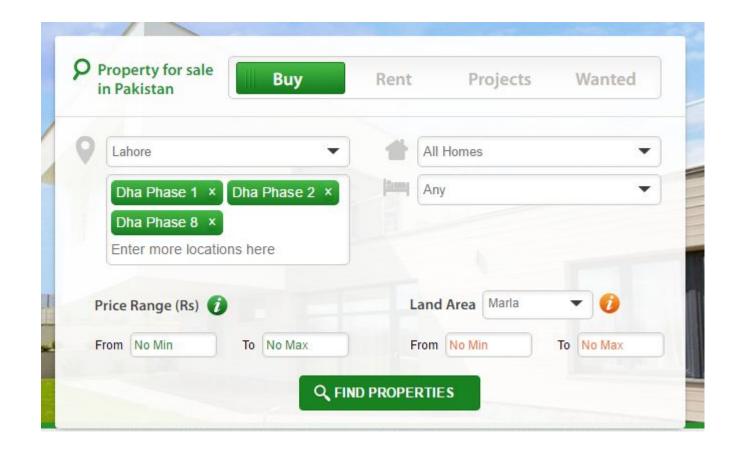
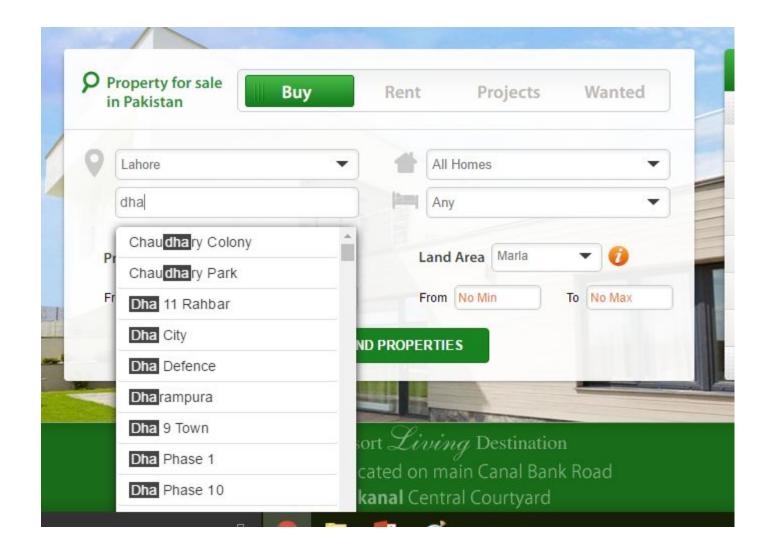
# CS - 571 Database Systems for BS (CS)

**Lecture: Introduction** 

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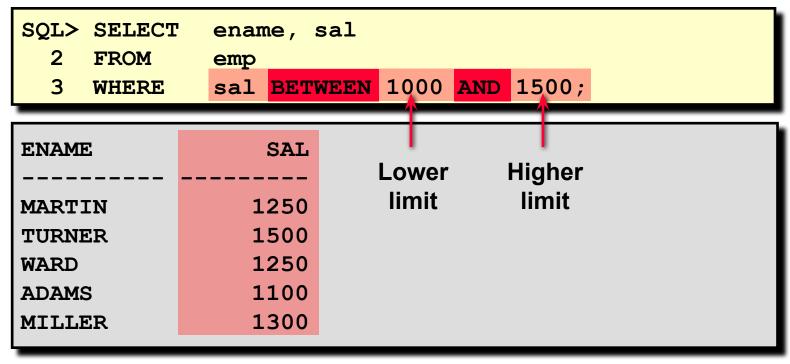


# Other comparison operators

Operator	Meaning
BETWEEN AND	Between two values (inclusive)
IN(list)	Match any of a list of values
LIKE	Match a character pattern
IS NULL	Is a null value

## Using the Between operator

 Using the between operator to display rows based on a range



# Using the IN operator

Use the IN operator to test for values in a list

```
SQL> SELECT empno, ename, sal, mgr
2 FROM emp
3 WHERE mgr IN (7902, 7566, 7788);
```

EMPNO	ENAME	SAL	MGR
7902	FORD	3000	7566
7369	SMITH	800	7902
7788	SCOTT	3000	7566
7876	ADAMS	1100	7788

#### Using the LIKE operator

- Use the LIKE operator to perform wildcard searches of valid search string values
- Search conditions can contain either literal characters or numbers
  - % denotes zero or many characters
  - denotes one character

```
SQL> SELECT ename
2 FROM emp
3 WHERE ename LIKE 'S%';
```

## Using the LIKE operator

 You can combine pattern-matching characters

```
SQL> SELECT ename
2 FROM emp
3 WHERE ename LIKE '_A%';

ENAME
-----
MARTIN
JAMES
WARD
```

## Using the IS NULL operator

Test for null values with the IS NULL operator

```
SQL> SELECT ename, mgr
2 FROM emp
3 WHERE mgr IS NULL;
```

```
ENAME MGR
-----
KING
```

# Logical Operators

Operator	Meaning
AND	Returns TRUE if <i>both</i> component conditions are TRUE
OR	Returns TRUE if either component condition is TRUE
NOT	Returns TRUE if the following condition is FALSE



## Using the OR operator

OR requires either condition to be TRUE

```
SQL> SELECT empno, ename, job, sal
    FROM emp
  2
    WHERE sal>=1100
    OR
            job='CLERK';
                     JOB
    EMPNO ENAME
                                      SAL
     7839 KING
                     PRESIDENT
                                     5000
     7698 BLAKE
                     MANAGER
                                     2850
     7782 CLARK
                                     2450
                     MANAGER
     7566 JONES
                     MANAGER
                                     2975
                                     1250
     7654 MARTIN
                     SALESMAN
     7900 JAMES
                     CLERK
                                      950
14 rows selected.
```

# Using the NOT operator

```
SQL> SELECT ename, job
2 FROM emp
3 WHERE job NOT IN ('CLERK', 'MANAGER', 'ANALYST');
```

```
ENAME
JOB
-----
KING PRESIDENT
MARTIN SALESMAN
ALLEN SALESMAN
TURNER SALESMAN
WARD SALESMAN
```

#### Rule of Precedence

Order Evaluated	Operator
1 All comparis	son
2 NOT	
3 AND	
4 OR	

 Override rule of precedence by using parantheses

#### Rule of Precedence

```
SQL> SELECT ename, job, sal

2 FROM emp

3 WHERE job='SALESMAN'

4 OR job='PRESIDENT'

5 AND sal>1500;
```

ENAME	JOB	SAL
KING	PRESIDENT	5000
MARTIN	SALESMAN	1250
ALLEN	SALESMAN	1600
TURNER	SALESMAN	1500
WARD	SALESMAN	1250

#### Rule of Precedence

Use parentheses to force priority

```
SQL> SELECT ename, job, sal

2 FROM emp

3 WHERE (job='SALESMAN'

4 OR job='PRESIDENT')

5 AND sal>1500;
```

```
        ENAME
        JOB
        SAL

        ------
        ------

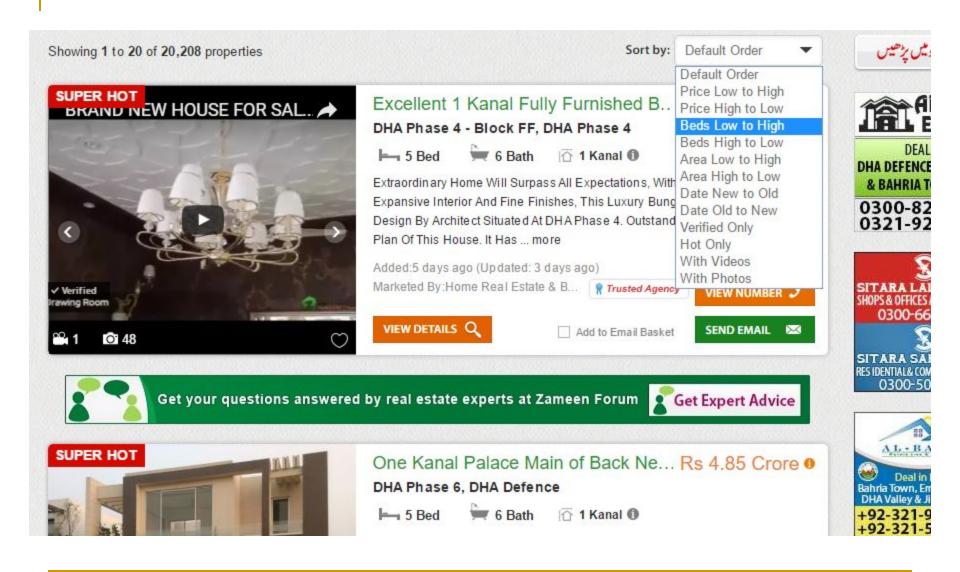
        KING
        PRESIDENT
        5000

        ALLEN
        SALESMAN
        1600
```

## Order by clause

- Soft rows with the ORDER BY clause
  - ASC: Ascending order, default
  - DESC: descending order
- The ORDER BY clause comes last in the select statement

```
SQL> SELECT ename, job, deptno, hiredate
2 FROM emp
3 ORDER BY hiredate;
```



# Sorting in Descending Order

```
SQL> SELECT ename, job, deptno, hiredate
2 FROM emp
3 ORDER BY hiredate DESC;
```

ENAME	JOB	DEPTNO	HIREDATE	
ADAMS	CLERK	20	12-JAN-83	
SCOTT	ANALYST	20	09-DEC-82	
MILLER	CLERK	10	23-JAN-82	
JAMES	CLERK	30	03-DEC-81	
FORD	ANALYST	20	03-DEC-81	
KING	PRESIDENT	10	17-NOV-81	
MARTIN	SALESMAN	30	28-SEP-81	
14 rows selected.				

## Sorting by Multiple Columns

The order to ORDER BY list is the order of sort

```
SQL> SELECT ename, deptno, sal
     FROM
            emp
     ORDER BY deptno, sal DESC;
                           SAL
ENAME
              DEPTNO
                  10
                        5000
KING
                  10
                        2450
CLARK
                  10
                        1300
MILLER
FORD
                  20
                          3000
14 rows selected.
```

You can sort by a column that is not in the SELECT list

Display the name and salary of employees earning more than 2850\$

The name and salary for all employees whose salary is not in the range of 1500\$ and 2850\$

Find the Names, job and state date (hiredate) of employees between 20 February 1981 and May 1, 1981 in ascending order

 The name, job and salary for employees whose job is clerk or analyst and their salary is not equal to 1000, 3000, 4000

- The name, job and salary for employees whose job is clerk or analyst and their salary is not equal to 1000, 3000, 4000
- Find the name, salary, and commission for all employees whose commission (CMM) amount is greater than their salary increased by 10%

