wine\_lf<-function(predicted,actual){

df\_lf=data.frame(actual,predicted)

names(df\_lf)=c("QS","pred")

df\_lf$diff=df\_lf$pred-df\_lf$QS

df\_lf$relative=df\_lf$diff/df\_lf$QS

#actual >=7 pred<7

abv1 <- subset(df\_lf, QS >= 7 & pred < 7,select=c(QS,pred,diff,relative))

#actual >=7, pred>=7, <0.2

abv2<-subset(df\_lf, QS >= 7 & pred >= 7 & abs(relative)<0.2,select=c(QS,pred,diff,relative))

#actual >=7, pred>=7, 0.2 - 0.4

abv3<-subset(df\_lf, QS >= 7 & pred >= 7 & abs(relative)>=0.2 & abs(relative)<0.4,select=c(QS,pred,diff,relative))

#actual >=7, pred>=7, >0.4

abv4<-subset(df\_lf, QS >= 7 & pred >= 7 & abs(relative)>=0.4,select=c(QS,pred,diff,relative))

#below 7 deviations

#actual <7 pred>7

bel1 <- subset(df\_lf, QS < 7 & pred >= 7,select=c(QS,pred,diff,relative))

#actual <7 pred<7, abs(relative)<0.2

bel2 <- subset(df\_lf, QS < 7 & pred < 7 & abs(relative)<0.2,select=c(QS,pred,diff,relative))

#actual <7 pred<7, abs(relative 0.2-0.4

bel3 <- subset(df\_lf, QS < 7 & pred < 7 & abs(relative)>=0.2 & abs(relative)<0.4,select=c(QS,pred,diff,relative))

#actual <7 pred<7, abs(relative) >0.4

bel4 <- subset(df\_lf, QS < 7 & pred < 7 & abs(relative)>=0.4,select=c(QS,pred,diff,relative))

loss=sum(abs(abv1$diff\*100\*4))+

sum(abs(abv2$diff\*100\*1))+

sum(abs(abv3$diff\*100\*2))+

sum(abs(abv4$diff\*100\*3))+

sum(abs(bel1$diff\*100\*2))+

sum(abs(bel1$diff\*100\*1))+

sum(abs(bel3$diff\*100\*1.5))+

sum(abs(bel4$diff\*100\*2))

check1=nrow(abv1)+

nrow(abv2)+

nrow(abv3)+

nrow(abv4)+

nrow(bel1)+

nrow(bel2)+

nrow(bel3)+

nrow(bel4)

print(check1)

return(loss/length(predicted))

}