

I

Date 09/24/09

Emp (SSN, name, Bdate, Addr, Sal, Super-SSN, Dno)
Dept (Dname, Dnumber, Mgr-SSN, Mgr-S-date)
Dept_Loc (Dnumber, DLoc)
Project (Pname, Pnumber, Ploc, Dnum)
WORKS_ON (ESSN, pno, Hours)
Dependent (ESSN, DepName, Sex, Bdate)

Q4: Find employees who work on some project?

```
SELECT DISTINCT E.SSN  
FROM E, W_O  
WHERE E.SSN = W_O.SSN
```

1. Set operations in SQL:

() \cap (): INTERSECT
() \cup (): UNION
() - (): EXCEPT (MINUS)

```
(SELECT FROM WHERE) INTERSECT  
(SELECT ---- )
```

Q5: Find the numbers of projects that involve an employee named 'John' who is either a worker or a manager of the dept that controls the project.

II

```
SELECT Pno
FROM E, W_O
WHERE W_O.ESSN = E.SSN AND E.name = 'John'
UNION
SELECT
⋮
```

SET OPERATIONS give duplicate-free results!!

II Nested Queries

```
SELECT
FROM (SELECT FROM WHERE)
WHERE
```

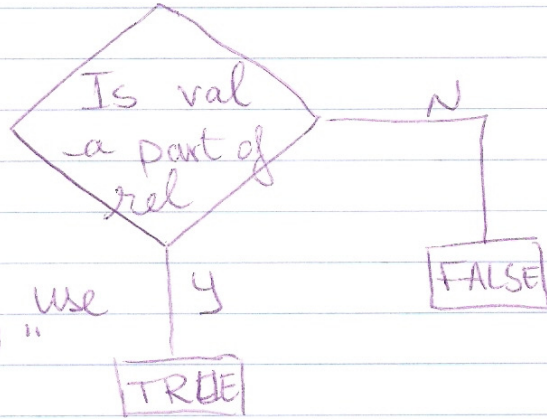
Q6: FIND the names and addresses of all employees who work in the 'Research' dept.

```
SELECT name, addr
FROM E
WHERE Dno IN (SELECT Dnumber
FROM D
WHERE D.Dname = 'Research') ;
```

Conceptual processing of nested queries:

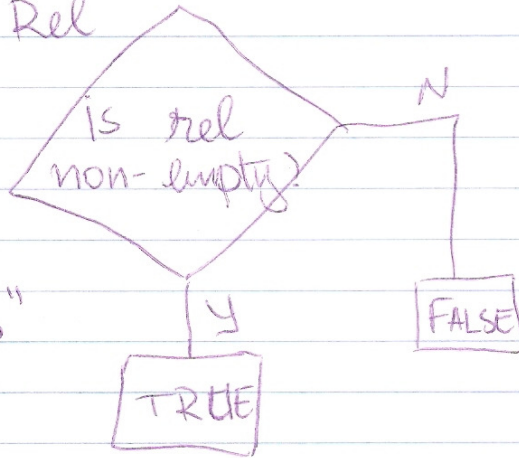
For each tuple e_i in the outer query
IF the conditions are satisfied
for all tuples in the inner query
THEN e_i is part of the result.
ELSE Continue.

Value IN rel.



ALSO:
we can use
"NOT IN"

Exists Rel



also:
"NOT EXISTS"

UNIQUE Rel



Also:
"NOT UNIQUE"

Q7. Find the names of the employees who have a dependant with the same name as the employee.