Databases
Exercise Sheet 1
Klingemann, WS 2024 / 2025

1) A company XYZ is storing its customer data in a (badly designed) database. Some important queries are considered to run too slowly. Therefore, the database administrator decides to modify the storage structure. As a result, the queries can be executed faster. However, all applications have to be adapted to the new storage structure. What important principle is violated by this database management system?

2) We have a database that contains a file ADDRESS and an empty file RESULT with a similar schema. Consider the following imperative procedure:
- Read the first record of file ADDRESS.
- Repeat the following steps while we have not reached the end of the file:
  - If the record is about a person that lives in Bonn, copy the record into the file RESULT.
  - Read the next Record from the file ADDRESS
- Display the contents of file RESULT.

Describe (in natural language) this procedure as a declarative query.

3) A company has an inventory system that manages for all products to be sold the number of available items. Which category of user is typically responsible for the following tasks:
- Development of a reporting tool that is calculating each day the value of all items on stock.
- Updating the number of available items for a certain product.
- Deleting the account of a user who has left the company.
- Modify the storage structure of the data.
- Answer to requests by telephone about the current number of available items for a certain product.