Exercises to the lecture

Machine learning and Pervasive Computing

Assignment 3: Decision trees and kD-trees

In this assignment you will construct a decision tree from a data set and generate a kD-tree.

a) Construct (graphically) a decision tree from the weather data below.

Outlook			Temperature			Humidity		Windy		Play	
Sunny	Overcast	Rainy	Hot	mild	cold	high	normal	false	true	yes	no
x			x			x		x			x
x			x			x			x		x
x			x				x	x			x
x			x				x		x	x	
x				x		x		x			x
x				x		x			x	x	
x				x			x	x		x	
x				x			x		x	x	
x					x	x		x		x	
x					x	x			x		x
x					x		x	x		x	
x					x		x		x	x	
	x		x			x		x			x
	x		x			x			x	x	
	x		x				x	x		x	
	x		x				x		x	x	
	x			x		x		x		x	
	x			x		x			x	x	
	x			x			x	x		x	
	x			x			x		x	x	
	x				x	x		x		x	
	x				x	x			x		x
	x				x		x	x		x	
	x				x		x		x		x
		x	x			x		x		x	
		x	x			x			x		x
		x	x				x	x		x	
		x	x				x		x		x
		x		x		x		x		x	
		x		x		x			x		x
		x		x			x	x		x	
		x		x			x		x		x
		x			x	x		x			x
		x			x	x			x		x
		x			x		x	x			x
		x			x		x		x		x

b) Can you spot any subtrees that should be raised or replaced?

c) Construct a kD-tree from the data points given below.