Esercitazione: Algebra relazionale

Roberto Basili,

Department of Computer Science, System and Production
University of Roma, *Tor Vergata*
Via Della Ricerca Scientifica s.n.c., 00133, Roma, ITALY

e-mail: `basili@info.uniroma2.it`

Esercizio (1): vd. 4.1

Explain the statement that relational algebra operators can be composed.
Why is the ability to compose operators important?

Esercizio 2 (vd. 4.2)

Given two relations $R1$ and $R2$, where $R1$ contains N_1 tuples, $R2$ contains N_2 tuples, and $N_2 > N_1 > 0$, give the **minimum** and **maximum possible sizes** (in tuples) for the result relation produced by each of the following relational algebra expressions.

1. $R1 \cup R2$,

2. $R1 \cap R2$,

3. $R1 - R2$,

4. $R1 \times R2$

5. $\sigma_{a=5}(R1)$,

6. $\pi_a(R1)$,

7. $R2/R1$

Esercizio 3 (vd. 4.3)

Consider the following schema:

$Suppliers(\underline{sid}$: integer, $sname$: string, $address$: string)

$Parts(\underline{pid}$: integer, $pname$: string, $color$: string)

$Catalog(\underline{sid}$: integer, $\underline{pid}$: integer, $cost$: real)

Esercizio 3: domande

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

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

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

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

5. *Find the pids of parts that are supplied by at least two different suppliers.*

6. *Find the pids of the most expensive parts supplied by suppliers named 'Yosemite Sham'.*