

# DATABASE FOR THE EXAMPLES

Employees

Number	Name	Age	Salary
101	Mary Smith	34	40
103	Mary Bianchi	23	35
104	Luigi Neri	38	61
105	Nico Bini	44	38
210	Marco Celli	49	60
231	Siro Bisi	50	60
252	Nico Bini	44	70
301	Steve Smith	34	70
375	Mary Smith	50	65

Supervision

Head	Employee
210	101
210	103
210	104
231	105
301	210
301	231
375	252

## Example 1

Find the number, name, and age of employees earning more than 40 (thousand)

$\pi_{\text{Number, Name, Age}}(\sigma_{\text{Salary} > 40}(\text{EMPLOYEES}))$

Number	Name	Age
104	Luigi Neri	38
210	Marco Celli	49
231	Siro Bisi	50
252	Nico Bini	44
301	Steve Smith	34
375	Mary Smith	50

## Example 2

Find the registration numbers of the supervisors of the employees earning more than 40 thousand

$\pi_{\text{Head}}(\text{SUPERVISION} \bowtie_{\text{Employee=Number}}(\sigma_{\text{Salary}>40}(\text{EMPLOYEES})))$

Head
210
301
375

## Example 3

Find the names and salaries of the supervisors of the employees earning more than 40

$$\pi_{\text{NameH}, \text{SalaryH}} (\rho_{\text{Number}, \text{Name}, \text{Salary}, \text{Age}} \leftarrow \text{NumberH}, \text{NameH}, \text{SalaryH}, \text{AgeH} (\text{EMPLOYEES}) \\ \bowtie (\text{SUPERVISION} \bowtie \sigma_{\text{Salary} > 40} (\text{EMPLOYEES})) ) )$$

NumberH = Head

Employee = Number

NameH	SalaryH
Marco Celli	60
Steve Smith	70
Mary Smith	65

## Example 4

Find the registration numbers and names of the supervisors whose employees all earn more than 40

$$\pi_{\text{Number, Name}}(\text{EMPLOYEES} \bowtie_{\text{Number=Head}} (\pi_{\text{Head}}(\text{SUPERVISION}) - \pi_{\text{Head}}(\text{SUPERVISION} \bowtie_{\text{Employee=Number}} (\sigma_{\text{Salary} \leq 40}(\text{EMPLOYEES}))))))$$

Number	Name
301	Steve Smith
375	Mary Smith