

6 Relations of Company

EMPLOYEE

FNAME	MINIT	LNAME	<u>SSN</u>	BDATE	ADDRESS	SEX	SALARY	SUPERSSN	DNO
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DEPARTMENT

DNAME	<u>DNUMBER</u>	MGRSSN	MGRSTARTDATE
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DEPT_LOCATIONS

<u>DNUMBER</u>	<u>DLOCATION</u>
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PROJECT

PNAME	<u>PNUMBER</u>	PLOCATION	DNUM
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WORKS_ON

<u>ESSN</u>	<u>PNO</u>	HOURS
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DEPENDENT

<u>ESSN</u>	<u>DEPENDENT_NAME</u>	SEX	BDATE	RELATIONSHIP
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Exercises

- (a) Retrieve the names of employees in department 5 who work more than 10 hours per week on the 'ProductX' project.
- (b) List the names of employees who have a dependent with the same first name as themselves.
- (c) Find the names of employees that are directly supervised by 'Franklin Wong'.
- (d) For each project, list the project name and the total hours per week (by all employees) spent on that project
- (e) Retrieve the names of employees who work on every project.

- **(f) Retrieve the names of employees who do not work on any project.**
- **(g) For each department, retrieve the department name, and the average salary of employees working in that department.**
- **(h) Retrieve the average salary of all female employees.**
- **(i) Find the names and addresses of employees who work on at least one project located in Houston but whose department has no location in Houston.**
- **(j) List the last names of department managers who have no dependents.**

- Retrieve the names of **employees** in **department 5** who **work** more than **10 hours per week** on the **'ProductX' project**

```
select FNAME, LNAME  
from EMPLOYEE, WORKS_ON, PROJECT  
where DNO=5 and SSN=ESSN and PNO=PNUMBER and HOURS > 10  
and PNAME=ProductX
```

```
select FNAME, LNAME  
from EMPLOYEE  
where DNO=5 and SSN in (  
    select ESSN  
    from WORKS_ON  
    where HOURS > 10 and PNO in(  
        select PNUMBER  
        from PROJECT  
        where PNAME = ProductX))
```

- **List the names of employees who have a dependent with the same first name as themselves.**

```
select FNAME, LNAME  
from EMPLOYEE, DEPENDENT  
where SSN=ESSN and FNAME=DEPENDENT_NAME
```

```
select FNAME, LNAME  
from EMPLOYEE  
where exist (  
    select *  
    from DEPENDENT  
    where ESSN=SSN and FNAME and  
    DEPENDENT_NAME=FNAME)
```

■ Find the names of employees that are directly supervised by 'Franklin Wong'.

```
select FNAME, LNAME  
from E.EMPLOYEE, S.EMPLOYEE  
where S.SSN = E.SUPERSSN and S.FNAME=Franklin  
      and S.LNAME=Wong
```

```
select FNAME, LNAME  
from EMPLOYEE  
where SUPERSSN in (  
    select SSN  
    from EMPLOYEE  
    where FNAME=Franklin and LNAME=Wong)
```

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

```
select PNAME, SUM (HOURS)
from PROJECT, WORKS_ON
where PNUMBER=PNO
group by PNAME
```

■ Retrieve the names of employees who work on every project

```
select FNAME, LNAME
from EMPLOYEE
where not exist (
    select PNUMBER
    from PROJECT
    where not exist (
        select *
        from WORKS_ON
        where PNO=PNUMBER and ESSN=SSN))
```


- **Retrieve the names of employees who do not work on any project**

```
select FNAME, LNAME  
from EMPLOYEE  
where not exist (  
    select *  
    from WORKS_ON  
    where ESSN=SSN)
```

- **For each department, retrieve the department name, and the average salary of employees working in that department.**

```
select DNAME, AVG (SALARY)
from DEPARTMENT, EMPLOYEE
where DNUMBER=DNO
group by DNAME
```

■ Retrieve the average salary of all female employees

```
select AVG (SALARY)  
from EMPLOYEE  
where SEX='F'
```

- Find the names and addresses of employees who work on at least one project located in Houston but whose department has no location in Houston

```
select FNAME, LNAME, ADDRESS
from EMPLOYEE
where exist (
    select *
    from WORKS_ON, PROJECT
    where PLOCATION = Houston and PNO=PNUMBER
    and ESSN=SSN and not exist (
        select *
        from DEP_LOCATIONS
        where DNO=DNUMBER and DLOCATION= Houston))
```

■ List the last names of department managers who have no dependents

```
select LNAME
from EMPLOYEE
where exist (
    select *
    from DEPARTMENT
    where SSN=MGRSSN and not exist (
        select *
        from DEPENDENT
        where SSN=ESSN ))
```