



INSTITUTE OF ENGINEERING AND TECHNOLOGY

Mohanlal Sukhadia University, Udaipur

Name- Shivam Chouhan | Class- BTech-CSE (IV Sem) | Subject- DBMS Lab

INSTITUTE OF ENGINEERING & TECHNOLOGY

MOHANLAL SUKHADIA UNIVERSITY, UDAIPUR

(RAJ.)

DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

B. Tech - IV SEMESTER



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Database Management System Lab LABORATORY MANUAL

BT4CS08-CP02

**Prepared by:
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DBMS PRACTICAL 1

Write queries with use of Create, update, drop, truncate, insert, delete, alter, and other statements.

- A. Write a query to create a table employee with empno, empname, designation and salary.

```
CREATE TABLE EMP_SHIVAM(EMPNO INT(4),ENAME VARCHAR(10),DESIGNATION VARCHAR(10), SALARY INT(8));
Query OK, 0 rows affected, 2 warnings (0.14 sec)
```

- B. Write a query to display all details of employee.

```
mysql> DESC EMP_SHIVAM;
+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| EMPNO | int  | YES  |     | NULL    |       |
| ENAME | varchar(10) | YES  |     | NULL    |       |
| DESIGNATION | varchar(10) | YES  |     | NULL    |       |
| SALARY | int  | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

- C. Write a query to drop database.

```
mysql> DROP TABLE EMP_SHIVAM;
Query OK, 0 rows affected (0.08 sec)
```

- D. Write a query to truncate table.

```
mysql> TRUNCATE TABLE EMP_SHIVAM;
Query OK, 0 rows affected (0.09 sec)
```



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E. Write a query to insert data into employee table.

```
mysql> insert into EMPLOYEE_Shivam values(01,"VAMIT","COO",2000000);
Query OK, 1 row affected (0.01 sec)

mysql> insert into EMPLOYEE_Shivam values(02,"DIVYANSHU","MANAGER",250000);
Query OK, 1 row affected (0.01 sec)
```

F. Write a query to update designation of VAMIT to “COO”.

```
mysql> UPDATE EMP_SHIVAM SET DESIGNATION="COO" WHERE EMPNO=1;
Query OK, 1 row affected (0.03 sec)
Rows matched: 1  Changed: 1  Warnings: 0
+-----+-----+-----+-----+
| EMPNO | ENAME | DESIGNATION | SALARY |
+-----+-----+-----+-----+
|     1 | VAMIT | COO          | 200000  |
+-----+-----+-----+-----+
```

G. Write a query to update multiple record from employee

```
mysql> ALTER TABLE EMP_SHIVAM ADD PRIMARY KEY(EMPNO);
Query OK, 0 rows affected (0.22 sec)
Records: 0  Duplicates: 0  Warnings: 0
+-----+-----+-----+-----+-----+-----+
| Field   | Type    | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| EMPNO   | int     | NO   | PRI | NULL    |       |
| ENAME   | varchar(10) | YES  |     | NULL    |       |
| DESIGNATION | varchar(10) | YES  |     | NULL    |       |
| SALARY  | int     | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
```



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H. Alter table to add primary key.

```
mysql> UPDATE EMP_SHIVAM SET SALARY=250000,DESIGNATION="MANAGER" WHERE EMPNO=2;
Query OK, 1 row affected (0.03 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

EMPNO	ENAME	DESIGNATION	SALARY
1	VAMIT	COO	200000
2	DIVYANSHU	MANAGER	250000

I. Write a query to alter column designation varchar(10) to designation varchar(20).

```
mysql> ALTER TABLE EMP_SHIVAM MODIFY DESIGNATION VARCHAR(20);
Query OK, 0 rows affected (0.04 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

Field	Type	Null	Key	Default	Extra
EMPNO	int	NO	PRI	NULL	
ENAME	varchar(10)	YES		NULL	
DESIGNATION	varchar(20)	YES		NULL	
SALARY	int	YES		NULL	

J. Write a query to add a new column to employee.

```
mysql> ALTER TABLE EMP_SHIVAM ADD AGE INT;
Query OK, 0 rows affected (0.05 sec)
Records: 0  Duplicates: 0  Warnings: 0
```



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K. Write a query to add multiple columns in employee.

```
mysql> ALTER TABLE EMP_SHIVAM ADD (DOB DATE, DOJ DATE);
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

Field	Type	Null	Key	Default	Extra
EMPNO	int	NO	PRI	NULL	
ENAME	varchar(10)	YES		NULL	
DESIGNATION	varchar(20)	YES		NULL	
SALARY	int	YES		NULL	
AGE	int	YES		NULL	
DOB	date	YES		NULL	
DOJ	date	YES		NULL	

L. Write a query to rename table.

```
mysql> ALTER TABLE EMP_SHIVAM RENAME EMPLOYEE_SHIVAM;
Query OK, 0 rows affected (0.07 sec)
```

M. Write a query to delete employee with empno=4.

```
mysql> DELETE FROM EMPLOYEE_SHIVAM WHERE EMPNO=4;
Query OK, 1 row affected (0.04 sec)
```

EMPNO	ENAME	DESIGNATION	SALARY	AGE	DOB	DOJ
1	VAMIT	COO	200000	NULL	NULL	NULL
2	DIVYANSHU	MANAGER	250000	NULL	NULL	NULL
3	SARTHAK	DEVELOPER	175000	NULL	NULL	NULL



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N. List all employee details.

```
mysql> SELECT*FROM EMPLOYEE_SHIVAM;
```

EMPNO	ENAME	DESIGNATION	SALARY	AGE	DOB	DOJ
1	VAMIT	COO	200000	NULL	NULL	NULL
2	DIVYANSHU	MANAGER	250000	NULL	NULL	NULL
3	SARTHAK	DEVELOPER	175000	NULL	NULL	NULL
4	RAJVEER	DEVELOPER	175000	NULL	NULL	NULL

4 rows in set (0.00 sec)

O. List all employee details who are developer.

```
mysql> SELECT*FROM EMPLOYEE_SHIVAM WHERE DESIGNATION="DEVELOPER";
```

EMPNO	ENAME	DESIGNATION	SALARY	AGE	DOB	DOJ
3	SARTHAK	DEVELOPER	175000	NULL	NULL	NULL
4	RAJVEER	DEVELOPER	175000	NULL	NULL	NULL

2 rows in set (0.00 sec)



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DBMS PRACTICAL 2

Perform SQL Queries by using BETWEEN / NOT / IN / NULL / LIKE.

Table: employee

```
mysql> SELECT*FROM EMPLOYEE;
```

EMPNO	ENAME	JOB	SAL
1	Manas	Terrorist	72
2	Rituraj	iNTERN	NULL
3	Pranjal	Manager	50000
4	Sanjay	Database Engineer	500000
5	Bhavesh	Sweeper	2000

5 rows in set (0.00 sec)

A. Between

```
mysql> select EMPNO,ENAME,JOB,SAL FROM EMP_SHIVAM WHERE SAL BETWEEN 1000 AND 30000;
```

EMPNO	ENAME	JOB	SAL
5	Bhavesh	Sweeper	2000

1 row in set (0.00 sec)

B. In

```
mysql> select EMPNO,ENAME,JOB,SAL FROM EMP_SHIVAM WHERE SAL IN(2000);
```

EMPNO	ENAME	JOB	SAL
5	Bhavesh	Sweeper	2000

1 row in set (0.00 sec)

```
mysql> select EMPNO,ENAME,JOB,SAL FROM EMP_SHIVAM WHERE SAL IN(2000,500000);
```

EMPNO	ENAME	JOB	SAL
4	Sanjay	Database Engineer	500000
5	Bhavesh	Sweeper	2000

2 rows in set (0.00 sec)



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```
mysql> select EMPNO,ENAME,JOB,SAL FROM EMPLOYEE WHERE SAL NOT IN(2000,500000);
```

EMPNO	ENAME	JOB	SAL
1	Manas	Terrorist	72
2	Rituraj	Chef	69
3	Pranjal	Manager	50000

3 rows in set (0.00 sec)

```
mysql> select EMPNO,ENAME,JOB,SAL FROM EMPLOYEE WHERE SAL IS NOT NULL;
```

EMPNO	ENAME	JOB	SAL
1	Manas	Terrorist	72
2	Rituraj	Chef	69
3	Pranjal	Manager	50000
4	Sanjay	Database Engineer	500000
5	Bhavesh	Sweeper	2000

5 rows in set (0.00 sec)

C. Like

```
mysql> select EMPNO,ENAME,JOB,SAL FROM EMPLOYEE WHERE SAL LIKE 50000;
```

EMPNO	ENAME	JOB	SAL
3	Pranjal	Manager	50000

1 row in set (0.00 sec)

```
mysql> select EMPNO,ENAME,JOB,SAL FROM EMPLOYEE WHERE ENAME LIKE "%S%";
```

EMPNO	ENAME	JOB	SAL
4	Sanjay	Database Engineer	500000

1 row in set (0.02 sec)

```
mysql> select EMPNO,ENAME,JOB,SAL FROM EMPLOYEE WHERE ENAME LIKE "%R%";
```

Empty set (0.00 sec)

```
mysql> select EMPNO,ENAME,JOB,SAL FROM EMPLOYEE WHERE ENAME LIKE "%L%";
```

EMPNO	ENAME	JOB	SAL
3	Pranjal	Manager	50000

1 row in set (0.00 sec)



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```
mysql> select EMPNO,ENAME,JOB,SAL FROM EMPLOYEE WHERE SAL IS NULL;
+-----+-----+-----+-----+
| EMPNO | ENAME   | JOB      | SAL    |
+-----+-----+-----+-----+
|     2 | Rituraj  | INTERN   | NULL   |
+-----+-----+-----+-----+
1 row in set (0.00 sec)
```

```
mysql> select EMPNO,ENAME,JOB,SAL FROM EMPLOYEE WHERE ENAME LIKE "%N%";
+-----+-----+-----+-----+
| EMPNO | ENAME   | JOB      | SAL    |
+-----+-----+-----+-----+
|     1 | Manas   | Terrorist | 72     |
|     3 | Pranjal  | Manager   | 50000  |
|     4 | Sanjay   | Database Engineer | 500000 |
+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

```
mysql> select EMPNO,ENAME,JOB,SAL FROM EMPLOYEE WHERE ENAME LIKE "%AN%";
+-----+-----+-----+-----+
| EMPNO | ENAME   | JOB      | SAL    |
+-----+-----+-----+-----+
|     1 | Manas   | Terrorist | 72     |
|     3 | Pranjal  | Manager   | 50000  |
|     4 | Sanjay   | Database Engineer | 500000 |
+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

```
mysql> select EMPNO,ENAME,JOB,SAL FROM EMPLOYEE WHERE ENAME LIKE "%A%N%";
+-----+-----+-----+-----+
| EMPNO | ENAME   | JOB      | SAL    |
+-----+-----+-----+-----+
|     1 | Manas   | Terrorist | 72     |
|     3 | Pranjal  | Manager   | 50000  |
|     4 | Sanjay   | Database Engineer | 500000 |
+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

```
mysql> select EMPNO,ENAME,JOB,SAL FROM EMPLOYEE WHERE ENAME LIKE "R_____";
+-----+-----+-----+-----+
| EMPNO | ENAME   | JOB      | SAL    |
+-----+-----+-----+-----+
|     2 | Rituraj  | INTERN   | NULL   |
+-----+-----+-----+-----+
1 row in set (0.00 sec)
```



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DBMS PRACTICAL 3

Table : Customer

```
mysql> select * from customer;
```

CId	CName	Contact	Address	City	PostalCode	Country
1	Alfreds	6324533	Obre Str.	Berlin	11209	Germany
2	Anna	63253433	Avda de la	Mexico DF	5021	Mexico
3	Antonio	63253433	Ayda de la	Mexico DF	5023	Mexico
4	Around the Horn	632243523	120 Hanover Sq	London	2352	UK
5	Berglunds	632243523	Berguvsvagen	Lulea	13423	Sweden

1. Distinct Statement

Syntax:

```
SELECT DISTINCT column1, column2, ...
FROM table_name;
```

Example 1

```
mysql> select country from customer;
+-----+
| country |
+-----+
| Germany |
| Mexico  |
| Mexico  |
| UK      |
| Sweden  |
+-----+
5 rows in set (0.00 sec)
```



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Example 2

```
mysql> select distinct country from customer;
+-----+
| country |
+-----+
| Germany |
| Mexico   |
| UK       |
| Sweden   |
+-----+
4 rows in set (0.00 sec)
```

Example 3

```
mysql> select count(distinct country) from customer;
+-----+
| count(distinct country) |
+-----+
|                      4 |
+-----+
1 row in set (0.00 sec)
```

Example 4

```
mysql> select count(*) as distinctcountries from(select distinct country from customer) as subqueryalias;
+-----+
| distinctcountries |
+-----+
|                  4 |
+-----+
1 row in set (0.00 sec)
```

2. Where Clause

Example 1

```
mysql> select * from customer where Country="Mexico";
+-----+-----+-----+-----+-----+-----+
| CId | CName  | Contact | Address  | City    | PostalCode | Country |
+-----+-----+-----+-----+-----+-----+
|  2  | Anna    | 63253433 | Avda de la | Mexico DF |      5021 | Mexico   |
|  3  | Antonio | 63253433 | Avda de la | Mexico DF |      5023 | Mexico   |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```



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Example 2

```
mysql> select * from customer where CId=1;
+----+-----+-----+-----+-----+-----+
| CId | CName | Contact | Address | City   | PostalCode | Country |
+----+-----+-----+-----+-----+-----+
| 1   | Alfreds | 6324533 | Obre Str. | Berlin | 11209 | Germany |
+----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)
```

3. Order by Clause

Syntax:

```
SELECT column1, column2, ...
FROM table_name
ORDER BY column1, column2, ... ASC/DESC;
```

Example 1

```
mysql> select * from customer order by country;
+----+-----+-----+-----+-----+-----+
| CId | CName      | Contact | Address    | City   | PostalCode | Country |
+----+-----+-----+-----+-----+-----+
| 1   | Alfreds    | 6324533 | Obre Str.  | Berlin | 11209 | Germany |
| 2   | Anna        | 63253433 | Avda de la | Mexico DF | 5021 | Mexico |
| 3   | Antonio     | 63253433 | Avda de la | Mexico DF | 5023 | Mexico |
| 5   | Berglunds   | 632243523 | Berguvsvagen | Lulea | 13423 | Sweden |
| 4   | Around the Horn | 632243523 | 120 Hanover Sq | London | 2352 | UK |
+----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

Example 2: Order by descending Order

```
mysql> select * from customer order by country desc;
+----+-----+-----+-----+-----+-----+
| CId | CName      | Contact | Address    | City   | PostalCode | Country |
+----+-----+-----+-----+-----+-----+
| 4   | Around the Horn | 632243523 | 120 Hanover Sq | London | 2352 | UK |
| 5   | Berglunds   | 632243523 | Berguvsvagen | Lulea | 13423 | Sweden |
| 2   | Anna        | 63253433 | Avda de la | Mexico DF | 5021 | Mexico |
| 3   | Antonio     | 63253433 | Avda de la | Mexico DF | 5023 | Mexico |
| 1   | Alfreds    | 6324533 | Obre Str.  | Berlin | 11209 | Germany |
+----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```



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Example 3: Using several columns

(A)

```
mysql> select * from customer order by country, CName;
```

CId	CName	Contact	Address	City	PostalCode	Country
1	Alfreds	6324533	Obre Str.	Berlin	11209	Germany
2	Anna	63253433	Avda de la	Mexico DF	5021	Mexico
3	Antonio	63253433	Avda de la	Mexico DF	5023	Mexico
5	Berglunds	632243523	Berguvsvagen	Lulea	13423	Sweden
4	Around the Horn	632243523	120 Hanover Sq	London	2352	UK

5 rows in set (0.00 sec)

(B)

```
mysql> select * from customer order by country ASC, Cname Desc;
```

CId	CName	Contact	Address	City	PostalCode	Country
1	Alfreds	6324533	Obre Str.	Berlin	11209	Germany
3	Antonio	63253433	Avda de la	Mexico DF	5023	Mexico
2	Anna	63253433	Avda de la	Mexico DF	5021	Mexico
5	Berglunds	632243523	Berguvsvagen	Lulea	13423	Sweden
4	Around the Horn	632243523	120 Hanover Sq	London	2352	UK

5 rows in set (0.00 sec)

4. Group by Clause

Syntax:

```
SELECT column_name(s)
FROM table_name
WHERE condition
GROUP BY column_name(s)
ORDER BY column_name(s);
```



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Example 1:

```
mysql> select count(CId),country from customer group by country;
+-----+-----+
| count(CId) | country |
+-----+-----+
|      1 | Germany |
|      2 | Mexico   |
|      1 | UK       |
|      1 | Sweden   |
+-----+-----+
4 rows in set (0.00 sec)
```

Example 2: Using Group by and Order by together

```
mysql> select count(CId),country from customer group by country order by count(Cid) desc;
+-----+-----+
| count(CId) | country |
+-----+-----+
|      2 | Mexico   |
|      1 | Germany |
|      1 | UK       |
|      1 | Sweden   |
+-----+-----+
4 rows in set (0.00 sec)
```

5. Having Clause

Syntax:

```
SELECT column_name(s)
FROM table_name
WHERE condition
GROUP BY column_name(s)
HAVING condition
ORDER BY column_name(s);
```



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Example 1:

```
mysql> select count(CId),country from customer group by country having count(CId);
+-----+-----+
| count(CId) | country |
+-----+-----+
| 1 | Germany |
| 2 | Mexico |
| 1 | UK |
| 1 | Sweden |
+-----+-----+
4 rows in set (0.00 sec)
```

Example 2:

```
mysql> select count(CId),country from customer group by country having count(CId)>5;
Empty set (0.00 sec)
```

```
mysql> select count(CId),country from customer group by country having count(CId)<5;
+-----+-----+
| count(CId) | country |
+-----+-----+
| 1 | Germany |
| 2 | Mexico |
| 1 | UK |
| 1 | Sweden |
+-----+-----+
4 rows in set (0.00 sec)
```

Example 3:

```
mysql> select count(CId),country from customer group by country having count(CId)>5 order by count(CId) desc;
Empty set (0.00 sec)
```

```
mysql> select count(CId),country from customer group by country having count(CId)<5 order by count(CId) desc;
+-----+-----+
| count(CId) | country |
+-----+-----+
| 2 | Mexico |
| 1 | Germany |
| 1 | UK |
| 1 | Sweden |
+-----+-----+
4 rows in set (0.00 sec)
```



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DBMS PRACTICAL 4

Table : publisher_shivam

```
mysql> select*from publisher_shivam;
+-----+-----+-----+-----+
| publisher_code | publisher_name | publisher_city | publisher_state |
+-----+-----+-----+-----+
| AH           | Arkham House Publ. | Sauk City      | WI
| AP           | Arcade Publishing   | New York       | NY
| AW           | Addison Wesley    | Reading        | MA
| BB           | Bantam Books       | New York       | NY
| BF           | Best and Furrow   | Boston         | MA
+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

Table : author_shivam

```
mysql> select*from author_shivam;
+-----+-----+-----+
| author_number | author_last | author_first |
+-----+-----+-----+
| 1            | Archer     | Jeffrey
| 2            | Christie   | Agatha
| 3            | Clarke     | Arthur C.
| 4            | Francis    | Dick
| 5            | Cussler    | Clive
+-----+-----+-----+
5 rows in set (0.00 sec)
```

Table : book_shivam

```
mysql> select*from book_shivam;
+-----+-----+-----+-----+-----+-----+
| book_code | book_title | publisher_code | book_type | book_price | paper_back |
+-----+-----+-----+-----+-----+-----+
| 0180      | Shyness    | BB            | PSY        | 7.65       | Y
| 0200      | Stranger   | BB            | FIC        | 8.75       | Y
| 3906      | Vortex     | BB            | SUS        | 5.45       | Y
| 6328      | Vixer07    | BB            | SUS        | 5.55       | Y
| 8720      | Castle     | BB            | FIC        | 12.15      | Y
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```



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Table : wrote_shivam

```
mysql> select*from wrote_shivam;
+-----+-----+
| book_code | author_number | sequence_number |
+-----+-----+
| 0180      |           1 |           1 |
| 0200      |           2 |           1 |
| 0180      |           2 |           1 |
| 6328      |           4 |           1 |
| 8720      |           5 |           1 |
+-----+-----+
5 rows in set (0.00 sec)
```

Query 1: List the book code of each book where book type is “PSY ” AND the paperback.

```
mysql> select book_code from book_shivam where book_type ='PSY' and paper_back ='Y';
+-----+
| book_code |
+-----+
| 0180     |
+-----+
1 row in set (0.00 sec)
```

Query 2: List the code and title of each paperback book whose type is ART and whose price is less than RS. 12.00.

```
mysql> select book_code,book_title from book_shivam where paper_back='Y' and book_type='SUS' and book_price<='12.00';
+-----+-----+
| book_code | book_titlevar |
+-----+-----+
| 3906     | Vortex       |
| 6328     | Vixer07     |
+-----+-----+
2 rows in set (0.00 sec)
```

Query 3: How many books are of type “FIC”.

```
mysql> select count(*) as Number_of_books from book_shivam where book_type = 'FIC';
+-----+
| Number_of_books |
+-----+
|          2 |
+-----+
1 row in set (0.00 sec)
```



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Query 4: Find the average price for books of type “SUS”.

```
mysql> select avg(book_price) as Average_Price from book_shivam where book_type = 'SUS';
+-----+
| Average_Price |
+-----+
|      5.500000 |
+-----+
1 row in set (0.00 sec)
```

Query 5: List the name of every publisher not located in New York state.

```
mysql> select publisher_name from publisher_shivam where publisher_city != 'New York';
+-----+
| publisher_name   |
+-----+
| Arkham House Publ. |
| Addison Wesley    |
| Best and Furrow   |
+-----+
3 rows in set (0.00 sec)
```

Query 6: List the book code and title of every book whose type is FIC, MYS, or ART. Use the IN operator in your command.

```
mysql> select book_code, book_title from book_shivam where book_type in ('FIC', 'MYS', 'ART');
+-----+-----+
| book_code | book_titlevar |
+-----+-----+
| 0200     | Stranger      |
| 8720     | Castle        |
+-----+-----+
2 rows in set (0.00 sec)
```

Query 7: Determine the name of most expensive, and most cheap book.

```
mysql> select book_price, book_title from book_shivam where book_price = (select max(book_price)
frombook) union select book_price, book_title from book_shivam where book_price =(select min
(book_price) from book_shivam);
+-----+-----+
| book_price | book_title |
+-----+-----+
|    7.65 | Shyness    |
|    8.75 | Stranger   |
|    5.45 | Vortex     |
|    5.55 | Vixer07   |
|   12.15 | Castle     |
+-----+-----+
5 rows in set (0.00 sec)
```



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Query 8: For every book, list the book code, book title, publisher code, and publisher name.

```
mysql> select book_code, book_title, book_shivam.publisher_code, publisher_name from book_shivam
join publisher_shivam on publisher_shivam.publisher_code = book_shivam.publisher_code;
+-----+-----+-----+-----+
| book_code | book_title | publisher_code | publisher_name |
+-----+-----+-----+-----+
| 0180     | Shyness    | BB           | Bantam Books   |
| 0200     | Stranger   | BB           | Bantam Books   |
| 3906     | Vortex     | BB           | Bantam Books   |
| 6328     | Vixer07   | BB           | Bantam Books   |
| 8720     | Castle     | BB           | Bantam Books   |
+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

Query 9: Find the book title for every book written by author no. 01. Use the IN operator in your formulation.

```
mysql> select book_title from book_shivam join wrote_shivam on book_shivam.book_code =
wrote_shivam.book_code where author_number in ('01');
+-----+
| book_title |
+-----+
| Shyness   |
+-----+
1 row in set (0.00 sec)
```

Query 10: Repeat 9, but now use exists operator in your formulation.

```
mysql> select book_title from book_shivam where exists (select book_code from wrote_shivam where
book_code = book_shivam.book_code and author_number = '01');
+-----+
| book_title |
+-----+
| Shyness   |
+-----+
1 row in set (0.00 sec)
```

Query 11: Find book title and pub code for every book whose price is greater than book price of every book of type HOR (Use ALL).

```
mysql> select book_price, publisher_shivam.publisher_code from book_shivam join publisher_shivam
on book_shivam.publisher_code = publisher_shivam.publisher_code where book_price > all(select
book_price from book_shivam where book_type = 'HOR');
+-----+-----+
| book_price | publisher_code |
+-----+-----+
| 7.65 | BB
| 8.75 | BB
| 5.45 | BB
| 5.55 | BB
| 12.15 | BB
+-----+-----+
5 rows in set (0.00 sec)
```



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Query 12: Bantam Books has decreased the price of its books by 3%. Update the price in Books Table.

```
mysql> update book_shivam set book_price = (book_price - book_price * 0.03) where Exists (select publisher_code from publisher_shivam where publisher_name = 'Bantam Books' and publisher_code = book_shivam.publisher_code);
Query OK, 5 rows affected, 5 warnings (0.01 sec)
Rows matched: 5  Changed: 5  Warnings: 5

mysql> select*from book_shivam;
+-----+-----+-----+-----+-----+-----+
| book_code | book_title | publisher_code | book_type | book_price | paper_back |
+-----+-----+-----+-----+-----+-----+
| 0180     | Shyness    | BB            | PSY        |      7.42  | Y          |
| 0200     | Stranger   | BB            | FIC        |      8.49  | Y          |
| 3906     | Vortex     | BB            | SUS        |      5.29  | Y          |
| 6328     | Vixer07   | BB            | SUS        |      5.38  | Y          |
| 8720     | Castle     | BB            | FIC        |     11.79  | Y          |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

Query 13: Using EXIST or NOT EXIST, write a query to select name of author who have written more than one book.

```
mysql> create view temp_table as select author_number from wrote_shivam group by author_number
       having count(author_number) > 1 order by author_number;
Query OK, 0 rows affected (0.02 sec)

mysql> select (author_first || ' ' || author_last) as auhtor_name from author_shivam where
       exists (select author_number from temp_table where temp_table.author_number =
       author_shivam.author_number) order by author_number;
+-----+
| auhtor_name |
+-----+
|      0      |
|      0      |
+-----+
2 rows in set, 6 warnings (0.01 sec)
```



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DBMS PRACTICAL 5

Create a database for employee management system by implementing various constraints.

1.) Primary Key

```
mysql> create table TBL_PKEY(RegNo int(5) PRIMARY KEY, Name varchar(20), ANY_SUB_MARK INT(3));
Query OK, 0 rows affected, 2 warnings (0.36 sec)
mysql> DESC TBL_PKEY;
+-----+-----+-----+-----+-----+
| Field | Type   | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| RegNo | int    | NO   | PRI | NULL    |       |
| Name  | varchar(20)| YES  |      | NULL    |       |
| ANY_SUB_MARK | int    | YES  |      | NULL    |       |
+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

2.) Foreign Key

```
mysql> create table TBL_FKEY(SerNo INT PRIMARY KEY,Class INT(5),RegNo INT(5),
foreign key(RegNo) references TBL_PKEY(RegNo));
Query OK, 0 rows affected, 2 warnings (0.14 sec)

mysql> DESC TBL_FKEY;
+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+
| SerNo | int  | NO  | PRI | NULL    |       |
| Class | int  | YES |      | NULL    |       |
| RegNo | int  | YES | MUL | NULL    |       |
+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

3.) Check

```
mysql> CREATE TABLE EMP7(EMPNO INT(5), ENAME VARCHAR(20), DESIGN VARCHAR(15),
SAL INT(5) CONSTRAINT EMP7_SAL_CK CHECK(SAL>500 AND SAL<10001),DEPTNO INT(2));
Query OK, 0 rows affected, 3 warnings (0.13 sec)

mysql> DESC EMP7;
+-----+-----+-----+-----+
| Field | Type   | Null | Key | Default | Extra |
+-----+-----+-----+-----+
| EMPNO | int    | YES  |      | NULL    |       |
| ENAME | varchar(20)| YES  |      | NULL    |       |
| DESIGN | varchar(15)| YES  |      | NULL    |       |
| SAL   | int    | YES  |      | NULL    |       |
| DEPTNO | int    | YES  |      | NULL    |       |
+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```



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Example

```
mysql> INSERT INTO EMP7 VALUES(01,"RADHA","CANVAS",5000,01);
Query OK, 1 row affected (0.02 sec)
```

```
mysql> INSERT INTO EMP7 VALUES(02,"KRISHNA","WOODEN BLOCK",499,01);
ERROR 3819 (HY000): Check constraint 'EMP7_SAL_CK' is violated.
```

```
mysql> INSERT INTO EMP7 VALUES(02,"KRISHNA","WOODEN BLOCK",4999,01);
Query OK, 1 row affected (0.02 sec)
```

4.) Unique

```
mysql> CREATE TABLE EMP10(EMPNO INT(3), ENAME VARCHAR(20), DESIGN VARCHAR(15),
CONSTRAINT UC_EMP10 UNIQUE (DESIGN),SAL INT(5));
Query OK, 0 rows affected, 2 warnings (0.16 sec)
```

```
mysql> DESC EMP10;
+-----+-----+-----+-----+-----+
| Field | Type   | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| EMPNO | int    | YES  |     | NULL    |       |
| ENAME | varchar(20) | YES  |     | NULL    |       |
| DESIGN | varchar(15) | YES  | UNI  | NULL    |       |
| SAL   | int    | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

5.) Not Null

```
mysql> CREATE TABLE EMP13(EMPNO INT(4), ENAME VARCHAR(20) NOT NULL, DESIGN VARCHAR(20), SAL INT(3));
Query OK, 0 rows affected, 2 warnings (0.11 sec)
```

```
mysql> DESC EMP13;
+-----+-----+-----+-----+-----+
| Field | Type   | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| EMPNO | int    | YES  |     | NULL    |       |
| ENAME | varchar(20) | NO   |     | NULL    |       |
| DESIGN | varchar(20) | YES  |     | NULL    |       |
| SAL   | int    | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```



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6.) Null

```
mysql> CREATE TABLE EMP17(SNo INT(5) PRIMARY KEY, NAME VARCHAR(20) NOT NULL,  
Address VARCHAR(50) default 'N');  
Query OK, 0 rows affected, 1 warning (0.14 sec)  
  
mysql> DESC EMP17;  
+-----+-----+-----+-----+-----+  
| Field | Type   | Null | Key  | Default | Extra |  
+-----+-----+-----+-----+-----+  
| SNo   | int    | NO   | PRI   | NULL    |       |  
| NAME  | varchar(20) | NO   |       | NULL    |       |  
| Address | varchar(50) | YES  |       | N       |       |  
+-----+-----+-----+-----+-----+  
3 rows in set (0.00 sec)
```

7.) Default

```
mysql> CREATE TABLE DF(REGNO INT(5), NAME VARCHAR(20), MARKS INT(3) DEFAULT 55);  
Query OK, 0 rows affected, 2 warnings (0.10 sec)
```

```
mysql> DESC DF;  
+-----+-----+-----+-----+-----+  
| Field | Type   | Null | Key  | Default | Extra |  
+-----+-----+-----+-----+-----+  
| REGNO | int    | YES  |       | NULL    |       |  
| NAME  | varchar(20) | YES  |       | NULL    |       |  
| MARKS | int    | YES  |       | 55     |       |  
+-----+-----+-----+-----+-----+  
3 rows in set (0.00 sec)
```

Example

```
mysql> INSERT INTO DF VALUES(01,"GOPAL",60);  
Query OK, 1 row affected (0.06 sec)  
  
mysql> INSERT INTO DF VALUES(02,"MOHAN",NULL);  
Query OK, 1 row affected (0.02 sec)  
  
mysql> INSERT INTO DF VALUES(03,"SOHAN",DEFAULT);  
Query OK, 1 row affected (0.03 sec)
```

```
mysql> SELECT * FROM DF;  
+-----+-----+  
| REGNO | NAME  | MARKS |  
+-----+-----+  
| 1    | GOPAL | 60   |  
| 2    | MOHAN | NULL  |  
| 3    | SOHAN | 55   |  
+-----+-----+  
3 rows in set (0.00 sec)
```



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DBMS PRACTICAL 6

To create the view, execute and verify the various operations as view.

Existing table: EMPLOYEE_SHIVA

```
mysql> SELECT * FROM EMPLOYEE_SHIVAM;
```

EMPNO	ENAME	DESIGNATION	SALARY	AGE	DOB	DOJ
1	VAMIT	COO	200000	NULL	NULL	NULL
2	DIVYANSHU	MANAGER	250000	NULL	NULL	NULL
3	SARTHAK	DEVELOPER	175000	NULL	NULL	NULL
4	RAJVEER	DEVELOPER	175000	NULL	NULL	NULL

4 rows in set (0.00 sec)

1.) Creation of view

```
mysql> CREATE VIEW EMPVIEW AS SELECT ENAME,EMPNO,DESIGNATION,DOJ FROM EMPLOYEE_SHIVAM;
Query OK, 0 rows affected (0.12 sec)
```

```
mysql> DESC EMPVIEW;
```

Field	Type	Null	Key	Default	Extra
ENAME	varchar(10)	YES		NULL	
EMPNO	int	NO		NULL	
DESIGNATION	varchar(20)	YES		NULL	
DOJ	date	YES		NULL	

4 rows in set (0.00 sec)

2.) Insertion of values in view

```
mysql> INSERT INTO EMPVIEW VALUES("KARTEEK",5,"SUPERVISER",NULL);
Query OK, 1 row affected (0.05 sec)
```

```
mysql> SELECT * FROM EMPVIEW;
```

ENAME	EMPNO	DESIGNATION	DOJ
VAMIT	1	COO	NULL
DIVYANSHU	2	MANAGER	NULL
SARTHAK	3	DEVELOPER	NULL
RAJVEER	4	DEVELOPER	NULL
KARTEEK	5	SUPERVISER	NULL

5 rows in set (0.00 sec)



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3.) Deletion from view

```
mysql> DELETE FROM EMPVIEW WHERE EMPNO=5;
Query OK, 1 row affected (0.05 sec)
```

```
mysql> SELECT * FROM EMPVIEW;
+-----+-----+-----+-----+
| ENAME | EMPNO | DESIGNATION | DOJ |
+-----+-----+-----+-----+
| VAMIT | 1 | COO | NULL |
| DIVYANSHU | 2 | MANAGER | NULL |
| SARTHAK | 3 | DEVELOPER | NULL |
| RAJVEER | 4 | DEVELOPER | NULL |
+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

4.) Update statement

```
mysql> UPDATE EMPVIEW SET ENAME="RAJU" WHERE ENAME="RAJVEER";
Query OK, 1 row affected (0.04 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
mysql> SELECT * FROM EMPVIEW;
+-----+-----+-----+-----+
| ENAME | EMPNO | DESIGNATION | DOJ |
+-----+-----+-----+-----+
| VAMIT | 1 | COO | NULL |
| DIVYANSHU | 2 | MANAGER | NULL |
| SARTHAK | 3 | DEVELOPER | NULL |
| RAJU | 4 | DEVELOPER | NULL |
+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

5.) Drop a view

Tables in database before using drop command:

```
mysql> SHOW TABLES;
+-----+
| Tables_in_employee |
+-----+
| employee_shivam |
| empview |
+-----+
2 rows in set (0.00 sec)
```



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Tables in database after using drop command:

```
mysql> DROP VIEW EMPVIEW;
Query OK, 0 rows affected (0.06 sec)

mysql> SHOW TABLES;
+-----+
| Tables_in_employee |
+-----+
| employee_shivam   |
+-----+
1 row in set (0.00 sec)
```



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DBMS PRACTICAL 7

To execute and verify the SQL commands for various join operation.

Table: emp_shivam

```
mysql> SELECT *FROM emp_shivam;
+-----+-----+-----+-----+-----+
| empno | ename | deptno | sal   | job           | mgr        |
+-----+-----+-----+-----+-----+
|    1  | SHIVAM |      2 | 350000 | SENIOR DEVELOPER | OMESH PALIWAL |
|    2  | VAMIT  |      2 | 350000 | SENIOR DEVELOPER | OMESH PALIWAL |
|    3  | SHUBH   |      1 | 250000 | QUALITY OFFICER  | PRAFFUL KOTHARI |
|    4  | YASHIL  |      3 | 200000 | SAFETY OFFICER   | SHAMBHU PRAKASH |
|    5  | RANVEER |      4 | 250000 | SECURITY HEAD    | AMRIT LAL      |
|    6  | SARTHAK |      5 | 300000 | AUTOMOBILE ENGINEER | V.B. SINGH    |
|    7  | TUFFY   |      6 | 150000 | MATERIAL EXPERT  | VAMIT         |
|    8  | NIDHI   |      1 | 250000 | QUALITY OFFICER  | PRAFFUL KOTHARI |
+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)
```

Table: dept_shivam

```
mysql> Select*from dept_shivam;
+-----+-----+
| deptno | dname          | loc       |
+-----+-----+
|    1   | CIVIL           | UDAIPUR  |
|    2   | COMPUTER SCIENCE | BENGLURU |
|    3   | ELECTRICAL      | SURAT    |
|    4   | INFORMATION TECHNOLOGY | PUNE    |
|    5   | MECHANICAL      | JAIPUR  |
|    6   | MINING          | GURGAON |
+-----+-----+
6 rows in set (0.00 sec)
```

Table: area_shivam

```
mysql> Select*from area_shivam;
+-----+-----+
| state | city  |
+-----+-----+
| Rajasthan | Udaipur |
| Rajasthan | Jaipur  |
| Gujarat   | Surat   |
| Karnataka | Bengaluru |
| Maharashtra | Pune |
| Haryana   | Gurgaon |
+-----+-----+
6 rows in set (0.00 sec)
```



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1. Equi Join

Query 1:

```
mysql> select empno, ename, sal, job, dname, loc from emp_shivam,dept_shivam where emp_shivam.deptno=dept_shivam.deptno;
+-----+-----+-----+-----+-----+-----+
| empno | ename | sal   | job    | dname      | loc       |
+-----+-----+-----+-----+-----+-----+
|     1 | SHIVAM | 350000 | SENIOR DEVELOPER | COMPUTER SCIENCE | BENGLORU |
|     2 | VAMIT  | 350000 | SENIOR DEVELOPER | COMPUTER SCIENCE | BENGLORU |
|     3 | SHUBH   | 250000 | QUALITY OFFICER  | CIVIL          | UDAIPUR  |
|     4 | YASHIL  | 200000 | SAFETY OFFICER   | ELECTRICAL     | SURAT    |
|     5 | RANVEER | 250000 | SECURITY HEAD    | INFORMATION TECHNOLOGY | PUNE    |
|     6 | SARTHAK | 300000 | AUTOMOBILE ENGINEER | MECHANICAL    | JAIPUR  |
|     7 | TUFFY   | 150000 | MATERIAL EXPERT  | MINING        | GURGAON  |
|     8 | NIDHI   | 250000 | QUALITY OFFICER  | CIVIL          | UDAIPUR  |
+-----+-----+-----+-----+-----+-----+
8 rows in set (0.03 sec)
```

Query 2:

```
mysql> select empno, ename, sal,emp_shivam.deptno,dname,loc from emp_shivam,
dept_shivam where emp_shivam.deptno=dept_shivam.deptno;
+-----+-----+-----+-----+-----+-----+
| empno | ename | sal   | deptno | dname      | loc       |
+-----+-----+-----+-----+-----+-----+
|     3 | SHUBH | 250000 |      1 | CIVIL          | UDAIPUR  |
|     8 | NIDHI | 250000 |      1 | CIVIL          | UDAIPUR  |
|     1 | SHIVAM | 350000 |      2 | COMPUTER SCIENCE | BENGLORU |
|     2 | VAMIT  | 350000 |      2 | COMPUTER SCIENCE | BENGLORU |
|     4 | YASHIL | 200000 |      3 | ELECTRICAL     | SURAT    |
|     5 | RANVEER | 250000 |      4 | INFORMATION TECHNOLOGY | PUNE    |
|     6 | SARTHAK | 300000 |      5 | MECHANICAL    | JAIPUR  |
|     7 | TUFFY   | 150000 |      6 | MINING        | GURGAON  |
+-----+-----+-----+-----+-----+-----+
8 rows in set (0.01 sec)
```

Query 3:

```
mysql> select empno, ename, sal,emp_shivam.deptno,dname,loc from emp_shivam,
dept_shivam where emp_shivam.deptno=dept_shivam.deptno and sal>250000;
+-----+-----+-----+-----+-----+-----+
| empno | ename | sal   | deptno | dname      | loc       |
+-----+-----+-----+-----+-----+-----+
|     1 | SHIVAM | 350000 |      2 | COMPUTER SCIENCE | BENGLORU |
|     2 | VAMIT  | 350000 |      2 | COMPUTER SCIENCE | BENGLORU |
|     6 | SARTHAK | 300000 |      5 | MECHANICAL    | JAIPUR  |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```



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Query 4:

```
mysql> select emp_shivam.empno,emp_shivam.ename,emp_shivam.sal,emp_shivam.deptno,
dept_shivam.dname,dept_shivam.loc from emp_shivam,dept_shivam where
emp_shivam.deptno=dept_shivam.deptno and sal>200000;
+-----+-----+-----+-----+-----+
| empno | ename | sal   | deptno | dname          | loc    |
+-----+-----+-----+-----+-----+
|     1 | SHIVAM | 350000 |      2 | COMPUTER SCIENCE | BENGURU |
|     2 | VAMIT  | 350000 |      2 | COMPUTER SCIENCE | BENGURU |
|     3 | SHUBH   | 250000 |      1 | CIVIL           | UDAIPUR |
|     5 | RANVEER | 250000 |      4 | INFORMATION TECHNOLOGY | PUNE |
|     6 | SARTHAK | 300000 |      5 | MECHANICAL     | JAIPUR  |
|     8 | NIDHI   | 250000 |      1 | CIVIL           | UDAIPUR |
+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)
```

Query 5:

```
mysql> SELECT E.Empno,E.Ename,E.sal,E.deptno,D.Dname,D.loc from emp_shivam
E,Dept_shivam D where E.deptno=D.deptno;
+-----+-----+-----+-----+-----+
| Empno | Ename | sal   | deptno | Dname          | loc    |
+-----+-----+-----+-----+-----+
|     3 | SHUBH | 250000 |      1 | CIVIL           | UDAIPUR |
|     8 | NIDHI | 250000 |      1 | CIVIL           | UDAIPUR |
|     1 | SHIVAM | 350000 |      2 | COMPUTER SCIENCE | BENGURU |
|     2 | VAMIT  | 350000 |      2 | COMPUTER SCIENCE | BENGURU |
|     4 | YASHIL | 200000 |      3 | ELECTRICAL      | SURAT   |
|     5 | RANVEER | 250000 |      4 | INFORMATION TECHNOLOGY | PUNE |
|     6 | SARTHAK | 300000 |      5 | MECHANICAL     | JAIPUR  |
|     7 | TUFFY   | 150000 |      6 | MINING          | GURGAON |
+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)
```

Query 6:

```
mysql> SELECT E.Empno,E.Ename,E.sal,E.deptno,D.Dname,A.state from emp_shivam
E,Dept_shivam D,area_shivam A where E.deptno=D.deptno AND D.loc=A.city;
+-----+-----+-----+-----+-----+
| Empno | Ename | sal   | deptno | Dname          | state  |
+-----+-----+-----+-----+-----+
|     3 | SHUBH | 250000 |      1 | CIVIL           | Rajasthan |
|     8 | NIDHI | 250000 |      1 | CIVIL           | Rajasthan |
|     6 | SARTHAK | 300000 |      5 | MECHANICAL     | Rajasthan |
|     4 | YASHIL | 200000 |      3 | ELECTRICAL      | Gujarat   |
|     1 | SHIVAM | 350000 |      2 | COMPUTER SCIENCE | Karnatak |
|     2 | VAMIT  | 350000 |      2 | COMPUTER SCIENCE | Karnatak |
|     5 | RANVEER | 250000 |      4 | INFORMATION TECHNOLOGY | Maharashtra |
|     7 | TUFFY   | 150000 |      6 | MINING          | Haryana |
+-----+-----+-----+-----+-----+
8 rows in set (0.03 sec)
```



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2. Non Equi Join

Query 1:

```
mysql> select e.empno,e.ename,e.sal,s.grade from emp_shivam e,
salgrade_shivam s where e.sal between s.losal and hisal;
+-----+-----+-----+-----+
| empno | ename  | sal   | grade |
+-----+-----+-----+-----+
|    1  | SHIVAM | 350000 | A
|    2  | VAMIT  | 350000 | A
|    3  | SHUBH   | 250000 | B
|    4  | YASHIL  | 200000 | C
|    4  | YASHIL  | 200000 | B
|    5  | RANVEER | 250000 | B
|    6  | SARTHAK | 300000 | B
|    6  | SARTHAK | 300000 | A
|    7  | TUFFY   | 150000 | C
|    8  | NIDHI   | 250000 | B
+-----+-----+-----+-----+
10 rows in set (0.00 sec)
```

Query 2:

```
mysql> select e.empno,e.ename,s.grade from emp_shivam e,salgrade_shivam s
where e.sal between s.losal and s.hisal and s.grade="c";
+-----+-----+
| empno | ename  | grade |
+-----+-----+
|    4  | YASHIL | C
|    7  | TUFFY  | C
+-----+-----+
2 rows in set (0.00 sec)
```

Self Join

Query 1:

```
mysql> select empno,ename,job,mgr from emp_shivam;
+-----+-----+-----+-----+
| empno | ename  | job           | mgr      |
+-----+-----+-----+-----+
|    1  | SHIVAM | SENIOR DEVELOPER | OMESH PALIWAL
|    2  | VAMIT  | SENIOR DEVELOPER | OMESH PALIWAL
|    3  | SHUBH   | QUALITY OFFICER  | PRAFFUL KOTHARI
|    4  | YASHIL  | SAFETY OFFICER   | SHAMBHU PRAKASH
|    5  | RANVEER | SECURITY HEAD   | AMRIT LAL
|    6  | SARTHAK | AUTOMOBILE ENGINEER | V.B. SINGH
|    7  | TUFFY   | MATERIAL EXPERT  | VAMIT
|    8  | NIDHI   | QUALITY OFFICER  | PRAFFUL KOTHARI
+-----+-----+-----+-----+
8 rows in set (0.00 sec)
```

Query 2:

```
mysql> select e.empno,e.ename,e.job,m.ename from emp_shivam e,emp_shivam m where e.mgr=m.empno;
Empty set (0.00 sec)
```



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3. Cartesian Product

Query:

```
mysql> select e.empno,e.ename,e.sal,e.deptno,d.dname,d.loc from emp_shivam e, dept_shivam d;
+-----+-----+-----+-----+-----+-----+
| empno | ename | sal   | deptno | dname  | loc   |
+-----+-----+-----+-----+-----+-----+
| 1    | SHIVAM | 350000 | 1     | MINING | GURGAON
| 1    | SHIVAM | 350000 | 1     | MECHANICAL | JAIPUR
| 1    | SHIVAM | 350000 | 1     | INFORMATION TECHNOLOGY | PUNE
| 1    | SHIVAM | 350000 | 1     | ELECTRICAL | SURAT
| 1    | SHIVAM | 350000 | 1     | COMPUTER SCIENCE | BENGLURU
| 1    | SHIVAM | 350000 | 1     | CIVIL | UDAIPUR
| 2    | VAMIT  | 350000 | 2     | MINING | GURGAON
| 2    | VAMIT  | 350000 | 2     | MECHANICAL | JAIPUR
| 2    | VAMIT  | 350000 | 2     | INFORMATION TECHNOLOGY | PUNE
| 2    | VAMIT  | 350000 | 2     | ELECTRICAL | SURAT
| 2    | VAMIT  | 350000 | 2     | COMPUTER SCIENCE | BENGLURU
| 2    | VAMIT  | 350000 | 2     | CIVIL | UDAIPUR
| 3    | SHUBH  | 250000 | 1     | MINING | GURGAON
| 3    | SHUBH  | 250000 | 1     | MECHANICAL | JAIPUR
| 3    | SHUBH  | 250000 | 1     | INFORMATION TECHNOLOGY | PUNE
| 3    | SHUBH  | 250000 | 1     | ELECTRICAL | SURAT
| 3    | SHUBH  | 250000 | 1     | COMPUTER SCIENCE | BENGLURU
| 3    | SHUBH  | 250000 | 1     | CIVIL | UDAIPUR
| 4    | YASHIL | 200000 | 3     | MINING | GURGAON
| 4    | YASHIL | 200000 | 3     | MECHANICAL | JAIPUR
| 4    | YASHIL | 200000 | 3     | INFORMATION TECHNOLOGY | PUNE
| 4    | YASHIL | 200000 | 3     | ELECTRICAL | SURAT
| 4    | YASHIL | 200000 | 3     | COMPUTER SCIENCE | BENGLURU
| 4    | YASHIL | 200000 | 3     | CIVIL | UDAIPUR
| 5    | RANVEER | 250000 | 4     | MINING | GURGAON
| 5    | RANVEER | 250000 | 4     | MECHANICAL | JAIPUR
| 5    | RANVEER | 250000 | 4     | INFORMATION TECHNOLOGY | PUNE
| 5    | RANVEER | 250000 | 4     | ELECTRICAL | SURAT
| 5    | RANVEER | 250000 | 4     | COMPUTER SCIENCE | BENGLURU
| 5    | RANVEER | 250000 | 4     | CIVIL | UDAIPUR
| 6    | SARTHAK | 300000 | 5     | MINING | GURGAON
| 6    | SARTHAK | 300000 | 5     | MECHANICAL | JAIPUR
| 6    | SARTHAK | 300000 | 5     | INFORMATION TECHNOLOGY | PUNE
| 6    | SARTHAK | 300000 | 5     | ELECTRICAL | SURAT
| 6    | SARTHAK | 300000 | 5     | COMPUTER SCIENCE | BENGLURU
| 6    | SARTHAK | 300000 | 5     | CIVIL | UDAIPUR
| 7    | TUFFY  | 150000 | 6     | MINING | GURGAON
| 7    | TUFFY  | 150000 | 6     | MECHANICAL | JAIPUR
| 7    | TUFFY  | 150000 | 6     | INFORMATION TECHNOLOGY | PUNE
| 7    | TUFFY  | 150000 | 6     | ELECTRICAL | SURAT
| 7    | TUFFY  | 150000 | 6     | COMPUTER SCIENCE | BENGLURU
| 7    | TUFFY  | 150000 | 6     | CIVIL | UDAIPUR
| 8    | NIDHI  | 250000 | 1     | MINING | GURGAON
| 8    | NIDHI  | 250000 | 1     | MECHANICAL | JAIPUR
| 8    | NIDHI  | 250000 | 1     | INFORMATION TECHNOLOGY | PUNE
| 8    | NIDHI  | 250000 | 1     | ELECTRICAL | SURAT
| 8    | NIDHI  | 250000 | 1     | COMPUTER SCIENCE | BENGLURU
| 8    | NIDHI  | 250000 | 1     | CIVIL | UDAIPUR
+-----+-----+-----+-----+-----+-----+
48 rows in set (0.00 sec)
```



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4. Inner Join

Query :

```
mysql> select e.empno,e.ename,e.sal,e.deptno,d.dname,d.loc from emp_shivam e
INNER JOIN dept_shivam d ON(e.deptno=d.deptno);
+-----+-----+-----+-----+-----+-----+
| empno | ename | sal   | deptno | dname      | loc    |
+-----+-----+-----+-----+-----+-----+
|     3 | SHUBH | 250000 |      1 | CIVIL      | UDAIPUR
|     8 | NIDHI | 250000 |      1 | CIVIL      | UDAIPUR
|     1 | SHIVAM | 350000 |      2 | COMPUTER SCIENCE | BENGLURU
|     2 | VAMIT  | 350000 |      2 | COMPUTER SCIENCE | BENGLURU
|     4 | YASHIL | 200000 |      3 | ELECTRICAL  | SURAT
|     5 | RANVEER | 250000 |      4 | INFORMATION TECHNOLOGY | PUNE
|     6 | SARTHAK | 300000 |      5 | MECHANICAL  | JAIPUR
|     7 | TUFFY  | 150000 |      6 | MINING     | GURGAON
+-----+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)
```

5. Natural Join

Query :

```
mysql> select empno,ename,sal,deptno,dname,loc from emp_shivam NATURAL JOIN dept_shivam;
+-----+-----+-----+-----+-----+-----+
| empno | ename | sal   | deptno | dname      | loc    |
+-----+-----+-----+-----+-----+-----+
|     3 | SHUBH | 250000 |      1 | CIVIL      | UDAIPUR
|     8 | NIDHI | 250000 |      1 | CIVIL      | UDAIPUR
|     1 | SHIVAM | 350000 |      2 | COMPUTER SCIENCE | BENGLURU
|     2 | VAMIT  | 350000 |      2 | COMPUTER SCIENCE | BENGLURU
|     4 | YASHIL | 200000 |      3 | ELECTRICAL  | SURAT
|     5 | RANVEER | 250000 |      4 | INFORMATION TECHNOLOGY | PUNE
|     6 | SARTHAK | 300000 |      5 | MECHANICAL  | JAIPUR
|     7 | TUFFY  | 150000 |      6 | MINING     | GURGAON
+-----+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)
```



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6. Cross Join

Query :

```
mysql> select e.empno,e.ename,e.sal,e.deptno,d.dname,d.loc from emp_shivam
e cross join dept_shivam d;
+-----+-----+-----+-----+-----+-----+
| empno | ename | sal   | deptno | dname    | loc   |
+-----+-----+-----+-----+-----+-----+
| 1     | SHIVAM | 350000 | 2      | MINING   | GURGAON |
| 1     | SHIVAM | 350000 | 2      | MECHANICAL | JAIPUR   |
| 1     | SHIVAM | 350000 | 2      | INFORMATION TECHNOLOGY | PUNE    |
| 1     | SHIVAM | 350000 | 2      | ELECTRICAL | SURAT    |
| 1     | SHIVAM | 350000 | 2      | COMPUTER SCIENCE | BENGLOLU |
| 1     | SHIVAM | 350000 | 2      | CIVIL     | UDAIPUR  |
| 2     | VAMIT  | 350000 | 2      | MINING   | GURGAON |
| 2     | VAMIT  | 350000 | 2      | MECHANICAL | JAIPUR   |
| 2     | VAMIT  | 350000 | 2      | INFORMATION TECHNOLOGY | PUNE    |
| 2     | VAMIT  | 350000 | 2      | ELECTRICAL | SURAT    |
| 2     | VAMIT  | 350000 | 2      | COMPUTER SCIENCE | BENGLOLU |
| 2     | VAMIT  | 350000 | 2      | CIVIL     | UDAIPUR  |
| 3     | SHUBH  | 250000 | 1      | MINING   | GURGAON |
| 3     | SHUBH  | 250000 | 1      | MECHANICAL | JAIPUR   |
| 3     | SHUBH  | 250000 | 1      | INFORMATION TECHNOLOGY | PUNE    |
| 3     | SHUBH  | 250000 | 1      | ELECTRICAL | SURAT    |
| 3     | SHUBH  | 250000 | 1      | COMPUTER SCIENCE | BENGLOLU |
| 3     | SHUBH  | 250000 | 1      | CIVIL     | UDAIPUR  |
| 4     | YASHIL | 200000 | 3      | MINING   | GURGAON |
| 4     | YASHIL | 200000 | 3      | MECHANICAL | JAIPUR   |
| 4     | YASHIL | 200000 | 3      | INFORMATION TECHNOLOGY | PUNE    |
| 4     | YASHIL | 200000 | 3      | ELECTRICAL | SURAT    |
| 4     | YASHIL | 200000 | 3      | COMPUTER SCIENCE | BENGLOLU |
| 4     | YASHIL | 200000 | 3      | CIVIL     | UDAIPUR  |
| 5     | RANVEER | 250000 | 4      | MINING   | GURGAON |
| 5     | RANVEER | 250000 | 4      | MECHANICAL | JAIPUR   |
| 5     | RANVEER | 250000 | 4      | INFORMATION TECHNOLOGY | PUNE    |
| 5     | RANVEER | 250000 | 4      | ELECTRICAL | SURAT    |
| 5     | RANVEER | 250000 | 4      | COMPUTER SCIENCE | BENGLOLU |
| 5     | RANVEER | 250000 | 4      | CIVIL     | UDAIPUR  |
| 6     | SARTHAK | 300000 | 5      | MINING   | GURGAON |
| 6     | SARTHAK | 300000 | 5      | MECHANICAL | JAIPUR   |
| 6     | SARTHAK | 300000 | 5      | INFORMATION TECHNOLOGY | PUNE    |
| 6     | SARTHAK | 300000 | 5      | ELECTRICAL | SURAT    |
| 6     | SARTHAK | 300000 | 5      | COMPUTER SCIENCE | BENGLOLU |
| 6     | SARTHAK | 300000 | 5      | CIVIL     | UDAIPUR  |
| 7     | TUFFY  | 150000 | 6      | MINING   | GURGAON |
| 7     | TUFFY  | 150000 | 6      | MECHANICAL | JAIPUR   |
| 7     | TUFFY  | 150000 | 6      | INFORMATION TECHNOLOGY | PUNE    |
| 7     | TUFFY  | 150000 | 6      | ELECTRICAL | SURAT    |
| 7     | TUFFY  | 150000 | 6      | COMPUTER SCIENCE | BENGLOLU |
| 7     | TUFFY  | 150000 | 6      | CIVIL     | UDAIPUR  |
| 8     | NIDHI  | 250000 | 1      | MINING   | GURGAON |
| 8     | NIDHI  | 250000 | 1      | MECHANICAL | JAIPUR   |
| 8     | NIDHI  | 250000 | 1      | INFORMATION TECHNOLOGY | PUNE    |
| 8     | NIDHI  | 250000 | 1      | ELECTRICAL | SURAT    |
| 8     | NIDHI  | 250000 | 1      | COMPUTER SCIENCE | BENGLOLU |
| 8     | NIDHI  | 250000 | 1      | CIVIL     | UDAIPUR  |
+-----+-----+-----+-----+-----+-----+
48 rows in set (0.00 sec)
```



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Default:

```
mysql> create table stu1_shivam(sno int Primary Key, sname varchar(20),
marks int, Doj date DEFAULT(CURRENT_DATE));
Query OK, 0 rows affected (0.12 sec)

mysql> insert into stu1_shivam(sno,sname) values(101,'malli');
Query OK, 1 row affected (0.05 sec)

mysql> insert into stu1_shivam values(102,'Arun',40,'2011-01-09');
Query OK, 1 row affected (0.01 sec)

mysql> insert into stu1_shivam values(103,'Kiran',NULL,'2012-02-10');
Query OK, 1 row affected (0.02 sec)
```

7. Outer Join

7.1 Right Outer Join

Query :

```
mysql> select e.empno,e.ename,e.sal,e.deptno,d.dname,d.loc from emp_shivam
e RIGHT OUTER JOIN dept_shivam d ON(e.deptno=d.deptno);
+-----+-----+-----+-----+-----+
| empno | ename | sal   | deptno | dname    | loc      |
+-----+-----+-----+-----+-----+
|    3  | SHUBH | 250000 |     1 | CIVIL    | UDAIPUR |
|    8  | NIDHI  | 250000 |     1 | CIVIL    | UDAIPUR |
|    1  | SHIVAM | 350000 |     2 | COMPUTER SCIENCE | BENGLURU |
|    2  | VAMIT  | 350000 |     2 | COMPUTER SCIENCE | BENGLURU |
|    4  | YASHIL | 200000 |     3 | ELECTRICAL | SURAT    |
|    5  | RANVEER | 250000 |     4 | INFORMATION TECHNOLOGY | PUNE    |
|    6  | SARTHAK | 300000 |     5 | MECHANICAL | JAIPUR   |
|    7  | TUFFY  | 150000 |     6 | MINING    | GURGAON  |
+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)
```

7.2 Left Outer Join

Query 1 :

```
mysql> select e.empno,e.ename,e.sal,e.deptno,d.dname,d.loc from emp_shivam
e, dept_shivam d where e.deptno=d.deptno;
+-----+-----+-----+-----+-----+
| empno | ename | sal   | deptno | dname    | loc      |
+-----+-----+-----+-----+-----+
|    3  | SHUBH | 250000 |     1 | CIVIL    | UDAIPUR |
|    8  | NIDHI  | 250000 |     1 | CIVIL    | UDAIPUR |
|    1  | SHIVAM | 350000 |     2 | COMPUTER SCIENCE | BENGLURU |
|    2  | VAMIT  | 350000 |     2 | COMPUTER SCIENCE | BENGLURU |
|    4  | YASHIL | 200000 |     3 | ELECTRICAL | SURAT    |
|    5  | RANVEER | 250000 |     4 | INFORMATION TECHNOLOGY | PUNE    |
|    6  | SARTHAK | 300000 |     5 | MECHANICAL | JAIPUR   |
|    7  | TUFFY  | 150000 |     6 | MINING    | GURGAON  |
+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)
```



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Query 2 :

```
mysql> select e.empno,e.ename,e.sal,e.deptno,d.dname,d.loc from emp_shivam
e LEFT OUTER JOIN dept_shivam d ON(e.deptno=d.deptno);
+-----+-----+-----+-----+-----+
| empno | ename | sal   | deptno | dname      | loc    |
+-----+-----+-----+-----+-----+
|     1 | SHIVAM | 350000 |      2 | COMPUTER SCIENCE | BENGLURU |
|     2 | VAMIT  | 350000 |      2 | COMPUTER SCIENCE | BENGLURU |
|     3 | SHUBH   | 250000 |      1 | CIVIL        | UDAIPUR  |
|     4 | YASHIL  | 200000 |      3 | ELECTRICAL   | SURAT    |
|     5 | RANVEER | 250000 |      4 | INFORMATION TECHNOLOGY | PUNE    |
|     6 | SARTHAK | 300000 |      5 | MECHANICAL   | JAIPUR   |
|     7 | TUFFY   | 150000 |      6 | MINING       | GURGAON  |
|     8 | NIDHI   | 250000 |      1 | CIVIL        | UDAIPUR  |
+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)
```



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DBMS PRACTICAL 8

To execute and verify the SQL queries for following tables.

Table: Suppliers_shivam

```
mysql> select * from Suppliers_shivam;
+---+-----+-----+
| sid | sname      | address
+---+-----+-----+
| 1   | Mukesh     | Kushal Mangri
| 2   | Mohan       | 211, Packer Street
| 3   | Jaiprakash | Mitra Niwas
+---+-----+-----+
3 rows in set (0.00 sec)
```

Table: Parts_shivam

```
mysql> select * from Parts_shivam;
+---+-----+-----+
| pid | pname    | colour
+---+-----+-----+
| 101 | Box      | Brown
| 102 | Tyre     | Black
| 103 | Tape     | Transparent
| 104 | Radium   | Red
| 105 | Tube     | Black
| 106 | Grip     | Brown
+---+-----+-----+
6 rows in set (0.00 sec)
```

Table: Catalog_shivam

```
mysql> select * from Catalog_shivam;
+---+---+---+
| sid | pid | cost |
+---+---+---+
| 1   | 102 | 1200 |
| 1   | 105 | 600  |
| 2   | 101 | 50   |
| 2   | 103 | 20   |
| 3   | 104 | 500  |
| 3   | 106 | 50   |
+---+---+---+
6 rows in set (0.00 sec)
```



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- Find names of suppliers who supply some red part.

```
mysql> select s.sname from Suppliers_shivam s, Parts_shivam p, Catalog_shivam c
WHERE p.colour='red' AND c.pid=p.pid and c.sid=s.sid;
+-----+
| sname   |
+-----+
| Jaiprakash |
+-----+
1 row in set (0.01 sec)
```

- Find the sids of suppliers who supply some red or black part.

```
mysql> Select c.sid FROM Catalog_shivam c, Parts_shivam p WHERE
(p.colour='red' OR p.colour='black') AND p.pid=c.pid;
+-----+
| sid   |
+-----+
| 1 |
| 3 |
| 1 |
+-----+
3 rows in set (0.00 sec)
```

- Find the sids of suppliers who supply some red part or are at 221, Packer Street.

```
mysql> Select s.sid from Suppliers_shivam s WHERE s.address='211, Packer Street' or s.sid IN
(Select c.sid FROM Parts_shivam p,Catalog_shivam c WHERE p.colour='brown' and p.pid=c.pid);
+-----+
| sid   |
+-----+
| 2 |
| 3 |
+-----+
2 rows in set (0.01 sec)
```

- Find the sids of suppliers who supply some red part and some brown part.

```
mysql> Select c.sid FROM Parts_shivam p, Catalog_shivam c WHERE p.colour='red' AND
p.pid=c.pid AND EXISTS (Select p2.pid FROM Parts_shivam p2, Catalog_shivam c2 WHERE
p2.colour='brown' AND c2.sid=c.sid AND p2.pid=c2.pid);
+-----+
| sid   |
+-----+
| 3 |
+-----+
1 row in set (0.00 sec)
```



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-
5. Find the sids of suppliers who supply every part.

```
mysql> Select c.sid FROM Catalog_shivam c WHERE NOT EXISTS(Select p.pid FROM Parts_shivam p WHERE NOT EXISTS(Select c1.sid FROM Catalog_shivam c1 WHERE c1.sid=c.sid AND c1.pid=p.pid));
Empty set (0.00 sec)
```

6. Find the sids of suppliers who supply red part.

```
mysql> Select c.sid FROM Catalog_shivam c WHERE NOT EXISTS(Select p.pid FROM Parts_shivam p WHERE p.colour='red' AND(NOT EXISTS (SELECT c1.sid FROM Catalog_shivam c1 WHERE c1.sid=c.sid AND c1.pid=p.pid)));
+-----+
| sid |
+-----+
|   3 |
|   3 |
+-----+
2 rows in set (0.00 sec)
```

7. Find the sids of suppliers who supply red part or black part.

```
mysql> Select c.sid FROM Catalog_shivam c WHERE NOT EXISTS(Select p.pid FROM Parts_shivam p WHERE (p.colour='red' OR p.colour='black') AND (NOT EXISTS(Select c1.sid FROM Catalog_shivam c1 WHERE c1.sid=c.sid AND c1.pid=p.pid)));
Empty set (0.00 sec)
```

8. Find the sids of suppliers who supply every red part or every black part.

```
mysql> Select c.sid FROM Catalog_shivam c WHERE(NOT EXISTS(Select p.pid FROM Parts_shivam p WHERE p.colour='red' AND (Not Exists(Select c1.sid FROM Catalog_shivam c1 WHERE c1.sid=c.sid AND c1.pid=p.pid)))) OR (NOT EXISTS (Select p1.pid FROM Parts_shivam p1 WHERE p1.colour='black' AND (NOT EXISTS (Select c2.sid FROM Catalog_shivam c2 WHERE c2.sid=c.sid AND c2.pid= p1.pid))));
```

sid
1
1
3
3

```
4 rows in set (0.00 sec)
```

9. Find pairs of sids such that the suppliers with the first sid charges more for some part than supplier with the second sid.

```
mysql> Select c1.sid,c2.sid FROM Catalog_shivam c1,Catalog_shivam c2 WHERE c1.pid=c2.pid AND c1.sid=c2.sid AND c1.cost>c2.cost;
Empty set (0.00 sec)
```



DBMS PRACTICAL 9

Write queries to implement triggers in dbms.

A database trigger is a stored PL/SQL program unit associated with a specific database table or view. The code in the trigger defines the action the database needs to perform whenever some database manipulation (INSERT, UPDATE, and DELETE) takes place. Unlike the stored procedure and functions, which have to be called explicitly, the database triggers are fired (executed) or called implicitly whenever the table is affected by any of the above said DML operations. Till Oracle 7.0 only 12 triggers could be associated with a given table, but in higher versions of Oracle there is no such limitation. A database trigger fires with the privileges of owner not that of user. A database trigger has three parts 1. A triggering event 2. A trigger constraint (Optional) 3. Trigger action A triggering event can be an insert, update, or delete statement or a instance shutdown or startup etc. The trigger fires automatically when any of these events occur on the specified table or a view. A trigger constraint specifies a Boolean expression that must be true for the trigger to fire. This condition is specified using the WHEN clause. The trigger action is a procedure that contains the code to be executed when the trigger fires.

Syntax:

Trigger A BEFORE INSERT Trigger means that Oracle will fire this trigger before the INSERT operation is executed.

CREATE or REPLACE TRIGGER trigger_name BEFORE/AFTER

INSERT/UPDATE/DELETE ON table_name

[FOR EACH ROW]

DECLARE

-- variable declarations

BEGIN

-- trigger code

EXCEPTION

WHEN ...

-- exception handling

END;



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trigger_name is the name of the trigger to create.

Restrictions:

- One can not create a BEFORE trigger on a view.
- One can update the :NEW values.
- One can not update the :OLD values.

Drop a Trigger The syntax for a dropping a Trigger is:

DROP TRIGGER trigger_name;

Disable a Trigger The syntax for a disabling a Trigger is:

ALTER TRIGGER trigger_name DISABLE;

Enable a Trigger The syntax for a enabling a Trigger is:

ALTER TRIGGER trigger_name ENABLE;