

```
1  ###Classification C5.0(多進木解析;分類のみ)#####
2  library(kernlab);data(spam)
3  library(caret)
4  anyNA(spam)
5  set.seed(123)
6  dat.s <- createDataPartition( spam$type , p = 0.7 , list = F )
7  train.spam <- spam[ dat.s ,]
8  test.spam <- spam[-dat.s ,]
9  #C5.0
10 library(C50)
11 c50.out <- C5.0(type ~ .,data=train.spam ,
12               rules = F,#Tree model,rules = T:rule model
13               control = C5.0Control(winnow = T),
14               trials = 10) #number of boosting iterations
15 c50.out
16 names(c50.out)
17 summary(c50.out)
18 library(partykit)
19 as.party(c50.out)
20 plot(c50.out)
21 plot(c50.out , subtree = 3)
22 C5imp(c50.out, metric = "usage")
23 C5imp(c50.out , metric = "splits")
24 ###Test
25 prd.c50 <- predict(c50.out , test.spam)
26 t <- table(prd.c50 , test.spam$type)
27 t
28 round((t[1,1]+t[2,2])/length(test.spam$type),3)*100
29 confusionMatrix(prd.c50, test.spam$type)
30
31 ##多クラス分類
32 ##手書き数 data
33 test.su <- ("https://archive.ics.uci.edu/ml/machine-learning-databases/optdigits//optdigits.tes")
34 test.su <- read.table(test.su , sep = ",")
35 train.su <- ("https://archive.ics.uci.edu/ml/machine-learning-databases/optdigits//optdigits.tra")
36 train.su <- read.table(train.su , sep = ",")
37 str(train.su)
38 colnames(train.su)
39 str(test.su)
40 colnames(test.su)
41 table(test.su$V65)
42 table(train.su$V65)
43 #y:factor変換
44 train.su$V65 <- factor(train.su$V65)
45 str(train.su)
46 test.su$V65 <- factor(test.su$V65)
47 str(test.su)
48 colnames(train.su)
49 colnames(test.su)
50 table(test.su$V65)
51 table(train.su$V65)
52 #C5.0
53 library(C50)
54 c50.out.su <- C5.0(V65 ~ .,data=train.su ,
55                  rules = F,#Tree model,rules = T:rule model
56                  control = C5.0Control(winnow = T),
57                  trials = 10) #number of boosting iterations
58 names(c50.out.su)
59 summary(c50.out.su)
60 library(partykit)
61 as.party(c50.out.su)
62 plot(c50.out.su)
63 plot(c50.out.su , subtree = 3)
64 C5imp(c50.out.su, metric = "usage")
65 C5imp(c50.out.su , metric = "splits")
66 ###Test
67 prd.c50.su <- predict(c50.out.su , test.su)
68 t.su <- table(prd.c50.su , test.su$V65)
69 t.su
70 round(sum(diag(t.su)) /sum(t.su),3)*100
71 confusionMatrix(prd.c50.su, test.su$V65)
72
```