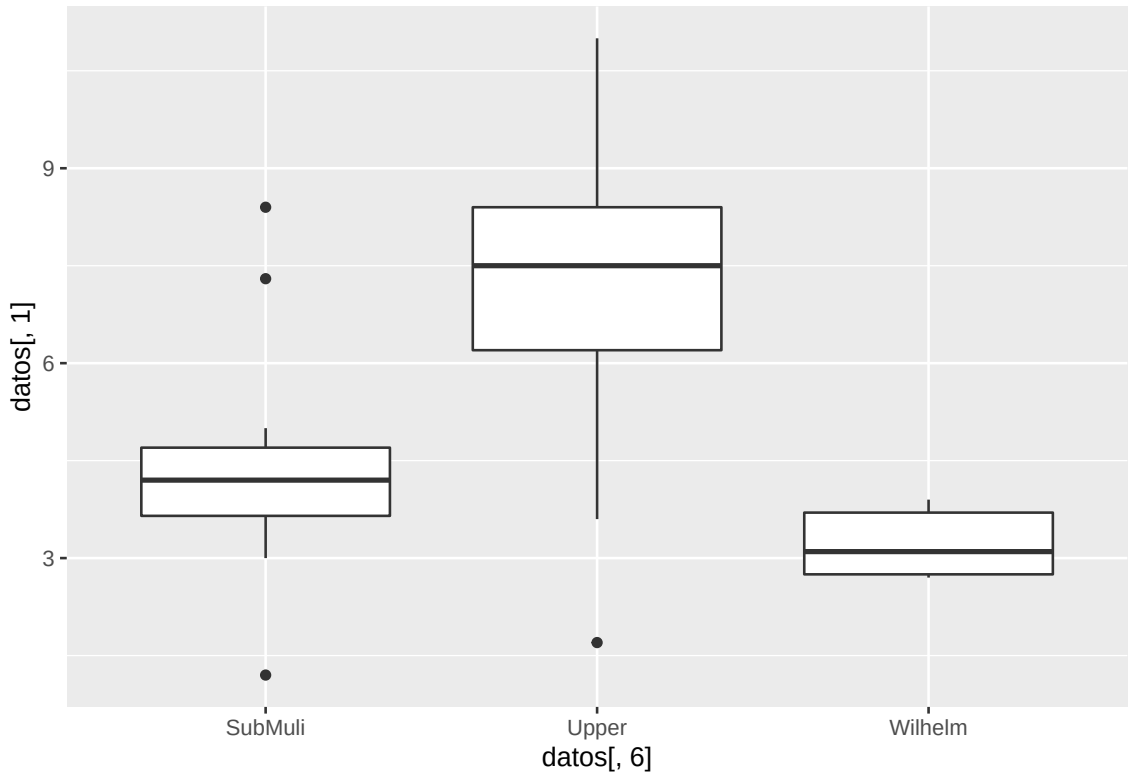
```
p + geom_boxplot(notch = TRUE)
```



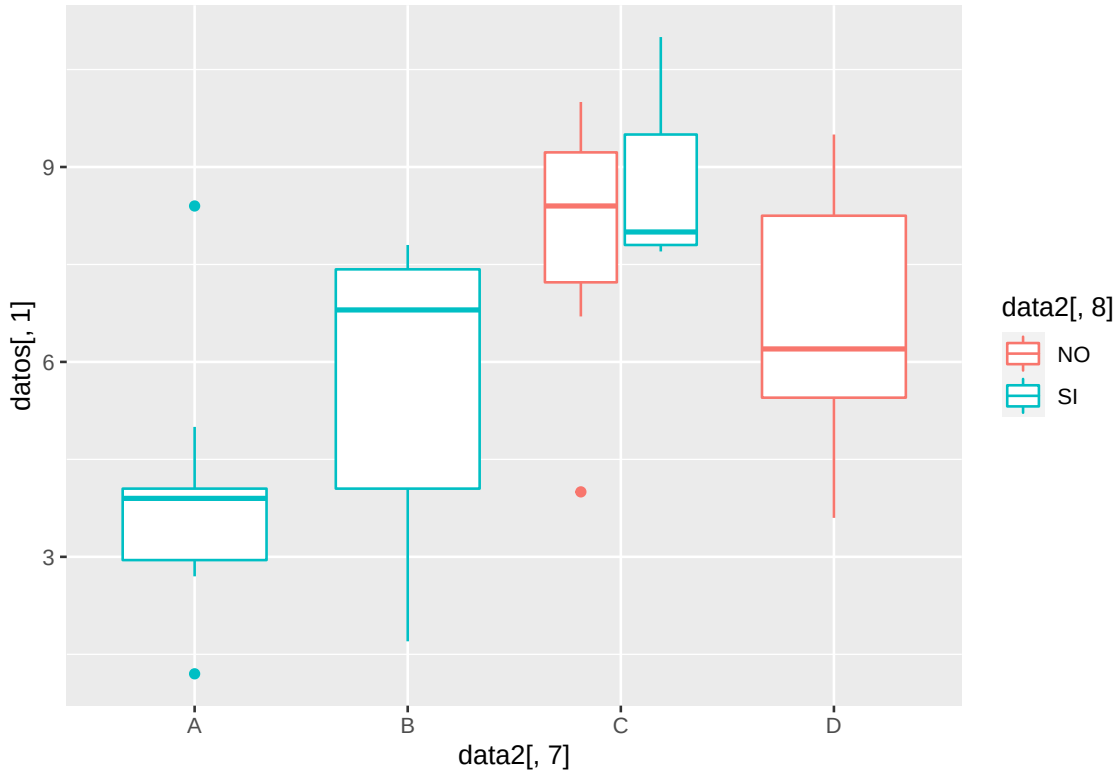
```
library(ggplot2)                #para cruzar continuasxcategoricas
p<-ggplot(datos, aes(datos[,6],datos[,1]))
  p + geom_boxplot(varwidth = TRUE)
```



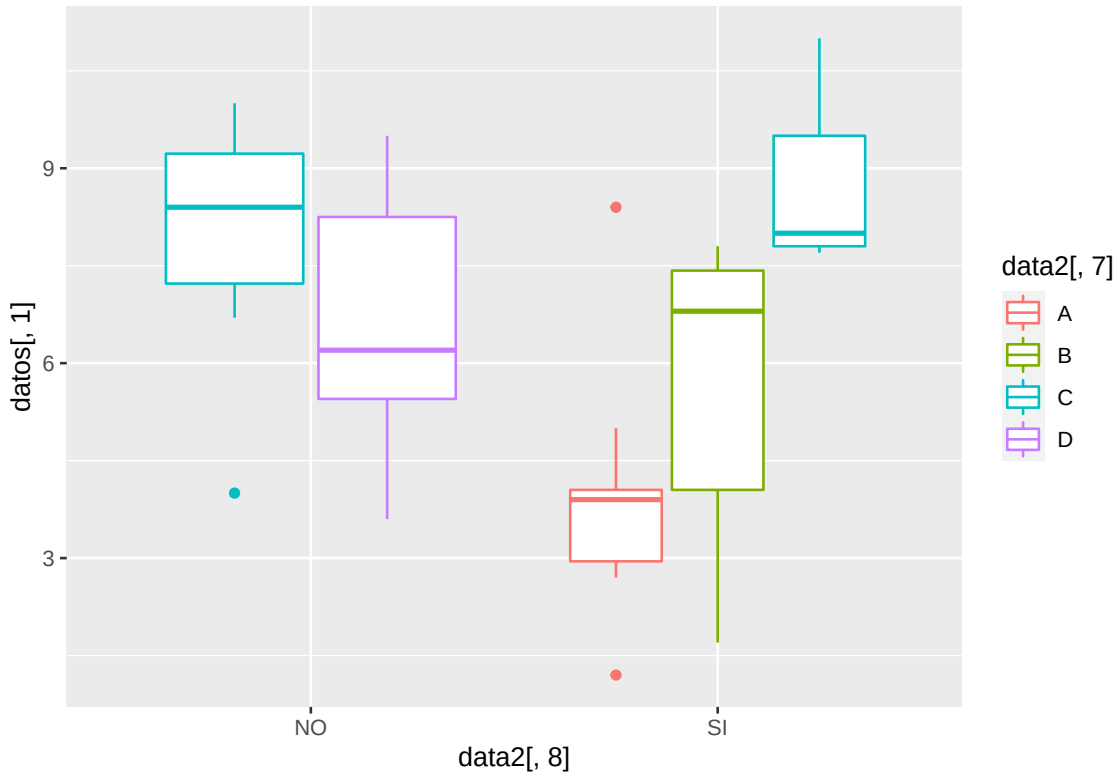

```
library(ggplot2)                #para cruzar continuasxcategoricas
p<-ggplot(datos, aes(datos[,6],datos[,1]))
  p + geom_boxplot(varwidth = FALSE)
```


9
6
3
datos[, 1]
SubMuli
Upper
Wilhelm
datos[, 6]

```
library(ggplot2)                #para cruzar continuasxcategoricas
cate<-factor(rep(c("A","B","C","D"),c(15,8,15,18)))
cate2<-factor(rep(c("SI","NO"),c(28,28)))
data2<-cbind(datos,cate,cate2)
p<-ggplot(data2, aes(data2[,7],datos[,1]))
  p + geom_boxplot(aes(colour = data2[,8]))
```




```
library(ggplot2)                #para cruzar continuasxcategoricas
cate<-factor(rep(c("A","B","C","D"),c(15,8,15,18)))
cate2<-factor(rep(c("SI","NO"),c(28,28)))
data2<-cbind(datos,cate,cate2)
p<-ggplot(data2, aes(data2[,8],datos[,1]))
  p + geom_boxplot(aes(colour = data2[,7]))
```


datos[, 1]
9
6
3
NO
SI
data2[, 8]
data2[, 7]
A
B
C
D

1.7. Obtención del vector de media muestral

```
vector_medias <-apply(datos[,1:5],2,mean);
kable(round(vector_medias,3))
```

	x
V1	6.180
V2	27.046
V3	0.341
V4	5.299
V5	6.434

1.8. obtención de la matriz de covarianza muestral

```
var_cov <- cov(datos[,1:5]);
kable(round(var_cov,3))
```

	V1	V2	V3	V4	V5
V1	5.877	-12.403	0.084	-1.848	-0.621
V2	-12.403	134.688	-0.613	8.318	6.569
V3	0.084	-0.613	0.099	0.031	-0.162
V4	-1.848	8.318	0.031	1.924	1.632
V5	-0.621	6.569	-0.162	1.632	9.951

1.9. obtención de la matriz de correlación muestral

```
corr <- cor(datos[,1:5]);
kable(round(corr,3))
```

	V1	V2	V3	V4	V5
V1	1.000	-0.441	0.111	-0.549	-0.081
V2	-0.441	1.000	-0.168	0.517	0.179
V3	0.111	-0.168	1.000	0.072	-0.164
V4	-0.549	0.517	0.072	1.000	0.373
V5	-0.081	0.179	-0.164	0.373	1.000

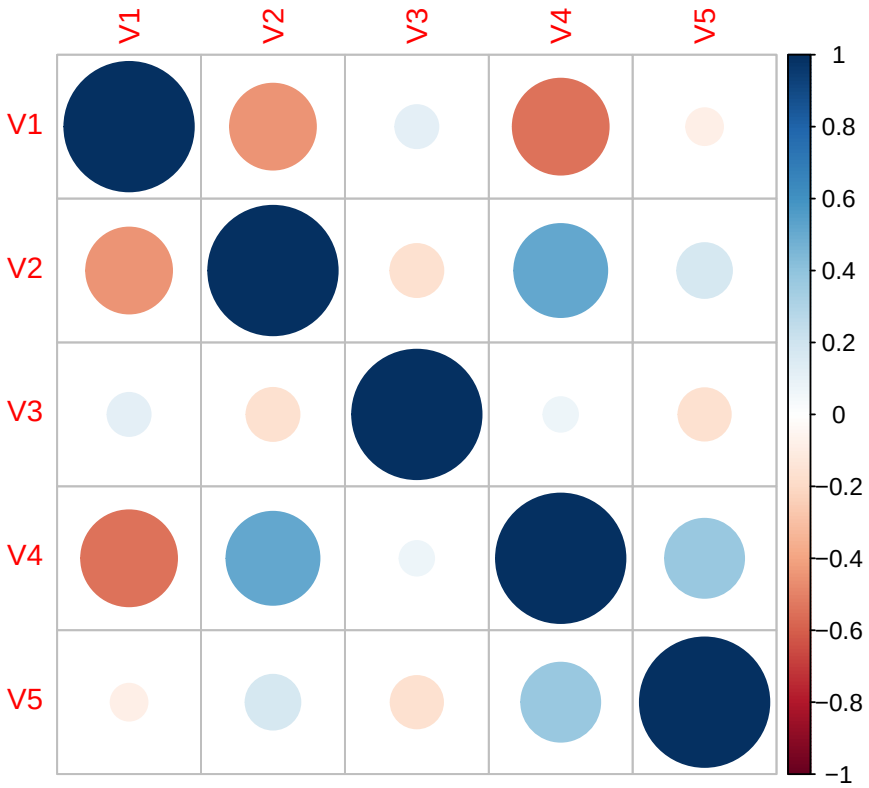
1.10. Gráfica de la matriz de correlación

```
#library(ggplot2)
library(corrplot)
mat.cor<-cor(datos[,1:5],method="pearson")
kable(round(mat.cor,3))
```

	V1	V2	V3	V4	V5
V1	1.000	-0.441	0.111	-0.549	-0.081
V2	-0.441	1.000	-0.168	0.517	0.179
V3	0.111	-0.168	1.000	0.072	-0.164
V4	-0.549	0.517	0.072	1.000	0.373
V5	-0.081	0.179	-0.164	0.373	1.000

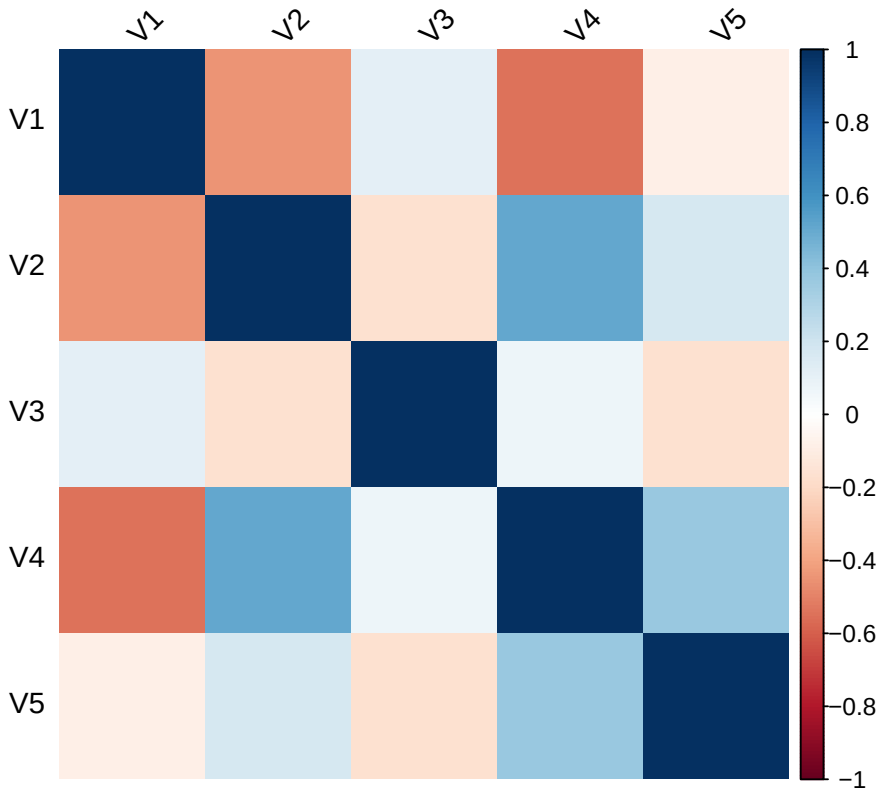
1.11. Gráfico de la MAtriz de Correlación por default

```
corrplot(mat.cor)
```



1.11.1. metodo(forma),color-forma,color-etiquetas,inclinación-etiquetas

```
corrplot(mat.cor,method="shade",shade.col=NA,tl.col="black",tl.srt=45 )
```


V1
V2
V3
V4
V5
V1
V2
V3
V4
V5
1
0.8
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
−1

1.11.2. Con: addCoef.col,order

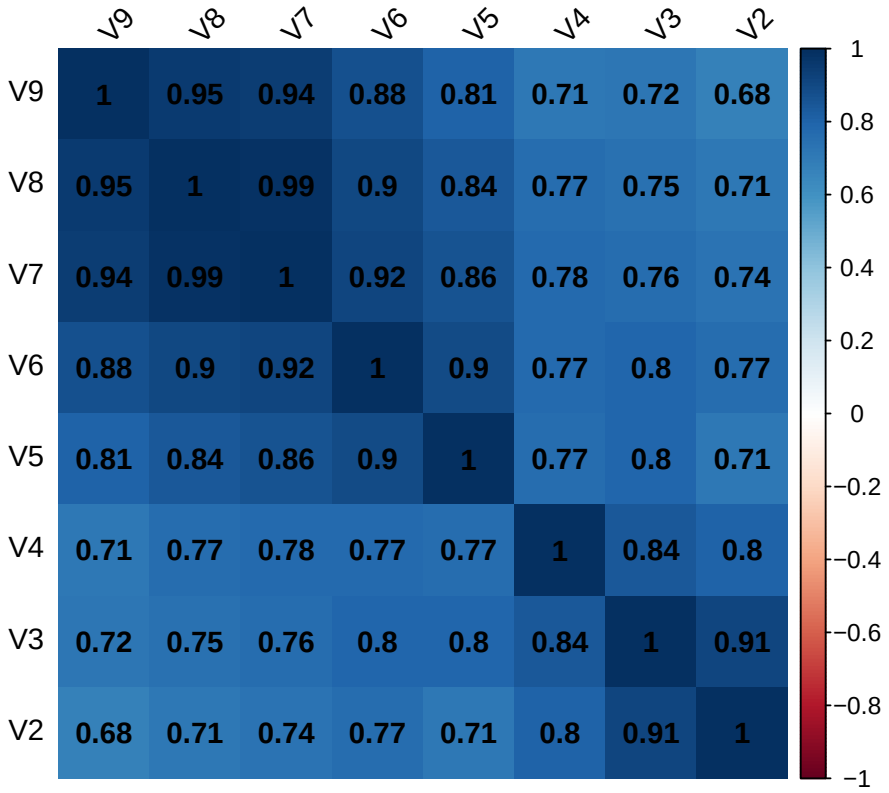
```
corrplot(mat.cor,method="shade",shade.col=NA,tl.col="black",
         tl.srt=45,addCoef.col="black",addcolorlabel="no",order="AOE" )
```

1.11.3. Con: addCoef.col,order

```
datos4 <- read.table(file("datos/T8-6.DAT"),row.names = 1)
mat.cor4<-cor(datos4,method="pearson")
kable(round(mat.cor4,3))
```

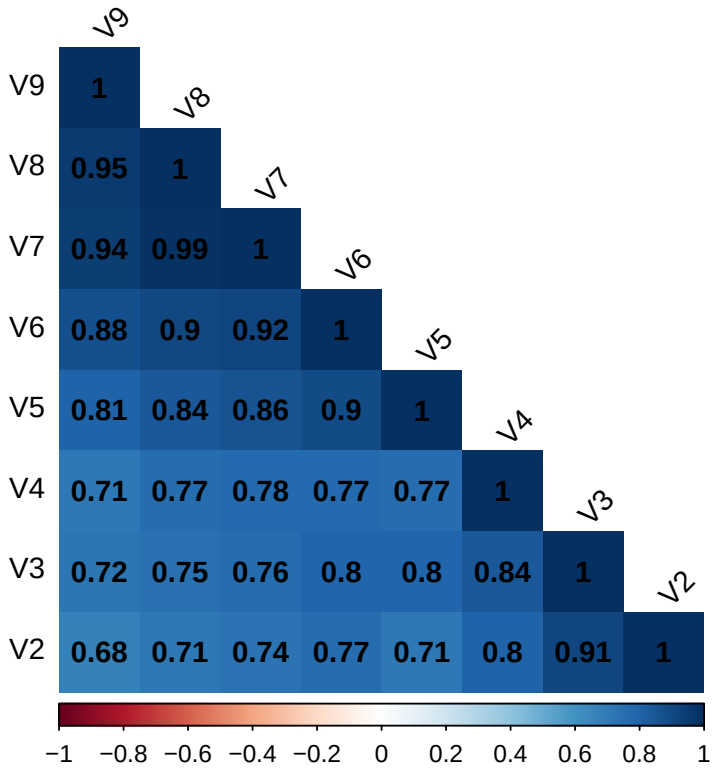
	V2	V3	V4	V5	V6	V7	V8	V9
V2	1.000	0.915	0.804	0.712	0.766	0.740	0.715	0.676
V3	0.915	1.000	0.845	0.797	0.795	0.761	0.748	0.721
V4	0.804	0.845	1.000	0.768	0.772	0.780	0.766	0.713
V5	0.712	0.797	0.768	1.000	0.896	0.861	0.843	0.807
V6	0.766	0.795	0.772	0.896	1.000	0.917	0.901	0.878
V7	0.740	0.761	0.780	0.861	0.917	1.000	0.988	0.944
V8	0.715	0.748	0.766	0.843	0.901	0.988	1.000	0.954
V9	0.676	0.721	0.713	0.807	0.878	0.944	0.954	1.000

```
corrplot(mat.cor4,method="shade",shade.col=NA,tl.col="black",
         tl.srt=45,addCoef.col="black",addcolorlabel="no",order="AOE" )
```



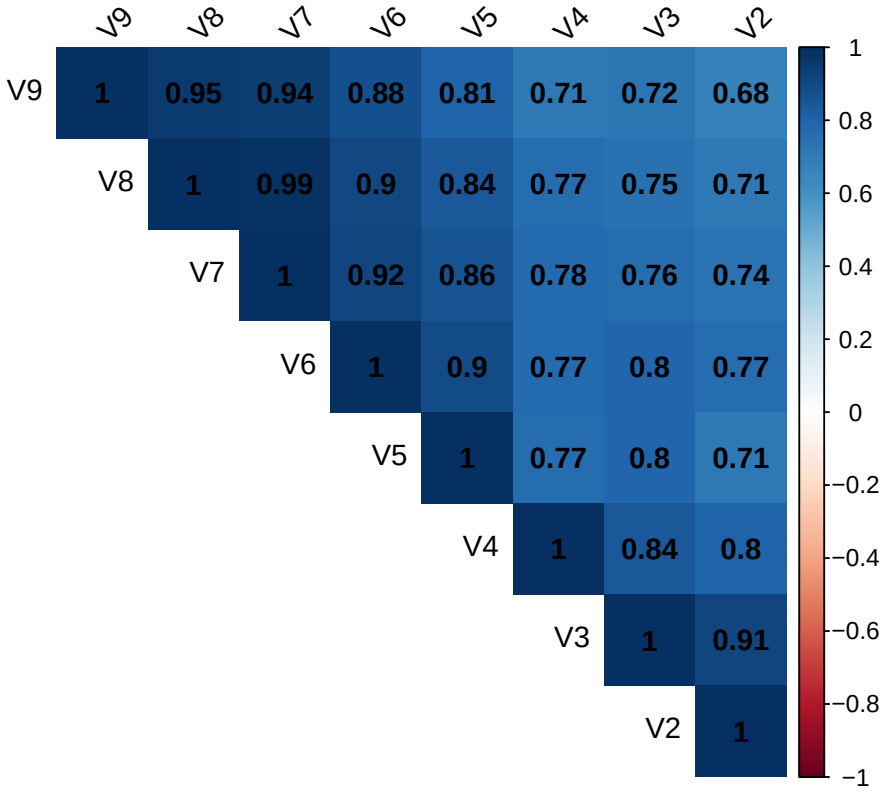
1.11.4. Con: addCoef.col,order, Gráfica Triagular

```
corrplot(mat.cor4,method="shade",shade.col=NA,tl.col="black",tl.srt=45,
addCoef.col="black",addcolorlabel="no",order="AOE",type="lower" )
```



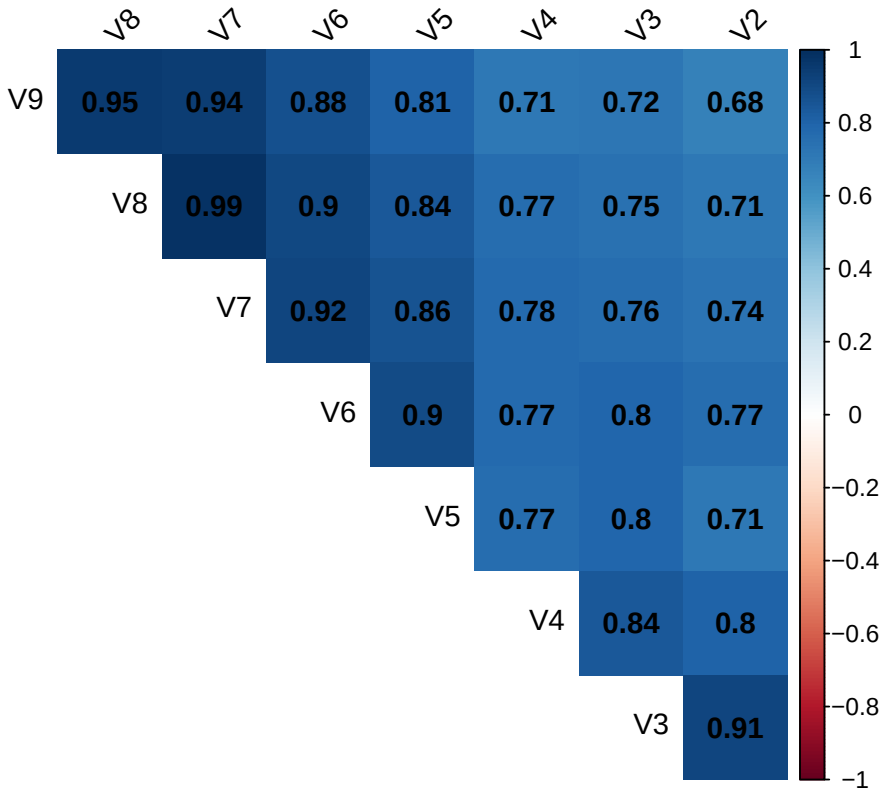
1.11.5. Con: addCoef.col,order, Gráfica Triagular

```
corrplot(mat.cor4,method="shade",shade.col=NA,tl.col="black",tl.srt=45,
addCoef.col="black",addcolorlabel="no",order="AOE",type="upper" )
```



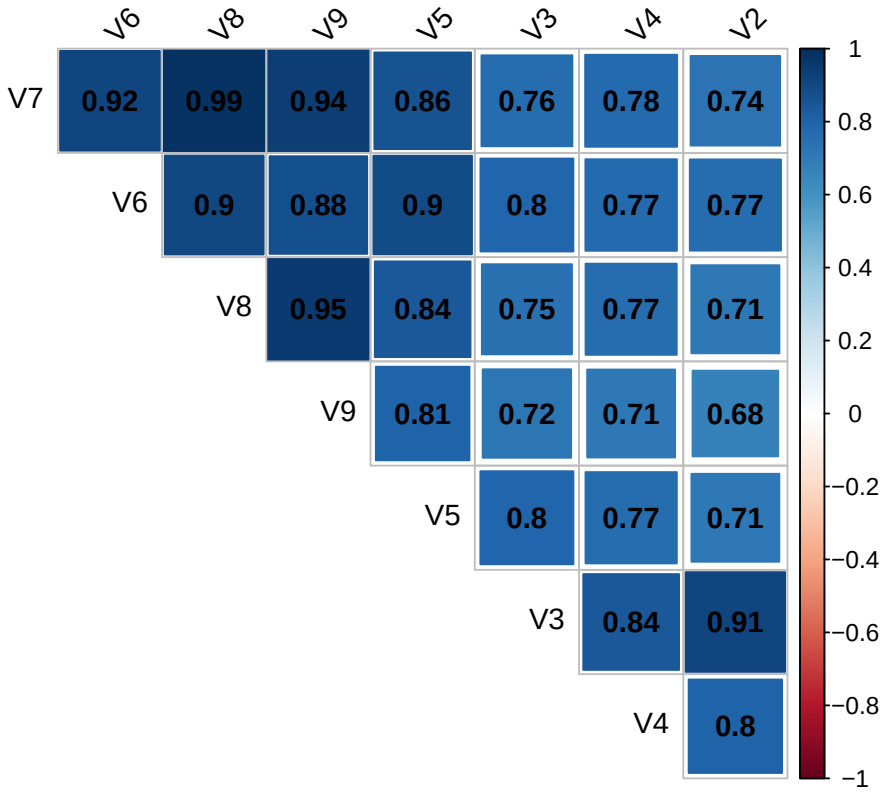
1.11.6. Con: addCoef.col,order, Gráfica Triagular, sin Diagonal

```
corrplot(mat.cor4,method="shade",shade.col=NA,tl.col="black",tl.srt=45,
addCoef.col="black",addcolorlabel="no",order="AOE",type="upper",
diag=F,addshade="all" )
```



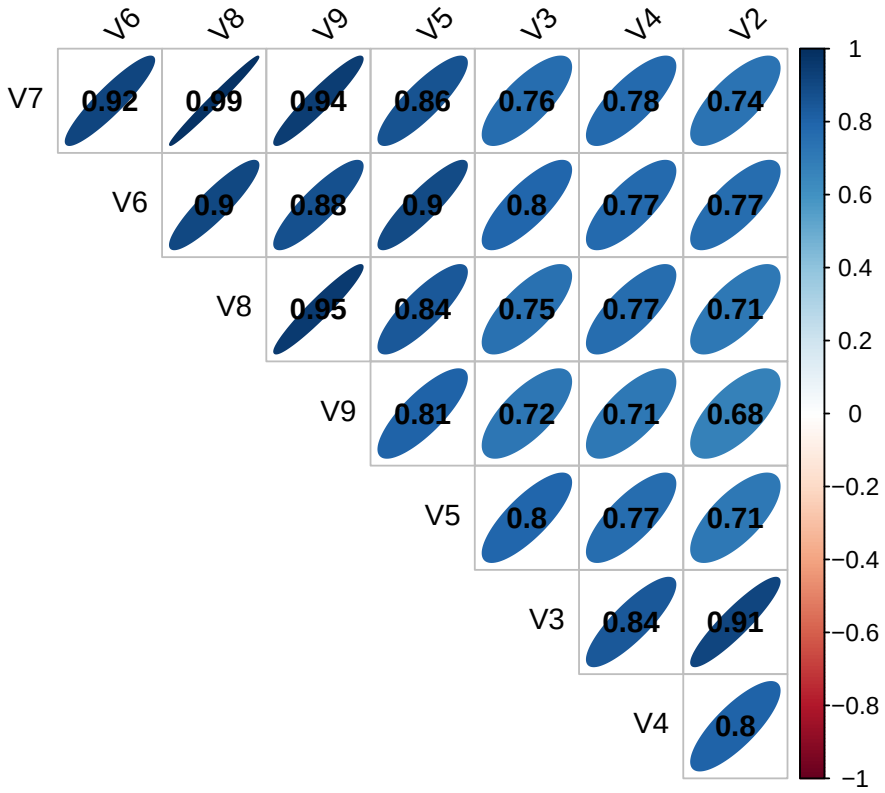
1.11.7. Con: addCoef.col,order, Gráfica Triagular, sin Diagonal, con cuadrados

```
corrplot(mat.cor4,method="square",shade.col=NA,tl.col="black",tl.srt=45,
addCoef.col="black",addcolorlabel="no",order="FPC",type="upper",
diag=F,addshade="all" )
```



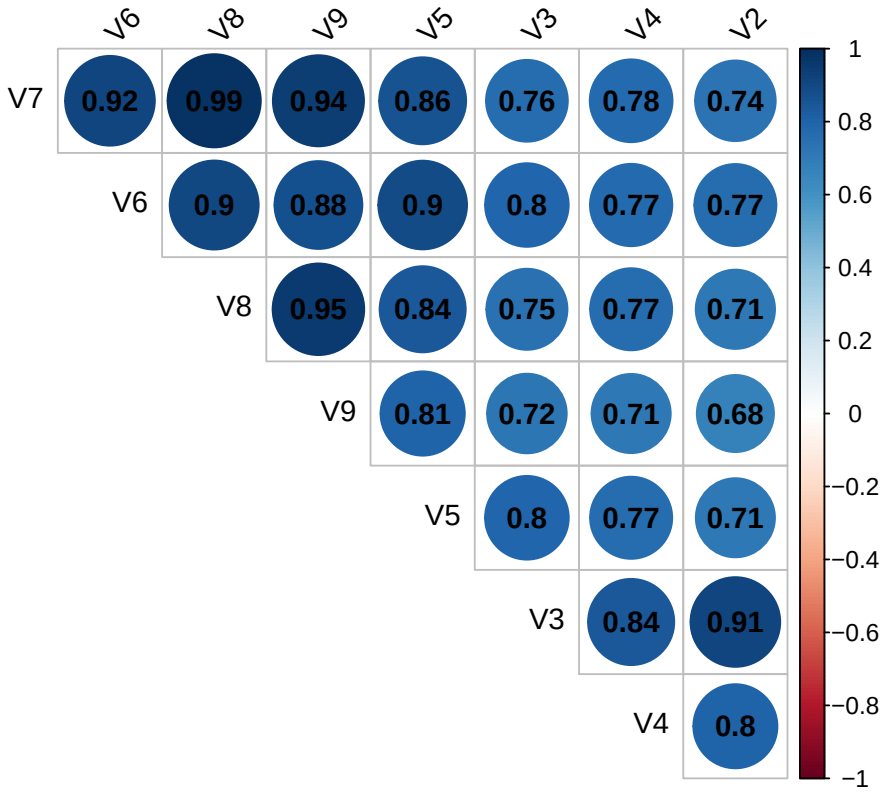
1.11.8. Con: addCoef.col,order, Gráfica Triagular, sin Diagonal, con elipses

```
corrplot(mat.cor4,method="ellipse",shade.col=NA,tl.col="black",tl.srt=45,
addCoef.col="black",addcolorlabel="no",order="FPC",type="upper",
diag=F,addshade="all" )
```



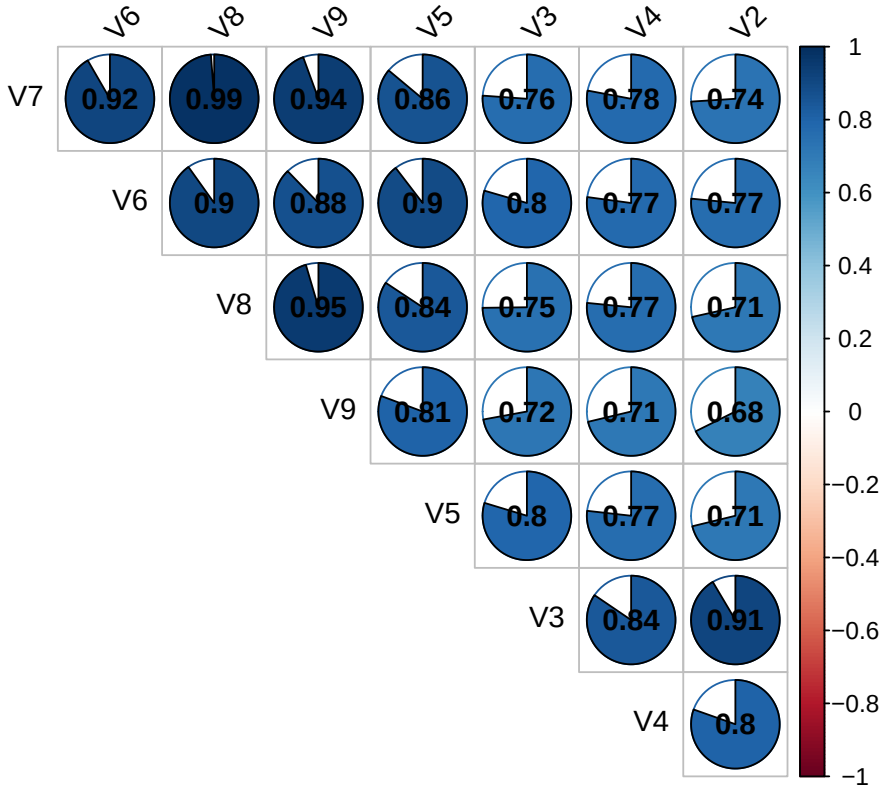
1.11.9. Con: addCoef.col,order, Gráfica Triagular, sin Diagonal, con circulos

```
corrplot(mat.cor4,method="circle",shade.col=NA,tl.col="black",tl.srt=45,
addCoef.col="black",addcolorlabel="no",order="FPC",type="upper",
diag=F,addshade="all" )
```



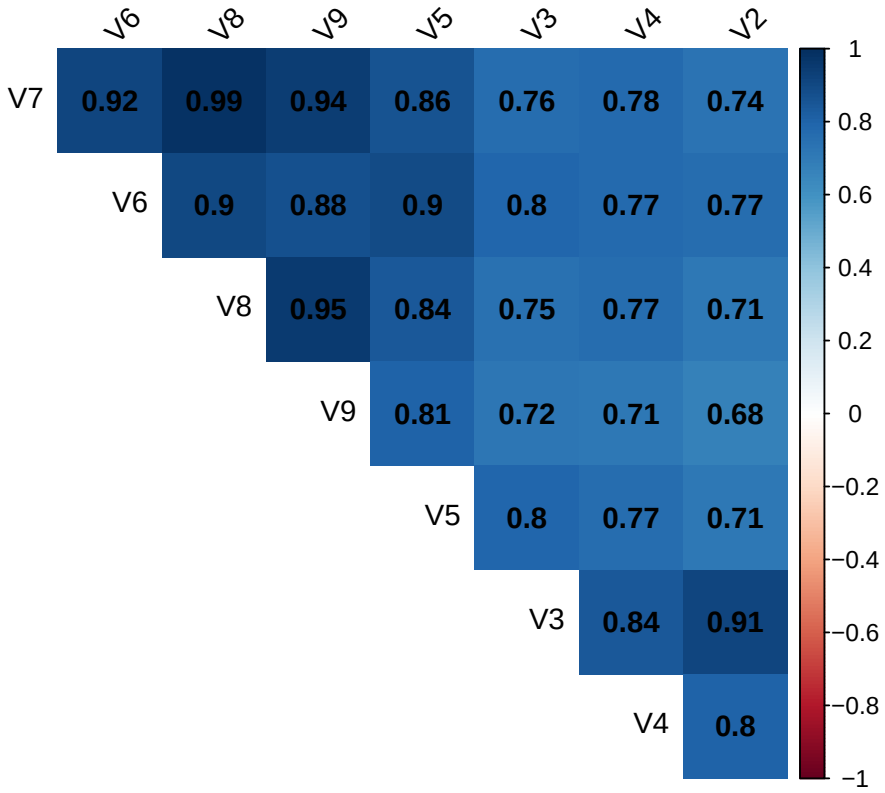
1.11.10. Con: addCoef.col,order, Gráfica Triagular, sin Diagonal, con torta

```
corrplot(mat.cor4,method="pie",shade.col=NA,tl.col="black",tl.srt=45,
addCoef.col="black",addcolorlabel="no",order="FPC",type="upper",
diag=F,addshade="all" )
```



1.11.11. Con: addCoef.col,order, Gráfica Triagular, sin Diagonal, con cuadros(shade)

```
corrplot(mat.cor4,method="shade",shade.col=NA,tl.col="black",tl.srt=45,
addCoef.col="black",addcolorlabel="no",order="FPC",type="upper",
diag=F,addshade="all" )
```



1.12. Para fundir la matriz de correlación (la matriz de corr en forma de un data.frmae con dos columnas y una tercera con las corrs)

```
library(reshape2)
##head(matcorrs.cor)
mat.melt4<-melt(mat.cor4)          # fucnión melt, par afundir la matriz de var-cov
kable(head(mat.melt4))
```

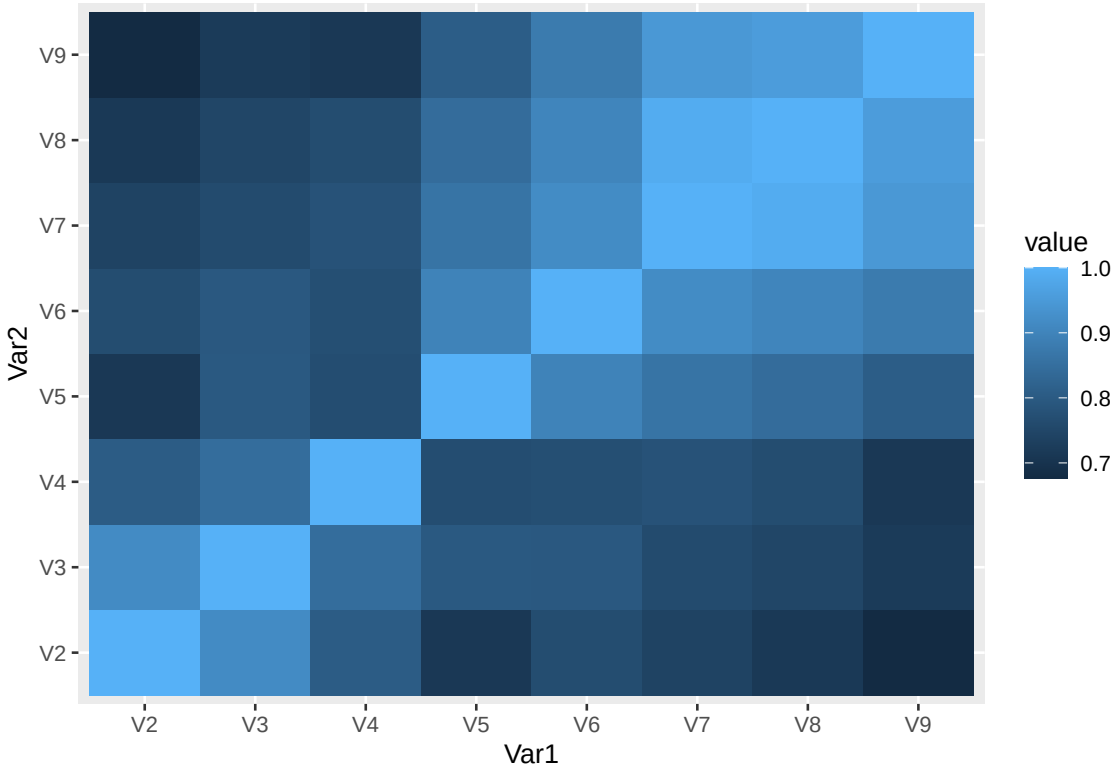
Var1	Var2	value
V2	V2	1.0000000
V3	V2	0.9147554
V4	V2	0.8041147
V5	V2	0.7119388
V6	V2	0.7657919
V7	V2	0.7398803

```
kable(mat.melt4)
```

Var1	Var2	value
V2	V2	1.0000000
V3	V2	0.9147554
V4	V2	0.8041147
V5	V2	0.7119388
V6	V2	0.7657919
V7	V2	0.7398803
V8	V2	0.7147921
V9	V2	0.6764873
V2	V3	0.9147554
V3	V3	1.0000000
V4	V3	0.8449159
V5	V3	0.7969162
V6	V3	0.7950871
V7	V3	0.7613028
V8	V3	0.7479519
V9	V3	0.7211157
V2	V4	0.8041147
V3	V4	0.8449159
V4	V4	1.0000000
V5	V4	0.7677488
V6	V4	0.7715522
V7	V4	0.7796929
V8	V4	0.7657481
V9	V4	0.7126823
V2	V5	0.7119388

Var1	Var2	value
V3	V5	0.7969162
V4	V5	0.7677488
V5	V5	1.0000000
V6	V5	0.8957609
V7	V5	0.8606959
V8	V5	0.8431074
V9	V5	0.8069657
V2	V6	0.7657919
V3	V6	0.7950871
V4	V6	0.7715522
V5	V6	0.8957609
V6	V6	1.0000000
V7	V6	0.9165224
V8	V6	0.9013380
V9	V6	0.8777788
V2	V7	0.7398803
V3	V7	0.7613028
V4	V7	0.7796929
V5	V7	0.8606959
V6	V7	0.9165224
V7	V7	1.0000000
V8	V7	0.9882324
V9	V7	0.9441466
V2	V8	0.7147921
V3	V8	0.7479519
V4	V8	0.7657481
V5	V8	0.8431074
V6	V8	0.9013380
V7	V8	0.9882324
V8	V8	1.0000000
V9	V8	0.9541630
V2	V9	0.6764873
V3	V9	0.7211157
V4	V9	0.7126823
V5	V9	0.8069657
V6	V9	0.8777788
V7	V9	0.9441466
V8	V9	0.9541630
V9	V9	1.0000000

```
# gráfico d ela matriz fundida
ggplot(data=mat.melt4, aes(x=Var1 , y=Var2, fill=value))+
   geom_tile()
```


V9
V8
V7
V6
V5
V4
V3
V2
Var2
V2
V3
V4
V5
V6
V7
V8
V9
Var1
value
1.0
0.9
0.8
0.7