

Fall 2007 CS186 Discussion Section: Week 6, 10/01 - 10/05

Your Friendly TAs

October 2, 2007

1 Relational Algebra and Relational Calculus

Consider the following schema on figure 1:

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

Table 1: Schema for the supply chain database.

The key fields are underlined, and the domain of each field is listed after the field name. The Catalog relation lists the prices charged for parts by Suppliers. 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 Street.
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 *sids* 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.
11. Find the *pids* of the most expensive parts, supplied by suppliers named ACME.