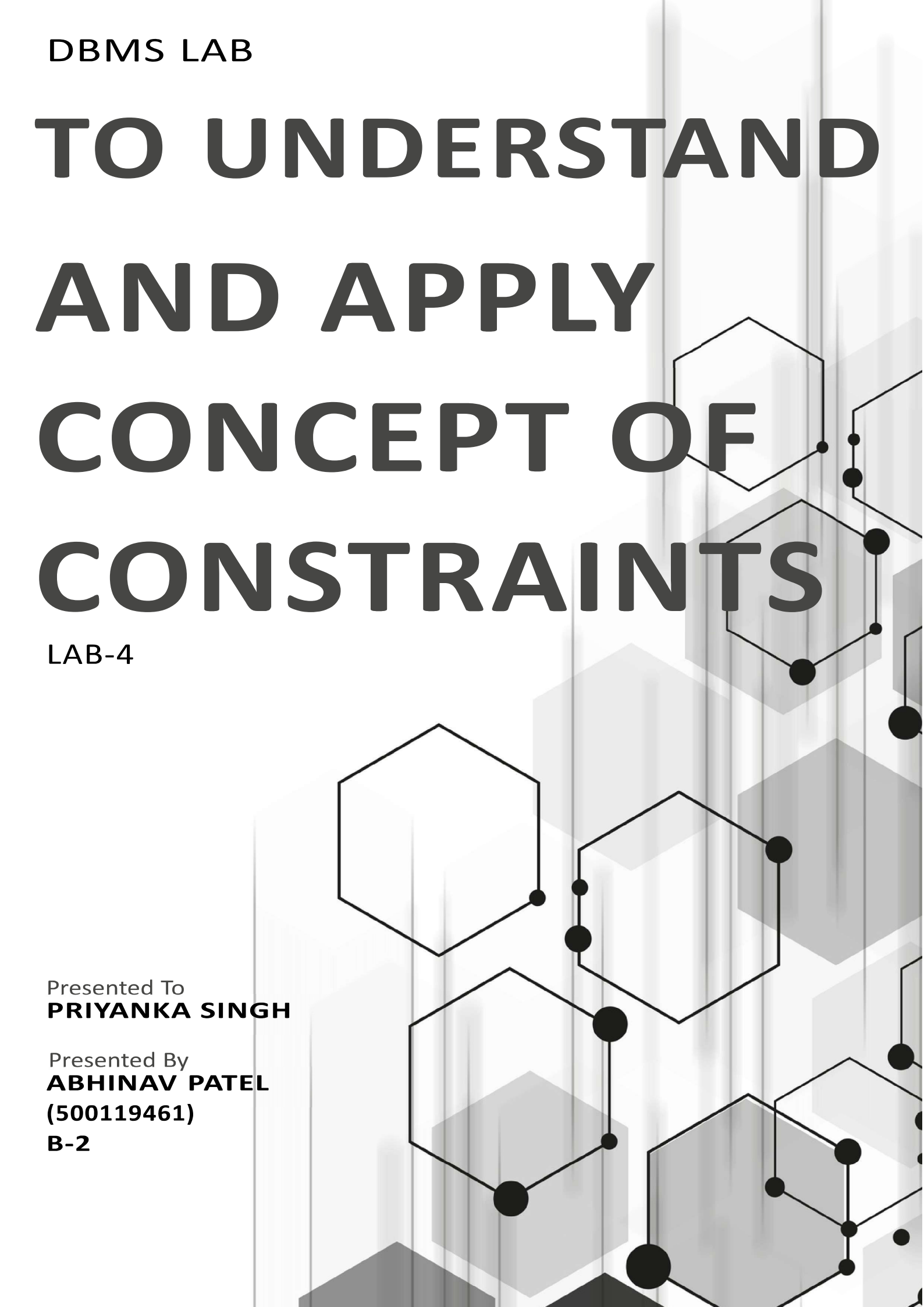


DBMS LAB

# TO UNDERSTAND AND APPLY CONCEPT OF CONSTRAINTS

The background of the slide features a complex geometric pattern. It consists of several overlapping hexagons in various shades of gray. Superimposed on these hexagons is a network of black lines and dots. Some lines form the outlines of the hexagons, while others are more intricate, connecting dots that are placed at various points, including the vertices and midpoints of the hexagons. The overall effect is a technical, almost circuit-like or molecular structure.

LAB-4

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**B-2**

# EXPERIMENT - 4

**Title:** To understand and apply the concept of Constraints.

**Objective:** 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.

## 1. Create the tables described below:

**Table name:** CLIENT\_MASTER

**Description:** used to store client information.

```
Find  Find sellprice
1    -- Abhinav Patel
2    -- 500119461
3
4 •  CREATE DATABASE client;
5 •  USE client;
6

Output
Action Output
# Time Action
✓ 1 19:26:35 CREATE DATABASE client
✓ 2 19:26:35 USE client
```

Column name	data type	Size	Constraints
CLIENTNO	Varchar	6	Primary key / first letter must start with 'C'
NAME	Varchar	20	Not Null
ADDRESS 1	Varchar	30	
ADDRESS 2	Varchar	30	
CITY	Varchar	15	
PINCODE	Integer	8	
STATE	Varchar	15	
BALDUE	Decimal	10,2	

```

7 • CREATE TABLE CLIENT_MASTER (
8     CLIENTNO VARCHAR(6) PRIMARY KEY CHECK (CLIENTNO LIKE 'C%'),
9     NAME VARCHAR(20) NOT NULL,
10    ADDRESS1 VARCHAR(30),
11    ADDRESS2 VARCHAR(30),
12    CITY VARCHAR(15),
13    PINCODE INTEGER CHECK (PINCODE >= 0),
14    STATE VARCHAR(15),
15    BALDUE DECIMAL(10, 2) DEFAULT 0.00
16 );
17

```

Output

Action Output

#	Time	Action
✓ 1	19:26:35	CREATE DATABASE client
✓ 2	19:26:35	USE client
✓ 3	19:27:08	CREATE TABLE CLIENT_MASTER ( CLIENTNO VARCHAR(6) PRIMARY KEY CHECK (CLIENTNO LIKE 'C%'), NAME VARCHAR(20) NOT NULL, ...

**Table Name:** **PRODUCT\_MASTER**

**Description:** used to store product information

Column name	data type	Size	Attributes
PRODUCTNO	Varchar	6	Primary Key/ first letter must start with 'P'
DESCRIPTION	Varchar	15	Not Null
PROFITPERCENT	Decimal	4,2	Not Null
UNIT MEASURE	Varchar	10	Not Null
QTYONHAND	Integer	8	Not Null
REORDERLEVEL	Integer	8	Not Null
SELLPRICE	Decimal	8,2	Not Null
COSTPRICE	Decimal	8,2	Not Null

17

```

18 • CREATE TABLE PRODUCT_MASTER (
19     PRODUCTNO VARCHAR(6),
20     CHECK (PRODUCTNO LIKE 'P%'),
21     DESCRIPTION VARCHAR(15) NOT NULL,
22     PROFITPERCENT DECIMAL(4,2) NOT NULL,
23     UNIT_MEASURE VARCHAR(10) NOT NULL,
24     QTYONHAND INTEGER(8) NOT NULL,
25     REORDERLVL INTEGER(8) NOT NULL,
26     SELLPRICE DECIMAL(8,2) NOT NULL,
27     COSTPRICE DECIMAL(8,2) NOT NULL
28 );
29

```

Output

Action Output

#	Time	Action	Message
✓ 1	19:26:35	CREATE DATABASE client	1 row(s)
✓ 2	19:26:35	USE client	0 row(s)
✓ 3	19:27:08	CREATE TABLE CLIENT_MASTER ( CLIENTNO VARCHAR(6) PRIMARY KEY CHECK (CLIENTNO LIKE 'C%'), NAME VARCHAR(20) NOT NULL, ...	0 row(s)
⚠ 4	19:28:00	CREATE TABLE PRODUCT_MASTER ( PRODUCTNO VARCHAR(6), CHECK (PRODUCTNO LIKE 'P%'), DESCRIPTION VARCHAR(15) NOT NULL, PR...	0 row(s)

**Table Name: SALESMAN\_MASTER****Description:** used to store salesman information working for the company.

Column name	data type	Size	Attributes
SALESMANNO	Varchar	6	Primary Key/ first letter must start with 'S'
SALESMANNAME	Varchar	20	Not Null
ADDRESS 1	Varchar	30	Not Null
ADDRESS 2	Varchar	30	
CITY	Varchar	20	
PINCODE	Integer	8	
STATE	Varchar	20	
SALAMT	Real	8,2	Not Null , Cannot be 0
TGTTGET	Decimal	6,2	Not Null , Cannot be 0
YTDSALES	Double	6,2	Not Null
REMARKS	Varchar	60	

```

9
0 • CREATE TABLE SALESMAN_MASTER (
1     SALESMANNO VARCHAR(6) PRIMARY KEY CHECK (SALESMANNO LIKE 'S%'),
2     SALESMANNAME VARCHAR(20) NOT NULL,
3     ADDRESS1 VARCHAR(30) NOT NULL,
4     ADDRESS2 VARCHAR(30),
5     CITY VARCHAR(20),
6     PINCODE INTEGER(8),
7     STATE VARCHAR(20),
8     SALAMT REAL(8,2) NOT NULL CHECK (SALAMT <> 0),
9     TGTTOGET DECIMAL(6,2) NOT NULL CHECK (TGTTOGET <> 0),
0     YTDSALES DOUBLE(6,2) NOT NULL,
1     REMARKS VARCHAR(60)
2 );

```

put

Action Output

#	Time	Action	
1	19:26:35	CREATE DATABASE client	1
2	19:26:35	USE client	0
3	19:27:08	CREATE TABLE CLIENT_MASTER ( CLIENTNO VARCHAR(6) PRIMARY KEY CHECK (CLIENTNO LIKE 'C%'). NAME VARCHAR(20) NOT NULL, ...	0
4	19:28:00	CREATE TABLE PRODUCT_MASTER ( PRODUCTNO VARCHAR(6), CHECK (PRODUCTNO LIKE 'P%'). DESCRIPTION VARCHAR(15) NOT NULL, PR...	0
5	19:29:13	CREATE TABLE SALESMAN_MASTER ( SALESMANNO VARCHAR(6) PRIMARY KEY CHECK (SALESMANNO LIKE 'S%'). SALESMANNAME VARCHA...	0

Insert the following data into their respective tables:

### Data for CLIENT\_MASTER table

```

43
44 -- Inserting elements into tables
45
46 • INSERT INTO CLIENT_MASTER (CLIENTNO, NAME, CITY, PINCODE, STATE, BALDUE) VALUES
47 ('C00001', 'Ivan bayross', 'Mumbai', 400054, 'Maharashtra', 15.000),
48 ('C00002', 'Mamta muzumdar', 'Madras', 780001, 'Tamil Nadu', 0.0),
49 ('C00003', 'Chhaya bankar', 'Mumbai', 400057, 'Maharashtra', 50.00),
50 ('C00004', 'Ashwini joshi', 'Bangalore', 560001, 'Karnataka', 0.0),
51 ('C00005', 'Hansel colaco', 'Mumbai', 400060, 'Maharashtra', 200.0),
52 ('C00006', 'Deepak sharma', 'Mangalore', 560050, 'Karnataka', 0.0);
53 • SELECT * FROM CLIENT_MASTER;

```

CLIENTNO	NAME	ADDRESS1	ADDRESS2	CITY	PINCODE	STATE	BALDUE
C00001	Ivan bayross	NULL	NULL	Mumbai	400054	Maharashtra	15.00
C00002	Mamta muzumdar	NULL	NULL	Madras	780001	Tamil Nadu	0.00
C00003	Chhaya bankar	NULL	NULL	Mumbai	400057	Maharashtra	50.00
C00004	Ashwini joshi	NULL	NULL	Bangalore	560001	Karnataka	0.00
C00005	Hansel colaco	NULL	NULL	Mumbai	400060	Maharashtra	200.00
C00006	Deepak sharma	NULL	NULL	Mangalore	560050	Karnataka	0.00

NT\_MASTER 1 x

Output

Action Output

#	Time	Action	Message
1	19:31:41	INSERT INTO CLIENT_MASTER (CLIENTNO, NAME, CITY, PINCODE, STATE, BALDUE) VALUES ('C00001', 'Ivan bayross', 'Mumbai', 400054, 'Maha...	6 row(s) affected Records: 6 Duplicates: 0 Warnings: 0
2	19:31:41	SELECT * FROM CLIENT_MASTER LIMIT 0, 1000	6 row(s) returned

## Data for SALESMAN\_MASTER table

Find

```

55 • INSERT INTO SALESMAN_MASTER (SALESMANNO, SALESMANNAME, ADDRESS1, ADDRESS2, CITY, PINCODE, STATE, SALAMT, TGTOGET
56 ('S00001', 'Aman', 'A/14', 'Worli', 'Mumbai', 400002, 'Maharashtra', 8,5,5),
57 ('S00002', 'Omkar', '65', 'Nariman', 'Mumbai', 400001, 'Maharashtra', 7,5,5),
58 ('S00003', 'Raj', 'P-7', 'Bandra', 'Mumbai', 400032, 'Maharashtra', 9,5,5),
59 ('S00004', 'Ashish', 'A/5', 'Juhu', 'Mumbai', 400044, 'Maharashtra', 6,5,5);
60 • SELECT * FROM SALESMAN_MASTER;

```

SALESMANNO	SALESMANNAME	ADDRESS1	ADDRESS2	CITY	PINCODE	STATE	SALAMT	TGTOGET	YTD SALES	REMARKS
S00001	Aman	A/14	Worli	Mumbai	400002	Maharashtra	8.00	5.00	5.00	
S00002	Omkar	65	Nariman	Mumbai	400001	Maharashtra	7.00	5.00	5.00	
S00003	Raj	P-7	Bandra	Mumbai	400032	Maharashtra	9.00	5.00	5.00	
S00004	Ashish	A/5	Juhu	Mumbai	400044	Maharashtra	6.00	5.00	5.00	

SALESMAN\_MASTER 2 x Apply

Output

Action Output

#	Time	Action	Message
1	19:31:41	INSERT INTO CLIENT_MASTER (CLIENTNO, NAME, CITY, PINCODE, STATE, BALDUE) VALUES ('C00001', 'Ivan bayross', 'Mumbai', 400054, 'Maha...	6 row(s) affected Records: 6 Duplicates:
2	19:31:41	SELECT * FROM CLIENT_MASTER LIMIT 0, 1000	6 row(s) returned
3	19:32:26	INSERT INTO SALESMAN_MASTER (SALESMANNO, SALESMANNAME, ADDRESS1, ADDRESS2, CITY, PINCODE, STATE, SALAMT, TGTOGET,...	4 row(s) affected Records: 4 Duplicates:
4	19:32:26	SELECT * FROM SALESMAN_MASTER LIMIT 0, 1000	4 row(s) returned

## Data for PRODUCT\_MASTER table

```

62 • INSERT INTO PRODUCT_MASTER (PRODUCTNO, DESCRIPTION, PROFITPERCENT, UNIT_MEASURE, QTYONHAND,
63 REORDERLVL, SELLPRICE, COSTPRICE) VALUES
64 ('P00001', 'T-Shirt', 5, 'Piece', 200, 50, 350, 250),
65 ('P0345', 'Shirts', 6, 'Piece', 150, 50, 500, 350),
66 ('P06734', 'Cotton jeans', 5, 'Piece', 100, 20, 600, 450),
67 ('P07865', 'Jeans', 5, 'Piece', 100, 20, 750, 500),
68 ('P07868', 'Trousers', 2, 'Piece', 150, 50, 850, 550),
69 ('P07885', 'Pull Overs', 2.5, 'Piece', 80, 30, 700, 450),
70 ('P07965', 'Denim jeans', 4, 'Piece', 100, 40, 350, 250),
71 ('P07975', 'Lycra tops', 5, 'Piece', 70, 30, 300, 175),
72 ('P08865', 'Skirts', 5, 'Piece', 75, 30, 450, 300);
73 • SELECT * FROM PRODUCT_MASTER;

```

PRODUCTNO	DESCRIPTION	PROFITPERCENT	UNIT_MEASURE	QTYONHAND	REORDERLVL	SELLPRICE	COSTPRICE
P00001	T-Shirt	5.00	Piece	200	50	350.00	250.00
P0345	Shirts	6.00	Piece	150	50	500.00	350.00
P06734	Cotton jeans	5.00	Piece	100	20	600.00	450.00
P07865	Jeans	5.00	Piece	100	20	750.00	500.00
P07868	Trousers	2.00	Piece	150	50	850.00	550.00
P07885	Pull Overs	2.50	Piece	80	30	700.00	450.00
P07965	Denim jeans	4.00	Piece	100	40	350.00	250.00
P07975	Lycra tops	5.00	Piece	70	30	300.00	175.00
P08865	Skirts	5.00	Piece	75	30	450.00	300.00

### Exercise on retrieving records from a table

- Find out the names of all the clients.
- Retrieve the entire contents of the Client\_Master table.
- Retrieve the list of names, city and the state of all the clients.
- List the various products available from the Product\_Master table.
- List all the clients who are located in Mumbai.
- Find the names of salesman who have a salary equal to Rs.3000.

The screenshot displays a database management interface. At the top, a search bar contains 'sellprice'. Below it, a list of SQL queries is shown, numbered 76 to 92. The queries are as follows:

```
76 -- Exercise on retrieving records from a table.
77
78 -- Find names of all clients
79 • SELECT NAME FROM CLIENT_MASTER;
80 -- Retrieve entire contents of CLIENT_MASTER
81 • SELECT * FROM CLIENT_MASTER;
82 -- List all products available
83 • SELECT NAME, CITY, STATE FROM CLIENT_MASTER;
84 -- List names, city, and state of all clients
85 • SELECT DESCRIPTION FROM PRODUCT_MASTER;
86 -- List all clients located in Mumbai
87 • SELECT * FROM CLIENT_MASTER WHERE CITY = 'Mumbai';
88 -- Find names of salesmen with a salary equal to Rs. 3000
89 • SELECT SALESMANNAME FROM SALESMAN_MASTER WHERE SALAMT = 3000;
90
91 -- Update commands
92 -- Exercise on updating records in a table
```

Below the queries, there is a toolbar with options like 'Result Grid', 'Filter Rows', 'Export', and 'Wrap Cell Content'. A table with one column, 'SALESMANNAME', is visible. At the bottom, there are tabs for different tables: 'CLIENT\_MASTER 4', 'CLIENT\_MASTER 5', 'CLIENT\_MASTER 6', 'PRODUCT\_MASTER 7', 'CLIENT\_MASTER 8', and 'SALESMAN\_MASTER 9'. The 'SALESMAN\_MASTER 9' tab is selected, showing an 'Output' section with a table of execution results.

#	Time	Action
8	19:37:29	SELECT * FROM CLIENT_MASTER LIMIT 0, 1000
9	19:37:29	SELECT NAME, CITY, STATE FROM CLIENT_MASTER LIMIT 0, 1000
10	19:37:29	SELECT DESCRIPTION FROM PRODUCT_MASTER LIMIT 0, 1000
11	19:37:29	SELECT * FROM CLIENT_MASTER WHERE CITY = 'Mumbai' LIMIT 0, 1000
12	19:37:29	SELECT SALESMANNAME FROM SALESMAN_MASTER WHERE SALAMT = 3000 LIMIT 0, 1000

### Exercise on updating records in a table

- Change the city of ClientNo 'C00005' to 'Bangalore'.
- Change the BalDue of ClientNo 'C00001' to Rs.1000.
- Change the cost price of 'Trousers' to rs.950.00.
- Change the city of the salesman to Pune.

```
91
92 -- Update commands
93 -- Exercise on updating records in a table
94
95 -- Change the city of ClientNo 'C00005' to 'Bangalore'
96 • UPDATE CLIENT_MASTER SET CITY = 'Bangalore' WHERE CLIENTNO = 'C00005';
97 -- Change BalDue of ClientNo 'C00001' to Rs. 1000
98 • UPDATE CLIENT_MASTER SET BALDUE = 1000 WHERE CLIENTNO = 'C00001';
99 -- Change the cost price of 'Trousers' to Rs. 950.00
100 • UPDATE PRODUCT_MASTER SET COSTPRICE = 950 WHERE PRODUCTNO = 'P07868';
101 -- Change the city of salesmen to 'Pune'
102 • UPDATE SALESMAN_MASTER SET CITY = 'Pune';
103
104
```

Output

#	Time	Action	Message
✓ 1	19:41:46	UPDATE CLIENT_MASTER SET CITY = 'Bangalore' WHERE CLIENTNO = 'C00005'	0 row(s) affected
✓ 2	19:41:46	UPDATE CLIENT_MASTER SET BALDUE = 1000 WHERE CLIENTNO = 'C00001'	0 row(s) affected
✓ 3	19:41:46	UPDATE PRODUCT_MASTER SET COSTPRICE = 950 WHERE PRODUCTNO = 'P07868'	1 row(s) affected
✓ 4	19:41:46	UPDATE SALESMAN_MASTER SET CITY = 'Pune'	4 row(s) affected

### Exercise on deleting records in a table

- Delete all salesman from the Salesman\_Master whose salaries are equal to Rs.3500.
- Delete all products from Product\_Master where the quantity on hand is equal to 100.
- Delete from Client\_Master where the column state holds the value 'Tamil Nadu'.

```
105 -- Delete all salesmen from Salesman_Master whose salaries are equal to Rs.3500.
106 • DELETE FROM Salesman_Master
107 WHERE SALAMT = 3500;
108
109 -- Delete all products from Product_Master where the quantity on hand is equal to 100.
110 • DELETE FROM Product_Master
111 WHERE QTYONHAND = 100;
112
113 -- Delete from Client_Master where the column state holds the value 'Tamil Nadu'.
114 • DELETE FROM Client_Master
115 WHERE STATE = 'Tamil Nadu';
116
```

Output

#	Time	Action	Message
✓ 1	19:49:47	DELETE FROM Salesman_Master WHERE SALAMT = 3500	0 row(s) affected
✓ 2	19:49:47	DELETE FROM Product_Master WHERE QTYONHAND = 100	3 row(s) affected
✓ 3	19:49:47	DELETE FROM Client_Master WHERE STATE = 'Tamil Nadu'	1 row(s) affected



### Exercise on altering the table structure

- Add a column called 'Telephone' of data type integer to the Client\_Master table.
- Change the size of SellPrice column in Product\_Master to 10, 2.

```
116
117 -- Add a column called 'Telephone' of data type integer to the Client_Master table.
118 • ALTER TABLE Client_Master
119 ADD Telephone INT;
120
121 -- Change the size of SellPrice column in Product_Master to 10, 2.
122 • ALTER TABLE Product_Master
123 MODIFY COLUMN SellPrice DECIMAL(10, 2);
124
```

Output

#	Time	Action	Message
✓ 1	19:48:40	ALTER TABLE Client_Master ADD Telephone INT	0 row(s) affected Records: 0 Duplicates: 0 Wan
✓ 2	19:48:40	ALTER TABLE Product_Master MODIFY COLUMN SellPrice DECIMAL(10, 2)	9 row(s) affected Records: 9 Duplicates: 0 Wan

### Exercise on deleting the table structure along with the data

- Destroy the table Client\_Master along with its data

```
124
125 -- Destroy the table Client_Master along with its data.
126 • DROP TABLE Client_Master;
127
```

Output

#	Time	Action
✓ 1	19:50:17	DROP TABLE Client_Master