

## Exercises for DW & DM

### Sheet II (until 02.07.2008)

Please note that you need **50%** of all exercise points to be admitted for the final exams. Exercises have to be turned in until **Thursday** before the next lecture and should be completed in teams of two students each. Write both names and “Matrikelnummer” on each page. If you have multiple pages, staple them together! Please hand in your solutions on **paper** into the mailbox at the IFIS floor or to our secretary (Mühlenpfordtstraße 23, 2<sup>nd</sup> floor). You may answer in either German or English.

#### Exercise 1 (15P)

1. Considering the training set data presented in Annex 1, perform the following tasks:
  - a. Build a decision tree based on the training set data, using the algorithm provided in the lecture, considering all attributes as possible classification attributes, and as attribute selection method use the information gain.  
(10 P)
  - b. Apply the naïve Bayesian classification on the training data set in Annex 1, and classify this new data “Senior person with job, doesn’t own a house and has good credit rating” with both the Bayesian classifier as well as the decision tree obtained in a). (5P)

#### Annex 1

Age	Has job	Owens house	Credit rating	Approve loan
Young	False	False	Fair	No
Young	False	False	Good	No
Young	True	False	Good	Yes
Young	True	True	Fair	Yes
Young	False	False	Fair	No

Middle	False	False	Fair	No
Middle	False	False	Good	No
Middle	True	True	Good	Yes
Middle	False	True	Excellent	Yes
Middle	False	True	Excellent	Yes
Old	False	True	Excellent	Yes
Old	False	True	Good	Yes
Old	True	False	Good	Yes
Old	True	False	Excellent	Yes
Old	False	False	Fair	No