1. Retrieve the names of all employees in department 5 who work more than 10 hours per week on the ProductX project.

π fname, lname ((σ dno = 5 (EMPLOYEE)) ⋈ ssn = essn (σ hours > 10 ^ pno = 1 (WORKS\_ON)))

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

π fname, lname (σ fname = dependent\_name(EMPLOYEE ⋈ ssn=essn (π essn, dependent\_name DEPENDENTS)))

3. Find the names of all employees who are directly supervised by ‘Franklin Wong’.

Ρ (Wong, π ssn (σ fname = ‘Franklin’ ^ lname = ‘Wong’ (EMPLOYEE)))

π fname, lname (σ super\_ssn = Wong.ssn (EMPLOYEE))

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

α pname, sum(hours) (WORKS\_ON ⋈ pno=pnumber PROJECT)

5. Retrieve the names of all employees who work on every project.

π fname, lname (EMPLOYEE ⋈ ssn=essn (π essn (WORKS\_ON / (P (PROJNUM(pno) (π pnumber (PROJECT))))))

6. Retrieve the names of all employees who do not work on any project.

π fname, lname (EMPLOYEE - (EMPLOYEE ⋈ ssn=essn (π essn (WORKS\_ON))))

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

α dname, avg(salary) (EMPLOYEE ⋈ dno=dnumber DEPARTMENT)

8. Retrieve the average salary of all female employees

α avg(salary) (σ sex=F (EMPLOYEE))

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

π fname, lname, address ((EMPLOYEE ⋈ ssn=essn (π essn (σ pno=3 ˅ pno=20 (WORKS\_ON))))

– (σ dno=1 ˅ dno=5 (EMPLOYEE))

10. List the last names of all department managers who have no dependents.

P (SUPER(ssn) (π super\_ssn (EMPLOYEE)))

π lname ((σ ssn=SUPER.ssn (EMPLOYEE)) - (EMPLOYEE ⋈ ssn=essn (π essn DEPENDENTS)))