

# SQL Functions and Code Examples - CSE 311L Week 3

## 1. SELECT with WHERE Clause

Used to retrieve data from specific rows that match a condition.

```
SELECT employee_id, last_name, job_id FROM emps WHERE department_id = 90;
```

## 2. Character Strings and Date Filtering

Filter rows using specific string or date values.

```
SELECT last_name, job_id FROM emps WHERE last_name = 'WHALEN';
```

## 3. Comparison Operators

Use =, <, >, <=, >= to compare values.

```
SELECT last_name, salary FROM emps WHERE salary <= 3000;
```

## 4. BETWEEN and IN

BETWEEN for range, IN for matching multiple values.

```
SELECT salary FROM emps WHERE salary BETWEEN 2500 AND 3500;
```

```
SELECT last_name FROM emps WHERE manager_id IN (100, 101, 201);
```

## 5. ORDER BY Clause

Sort result rows by one or more columns.

```
SELECT last_name FROM emps ORDER BY hire_date DESC;
```

## 6. LIKE Operator

Match partial strings using % and \_ wildcards.

```
SELECT last_name FROM emps WHERE last_name LIKE '_o%';
```

## 7. IS NULL and IS NOT NULL

Check for missing (NULL) values.

```
SELECT last_name FROM emps WHERE manager_id IS NULL;
```

## 8. Logical Operators (AND, OR, NOT)

Combine multiple conditions.

```
SELECT last_name FROM emps WHERE salary >= 10000 AND job_id LIKE '%MAN%';
```

## 9. SET Operations (UNION, INTERSECT, MINUS)

Combine results of multiple queries.

```
(SELECT pname FROM project, department, employee WHERE lname='Wong')  
UNION  
(SELECT pname FROM project, works_on, employee WHERE name='Wong');
```

## 10. Nested Queries

Subqueries within WHERE clause.

```
SELECT fname FROM employee WHERE dno IN  
(SELECT dnumber FROM department WHERE dname='Research');
```

## 11. Correlated Subqueries

Subquery uses value from outer query.

```
SELECT fname FROM employee e1 WHERE salary <  
(SELECT salary FROM employee e2 WHERE e2.ssn = e1.superssn);
```

## 12. EXISTS / NOT EXISTS

Check if a subquery returns any rows.

```
SELECT fname FROM employee e1 WHERE EXISTS  
(SELECT * FROM employee e2 WHERE e2.ssn = e1.superssn AND e2.salary > e1.salary);
```