

# Introduction to Databases, ITU, Fall 2005

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## Exercises on October 1

### 1. Problem 2 from exam in Databasesystemer, June 2005

We consider the relation `Doctor`, containing information on medical doctors and the diseases they treat:

`Doctor(id,address,postcode,city,speciality,disease)`

Each doctor has a unique `id`, and furthermore precisely one address. For every post code there is exactly one city. A doctor can have more than one speciality, but in every city there is at most one doctor with a given speciality. A disease belongs to exactly one speciality, but a speciality may cover many diseases.

- (a) State all keys of `Doctor`. Explain any assumptions you make on the data.
  - (b) Perform normalization to 3NF, stating the resulting relation schema, and what functional dependencies have been used.
2. GUW 3.7.2.
  3. GUW 3.7.3 i) and ii) for the relation schema and dependencies in a). (Assume there are no functional dependencies.)
  4. Gradiance “homework” 3NF and 4NF.