CSE 311L(Database Management System)

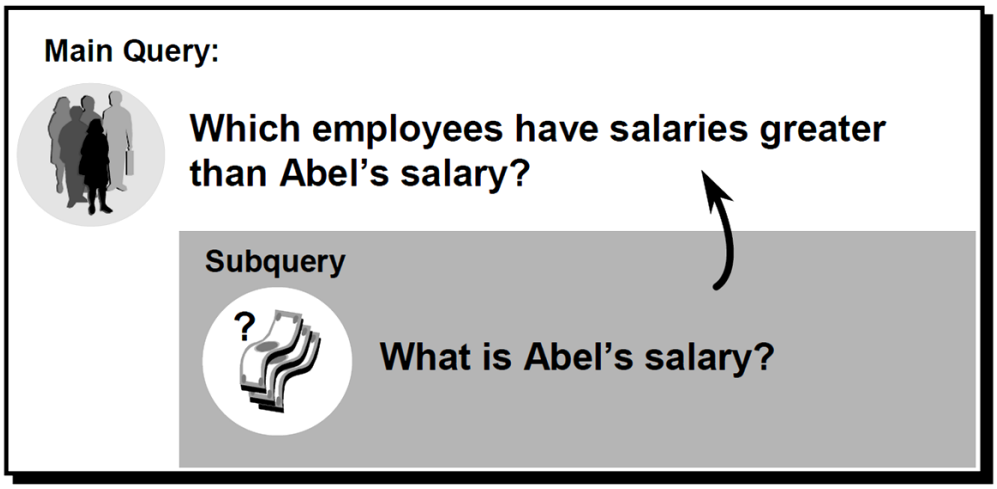
LAB-Week 07 (Part A)

Subqueries

Topics:

- Using a Subquery to Solve a Problem
- Subquery Syntax
- Single-Row Subqueries
- Executing Single-Row Subqueries
- Using Group Functions in a Subquery

Who has a salary greater than Abel's?



Using a Subquery

```
SELECT last_name
FROM employees
WHERE salary >(SELECT salary
               FROM employees
               WHERE last_name = 'Abel');
```

LAST_NAME
King
Kochhar
De Haan
Hartstein
Higgins

Single-Row Subqueries

- Return only one row
- Use single-row comparison operators

Operator	Meaning
=	Equal to
>	Greater than
>=	Greater than or equal to
<	Less than
<=	Less than or equal to
<>	Not equal to

Executing Single-Row Subqueries

```
SELECT last_name, job_id, salary
FROM employees
WHERE job_id =
          (SELECT job_id
           FROM employees
           WHERE employee_id = 141)
AND salary >
          (SELECT salary
           FROM employees
           WHERE employee_id = 143);
```

LAST_NAME	JOB_ID	SALARY
Rajs	ST_CLERK	3500
Davies	ST_CLERK	3100

Using Group Functions in a Subquery

```
SELECT last_name, job_id, salary
FROM employees
WHERE salary =
               (SELECT MIN(salary)
                FROM employees);
```

LAST_NAME	JOB_ID	SALARY
Vargas	ST_CLERK	2500

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LAB-Week 07 (Part B)

Subqueries

Topics:

- Single-row operator with multiple-row subquery
- Multiple-Row Subqueries
- Using the ANY Operator
- Using the ALL Operator

What is Wrong with this Statement?

```
SELECT employee_id, last_name
FROM employees
WHERE salary =
               (SELECT MIN(salary)
                FROM employees
                GROUP BY department_id);
```

Multiple-Row Subqueries

- Return more than one row
- Use multiple-row comparison operators

Operator	Meaning
IN	Equal to any member in the list
ANY	Compare value to each value returned by the subquery
ALL	Compare value to every value returned by the subquery

Using the ANY Operator

```
SELECT employee_id, last_name, job_id, salary
FROM employees
WHERE salary < ANY
                    (SELECT salary
                     FROM employees
                     WHERE job_id = 'IT_PROG')
AND job_id <> 'IT_PROG';
```

EMPLOYEE_ID	LAST_NAME	JOB_ID	SALARY
124	Mourgos	ST_MAN	5800
141	Rajs	ST_CLERK	3500
142	Davies	ST_CLERK	3100
143	Matos	ST_CLERK	2600
144	Vargas	ST_CLERK	2500

Using the ALL Operator

```
SELECT employee_id, last_name, job_id, salary
FROM employees
WHERE salary < ALL
                  (SELECT salary
                   FROM employees
                   WHERE job_id = 'IT_PROG')
AND job_id <> 'IT_PROG';
```

EMPLOYEE_ID	LAST_NAME	JOB_ID	SALARY
141	Rajs	ST_CLERK	3500
142	Davies	ST_CLERK	3100
143	Matos	ST_CLERK	2600
144	Vargas	ST_CLERK	2500