

```
mt <- read.csv("D:/mtr csv/andro.csv")

system.time <- Sys.time()

start.time <- Sys.time()

head(mt)

positions1 <- sample(nrow(mt),size=floor((nrow(mt)/4)*3))

training1 <- mt[positions1,]

training1

testing1 <- mt[-positions1,]

testing1

library(rpart)

library(plotrix)


model1 <- rpart(Y0~X0 + X1 + X2 + X3 + X4 + X5 + X6 + X7 + X8 + X9 + X10 + X11 + X12 + X13 + X14 + X15
+ X16 + X17 + X18 + X19 + X20 + X21 + X22 + X23 + X24 + X25 + X26 + X27 + X28 + X29 , method="anova",
data=mt)

model2 <- rpart(Y1~X0 + X1 + X2 + X3 + X4 + X5 + X6 + X7 + X8 + X9 + X10 + X11 + X12 + X13 + X14 + X15
+ X16 + X17 + X18 + X19 + X20 + X21 + X22 + X23 + X24 + X25 + X26 + X27 + X28 + X29 , method="anova",
data=mt)

model3 <- rpart(Y2~X0 + X1 + X2 + X3 + X4 + X5 + X6 + X7 + X8 + X9 + X10 + X11 + X12 + X13 + X14 + X15
+ X16 + X17 + X18 + X19 + X20 + X21 + X22 + X23 + X24 + X25 + X26 + X27 + X28 + X29 , method="anova",
data=mt)

model4 <- rpart(Y3~X0 + X1 + X2 + X3 + X4 + X5 + X6 + X7 + X8 + X9 + X10 + X11 + X12 + X13 + X14 + X15
+ X16 + X17 + X18 + X19 + X20 + X21 + X22 + X23 + X24 + X25 + X26 + X27 + X28 + X29 , method="anova",
data=mt)

model5 <- rpart(Y4~X0 + X1 + X2 + X3 + X4 + X5 + X6 + X7 + X8 + X9 + X10 + X11 + X12 + X13 + X14 + X15
+ X16 + X17 + X18 + X19 + X20 + X21 + X22 + X23 + X24 + X25 + X26 + X27 + X28 + X29 , method="anova",
data=mt)

model6 <- rpart(Y5~X0 + X1 + X2 + X3 + X4 + X5 + X6 + X7 + X8 + X9 + X10 + X11 + X12 + X13 + X14 + X15
+ X16 + X17 + X18 + X19 + X20 + X21 + X22 + X23 + X24 + X25 + X26 + X27 + X28 + X29 , method="anova",
data=mt)
```

```
c_predictions<-predict(model1,newdata=testing1)
c_predictions2<-predict(model2,newdata=testing1)
c_predictions3<-predict(model3,newdata=testing1)
c_predictions4<-predict(model4,newdata=testing1)
c_predictions5<-predict(model5,newdata=testing1)
c_predictions6<-predict(model6,newdata=testing1)
```

```
cerror1<-sqrt((sum((testing1$Y0-c_predictions)^2))/nrow(testing1))
cerror2<-sqrt((sum((testing1$Y1-c_predictions2)^2))/nrow(testing1))
cerror3<-sqrt((sum((testing1$Y2-c_predictions3)^2))/nrow(testing1))
cerror4<-sqrt((sum((testing1$Y3-c_predictions4)^2))/nrow(testing1))
cerror5<-sqrt((sum((testing1$Y4-c_predictions5)^2))/nrow(testing1))
cerror6<-sqrt((sum((testing1$Y5-c_predictions6)^2))/nrow(testing1))
```

```
cmerror1<-mean((testing1$Y0-c_predictions)^2)
cmerror2<-mean((testing1$Y1-c_predictions2)^2)
cmerror3<-mean((testing1$Y2-c_predictions3)^2)
cmerror4<-mean((testing1$Y3-c_predictions4)^2)
cmerror5<-mean((testing1$Y4-c_predictions5)^2)
```

```
cmerror6<-mean((testing1$Y5-c_predictions6)^2)
```

```
cr21 <- 1-(sum((testing1$Y0-c_predictions)^2)/sum((testing1$Y0-mean(testing1$Y0))^2))
```

```
cr22 <- 1-(sum((testing1$Y1-c_predictions2)^2)/sum((testing1$Y1-mean(testing1$Y1))^2))
```

```
cr23 <- 1-(sum((testing1$Y2-c_predictions3)^2)/sum((testing1$Y2-mean(testing1$Y2))^2))
```

```
cr24 <- 1-(sum((testing1$Y3-c_predictions4)^2)/sum((testing1$Y3-mean(testing1$Y3))^2))
```

```
cr25 <- 1-(sum((testing1$Y4-c_predictions5)^2)/sum((testing1$Y4-mean(testing1$Y4))^2))
```

```
cr26 <- 1-(sum((testing1$Y5-c_predictions6)^2)/sum((testing1$Y5-mean(testing1$Y5))^2))
```

```
csd1 <- sd(c_predictions)
```

```
csd2 <- sd(c_predictions2)
```

```
csd3 <- sd(c_predictions3)
```

```
csd4 <- sd(c_predictions4)
```

```
csd5 <- sd(c_predictions5)
```

```
csd6 <- sd(c_predictions6)
```

```
cstd1 <- std.error(c_predictions)
```

```
cstd2 <- std.error(c_predictions2)
```

```
cstd3 <- std.error(c_predictions3)
```

```
cstd4 <- std.error(c_predictions4)
```

```
cstd5 <- std.error(c_predictions5)
```

```
cstd6 <- std.error(c_predictions6)
```

```
end.time <- Sys.time()
```

```
time.taken <- end.time - start.time
```

```
time.taken
```