DBMS Lab 2

Objective: Create & manipulate tables.

Introduction about SQL

SQL (Structured Query Language) is a nonprocedural language, you specify what you want, not how to get it. A block structured format of English key words is used in this query language. It has the following components.

DDL (Data Definition Language)

The SQL DDL provides command for defining relation schemas, deleting relations and modifying relation schema.

DML (Data Manipulation Language)

It includes commands to insert tuples into, delete tuples from and modify tuples in the database.

View definition

The SQL DDL includes commands for defining views.

Transaction Control

SQL includes for specifying the beginning and ending of transactions.

Embedded SQL and Dynamic SQL

Embedded and Dynamic SQL define how SQL statements can be embedded within general purpose programming languages, such as C, C++, JAVA, COBOL, Pascal and Fortran.

Integrity

The SQL DDL includes commands for specifying integrity constraints that the data stored in the database must specify. Updates that violate integrity constraints are not allowed.

Authorization

The SQL DDL includes commands for specifying access rights to relations and views.

Data Definition Language

The SQL DDL allows specification of not only a set of relations but also information about each relation, including

- Schema for each relation
- The domain of values associated with each attribute.
- The integrity constraints.
- The set of indices to be maintained for each relation.
- The security and authorization information for each relation.
- The physical storage structure of each relation on disk.

Domain types in SQL

The SQL standard supports a variety of built in domain types, including-

- char (n)- A fixed length character length string with user specified length .
- varchar (n)- A variable character length string with user specified maximum length n.
- int- An integer.
- small integer- A small integer.
- numeric (p, d)-A Fixed point number with user defined precision.
- real, double precision- Floating point and double precision floating point numbers
- with machine dependent precision.
- float (n)- A floating point number, with precision of at least n digits.
- date- A calendar date containing a (four digit) year, month and day of the month.
- time- The time of day, in hours, minutes and seconds Eg. Time '09:30:00' .
- number- Number is used to store numbers (fixed or floating point).

DDL statements

Create table

```
CREATE TABLE table_name (
   column1 datatype,
   column2 datatype,
   column3 datatype,
  ....
);
```

Create Table Using Another Table

A copy of an existing table can also be created using CREATE TABLE.

The new table gets the same column definitions. All columns or specific columns can be selected.

If you create a new table using an existing table, the new table will be filled with the existing values from the old table.

```
CREATE TABLE new_table_name AS
   SELECT column1, column2,...
   FROM existing_table_name
   WHERE ....;
```

Load data

```
INSERT INTO table_name (column1, column2, column3, ...)
VALUES (value1, value2, value3, ...);
```

Inserting data into a table from another table:
INSERT INTO tablename SELECT column_name1, column_name2, … FROM tablename;

Insertion of selected data into a table from another table:
INSERT INTO tablename SELECT column_name1, column_name2, ...
FROM tablename WHERE columnname = expression;

Retrieving data from the tables
SELECT * FROM tablename;

The retrieval of specific columns from a table
SELECT column_name1, column_name2, . . FROM tablename;

Elimination of duplicates from the select statement
SELECT DISTINCT column_name1, column_name2 FROM tablename;

Selecting a data set from table data
SELECT column_name1, column_name2 FROM tablename WHERE searchcondition;

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.

Update data
UPDATE table_name
SET column1 = value1, column2 = value2, ...
WHERE condition;

Delete data
DELETE FROM table_name WHERE condition;
Delete from tablename; // deletes all tuples

Assignment

1. Create the following tables.

Table **CLIENT_MASTER**

Column	Type	Length	Precision	Scale	Nullable
CLIENT_NO	VARCHAR2	6			Yes
NAME	VARCHAR2	20			Yes
ADDRESS1	VARCHAR2	30			Yes
ADDRESS2	VARCHAR2	30			Yes
CITY	VARCHAR2	15			Yes
STATE	VARCHAR2	15			Yes
PINCODE	NUMBER	22	6	0	Yes
BAL_DUE	NUMBER	22	10	2	Yes

Table **PRODUCT_MASTER**

Column	Type	Length	Precision	Scale	Nullable
PRODUCT_NO	VARCHAR2	6			Yes
DESCRIPTION	VARCHAR2	15			Yes
PROFIT_PERCENT	NUMBER	22	4	2	Yes
UNIT_MEASURE	VARCHAR2	10			Yes
QTY_ON_HAND	NUMBER	22	8	0	Yes
REORDER_LVL	NUMBER	22	8	0	Yes
SELL_PRICE	NUMBER	22	8	2	Yes
COST_PRICE	NUMBER	22	8	2	Yes

2. Insert the following data into their respective tables.
   Data of client_master

CLIENT_NO	NAME	ADDRESS1	ADDRESS2	CITY	STATE	PINCODE	BAL_DUE
0001	Ivan	A/2	Worli	Bombay	Maharashtra	400054	15000
0002	Vandana	B/2	Juhu	Madras	Tamilnadu	780001	0
0003	Pramada	C/4	Nariman	Bombay	Maharashtra	400057	5000
0004	Basu	A/5	Bandra	Bombay	Maharashtra	400056	0
0005	Ravi	E/10	Delhi	Delhi	Delhi	100001	2000
0006	Rukmini	B/6	Juhu	Bombay	Maharashtra	400050	0

Download CSV
6 rows selected.

   Data of product_master

PRODUCT_NO	DESCRIPTION	PROFIT_PERCENT	UNIT_MEASURE	QTY_ON_HAND	REORDER_LVL	SELL_PRICE	COST_PRICE
P00001	1.44floppies	5	piece	100	20	525	500
P03453	Monitors	6	piece	10	3	12000	11200
P06734	Mouse	5	piece	20	5	1050	500
P07865	1.22 floppies	5	piece	100	20	525	500
P07868	Keyboards	2	piece	10	3	3150	3050
P07885	CD Drive	2.5	piece	10	3	5250	5100
P07965	540 HDD	4	piece	10	3	8400	8000
P07975	1.44 Drive	5	piece	10	3	1050	1000
P08865	1.22 Drive	5	piece	2	3	1050	1000

Download CSV
9 rows selected.

3. On the basis of the above two tables write a query to answer the following questions.
   a. Find out the names of all the clients.
   b. Retrieve the list of names and cities of all the clients.
   c. List the various products available from the product_master table.
   d. List all the clients who are located in Bombay.
   e. Display the information for client no 0001 and 0002.
   f. Find the products with description as ‘1.44 drive’ and ‘1.22 Drive’.
   g. Find all the products whose sell price is greater than 5000.
   h. Find the list of all clients who stay in city ‘Bombay’ or city ‘Delhi’ or ‘Madras’.
   i. Find the product whose selling price is greater than 2000 and less than or equal to 5000.

j. List the name, city and state of clients not in the state of ‘Maharashtra’ .
k. Change the selling price of '1.44 floppies' to Rs. 1150.00
l. Delete the record with client 0001 from the client_master table.
m. Change the city of client_no 0005 to Bombay.
n. Change the bal_due of client_no 0001 to 1000.
o. Find the products whose selling price is more than 1500 and also find the new selling price as original selling price*15.
p. Delete all products from the product_Master where the quantity on hand is equal to 100.
q. Delete from Client_Master where the column state holds the value ‘TamilNadu’.

Instructions for submission:

- Create a document with a name dbms_lab2_ceXXX (i.e. dbms_lab2_ce009, dbms_lab2_ce078, dbms_lab2_ce103)
- Write a query and include the snapshot/text of the query output.
- Submit the document.