

# CS23401 Database Management Systems

## Course Instructor: V P Jayachitra

### Week 5 Assignment

1. Insert the provided employee, department, project, works\_on, and dependent records. (refer Company database.pdf)

**Note:** Add one record with YOUR name and register number in the EMPLOYEE table.

#### INSERT Operations

1. A new employee "Priya Sharma" (SSN: 111223344) joins the Research department on 2024-01-15. She is female, born on 1995-03-20, lives at "123 Park Avenue, Houston TX", has a salary of 32000, and reports to Franklin Wong.

Test Case

```
SELECT Fname, Lname, Ssn, Sex, Salary, Super_ssn, Dno FROM  
EMPLOYEE WHERE Ssn = '111223344';
```

Output:

FNAME	LNAME	SSN	SEX	SALARY	SUPER_SSN	DNO
Priya	Sharma	111223344	F	32000	333445555	5

2. The company starts a new project called "AI Initiative" (Project number: 40) located in "Houston" and controlled by the Research department. Insert this project.

Test Case

```
SELECT Pname, Pnumber, Plocation, Dnum FROM PROJECT WHERE  
Pnumber = 40;
```

Output:

PNAME	PNUMBER	PLOCATION	DNUM
AI Initiative	40	Houston	5

3. Employee Ahmad Jabbar (987987987) starts working on the new AI Initiative project for 15 hours per week. Add this work assignment.

Test Case

```
SELECT Essn, Pno, Hours FROM WORKS_ON WHERE Essn = '987987987'  
AND Pno = 40;
```

Output:

ESSN	PNO	HOURS
987987987	40	15.0

4. Jennifer Wallace's spouse "Robert Wallace" (Male, born 1940-05-15) needs to be added as a dependent. Insert this record.

Test Case

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```
SELECT Essn, Dependent_name, Sex, Bdate, Relationship FROM  
DEPENDENT WHERE Essn = '987654321' AND Dependent_name = 'Robert  
Wallace';
```

Output:

```
ESSN    DEPENDENT_NAME  SEX  BDATE    RELATIONSHIP  
987654321 Robert Wallace  M   15-MAY-40 Spouse
```

5. Insert a new department called "Data Analytics" (Department number: 6) managed by Ramesh Narayan starting from 2024-01-01.

Test Case

```
SELECT Dname, Dnumber, Mgr_ssn, Mgr_start_date FROM DEPARTMENT  
WHERE Dnumber = 6;
```

Output:

```
DNAME          DNUMBER  MGR_SSN  MGR_START_DATE  
Data Analytics    6         666884444 01-JAN-24
```

### UPDATE Operations

1. All employees in department 5 receive a 12% salary increase due to excellent project performance. Update their salaries.

Test Case

```
SELECT Fname, Lname, Salary, Dno FROM EMPLOYEE WHERE Dno = 5  
ORDER BY Ssn;
```

Output:

```
FNAME  LNAME  SALARY  DNO  
John   Smith  33600   5  
Franklin Wong  44800   5  
Ramesh Narayan 42560   5  
Joyce   English 28000   5  
Priya   Sharma  35840   5
```

2. Franklin Wong (333445555) gets promoted and his new supervisor is now James Borg. Update his supervisor information.

Test Case

```
SELECT Fname, Lname, Ssn, Super_ssn FROM EMPLOYEE WHERE Ssn =  
'333445555';
```

Output:

```
FNAME  LNAME  SSN      SUPER_SSN  
Franklin Wong  333445555 888665555
```

3. The company policy changes: All employees without a middle initial should have their Minit set to 'X'. Update these records.

Hint: Use IS NULL in the WHERE clause

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Test Case:

```
SELECT Fname, Lname, Minit FROM EMPLOYEE WHERE Minit = 'X';
```

Output:

```
FNAME LNAME MINIT
```

```
Priya Sharma X
```

4. Female employees who earn less than 30000 and work in department 4 receive a special increment of 3500. Update their salaries.

Hint: multiple conditions with AND operator

Test Case:

```
SELECT Fname, Lname, Minit FROM EMPLOYEE WHERE Minit = 'X';
```

Output:

```
FNAME LNAME MINIT
```

```
Priya Sharma X
```

5. The ProductY project (Pnumber = 2) is relocated from "Sugarland" to "Dallas". Update the project location.

Test Case

```
SELECT Fname, Lname, Sex, Salary, Dno FROM EMPLOYEE WHERE Sex = 'F' AND Dno = 4;
```

Output:

```
FNAME LNAME SEX SALARY DNO
```

```
Alicia Zelaya F 28500 4
```

```
Jennifer Wallace F 43000 4
```

6. Update all employees' salaries using CASE WHEN:

Managers (who appear in DEPARTMENT.Mgr\_ssn) get 20% raise

Other employees in department 5 get 15% raise

All others get 10% raise

### DELETE Operations

1. Remove all work assignments where employees are working less than 10 hours per week on any project.

Test case

```
SELECT MIN(Hours) AS Min_Hours, COUNT(*) AS Total_Assignments FROM WORKS_ON;
```

Output:

```
MIN_HOURS TOTAL_ASSIGNMENTS
```

```
10.0
```

```
14
```

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2. Employee Joyce English (453453453) is leaving the company.  
Hint: Before deleting her record, you must first remove her work assignments.  
Delete her entries from WORKS\_ON table.  
Test case  

```
SELECT COUNT(*) AS Joyce_Assignments FROM WORKS_ON WHERE  
Essn = '453453453';
```

  
Output:  
JOYCE\_ASSIGNMENTS  
0
3. Delete all dependents who are spouses (Relationship = 'Spouse') and were born before 1950.  
Test case  

```
SELECT Essn, Dependent_name, Bdate, Relationship FROM DEPENDENT  
WHERE Relationship = 'Spouse' AND Bdate < DATE '1950-01-01';
```

  
Output:  
No rows selected
4. Remove the project "Reorganization" from the PROJECT table.  
Test case  

```
SELECT COUNT(*) AS Project_Exists FROM PROJECT WHERE Pnumber =  
20;
```

  
Output:  
PROJECT\_EXISTS  
0
5. Delete all employees who don't have any supervisor assigned AND have a salary less than 50000.  
Test case  

```
SELECT Fname, Lname, Super_ssn, Salary FROM EMPLOYEE WHERE  
Super_ssn IS NULL AND Salary < 50000;
```

  
Output:  
No rows selected

### **SELECT with WHERE clause**

1. Display the names (first and last) and addresses of all employees who live in Houston.  
Hint: use like operator for pattern matching for the address  
Test case  
Output:  
FNAME    LNAME    ADDRESS

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James Borg 450 Stone, Houston TX  
Joyce English 5631 Rice, Houston TX  
Ahmad Jabbar 980 Dallas, Houston TX  
John Smith 731 Fondren, Houston TX  
Franklin Wong 638 Voss, Houston TX

2. Find all employees whose salary is between 25000 and 35000 (inclusive).

Test case

Output:

FNAME LNAME SALARY

Joyce English 28000

Alicia Zelaya 28500

John Smith 33600

3. List all female employees who work in department 5.

Test case

Output:

FNAME LNAME SEX DNO

Joyce English F 5

Priya Sharma F 5

4. Show the names of all employees who do NOT have a supervisor.

Test case

Output:

FNAME LNAME SUPER\_SSN

James Borg

5. Find all projects that are located in either "Houston" or "Stafford".

Test case

Output:

PNAME PLOCATION

AI Initiative Houston

ProductZ Houston

Computerization Stafford

Newbenefits Stafford

6. Display employees whose first name starts with 'J' and have a salary greater than 30000.

Test case

Output:

FNAME LNAME SALARY

James Borg 55000

Jennifer Wallace 43000

John Smith 33600

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7. Show all projects that are NOT controlled by department 5.

Test case

Output:

PNAME	PNUMBER	DNUM
Computerization	10	4
Newbenefits	30	4

8. Display all employees who have a middle initial AND earn more than the average salary of 30000.

Test case

Output:

FNAME	LNAME	MINIT	SALARY
James	Borg	E	55000
Jennifer	Wallace	S	43000
Franklin	Wong	T	44800
Ramesh	Narayan	K	42560
John	Smith	B	33600

Note: You details in the employee table too listed accordingly to the query