CS2102 Database Systems
2014/2015 Semester I

Tutorial #3 Relational Algebra

Consider the following schema:

> Suppliers (*sid*:integer, *sname*:string, *address*:string)
> Parts (*pid*:integer, *pname*:string, *color*:string)
> Catalog (*sid*:integer, *pid*:integer, *cost*:real)

The key fields are underlined, and the domain of each field is listed after the field name. Therefore, *sid* is the key for Suppliers, *pid* is the key for Parts, and *sid* and *pid* together form the key for Catalog. The Catalog relation lists the prices charged by suppliers for the parts.

Write the following queries in relational algebra.

1. Find the names of suppliers who supply some red part.

2. Find the sids of suppliers who supply some red or green part.

3. Find the sids of suppliers who supply some red part or are at 221 Packer Ave.

4. Find the sids of suppliers who supply some red part and some green part.

5. Find the sids of suppliers who supply every part.

6. Find the names of suppliers who supply every red part.

7. Find the sids of suppliers who supply every red or green part.

8. Find the sids of suppliers who supply every red part or supply every green part.

9. Find pairs of sids such that the supplier with the first sid charges more for some part than the supplier with the second sid.

10. Find the pids of parts supplied by at least two different suppliers.