```
#Poisson Regression

Y<-scan()
0 0 3 0 1 1 1 2 2 4 2 8 0 3 4 5 2 2 2 5
4 3 15 12 7 14 6 10 14 8 19 10 7 20 10 19

Month<-c(1:length(Y))

plot(Month,Y,pch=19)
lines(Month,Y)
title("Nunmber of AIDS cases UK, 1983-1985")

AIDS.mod0<-glm(Y~1,family=poisson(link="log"))
summary(AIDS.mod0)
AIDS.mod1<-glm(Y~Month,family=poisson(link="log"))
summary(AIDS.mod1)

#Fitting
Tvec<-seq(0,36,length=1001)
log.mu<-coef(AIDS.mod1)[1] + Tvec * coef(AIDS.mod1)[2]
AIDS.mu<-exp(log.mu)
lines(Tvec,AIDS.mu,col="red")

##############################################
#Contingency tables

Mobility<-read.table("Mobility.txt")
names(Mobility)<-c("Obs","Y","C71","C81")

Mobility

xtabs(Y ~ C71 + C81, data=Mobility)
Mtab<-xtabs(Y ~ C71 + C81, data=Mobility)

prop.table(Mtab,1)
prop.table(Mtab,2)

round(prop.table(Mtab,1),3)


Trans<-prop.table(Mtab,1)
Ttmp<-Trans %*% Trans
Ttmp<-Trans %*% Ttmp
for(i in 1:50){Ttmp<-Trans %*% Ttmp}
Ttmp

mob.mod1<-glm(Y~C71+C81,family="poisson",data=Mobility)
summary(mob.mod1)
```