DBMS Lab 3

Objective: Perform operations on the tables.

DML (Data Manipulation Language)

Data manipulation is ·
The retrieval of information stored in the database. ·
The insertion of new information into the database. ·
The deletion of information from the database. ·
The modification of information stored by the appropriate data model.
There are basically two types.

- Procedural DML:- require a user to specify what data is needed and how to get that data.
- Non Procedural DML : require a user to specify what data is needed without specifying how to get that data.

Computation in expression lists used to select data

+	Addition	-	Subtraction
*	Multiplication	**	Exponentiation
/	Division	()	Enclosed operation

Renaming columns used with Expression Lists

The default output column names can be renamed by the user if required using **as**

Logical Operators

The logical operators that can be used in SQL sentenced are
AND all of must be included
OR any of may be included
NOT none of could be included

Range Searching

between operator is used for range searching

Pattern Searching

SQL includes a string-matching operator for comparisons on character strings.
The operator like uses patterns that are described using two special characters:
percent (%). The % character matches any substring.
underscore (_). The _ character matches any character.

Find the names of all instructors whose name includes the substring “dar”.

```
select name
from instructor
where name like '%dar%'
```

Match the string “100%”

```
like '100 \%'  escape  '\'
```

in that above we use backslash (\) as the escape character.

Patterns are case sensitive.
Pattern matching examples:
'Intro%' matches any string beginning with “Intro”.
'%Comp%' matches any string containing “Comp” as a substring.
'_ _ _' matches any string of exactly three characters.
'_ _ _ %' matches any string of at least three characters.

Aggregate Functions

These functions operate on the multiset of values of a column of a relation, and return a value

- avg: average value
- min: minimum value
- max: maximum value
- sum: sum of values
- count: number of values

Find the average salary of instructors in the Computer Science department

```
select avg (salary)
from instructor
where dept_name= 'Comp. Sci.';
```

Find the total number of instructors who teach a course in the Spring 2018 semester

```
select count (distinct ID)
from teaches
where semester = 'Spring' and year = 2018;
```

Find the number of tuples in the course relation

```
select count (*)
from course;
```

Ordering the Display of Tuples

List in alphabetic order the names of all instructors

```
select distinct name
from    instructor
order by name
```

We may specify desc for descending order or asc for ascending order, for each attribute; ascending order is the default.

Example: order by name desc

Can sort on multiple attributes

Example: order by dept_name, name

Assignment

Using the table client master and product master answer the following questions.

1. Find out the clients who stay in a city whose second letter is a.
2. Find out the name of all clients having ‘a’ as the second letter in their names.
3. List all client names who stay in a city whose first letter is ‘M’.
4. List the products in sorted order of their description.
5. Count the total number of products
6. Calculate the average price of all the products.
7. Calculate the minimum price of products.
8. Determine the maximum and minimum prices . Rename the title as ‘max_price’ and min_price respectively.
9. Count the number of products having price greater than or equal to 1500.

Instructions for submission:

- Create a document with a name dbms_lab3_ceXXX (i.e. dbms_lab3_ce009, dbms_lab3_ce078, dbms_lab3_ce103)
- Write a query and include the snapshot/text of the query output in the same order as in assignment.
- Submit the document.

Additional assignment (optional)

Using the book’s schemas and data answer the following questions (shared in classroom).

- Find the department names of all instructors.
- Find the department names w/o duplicates of all instructors.
- Find the names of all instructors in the Comp. Sci. department who have salary greater than $70,000

- Retrieve the names of all instructors, along with their department names and department building names.
- List all instructors in the university who have taught some course, find their names and course ID of all courses they have taught.
- List all instructors in the Comp. Sci. department who have taught some course, find their names and course ID of all courses they have taught.
- Find the names of all instructors whose salary is greater than at least one instructor in the Biology department.
- Find the names of all departments whose building name includes the substring ‘Watsom’
- List all instructors of the Physics department in descending order.
- List the entire instructor relation in descending order of salary. If several instructors have the same salary, order them in ascending order of name.
- Find the names of instructors with salary amounts between $90000 and $100000.