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# Data mining: Tree based models, recursive partitioning is very basic
tool for 2 predicting outcomes: classification trees and regression
trees.

# Classification and Regression trees: Breiman, Olshen.

# 3 : 1) Growing the tree (Classification or regression)
2) Examine the results of your model
3) Prune the tree.

# library(rpart)

# Growing the tree: prediction where does Age, Number and Start has any
relation with kyphosis

fit <- rpart(Kyphosis ~ Age + Number + Start, method="class", data=
kyphosis)

# Display the results in variable fit
printcp(fit)
plotcp(fit)
summary(fit)

# Plotting the tree result

plot(fit, main="Classification plot for Kyphosis", uniform=TRUE)
text(fit, use.n=TRUE, all=TRUE, cex=.8)

post(fit, file="/Users/yalegenomecenter/Desktop/sample.ps",
title="Classification Example")

# Pruning the tree: Performed to avoid the overfitting of data, reduce
the cross-validation error.
pfit <- prune(fit, cp=fit$cptable[which.min(fit$cptable[, "xerror"]),
"CP"])

# Plotting the results
plot(pfit, main="Pruning classification plot for Kyphosis", uniform=TRUE)
text(pfit, use.n=TRUE, all=TRUE, cex=.8)
```