1. **Exploratory Factor Analysis (EFA): File name –EFA\_Delta**

> r=cor(EFA\_Delta)

> install.packages("psych") for KMO and Bartlett.

> library(psych)

> KMO(EFA\_Delta)

> cortest.bartlett(EFA\_Delta or r)

or

> install.packages("REdaS") for KMO and Bartlett.

> library(REdaS)

> KMOS(EFA\_Delta)

> bart\_spher(EFA\_Delta)

>r=cor(EFA\_delta)

>r

>pca(r,nfactor=10,rotate=F)

>z=pca(r,nfactors =3,method =regression,rotate ="varimax",scores = T)

>z

>z$values

> print(Z$values,digits=3)

> print(Z$loadings,digits=3,cutoff = 0.7)

>scree(EFA\_delta)

> fa.parallel(EFA\_delta, fa="fa")

>load <- z$loadings[,1:2]

>plot(load,type="n")

> text(load,labels=names(EFA\_delta),cex=.7)

>library(psych)

>loads <- z$loadings

>fa.diagram(loads)

1. Logistic Regression

Logit <- read\_excel("C:/Users/boardroom/Desktop/Advance\_5.3.2022/Logit.xlsx")

attach(Logit)

Model<-glm(admit~grade+gpa+Rank,data = Logit,family = "binomial")

summary(Model)

res<-predict(Model,Logit,admit="response")

res

table(Actualvalue=Logit$admit,Predictedvalue=res>0.5)

table(Actualvalue=Logit$admit,Predictedvalue=res>0.3)

(40+94)/200

(44+79)/200

library(ROCR)

ROCRPred=prediction(res,Logit$admit)

ROCRPref<-performance(ROCRPred,"tpr","fpr")

plot(ROCRPref,colorize=TRUE,print.cutoff.at=seq(0.1,by=0.1))

auc<-performance(ROCRPred,"auc")

auc<-unlist(slot(auc,"y.values"))

auc

set.seed(123)

> ind<-sample(2,nrow(Logit),replace=T,prob = c(0.8,0.2))

> train<-Logit[ind==1,]

> test<-Logit[ind==2,]