

EXERCISE-5

Restricting and Sorting data

After the completion of this exercise, the students will be able to do the following:

- Limit the rows retrieved by the queries
- Sort the rows retrieved by the queries
-

Limits the Rows selected

- Using WHERE clause
- Alias cannot be used in WHERE clause

Syntax

SELECT-----

FROM-----

WHERE condition;

Example:

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

Character strings and Dates

Character strings and date values are enclosed in single quotation marks.

Character values are case sensitive and date values are format sensitive.

Example:

```
SELECT employee_id, last_name, job_id, department_id FROM employees  
WHERE last_name='WHALEN';
```

Comparison Conditions

All relational operators can be used. (=, >, >=, <, <=, <>, !=)

Example:

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

Other comparison conditions

| Operator | Meaning |
|-----------|-------------------------------|
| BETWEEN | Between two values |
| ...AND... | |
| IN | Match any of a list of values |
| LIKE | Match a character pattern |
| IS NULL | Is a null values |

Example:1

```
SELECT last_name, salary  
FROM employees  
WHERE salary BETWEEN 2500 AND 3500;
```

Example:2

```
SELECT employee_id, last_name, salary , manager_id  
FROM employees  
WHERE manager_id IN (101, 100,201);
```

Example:3

- Use the LIKE condition to perform wildcard searches of valid string values.
- Two symbols can be used to construct the search string
- % denotes zero or more characters
- _ denotes one character

```
SELECT first_name, salary  
FROM employees  
WHERE first_name LIKE '%s';
```

Example:4

```
SELECT last_name, salary  
FROM employees  
WHERE last_name LIKE '_o%';
```

Example:5

ESCAPE option-To have an exact match for the actual % and _ characters
To search for the string that contain 'SA_'

```
SELECT employee_id, first_name, salary, job_id  
FROM employees  
WHERE job_id LIKE '%sa\_%'ESCAPE'\';
```

Test for NULL

- Using IS NULL operator

Example:

```
SELECT employee_id, last_name, salary , manager_id  
FROM employees  
WHERE manager_id IS NULL;
```

Logical Conditions

All logical operators can be used.(AND,OR,NOT)

Example:1

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

Example:2

```
SELECT employee_id, last_name, salary , job_id  
FROM employees  
WHERE salary>=10000  
OR job_id LIKE '%MAN%';
```

Example:3

```
SELECT employee_id, last_name, salary , job_id  
FROM employees  
WHERE job_id NOT IN ('it_prog', st_clerk', sa_rep');
```

Rules of Precedence

| Order Evaluated | Operator |
|-----------------|-------------------------------|
| 1 | Arithmetic |
| 2 | Concatenation |
| 3 | Comparison |
| 4 | IS [NOT] NULL, LIKE, [NOT] IN |
| 5 | [NOT] BETWEEN |
| 6 | Logical NOT |
| 7 | Logical AND |
| 8 | Logical OR |

Example:1

```
SELECT employee_id, last_name, salary , job_id  
FROM employees  
WHERE job_id ='sa_rep'  
OR job_id='ad_pres'  
AND salary>15000;
```

Example:2

```
SELECT employee_id, last_name, salary , job_id  
FROM employees  
WHERE (job_id ='sa_rep'  
OR job_id='ad_pres')  
AND salary>15000;
```

Sorting the rows

Using ORDER BY Clause

ASC-Ascending Order,Default

DESC-Descending order

Example:1

```
SELECT last_name, salary , job_id,department_id,hire_date  
FROM employees  
ORDER BY hire_date;
```

Example:2

```
SELECT last_name, salary , job_id,department_id,hire_date  
FROM employees  
ORDER BY hire_date DESC;
```

Example:3

Sorting by column alias

```
SELECT last_name, salary*12 annsal , job_id,department_id,hire_date  
FROM employees  
ORDER BY annsal;
```

Example:4

Sorting by Multiple columns

```
SELECT last_name, salary , job_id,department_id,hire_date  
FROM employees  
ORDER BY department_id, salary DESC;
```

Find the Solution for the following:

1. Create a query to display the last name and salary of employees earning more than 12000.

SELECT last-name, salary from employee where salary > 12000;

2. Create a query to display the employee last name and department number for employee number 176.

SELECT last-name, dept_number from employee where emp-number = 176;

3. Create a query to display the last name and salary of employees whose salary is not in the range of 5000 and 12000. (hints: not between)

SELECT last-name, salary from employee where salary not between 5000 and 12000;

4. Display the employee last name, job ID, and start date of employees hired between February 20,1998 and May 1,1998.order the query in ascending order by start date.(hints: between)

*select last-name, job-id, hire-date from employee where hire-date between #20/02/1998# and #01/05/1998
order hire-date;*

5. Display the last name and department number of all employees in departments 20 and 50 in alphabetical order by name.(hints: in, orderby)

select last-name, department-id from employee where department-id between 20 and 50 order by last-name;

6. Display the last name and salary of all employees who earn between 5000 and 12000 and are in departments 20 and 50 in alphabetical order by name. Label the columns EMPLOYEE, MONTHLY SALARY respectively.(hints: between, in)

select last-name as "Employee", salary as "monthly salary" from employee where salary between 5000 and 12000 and department-id in(20, 50) order by last-name DESC;

7. Display the last name and hire date of every employee who was hired in 1994.(hints: like)

select last-name, hire-date from employee where hire-date like '% 1994';

8. Display the last name and job title of all employees who do not have a manager.(hints: is null)

select last-name, job-title from employee where manager-id is null;

9. Display the last name, salary, and commission for all employees who earn commissions. Sort data in descending order of salary and commissions.(hints: is not null,orderby)

select last-name, salary, commission-rt from employee commission-rt is not null ORDER BY salary and commission, rt DESC;

10. Display the last name of all employees where the third letter of the name is a.(hints:like)

select last-name from employee where last-name like '% -a %';

11. Display the last name of all employees who have an a and an e in their last name.(hints:
like)

*select last-name from employee where last-name
like '%a%' AND last-name like '%e%';*

12. Display the last name and job and salary for all employees whose job is sales representative
or stock clerk and whose salary is not equal to 2500 ,3500 or 7000.(hints:in,not in)

*select last-name, job-title, salary from employee
where job-title IN ('sales','expenditure', 'stock clerks') AND
salary NOT IN (2500, 3500, 7000);*

13. Display the last name, salary, and commission for all employees whose commission amount
is 20%. (hints:use predicate logic)

*select last-name, salary, commission-perc from
employee where commission-perc = 20;*

| Evaluation Procedure | Marks awarded |
|----------------------|---------------|
| Query(5) | |
| Execution (5) | |
| Viva(5) | |
| Total (15) | |
| Faculty Signature | |