

School of Computer Science, UPES, Dehradun.

A

LABORATORY FILE

On

DATABASE MANAGEMENT SYSTEM (DBMS) LAB

B.TECH. -III Semester

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Submitted by:

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Batch: 2

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Experiment 05

To understand and apply the concept of Constraints

AIM:

To understand the concept of data constraints that is enforced on data being stored in the table. Focus on Primary Key and the Foreign Key.

Problem Statement:

- 1. Create Tables with Constraints
- 2. Insert Data into Table
- 3. Retrieve Records
- 4. Update Records
- 5. Delete Records
- 6. Alter Table Structure
- 7. Delete Table

THEORY:

Structured query language (SQL) is a programming language for storing and processing information in a relational database. A relational database stores information in tabular form, with rows and columns representing different data attributes and the various relationships between the data values.

Command Used:

- 1. CREATE DATABASE: Creates a new database.
- 2. USE: Selects a specific database to work on.
- 3. CREATE TABLE: Creates a new table with specified columns and constraints.
- 4. INSERT INTO: Inserts data into a table.
- 5. SELECT: Retrieves data from the table based on specified columns or conditions.
- 6. UPDATE: Modifies existing records in a table.

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- 7. DELETE: Deletes records from a table based on a condition.
- 8. ALTER TABLE: Modifies the structure of an existing table (e.g., adding or modifying columns).

9. DROP TABLE: Deletes an entire table from the database.

Results:

```
-- Ayush Vashishth
        -- 500119331
 4 •
        CREATE DATABASE client;
5 • USE client;
 6 • CREATE TABLE CLIENT_MASTER (
            CLIENTNO VARCHAR(6) primary key ,
            NAME VARCHAR(20) NOT NULL,
9
          ADDRESS1 VARCHAR(30).
10
          ADDRESS2 VARCHAR(30),
          CITY VARCHAR(15),
          PINCODE INTEGER CHECK (PINCODE >= 0), -- Optional check for PINCODE to be positive
           STATE VARCHAR(15),
13
14
           BALDUE DECIMAL(10, 2) DEFAULT 0.00 -- Adding default value for BALDUE
     );
16 O CREATE TABLE PRODUCT_MASTER (
       PRODUCTNO VARCHAR(6),
17
       CHECK (PRODUCTNO LIKE 'P%'),
19
       DESCRIPTION VARCHAR(15) NOT NULL,
       PROFITPERCENT DECIMAL(4,2) NOT NULL,
20
       UNIT_MEASURE VARCHAR(10) NOT NULL,
21
         QTYONHAND INTEGER(8) NOT NULL,
         REORDERLVL INTEGER(8) NOT MULL,
23
       SELLPRICE DECIMAL(8,2) NOT NULL,
24
        COSTPRICE DECIMAL(8,2) NOT NULL
      - );
27 • CREATE TABLE SALESMAN_MASTER (
28
         SALESMANNO VARCHAR(6),
29
         SALESMANNAME VARCHAR(20) NOT NULL,
30
         ADDRESS1 VARCHAR(30) NOT NULL,
         ADDRESS2 VARCHAR(30),
31
32
         CITY VARCHAR(20),
       PINCODE INTEGER(8),
33
         STATE VARCHAR(20),
34
```

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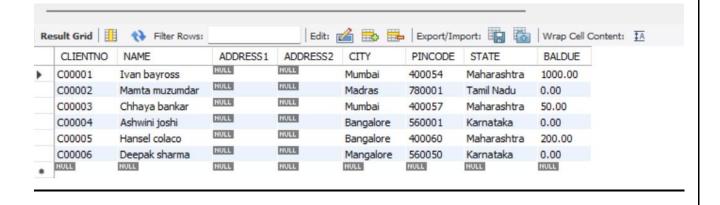
```
SALAMT REAL(8,2) NOT NULL CHECK (SALAMT <> 0).
       TGTTOGET DECIMAL(6,2) NOT NULL CHECK (TGTTOGET <> 0),
36
       YTDSALES DOUBLE(6,2) NOT NULL,
       REMARKS VARCHAR(60)
38
39
40
       -- Inserting elements into tables
41
42 • INSERT INTO CLIENT_MASTER (CLIENTNO, NAME, CITY, PINCODE, STATE, BALDUE) VALUES
      ('C00001', 'Ivan bayross', 'Mumbai', 400054, 'Maharashtra', 15.000),
      ('C00002', 'Mamta muzumdar', 'Madras', 780001, 'Tamil Nadu', 0.0),
44
      ('C00003', 'Chhaya bankar', 'Mumbai', 400057, 'Maharashtra', 50.00),
45
      ('C00004', 'Ashwini joshi', 'Bangalore', 560001, 'Karnataka', 0.0),
46
      ('C00005', 'Hansel colaco', 'Mumbai', 400060, 'Maharashtra', 200.0),
       ('C00006', 'Deepak sharma', 'Mangalore', 560050, 'Karnataka', 0.0);
49 • SELECT * FROM CLIENT_MASTER;
51 • INSERT INTO SALESMAN_MASTER (SALESMANNO, SALESMANNAME, ADDRESS1, ADDRESS2, CITY, PINCODE, STATE, SALAMT, TGTTOGET, YTDSALES) VALUES
      ('500001', 'Aman', 'A/14', 'Worli', 'Mumbai', 400002, 'Maharashtra',8,5,5),
52
      ('S00002', 'Omkar', '65', 'Nariman', 'Mumbai', 400001, 'Maharashtra',7,5,5),
   ('500003', 'Raj', 'P-7', 'Bandra', 'Mumbai', 400032, 'Maharashtra',9,5,5),
     ('S00004', 'Ashish', 'A/5', 'Juhu', 'Mumbai', 400044, 'Maharashtra',6,5,5);
56 • SELECT * FROM SALESMAN_MASTER;
57
58 • O INSERT INTO PRODUCT_MASTER (PRODUCTNO, DESCRIPTION, PROFITPERCENT, UNIT_MEASURE, QTYONHAND,
59
      REORDERLVL, SELLPRICE, COSTPRICE) VALUES
      ('P00001', 'T-Shirt', 5, 'Piece', 200, 50, 350, 250),
       ('P0345', 'Shirts', 6, 'Piece', 150, 50, 500, 350),
61
      ('P06734', 'Cotton jeans', 5, 'Piece', 100, 20, 600, 450),
62
          ('P07865', 'Jeans', 5, 'Piece', 100, 20, 750, 500),
          ('P07868', 'Trousers', 2, 'Piece', 150, 50, 850, 550),
          ('P07885', 'Pull Overs', 2.5, 'Piece', 80, 30, 700, 450),
          ('P07965', 'Denim jeans', 4, 'Piece', 100, 40, 350, 250),
          ('P07975', 'Lycra tops', 5, 'Piece', 70, 30, 300, 175),
 67
          ('P08865', 'Skirts', 5, 'Piece', 75, 30, 450, 300);
 68
          SELECT * FROM PRODUCT_MASTER;
 69 •
 70
 71
          -- Queries
 72
 73
          -- Find names of all clients
 74 •
          SELECT NAME FROM CLIENT_MASTER;
          -- Retrieve entire contents of CLIENT_MASTER
 75
          SELECT * FROM CLIENT_MASTER;
 76 •
 77
          -- List all products available
          SELECT NAME, CITY, STATE FROM CLIENT_MASTER;
 79
          -- List names, city, and state of all clients
          SELECT DESCRIPTION FROM PRODUCT_MASTER;
 80 .
          -- List all clients located in Mumbai
 81
          SELECT * FROM CLIENT_MASTER WHERE CITY = 'Mumbai';
 82 •
          -- Find names of salesmen with a salary equal to Rs. 3000
 83
          SELECT SALESMANNAME FROM SALESMAN_MASTER WHERE SALAMT = 3000;
 84 .
 85
           -- Update commands
 86
 87
           -- Change the city of ClientNo 'C00005' to 'Bangalore'
          UPDATE CLIENT_MASTER SET CITY = 'Bangalore' WHERE CLIENTNO = 'C00005';
 89 •
           -- Change BalDue of ClientNo 'C00001' to Rs. 1000
```

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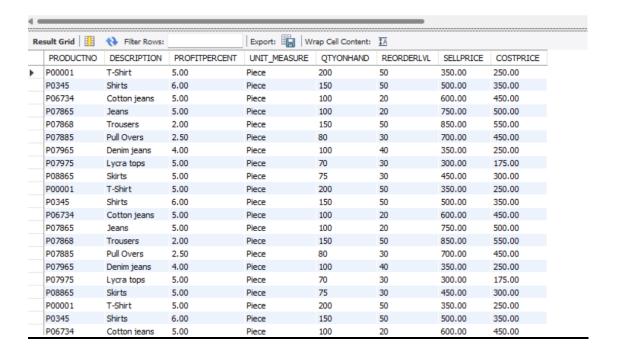
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87
        -- Change the city of ClientNo 'C00005' to 'Bangalore'
22
        UPDATE CLIENT_MASTER SET CITY = 'Bangalore' WHERE CLIENTNO = 'C00005';
89 •
        -- Change BalDue of ClientNo 'C00001' to Rs. 1000
90
        UPDATE CLIENT_MASTER SET BALDUE = 1000 WHERE CLIENTNO = 'C00001';
91 •
        -- Change the cost price of 'Trousers' to Rs. 950.00
92
        UPDATE PRODUCT_MASTER SET COSTPRICE = 950 WHERE PRODUCTNO = 'P07868';
94
        -- Change the city of salesmen to 'Pune'
95 •
        UPDATE SALESMAN_MASTER SET CITY = 'Pune';
```

```
1 • SELECT * FROM client.client_master;
```

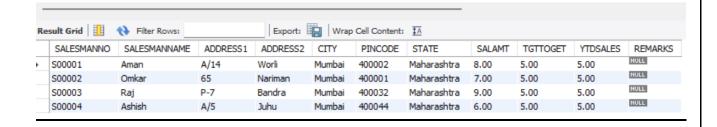


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SELECT * FROM client.product_master;



SELECT * FROM client.salesman master;



Conclusion:

In this experiment, we applied SQL constraints like **Primary Key**, **CHECK**, and **NOT NULL** to enforce data integrity. We created, inserted, retrieved, updated, and deleted records, as well as altered table structures. This demonstrated how constraints ensure data accuracy and consistency in relational databases.