

Nhat Doan  
CSC 134  
HW#3

(1)  
 $R_1 \leftarrow (\sigma_{PNAME = 'ENG', DNO = 4} (PROJECT) \bowtie \sigma_{HOURS > 34} (WORKS\_ON))$   
 $PNUMBER = PNO$   
 $R_2 \leftarrow (\pi_{ESSN} (R_1) \bowtie_{ESSN = SSN} EMPLOYEE)$   
 $RESULT \leftarrow \pi_{FNAME, LNAME} (\sigma_{DNO = 4} (R_2))$

(2)  $R_1 \leftarrow \pi_{SSN} (\sigma_{DNAME = 'ME'} (DEPARTMENT) \bowtie_{DNUMBER = DNO} EMPLOYEE)$   
 $RESULT \leftarrow \pi_{DEPTNAME} (R_1 \bowtie_{SSN = ESSN} \sigma_{SEX = 'FEMALE'} (DEPENDENT))$

(3)  $R_1 \leftarrow (EMPLOYEE \bowtie_{SSN = ESSN} WORKS\_ON)$

$R_2 \leftarrow EMPLOYEE - R_1$

$RESULT \leftarrow \pi_{FNAME, LNAME} (R_2)$

(4)  $R_1 \leftarrow \pi_{SSN} (\sigma_{FNAME = 'SUSAN', LNAME = 'YAO'} (EMPLOYEE))$

$R_2 \leftarrow (P_{SUPERSSN} (R_1) * EMPLOYEE)$

$RESULT \leftarrow \pi_{LNAME, FNAME} (R_2)$