d1= read.table("p060.txt", header=TRUE)

d1

t1 <- as.matrix(d1)

t1

m=nrow(t1)

m

n=ncol(t1)

n

X1=t1[,2:7]

Y=t1[,1]

Y

one <- rep(1, m)

X=cbind(one,X1)

X

xb=t(X)

xb

m1=xb%\*%X

m1

m2=solve(m1)

m3=xb%\*%Y

m4=m2%\*%m3

m4

attach(d1)

fit<-lm(Y~X1+X2+X3+X4+X5+X6,data=d1)

fit

summary(fit)

resids=fit$residuals

resids

sdxi= c(sd(d1$X1), sd(d1$X2), sd(d1$X3), sd(d1$X4),sd(d1$X5), sd(d1$X6))

sdy = sd(d1$Y)

Beta=coef(fit)[2:7] \* sdxi / sdy

Beta

summary(fit)$r.squared

summary(fit)$adj.r.squared

fit1<-lm(Y~X1+X2,data=d1)

fit1

summary(fit1)

d1

xx=scale(Y,X1)

xx

SST <- sum((Y - mean(Y))^2)

SSR <- sum((predict(fit) - mean(Y))^2)

SSE <- SST - SSR

print(c(SSR / SST, summary(fit)$r.squared))

confint(fit,level=0.90) #CIs for all parameters

xnew = data.frame(X1=75,X2=60,X3=82,X4=75,X5=92,X6=76)

xnew

predict.lm(fit,xnew,level=0.96,interval="confidence")

predict(fit, xnew, level=0.99,interval="predict")