COMPSCI 751 S1 C – Lab 05

Name: Yixuan Li

UPI: yil845

(a) Retrieve the names of employees (show first and last names) who either work in department 4 and make over $40,000 per year, or work in department 5 and make less than $30,000 per year.

$\pi_{Fname,Lname}(\sigma_{Dno=4\ AND\ Salary>40000}(EMPLOYEE)) \cup \pi_{Fname,Lname}(\sigma_{Dno=5\ AND\ Salary>30000}(EMPLOYEE))$

(b) Retrieve the social security numbers of all employees (show Ssn) who either work in department 4 or directly supervise an employee who works in department 4.

$\pi_{Ssn}(\sigma_{Dno=4}(EMPLOYEE)) \cup \pi_{Super\_ssn}(\sigma_{Dno=4}(EMPLOYEE))$

(c) Retrieve the names of employees (show Fname as 'First_Name' and Lname as 'Last_Name') who has no supervisor and earns more than $50,000 per year.

$\rho_{RESULT(First\_Name,Last\_name)}(\pi_{Fname,\ Lname}(\sigma_{Super\_ssn=\ NULL\ AND\ Salary>50000}(EMPLOYEE))$

(d) Retrieve the names of employees in department 5 who work more than 10 hours per week on the 'ProductX' project.

DEPT_WORK <- $DEPARTMENT \bowtie_{ssn=Essn} WORKS\_ON$

DEPT_WORK_PROJ <- $DEPT\_WORK \bowtie_{Pno=Pnumber} PROJECT$

RESULT <- $\pi_{Fname,\ Lname}(\sigma_{Pname='ProductX'\ AND\ Hours>10}(DEPT\_WORK\_PROJ))$

OR

$\pi_{Fname,\ Lname}(\sigma_{Pname='ProductX'\ AND\ Hours>10}((DEPARTMENT \bowtie_{ssn=Essn} WORKS\_ON) \bowtie_{Pno=Pnumber} PROJECT))$

(e) For each project, list the project name and the total hours per week (by all employees) spent on that project.

WORK_PROJECT <- $WORKS\_ON \bowtie_{Pno=Pnumber} PROJECT$

RESULT <- $\pi_{Pname,\ Pno}\Im_{SUM(Hours)}(WORK\_PROJECT)$