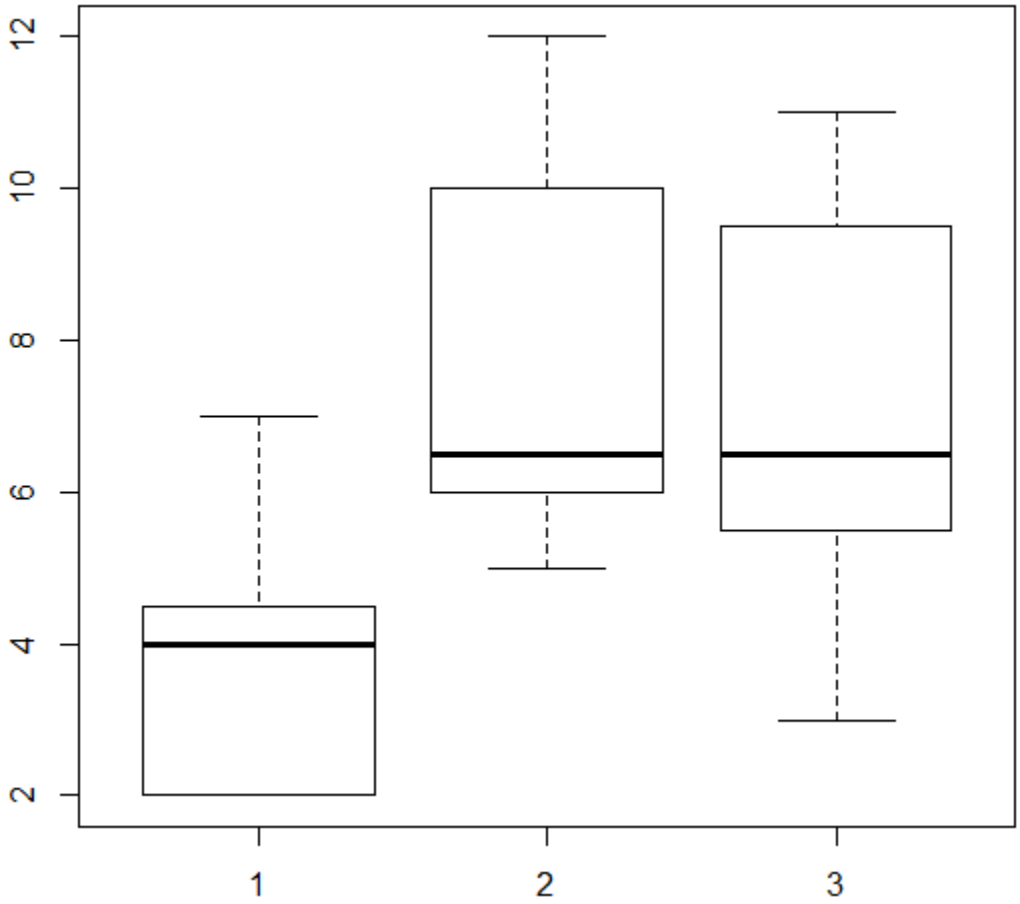
Week 2

3.5 第一种菌型和其它两种存在较大差异

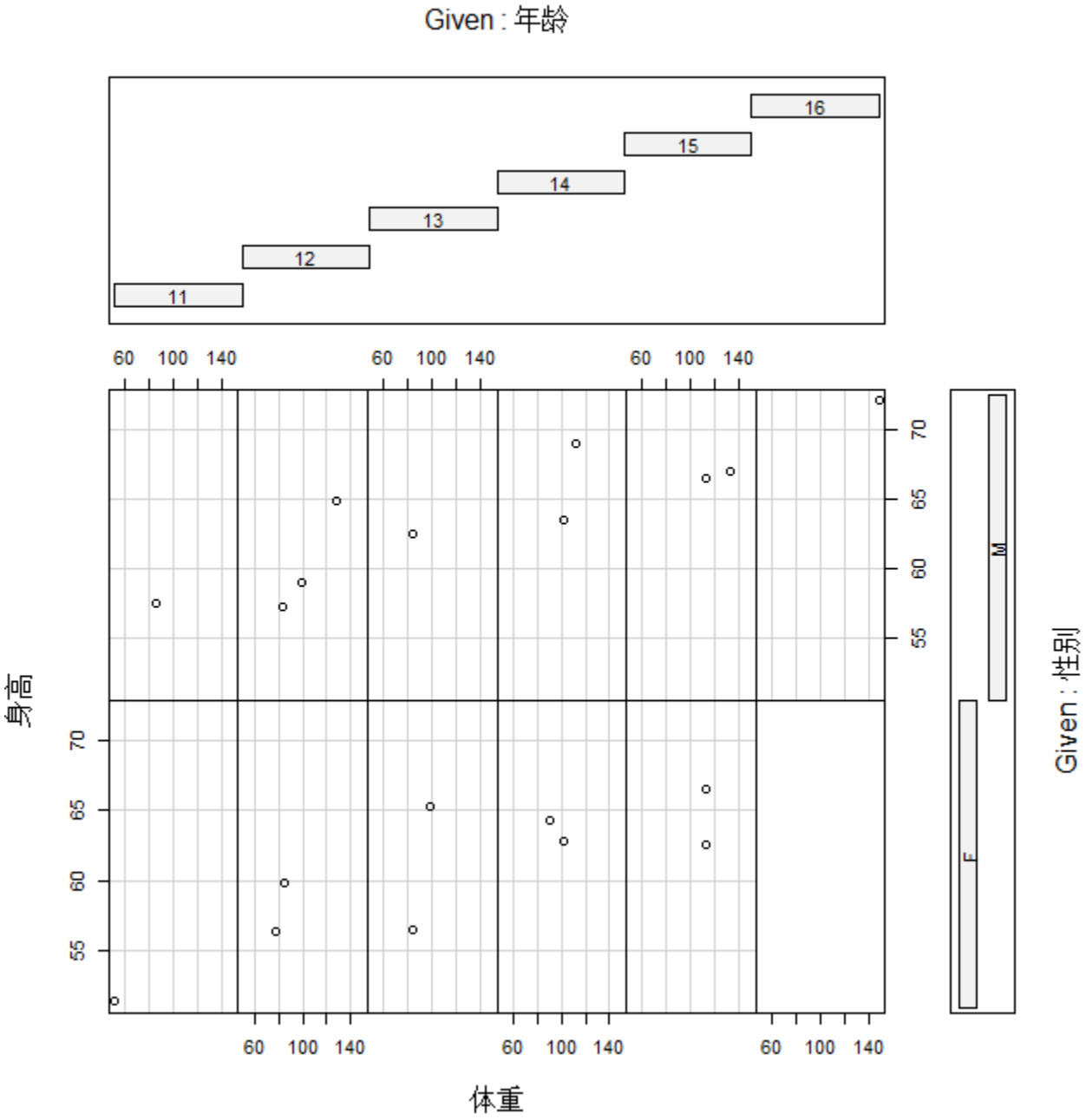
```
g1 <- c(2, 4, 3, 2, 4, 7, 7, 2, 2, 5, 4)
g2 <- c(5, 6, 8, 5, 10, 7, 12, 12, 6, 6)
g3 <- c(7, 11, 6, 6, 7, 9, 5, 5, 10, 6, 3, 10)
boxplot(g1, g2, g3)
f = factor(c(rep(1, length(g1)), rep(2, length(g2)), rep(3, length(g3))))
g = c(g1, g2, g3)
plot(f, g)
```



3.7

```
Sys.setlocale(,"CHS")
s = read.table('student.data', header=T)
s$年龄 <- factor(s$年龄)
attach(s)
(1)plot(身高, 体重)
(2)coplot(身高~体重|性别)
```

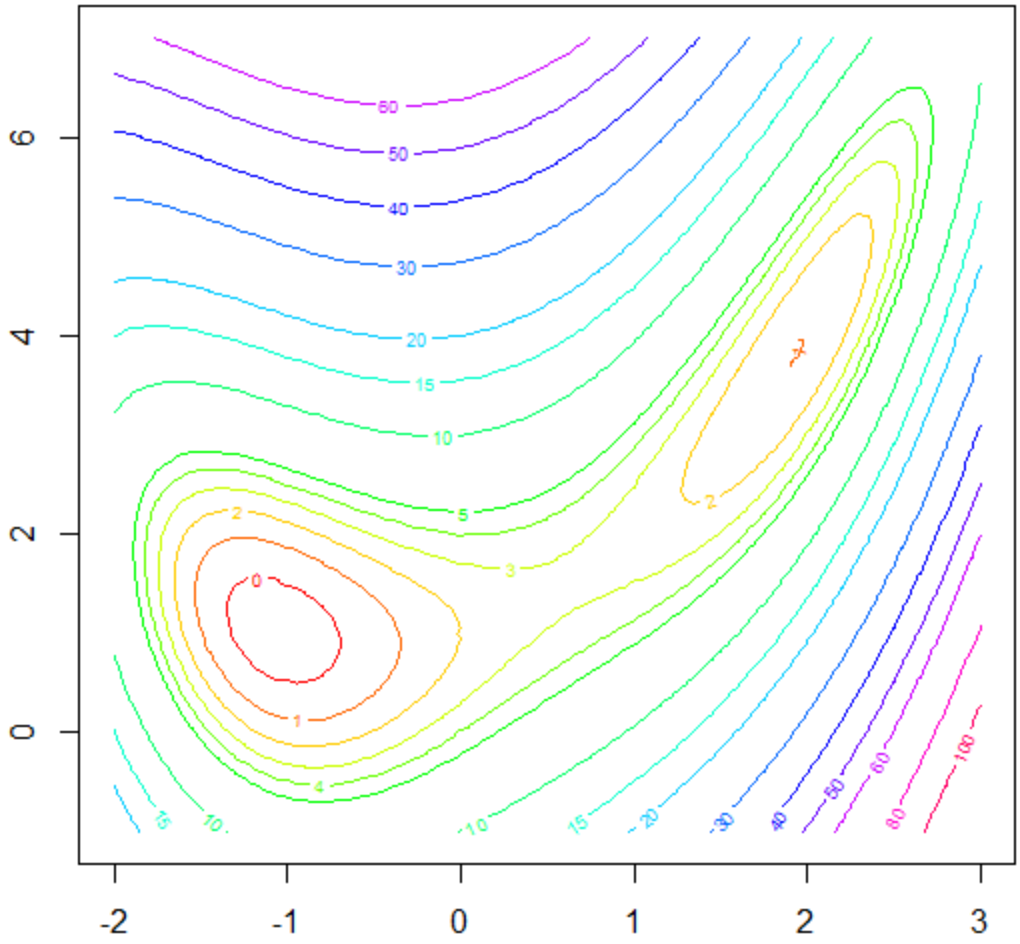
(3)coplot(身高~体重|年龄)
(4)coplot(身高~体重|年龄+性别)

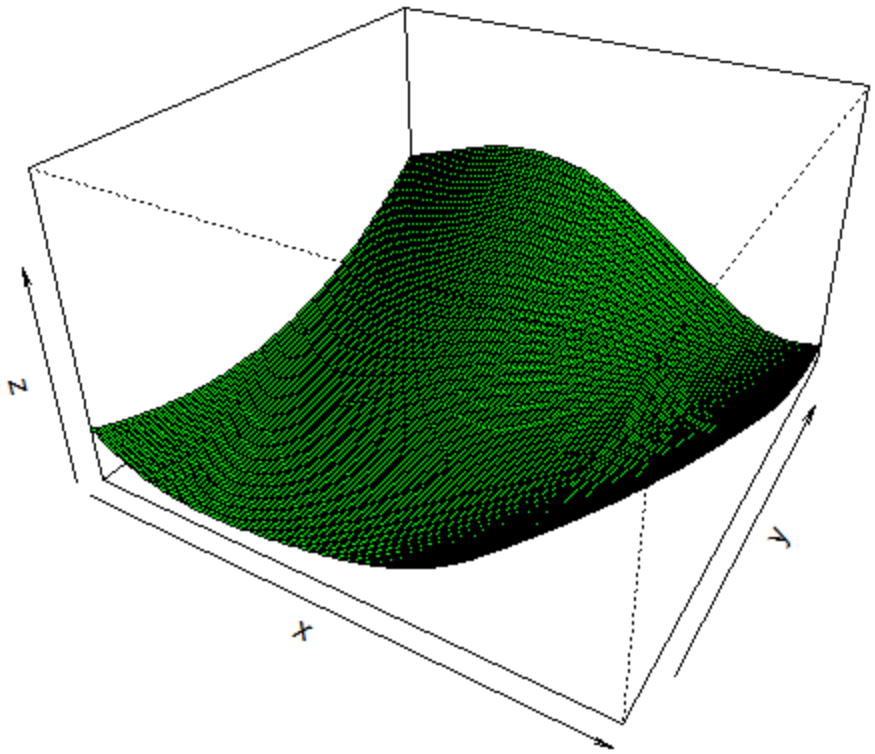


3.8

```
x <- seq(-2, 3, 0.05)
y <- seq(-1, 7, 0.05)
f <- function(x, y) {
  x^4-2*x^2*y+x^2-2*x*y+2*y^2+9/2*x-4*y+4
}
```

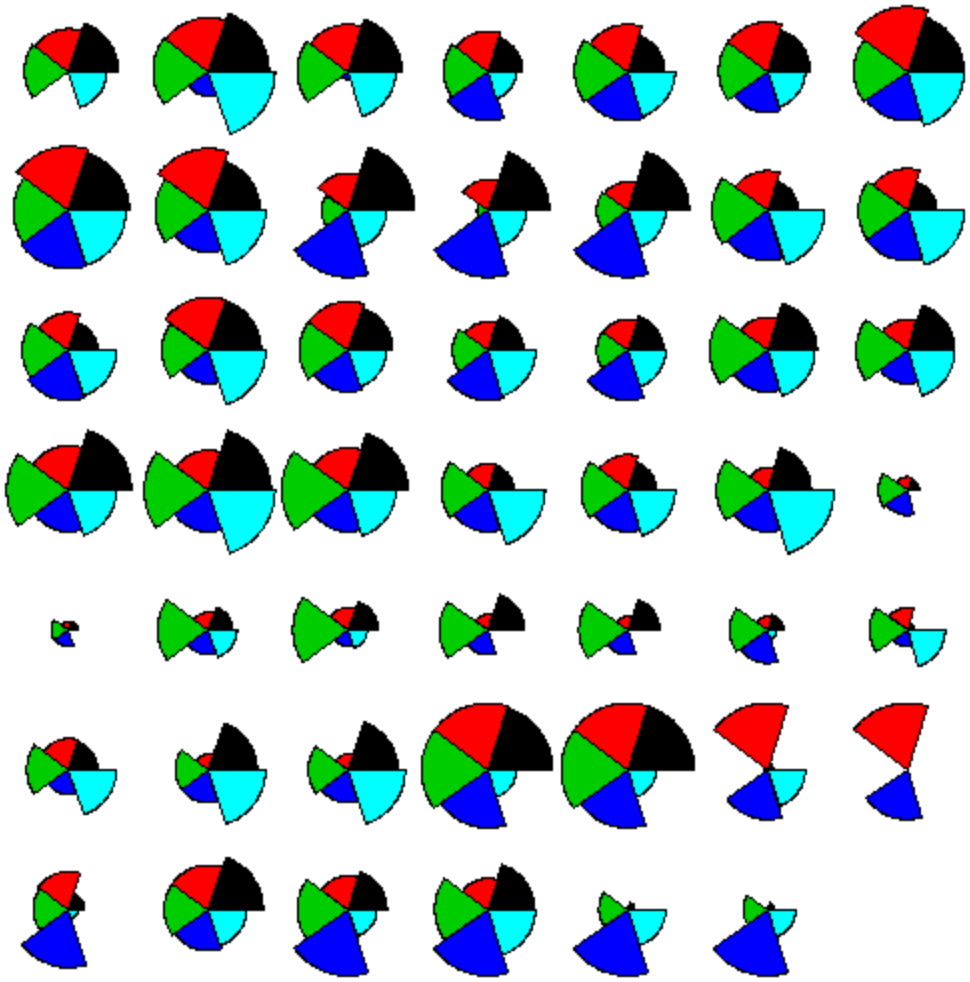
```
z<-outer(x, y, f)
contour(x, y, z, levels= c(0, 1, 2, 3, 4, 5, 10, 15, 20, 30, 40, 50, 60, 80, 100), col=rainbow(15))
persp(x, y, z,theta=30, phi=30, expand=0.6, col=rainbow(15))
```





3.10

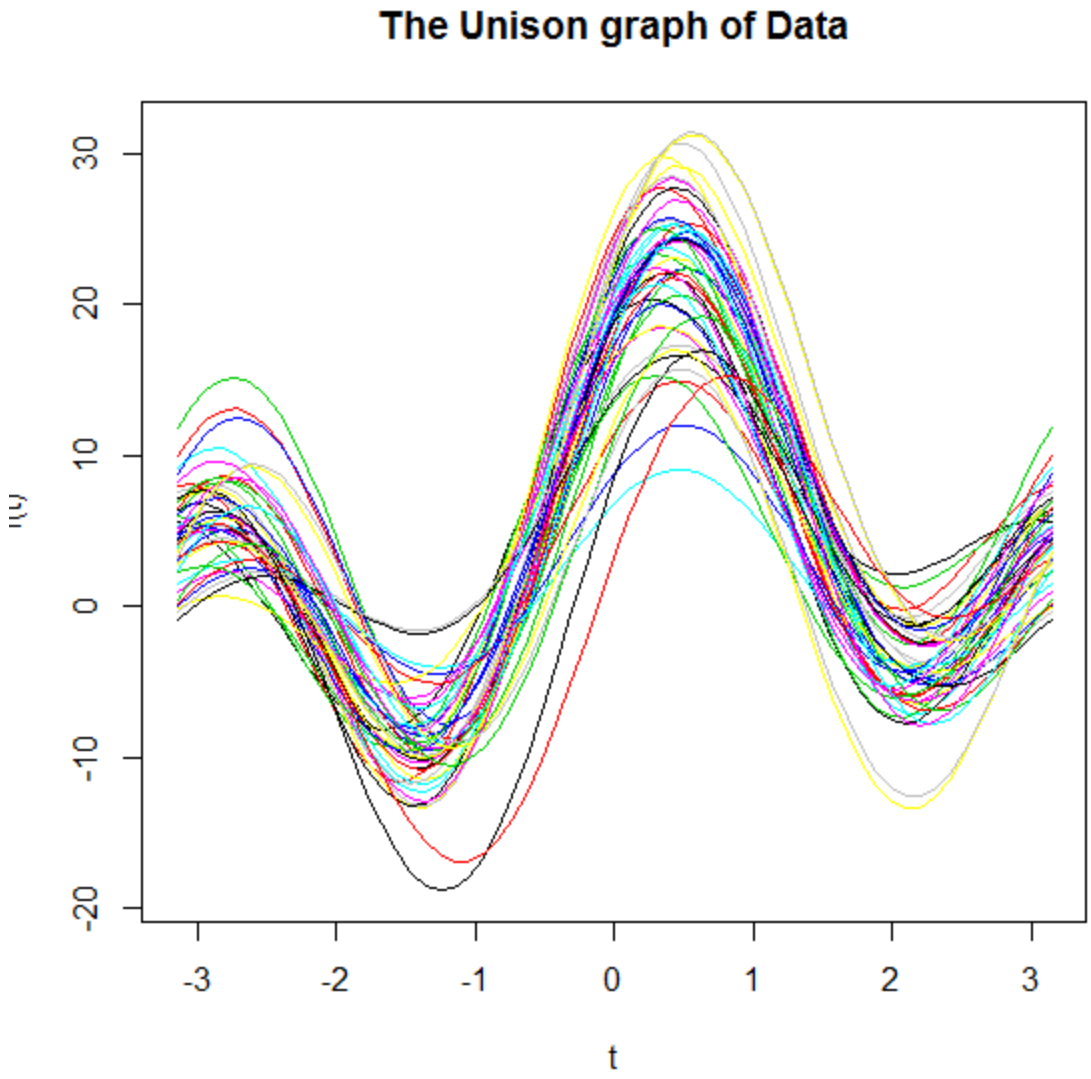
```
rt <- read.table("applicant.data")
(1)stars(rt, full=T, draw.segments = F)
(2)
attach(rt)
G1<-(SC+LC+SMS+DRV+AMB+GSP+POT)/7
G2<-(FL+EXP+SUIT)/3
G3<-(LA+HON+KJ)/3
G4<-AA
G5<-APP
detach(rt)
rt1 <- data.frame(G1, G2, G3, G4, G5)
stars(rt1, full=T, draw.segments = T)
sort(apply(rt1, 1, mean), index.return=T, decreasing=T)
```



从图形上， 可以一眼看出 7，8，9，39，40 是 Top 6 里面的。但是第六个候选难于一眼看出，执行 sort(apply(rt1, 1, mean), index.return=T, decreasing=T)后，可以得出前六名是 8 40 39 7 23 9。

3.11

```
source("unison.R")
unison(rt1)
```


The Unison graph of Data
30
20
10
0
-10
-20
-3
-2
-1
0
1
2
3
t