

CSCI/CMPE 4333 Database Design and Implementation

Assignment 5

Instructor: Artem Chebotko

Assigned on: October 15, 2009

Due on: See the course webpage.

Description: Consider the database schema:

EMPLOYEE (SSN, Name, Salary, SupervisorSSN, DeptCode)

DEPARTMENT (DeptCode, DeptName, ManagerSSN)

PROJECT (ProjCode, ProjName, DeptCode)

WORKS (EmplSSN, ProjCode)

Write the following queries in relational algebra and SQL:

1. Find the names of all employees whose salaries are larger than 100K.
2. Find the names of all employees whose salaries are in the range 50K – 65K
3. Find the name of the ‘Databases’ department manager.
4. Find the names of all employees who are directly supervised by 'Edgar Codd'.
5. Find the names of all employees whose salaries are larger than the salaries of their direct supervisors.
6. Find the names of all employees who do not work on any project.
7. Find the names of all supervisors and managers.
8. Find SSNs of the employees who work on all projects led by the department with code ‘X’.

Express at least two queries of advanced complexity in relational algebra and SQL:

9. (*) Find the names of all employees whose salaries are larger than the salaries of their direct supervisors and department managers.
10. (*) Find the names of all employees who work on all projects led by the department whose manager is 'Edgar Codd'.
11. (*) Find the names of all employees who do not work on any project supervised by the department whose manager is 'Edgar Codd'.
12. (*) Find the project names on which all employees of the ‘Databases’ department work.

Optionally (for extra credit), solve problems 5.1, 5.18, and 5.22 from the textbook.

Submission: Submit the printed copy of your homework solution to the instructor or teaching assistant.

Grading: Problems 1 – 12 receive 10 points each (100 total + up to 20 extra points, if solved correctly).
Optional problems receive 5 extra points each (up to 15 additional extra points).