

Database Management System – 24 (Retrieval Queries in SQL)

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Outline

- SELECT FROM WHERE
- Ambiguous Attribute Names
- Aliasing

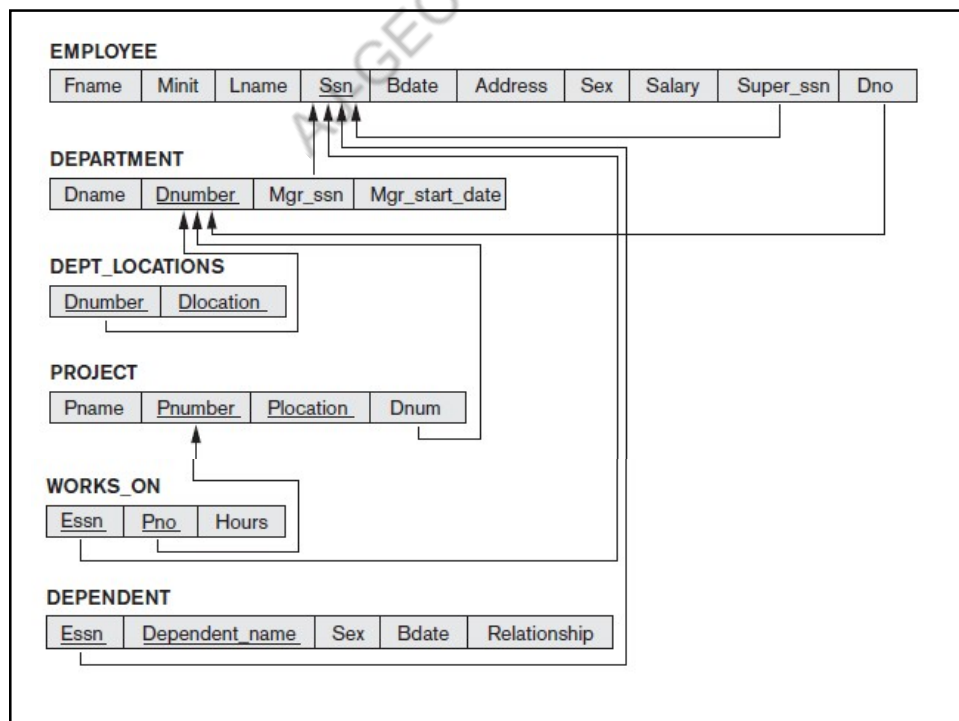
SELECT-FROM-WHERE

SELECT <attribute list>

FROM <table list>

WHERE <condition>;

- <attribute list> is a list of attribute names whose values are to be retrieved by the query
- <table list> is a list of the relation names required to process the query
- <condition> is a conditional (Boolean) expression that identifies the tuples to be retrieved by the query
- =, <, <=, >, >=, and <>



Example 1

- Retrieve the birth date and address of the employee(s) whose name is 'John B. Smith'.

```
SELECT Bdate, Address
FROM EMPLOYEE
WHERE Fname = 'John' AND Minit = 'B' AND Lname =
'Smith';
```

- *Bdate, Address* - **projection attributes**
- **Selection condition**

<u>Bdate</u>	<u>Address</u>
1965-01-09	731 Fondren, Houston, TX

Example 2

- Retrieve the name and address of all employees who work for the 'Research' department.

```
SELECT Fname, Lname, Address
FROM EMPLOYEE, DEPARTMENT
WHERE Dname = 'Research' AND Dnumber = Dno;
```

- Dnumber = Dno is called a **join condition**
- **Select-project-join query**

<u>Fname</u>	<u>Lname</u>	<u>Address</u>
John	Smith	731 Fondren, Houston, TX
Franklin	Wong	638 Voss, Houston, TX
Ramesh	Narayan	975 Fire Oak, Humble, TX
Joyce	English	5631 Rice, Houston, TX

Example 3

- For every project located in 'Stafford', list the project number, the controlling department number, and the department manager's last name, address, and birth date

```
SELECT Pnumber, Dnum, Lname, Address, Bdate
FROM PROJECT, DEPARTMENT, EMPLOYEE
WHERE Dnum = Dnumber AND Mgr_ssn = Ssn AND
Plocation = 'Stafford'
```

Pnumber	Dnum	Lname	Address	Bdate
10	4	Wallace	291 Berry, Bellaire, TX	1941-06-20
30	4	Wallace	291 Berry, Bellaire, TX	1941-06-20

Ambiguous Attribute Names and Aliasing

- Retrieve the name and address of all employees who work for the 'Research' department.

```
SELECT Fname, Name, Address
FROM EMPLOYEE, DEPARTMENT
WHERE Name = 'Research' AND Dnumber = Dnumber;
```

```
SELECT Fname, EMPLOYEE.Name, Address
FROM EMPLOYEE, DEPARTMENT
WHERE DEPARTMENT.Name = 'Research' AND
DEPARTMENT.Dnumber = EMPLOYEE.Dnumber;
```

Ambiguous Attribute Names and Aliasing

```
SELECT EMPLOYEE.Fname, EMPLOYEE.LName,
EMPLOYEE.Address
FROM EMPLOYEE, DEPARTMENT
WHERE DEPARTMENT.DName = 'Research' AND
DEPARTMENT.Dnumber = EMPLOYEE.Dno;
```

- For each employee, retrieve the employee's first and last name and the first and last name of his or her immediate supervisor.

```
SELECT E.Fname, E.Lname, S.Fname, S.Lname
FROM EMPLOYEE AS E, EMPLOYEE AS S
WHERE E.Super_ssn = S.Ssn;
```

Alias - EMPLOYEE AS E(Fn, Mi, Ln, Ssn, Bd, Addr, Sex, Sal, Ssn, Dno)

Example Alias

<u>E.Fname</u>	<u>E.Lname</u>	<u>S.Fname</u>	<u>S.Lname</u>
John	Smith	Franklin	Wong
Franklin	Wong	James	Borg
Alicia	Zelaya	Jennifer	Wallace
Jennifer	Wallace	James	Borg
Ramesh	Narayan	Franklin	Wong
Joyce	English	Franklin	Wong
Ahmad	Jabbar	Jennifer	Wallace

Aliasing example

```
SELECT Fname, Lname, Address  
FROM EMPLOYEE, DEPARTMENT  
WHERE Dname = 'Research' AND Dnumber = Dno;
```

```
SELECT E.Fname, E.LName, E.Address  
FROM EMPLOYEE AS E, DEPARTMENT AS D  
WHERE D.DName = 'Research' AND D.Dnumber = E.Dno;
```

Unspecified WHERE Clause

- A missing WHERE clause indicates ***no condition*** on tuple selection
- ***All tuples*** of the relation specified in the FROM clause qualify and are selected for the query result
- If more than one relation is specified in the FROM clause and there is no WHERE clause, then the ***CROSS PRODUCT*** of these relations is selected

Unspecified WHERE examples

```
SELECT Ssn
FROM EMPLOYEE;

SELECT Ssn, Dname
FROM EMPLOYEE, DEPARTMENT;
```

Ssn	Dname
123456789	Research
333445555	Research
999887777	Research
987654321	Research
666884444	Research
453453453	Research
987987987	Research
888665555	Research
123456789	Administration
333445555	Administration
999887777	Administration
987654321	Administration
666884444	Administration
453453453	Administration
987987987	Administration
888665555	Administration
123456789	Headquarters
333445555	Headquarters
999887777	Headquarters
987654321	Headquarters
666884444	Headquarters
453453453	Headquarters
987987987	Headquarters
888665555	Headquarters

Use of the Asterisk

```
SELECT *
FROM EMPLOYEE
WHERE Dno = 5;
```

Fname	Minit	Lname	Ssn	Bdate	Address	Sex	Salary	Super_ssn	Dno
John	B	Smith	123456789	1965-09-01	731 Fondren, Houston, TX	M	30000	333445555	5
Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	40000	888665555	5
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000	333445555	5
Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston, TX	F	25000	333445555	5

Use of the Asterisk

```
SELECT *  
FROM EMPLOYEE, DEPARTMENT  
WHERE Dname = 'Research' AND Dno = Dnumber;
```

```
SELECT *  
FROM EMPLOYEE;
```

```
SELECT *  
FROM EMPLOYEE, DEPARTMENT;
```

Reference

- Elmasri R. and S. Navathe, Database Systems: Models, Languages, Design and Application Programming, Pearson Education 6th edition and 7th edition

Thank you

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