library(woe)

data=read.csv(file.choose())

iv.mult(data,"Churn",TRUE)

str(data)

table(data$Churn)

index<-sample(1:nrow(data),0.7\*nrow(data))

train\_data<-data[index,-21]

test\_data<-data[-index,-c(8,21)]

str(train\_data)

str(test\_data)

glm\_model<-glm(Churn~.,family=binomial,data=train\_data)

glm\_model

pred<-predict(glm\_model,test\_data,type = "response")

pred

hist(pred)

plot(data$Churn[-index]~pred)

gg=floor(pred+0.5)

gg

table(gg)

ttt=table(data$Churn[-index],gg)

ttt

#############################Overcoming Imbalanced dataset###################

data\_1<-data[data$Churn==1,]

ind\_1<-sample(rownames(data\_1),483)

data\_0<-data[data$Churn==0,]

ind\_0<-sample(rownames(data\_0),483)

train\_data1<-data[c(ind\_1,ind\_0), -21 ]

str(train\_data1)

table(train\_data1$Churn)

glm\_model1<-glm(Churn~.,family=binomial,train\_data1)

glm\_model1

pred1<-predict(glm\_model1,test\_data,type = "response")

pred1

hist(pred1)

plot(data$Churn[-index]-pred1)

gg1=floor(pred1+0.5)

gg1

ttt1=table(data$Churn[-index],gg1)

ttt1

exp(cbind(Odds\_and\_OR=coef(glm\_model1),confint(glm\_model1)))

################################Accuracy measures##########################

acc<-(ttt1[1]+ttt1[4])/(ttt1[1]+ttt1[3]+ttt1[2]+ttt1[4]) #accuracy

acc

install.packages("ROCR")

library(caret)

confusionMatrix(ttt1)

sens=ttt1[1]/(ttt1[1]+ttt1[3]) #sensitivity

sens

spec=ttt1[4]/(ttt1[4]+ttt1[2]) #specificity

spec