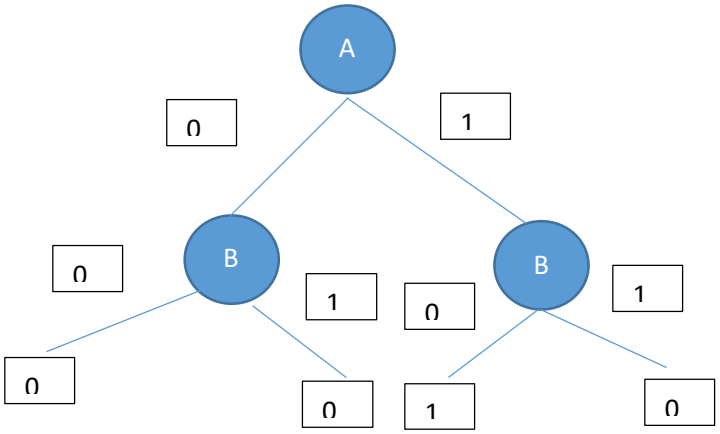
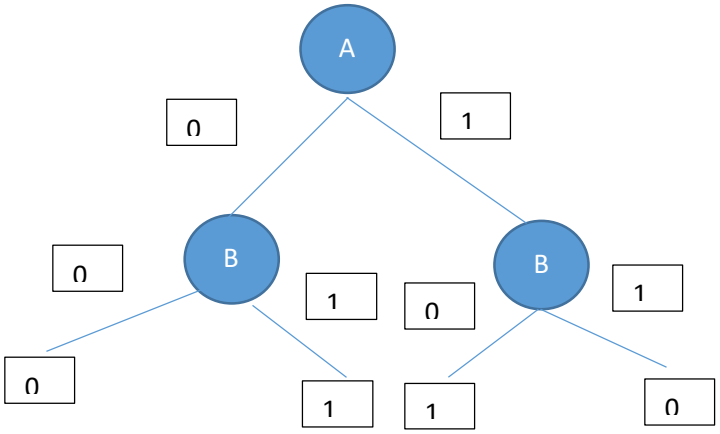
1a)



1b)



2) Price correctly classify all the instances. The decision tree consists of just one node (Price)

3) False. For some functions (e.g. XOR) we need to use more nodes than features

4) Precision = 30/(30+30)

Recall = 30/(30+20)

5) K times

6) Not necessarily. A1 may be overfitting the training data.

7)

a) w1 = 1 w2 = 1 w3 = -0.9

b) w1 = -2 w2 = 3 w3 = 1

c) Not possible

8) False. The learned decision boundary may not correspond to a linear separator for the test dataset

9). Yes. In decision trees prediction is quite fast (need to traverse the depth of the tree at most)