2023 Lancaster University

SCC 201 Lab Week 5

Instructions:

This week you will work on Relational Algebra.

Write the relational algebra statements for the given queiries related to the given relational schemas.

EMPLOYEE(NAME, SSN, BDATE, ADDRESS, SALARY, SUPERSSN, DNUMBER)

DEPARTMENT(DNAME, DNUMBER, SSN, MGRSTARTDATE)

DEPT_LOCATIONS(*DNUMBER*, DLOCATION)

PROJECT(PNAME, PNUMBER, PLOCATION, DNUMBER)

WORKSON(SSN, *PNO*, HOURS)

DEPENDENT(SSN, DEPENDENT_NAME, SEX, BDATE, RELATIONSHIP)

Q1: Select names of employees with salary > 4000

Q2: Select names of employees working in DNAME=”Human Resources”

Q3: Select names of employees who works on all projects.

Q4: Select name of dependents whose relative working on project PNO=45

Q5: Select the name of dependents whose relative working on a project more than 10 hours.

Q6: Select the Dependent Name whose relative working on a project located at London.

Q7: Select the hours spend by employees who worked on project located at Manchester.

Q8: Select the names of employees who worked on project for 20 hours.

A1: $\pi_{NAME}(\sigma_{SALARY>4000}(EMPLOYEE))$

A2: $\pi_{NAME}(\sigma_{DNAME=HUMAN\_RESROUCES}(DEPARTMENT) \bowtie_{SSN} EMPLOYEE)$

A3: $\pi_{NAME}((\pi_{SSN,PNO}(WORKSON)/\pi_{PNUMBER}(PROJECTS)) \bowtie_{SSN} EMPLOYEE)$

A4: $\pi_{DEPENTEND\_NAME}(\sigma_{PNO=45}(PROJECTS) \bowtie_{SSN} DEPENDENT)$

A5: $\pi_{DEPENTEND\_NAME}(\sigma_{HOURS>10}(PROJECTS) \bowtie_{SSN} DEPENDENT)$

A6: $\pi_{DEPENTEND\_NAME}(\sigma_{PLOCATION='LONDON'}(PROJECTS) \bowtie_{SSN} DEPENDENT)$

A7: $\pi_{HOURS}(\sigma_{PLOCATION='MANCHESTER'}(PROJECTS) \bowtie_{PNUMBER} WORKSON)$

A8: $\pi_{NAME}(\sigma_{HOURS=20}(WORKSON) \bowtie_{SSN} EMPLOYEE)$