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| --- |
| > setwd("C:/Users/Matrix/Desktop/project csv")  > filenameo <- "heart.csv"  > heartds <- read.csv(filenameo, header=TRUE)  > dim(heartds)  [1] 289 14  >  > dim(heartds)  [1] 289 14  > sapply(heartds, class)  age sex cp trtbps chol fbs restecg thalachh  "integer" "integer" "integer" "integer" "integer" "integer" "integer" "integer"  exng oldpeak slp caa thall output  "integer" "numeric" "integer" "integer" "integer" "integer"  > head(heartds)  age sex cp trtbps chol fbs restecg thalachh exng oldpeak slp caa thall output  1 60 1 3 145 233 1 0 150 0 2.3 0 0 1 1  2 35 1 2 130 250 0 1 187 0 3.5 0 0 2 1  3 41 0 1 130 204 0 0 172 0 1.4 2 0 2 1  4 55 1 1 120 236 0 1 178 0 0.8 2 0 2 1  5 56 0 0 120 354 0 1 163 1 0.6 2 0 2 1  6 55 1 0 140 192 0 1 148 0 0.4 1 0 1 1  > summary(heartds)  age sex cp trtbps chol  Min. :29.00 Min. :0.0000 Min. :0.000 Min. : 94.0 Min. :126  1st Qu.:47.00 1st Qu.:0.0000 1st Qu.:0.000 1st Qu.:120.0 1st Qu.:212  Median :54.00 Median :1.0000 Median :1.000 Median :130.0 Median :243  Mean :54.01 Mean :0.6782 Mean :1.021 Mean :131.4 Mean :248  3rd Qu.:60.00 3rd Qu.:1.0000 3rd Qu.:2.000 3rd Qu.:140.0 3rd Qu.:276  Max. :77.00 Max. :1.0000 Max. :3.000 Max. :200.0 Max. :564  fbs restecg thalachh exng oldpeak  Min. :0.0000 Min. :0.0000 Min. : 71.0 Min. :0.0000 Min. :0.000  1st Qu.:0.0000 1st Qu.:0.0000 1st Qu.:136.0 1st Qu.:0.0000 1st Qu.:0.000  Median :0.0000 Median :1.0000 Median :154.0 Median :0.0000 Median :0.600  Mean :0.1453 Mean :0.5156 Mean :150.2 Mean :0.3183 Mean :1.008  3rd Qu.:0.0000 3rd Qu.:1.0000 3rd Qu.:168.0 3rd Qu.:1.0000 3rd Qu.:1.600  Max. :1.0000 Max. :2.0000 Max. :202.0 Max. :1.0000 Max. :6.200  slp caa thall output  Min. :0.000 Min. :0.0000 Min. :0.000 Min. :0.0000  1st Qu.:1.000 1st Qu.:0.0000 1st Qu.:2.000 1st Qu.:0.0000  Median :1.000 Median :0.0000 Median :2.000 Median :1.0000  Mean :1.419 Mean :0.7128 Mean :2.315 Mean :0.5709  3rd Qu.:2.000 3rd Qu.:1.0000 3rd Qu.:3.000 3rd Qu.:1.0000  Max. :2.000 Max. :4.0000 Max. :3.000 Max. :1.0000  > filenametr <- "train.csv"  > trainds <- read.csv(filenametr, header=TRUE)  > dim(trainds)  [1] 231 14  > sapply(trainds, class)  age sex cp trtbps chol fbs restecg thalachh  "integer" "integer" "integer" "integer" "integer" "integer" "integer" "integer"  exng oldpeak slp caa thall output  "integer" "numeric" "integer" "integer" "integer" "integer"  > head(trainds)  age sex cp trtbps chol fbs restecg thalachh exng oldpeak slp caa thall output  1 60 1 3 145 233 1 0 150 0 2.3 0 0 1 1  2 35 1 2 130 250 0 1 187 0 3.5 0 0 2 1  3 41 0 1 130 204 0 0 172 0 1.4 2 0 2 1  4 56 0 0 120 354 0 1 163 1 0.6 2 0 2 1  5 55 1 0 140 192 0 1 148 0 0.4 1 0 1 1  6 56 0 1 140 294 0 0 153 0 1.3 1 0 2 1  > summary(trainds)  age sex cp trtbps chol  Min. :29.00 Min. :0.0000 Min. :0 Min. : 94.0 Min. :126.0  1st Qu.:47.00 1st Qu.:0.0000 1st Qu.:0 1st Qu.:120.0 1st Qu.:212.5  Median :54.00 Median :1.0000 Median :1 Median :130.0 Median :245.0  Mean :54.28 Mean :0.6623 Mean :1 Mean :131.9 Mean :249.7  3rd Qu.:61.00 3rd Qu.:1.0000 3rd Qu.:2 3rd Qu.:140.0 3rd Qu.:279.5  Max. :77.00 Max. :1.0000 Max. :3 Max. :200.0 Max. :564.0  fbs restecg thalachh exng oldpeak  Min. :0.0000 Min. :0.0000 Min. : 71.0 Min. :0.000 Min. :0.0000  1st Qu.:0.0000 1st Qu.:0.0000 1st Qu.:133.0 1st Qu.:0.000 1st Qu.:0.0000  Median :0.0000 Median :1.0000 Median :155.0 Median :0.000 Median :0.6000  Mean :0.1472 Mean :0.5368 Mean :150.1 Mean :0.316 Mean :0.9874  3rd Qu.:0.0000 3rd Qu.:1.0000 3rd Qu.:168.0 3rd Qu.:1.000 3rd Qu.:1.6000  Max. :1.0000 Max. :2.0000 Max. :202.0 Max. :1.000 Max. :5.6000  slp caa thall output  Min. :0.000 Min. :0.0000 Min. :0.000 Min. :0.0000  1st Qu.:1.000 1st Qu.:0.0000 1st Qu.:2.000 1st Qu.:0.0000  Median :1.000 Median :0.0000 Median :2.000 Median :1.0000  Mean :1.429 Mean :0.7056 Mean :2.338 Mean :0.5714  3rd Qu.:2.000 3rd Qu.:1.0000 3rd Qu.:3.000 3rd Qu.:1.0000  Max. :2.000 Max. :4.0000 Max. :3.000 Max. :1.0000  > filenamete <- "test.csv"  > testds <- read.csv(filenamete, header=TRUE)  > dim(testds)  [1] 58 14  > sapply(testds, class)  age sex cp trtbps chol fbs restecg thalachh  "integer" "integer" "integer" "integer" "integer" "integer" "integer" "integer"  exng oldpeak slp caa thall output  "integer" "numeric" "integer" "integer" "integer" "integer"  > head(testds)  age sex cp trtbps chol fbs restecg thalachh exng oldpeak slp caa thall output  1 55 1 1 120 236 0 1 178 0 0.8 2 0 2 1  2 44 1 1 120 263 0 1 173 0 0.0 2 0 3 1  3 48 0 2 130 275 0 1 139 0 0.2 2 0 2 1  4 59 1 2 150 212 1 1 157 0 1.6 2 0 2 1  5 51 1 2 110 175 0 1 123 0 0.6 2 0 2 1  6 44 1 1 130 219 0 0 188 0 0.0 2 0 2 1  > summary(testds)  age sex cp trtbps chol  Min. :34.00 Min. :0.0000 Min. :0.000 Min. :100.0 Min. :157.0  1st Qu.:45.75 1st Qu.:0.2500 1st Qu.:0.000 1st Qu.:113.5 1st Qu.:209.0  Median :55.00 Median :1.0000 Median :1.000 Median :125.5 Median :234.5  Mean :52.95 Mean :0.7414 Mean :1.103 Mean :129.1 Mean :240.9  3rd Qu.:59.00 3rd Qu.:1.0000 3rd Qu.:2.000 3rd Qu.:138.0 3rd Qu.:264.5  Max. :69.00 Max. :1.0000 Max. :3.000 Max. :178.0 Max. :409.0  fbs restecg thalachh exng oldpeak  Min. :0.0000 Min. :0.000 Min. :103.0 Min. :0.0000 Min. :0.000  1st Qu.:0.0000 1st Qu.:0.000 1st Qu.:138.2 1st Qu.:0.0000 1st Qu.:0.000  Median :0.0000 Median :0.000 Median :150.5 Median :0.0000 Median :0.700  Mean :0.1379 Mean :0.431 Mean :150.6 Mean :0.3276 Mean :1.088  3rd Qu.:0.0000 3rd Qu.:1.000 3rd Qu.:164.5 3rd Qu.:1.0000 3rd Qu.:1.800  Max. :1.0000 Max. :1.000 Max. :188.0 Max. :1.0000 Max. :6.200  slp caa thall output  Min. :0.000 Min. :0.0000 Min. :0.000 Min. :0.000  1st Qu.:1.000 1st Qu.:0.0000 1st Qu.:2.000 1st Qu.:0.000  Median :1.000 Median :0.0000 Median :2.000 Median :1.000  Mean :1.379 Mean :0.7414 Mean :2.224 Mean :0.569  3rd Qu.:2.000 3rd Qu.:1.0000 3rd Qu.:3.000 3rd Qu.:1.000  Max. :2.000 Max. :4.0000 Max. :3.000 Max. :1.000  > library(party)  Loading required package: grid  Loading required package: mvtnorm  Loading required package: modeltools  Loading required package: stats4  Loading required package: strucchange  Loading required package: zoo  Attaching package: ‘zoo’  The following objects are masked from ‘package:base’:  as.Date, as.Date.numeric  Loading required package: sandwich  >  > library(plyr)  Attaching package: ‘plyr’  The following object is masked from ‘package:modeltools’:  empty  > library(readr) |
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>tree1<-ctree(heartds$output~heartds$age+heartds$sex+heartds$cp+heartds$trtbps+heartds$chol+heartds$fbs+heartds$restecg+heartds$thalachh+heartds$exng+heartds$oldpeak+heartds$slp+heartds$caa+heartds$thall,data=heartds)

> plot(tree1)

>library(readr)

> tree2<-ctree(trainds$output~trainds$age+trainds$sex+trainds$cp+trainds$trtbps+trainds$chol+trainds$fbs+trainds$restecg+trainds$thalachh+trainds$exng+trainds$oldpeak+trainds$slp+trainds$caa+trainds$thall,data=trainds)

> plot(tree2)

> tree3<-ctree(testds$output~testds$age+testds$sex+testds$cp+testds$trtbps+testds$chol+testds$fbs+testds$restecg+testds$thalachh+testds$exng+testds$oldpeak+testds$slp+testds$caa+testds$thall,data=testds)

> plot(tree3)