Exercise Sheet 1

Deadline: 02.12.2017

Setup MySql DBMS and example DB

1. Setup the MySql DBMS at your computer.
   - http://dev.mysql.com/downloads/mysql/
2. Setup the world database, that we will use to illustrate examples from the lecture.
   - https://dev.mysql.com/doc/world-setup/en/world-setup-installation.htm

Exercise: Car Manufacturer Database

A car manufacturer uses a database with the following relations to manage its suppliers:
$Supplier(\underline{Name}, Location)$ – the suppliers and their location
$Part(\underline{PartNr}, Description)$ – the parts used in the production
$Product(\underline{ProductNr}, Price)$ – the cars produced
$SupplierParts(\underline{Name}, \underline{PartNr})$ – the suppliers for the different parts
$PartProducts(\underline{PartNr}, \underline{ProductNr})$ – the parts needed for the respective cars

a) Translate these queries into text:

1. $\pi_{Location}(Supplier)$
2. $\pi_{Name}(Supplier)$
3. $\pi_{Location}(\sigma_{Name='SchmidtAG'}(Supplier))$

b) Draw a query plan for the query:

1. $\pi_{Location}(\sigma_{Name='SchmidtAG'}(Supplier))$

c) Translate these sentences into Relational Algebra:

1. Give the description for the parts with the numbers 120 and 100.
2. Give a list of all suppliers from Berlin

Paper Review

> Codd, Edgar F. 'A relational model of data for large shared data banks.'
> *Communications of the ACM* 13.6 (1970)

a) What is the main motivation for the relational model according to the Paper's abstract?

b) In section 2.1.1 Codd talks about the operation "Permutation" of a relation.

1. Why is it not an operation in the relational algebra we discussed in the lecture?
2. Can you realize a permutation of a relation in SQL? How?