Week 8: Decision Trees

Tutorial questions:

1) Briefly outline the major steps of decision tree classification
2) The following table consists of training data from a customer database we have looked at during the lecture.

The attributes are: *age, income, student, credit rating*. The class label attribute, *buy_computer* has two distinct values(namely, {*yes, no*}). Complete the construction of the decision tree.

age	income	student	Credit_rating	Class:buy_computer
youth	high	no	fair	no
youth	high	no	excellent	no
middle_aged	high	no	fair	yes
senior	medium	no	fair	yes
senior	low	yes	fair	yes
senior	low	yes	excellent	no
middle_aged	low	yes	excellent	yes
youth	medium	no	fair	no
youth	low	yes	fair	yes
senior	medium	yes	fair	yes
youth	medium	yes	excellent	yes
middle_aged	medium	no	excellent	yes
middle_aged	high	yes	fair	yes
senior	medium	no	excellent	no

Use Information Gain as the attribute selection measure, construct the full decision tree from the above data set.

Given the following new instances, what will be the buy_computer (decision)

a) (middle_aged, low, no, fair)

b) (senior, high, yes, excellent)

c) (youth, medium, no, excellent)

d) (youth, high, no, fair)