

```

Command Prompt - mysql -> 1000 -p
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owners.

You've 'Help' or 'W' for help. Type 'W' to clear the current input statement.

mysql> create database AKASH;
Query OK, 1 row affected (0.02 sec)

mysql> use Akash
Database changed
mysql> create table shop(sno int , sname varchar(30), sgst int);
Query OK, 0 rows affected (0.06 sec)

mysql> desc shop;
+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+
| sno | int | YES | NULL | NULL | NULL |
| sname | varchar(30) | YES | NULL | NULL | NULL |
| sgst | int | YES | NULL | NULL | NULL |
+-----+-----+-----+-----+
1 rows in set (0.02 sec)

mysql> alter table shop add spro varchar(30);
Query OK, 0 rows affected (0.03 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> desc shop
+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+
| sno | int | YES | NULL | NULL | NULL |
| sname | varchar(30) | YES | NULL | NULL | NULL |
| sgst | int | YES | NULL | NULL | NULL |
| spro | varchar(30) | YES | NULL | NULL | NULL |
+-----+-----+-----+-----+
1 rows in set (0.01 sec)

mysql> drop table shop;
Query OK, 0 rows affected (0.02 sec)

mysql> desc shop;
ERROR 1106 (42S02): Table 'akash.shop' doesn't exist
mysql>

```

Experiment Name / No.: 1

Experiment - 1

Aim write the queries for data definition language.

Theory

- DDL changes the structure of table like creating a table, deleting a table, altering a table etc.
- All the commands of DDL are auto committed that means it permanently save all the changes in the DB.
- These are some commands that comes under DDL.

- Create (CREATE)
- Alter (ALTER)
- Drop (DROP)
- Truncate

15) CREATE :- It is used to create a new table in the DB .

Syntax :- CREATE TABLE TABLE_NAME (column_name DATA_TYPE ());

e.g:- create database AKASH;

use AKASH;

create shop (snu int , sname varchar (30), sgst int);

16) ALTER :- It is used to alter the structure of database. This change could be either to modify the characteristics of a existing attribute or probably to add a new attribute.

17) Syntax :- ALTER TABLE table-name ADD (column-name column-definition);
e.g)- after table shop add spro varchar (30);

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c) DROP :- It is used to delete both the structure and record stored in the table.

Syntax :- DROP TABLE table-name;

eg:- drop table shop;

d) TRUNCATE It is used to delete all rows from the table and free the space containing the table.

Syntax : TRUNCATE TABLE table-name;

eg. -- truncate table shop;

Experiment Name / No.:	2	Compln/Prog. No.:	3
Experiment - 2			Date
			4 / 10 / 21
Aim	To implement Data constraints		
Theory	constraints are the business rules which are enforced on the data being stored in a table are called constraints.		
Types of constraints:-			
1> Primary key			
2> foreign key			
3> Check			
4> unique			
5> Not null			
6> Default			
7> Null			
Procedure :-			
a) Primary key	5-1 is defined at column level.		
Syntax :-	CREATE TABLE tablename (column-name 1 DATA TYPE constraint-name 1> PRIMARY KEY, column-name 2 DATA TYPE, column-name 3 DATA TYPE . . .);		
It is also defined at table level.			
Syntax :-	CREATE TABLE tablename (column-name 1 DATA TYPE, column-name 2 DATA TYPE, column-name 3 DATA TYPE, PRIMARY KEY (column-name 1, column-name 2));		



b) CHECK constraint →

It is defined at column level.

Syntax :- CREATE TABLE tablename (colname1 datatype, colname2 datatype CHECK (logical expression), colname3 datatype ...);

It is also defined at table level.

Syntax CREATE TABLE tablename (colname1 datatype, colname2 datatype, colname3 datatype, CHECK (logical exp1), CHECK (logical exp2));

c) UNIQUE constraint →

- At column level

Syntax - CREATE TABLE tablename (colname1 datatype UNIQUE, colname2 datatype, colname3 datatype UNIQUE, ...);

- At table level

Syntax CREATE TABLE tablename (colname1 datatype, colname2 datatype, colname3 datatype, UNIQUE (colname1));

d) NOT NULL constraints →

Syntax :- CREATE TABLE tablename (colname1 datatype NOT NULL, colname2 datatype NOT NULL, colname3 datatype, ...);

e.g. -- create table shop (sno int PRIMARY KEY, sname varchar(30) UNIQUE, sgst int check (sgst > 500), spro varchar(30) NOT NULL);

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Command Prompt - MySQL -> root ->
mysql> use AKASH
Database changed
mysql> desc shop;
+-----+-----+-----+-----+-----+
| Field | Type  | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| sno  | int   | NO   | PRI | NULL    |       |
| sname | varchar(20) | YES  | UNI | NULL    |       |
| sget  | int   | YES  |     | NULL    |       |
| spro  | varchar(10) | NO   |     | NULL    |       |
+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)

mysql> insert into shop values(1, 'papi gudiya', 623, 'cereals');
Query OK, 1 row affected (0.04 sec)

mysql> select * from shop;
+-----+-----+-----+-----+
| sno  | sname | sget | spro  |
+-----+-----+-----+-----+
| 1    | papi gudiya | 623 | cereals |
+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> insert into shop values(1, 'Adarsh Kirana', 623, 'pulses');
ERROR 1062 (23000): Duplicate entry '1' for key 'shop.PRIMARY'
mysql> insert into shop values(2, 'Adarsh Kirana', 623, 'pulses');
Query OK, 1 row affected (0.01 sec)

mysql> select * from shop;
+-----+-----+-----+-----+
| sno  | sname | sget | spro  |
+-----+-----+-----+-----+
| 1    | papi gudiya | 623 | cereals |
| 2    | Adarsh Kirana | 623 | pulses  |
+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql> update shop set spro=800;
Query OK, 2 rows affected (0.04 sec)
Rows matched: 2 Changed: 2 Warnings: 0

mysql> select * from shop;
+-----+-----+-----+-----+
| sno  | sname | sget | spro  |
+-----+-----+-----+-----+
| 1    | papi gudiya | 800 | cereals |
| 2    | Adarsh Kirana | 800 | pulses  |
+-----+-----+-----+-----+
2 rows in set (0.00 sec)

```

Experiment Name / No.:	3	Camlin / Page No.:	5
Date:	18/10/21		
Experiment -3 (DML)			
Aim:- To execute the Data Manipulation Language (DML) commands in RDBMS			
Objectives:- To understand Data Manipulation Language command.			
Theory :-			
DML commands are the most frequently used SQL command and is used to query and manipulate the existing database object.			
Some of the commands are :-			
1> Insert			
2> Select			
3> Update			
4> Delete			
Procedure			
a) INSERT Command This is used to add one or more rows to a table the values are separated by commas and the data type short and data are enclosed in quotes. The values must be entered in the same order as they are defined.			
• Inserting a single row into a table.			
Syntax :- <code>INSERT INTO <table_name> VALUES (<exp1>, <exp2>)</code>			
> USE AKASH			
> insert into shop values (1, 'papi gudiya', 623, 'cereals');			
> select * from items			
Teacher's Signature:			

Search what? From shop?	
1	Shop
2	Product Name
3	Category
4	Quantity
5	Price
6	Shop Name
7	Shop Address
8	Shop Contact No.
9	Shop Rating
10	Shop Reviews
11	Shop Rating
12	Shop Reviews
13	Shop Rating
14	Shop Reviews
15	Shop Rating
16	Shop Reviews
17	Shop Rating
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20	Shop Reviews
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500	Shop Reviews

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- Inserting more than one records using a single insert command.
Syntax: `INSERT INTO <tablename> VALUES (<val1>, <val2>, ...);`
~~SELECT * FROM shop;~~
~~SELECT sno, shop, where sno = 2;~~
 - SELECT command is used to retrieve information from the table. It is generally referred to as querying the table. We can either display all columns in a table or only specific columns of the table.
View all rows & all columns.
Syntax: `SELECT * from tablename;`
~~select sno from shop;~~
 - Selected columns and all rows.
Syntax: `SELECT <col1>, <col2> from tablename WHERE <condition>;`
~~SELECT sno, shop where sno = 2;~~
 - Selected column & selected rows.
Syntax: `SELECT <col1> from tablename WHERE <condition>;`
~~Teacher's Signature:~~

- eliminating duplicate rows:-

5 Syntax :- `SELECT DISTINCT <col1>, <col2> from <tablename>;`

C) UPDATE command It is used to alter the column values in a table.
A single column may be updated or more than one column could
be updated.

- Updating all rows !

15 Syntax `UPDATE tablename SET column1 = <exp1>, column2 = <exp2>`

e.g:- `UPDATE shop SET sgst = 000, where sno = 2;`

- updating records conditionally

Syntax `UPDATE tablename SET field = <value> where <condition>;`

25 e.g:- `UPDATE shop SET sgst = 729 where sno = 1;`

d) DELETE command After inserting row in a table, we can also delete them if required. The delete command consist of a 'from' clause followed by optional 'where' clause.

- 5
• Removal of all rows.

Syntax :- DELETE from <tablename>;

eq:- DELETE from shop

- 10
• Removal of specific rows

Syntax DELETE from <tablename> where <condition>;

15
eq:- DELETE from shop where sno = 1;

20
Result:- The DML commands are executed successfully

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Good

Experiment - 4

Aim To implement DCL statement

5 Objective To understand DCL commands.

Theory

Data control language (DCL) consists of various commands which are related to data sharing & security of data in database.

10 They are -

GRANT

REVOKE

15 Granting privileges : Objects that are created by user are owned & controlled by that user. If user wishes to access any of the objects belonging to another user, the owner of the will have to give permission for such access. This is called granting of privileges.

Granting privileges using GRANT statements :

20 The GRANT statement provide various type of access to database objects such as table views.

Syntax

GRANT { object privileges }

25 ON object name

To username ;

Teacher's Signature:

Object privileges :

each object privilege that is granted authorizes the grantee to perform some operation on the object. The user can grant all the privileges or grant only specific object privileges.

5

The list of object privileges is as follow :

- ALTER : allows the grantee to change the table definition with the alter table command.
- 10 DELETE : allows the grantee to remove the records from the table with the DELETE command.
- INDEX : allows the grantee to add records to the table with the INSERT command.
- 15 SELECT : allows the grantee to query the table with the SELECT command.
- UPDATE : allows the grantee to modify the records in the table with the UPDATE command.

Revoking privileges given :

Privileges once given can be denied to a user using REVOKE command. The object owner can revoke privilege granted to another user. A user of an object who is not owner, but has been granted the GRANT privilege, has the power to REVOKE

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the privilege from the grantee.

5 Revoking permission using the REVOKE statement : The REVOKE statement is used to deny the grant given on an object.

Syntax

REVOKE object privileges
ON object name
FROM username;

The REVOKE command is used to revoke object privileges that the user previously granted to the REVOKE.

15 The REVOKE command cannot be used to revoke the privileges granted through operating system.

Result

Familiarised DCL statements.

```
mysql> select max(marks) from student;
+-----+
| max(marks) |
+-----+
|      90    |
+-----+
1 row in set (0.00 sec)

mysql>
```

```
mysql> select min(marks) from student;
+-----+
| min(marks) |
+-----+
|       85   |
+-----+
1 row in set (0.00 sec)

mysql>
```

```
Command Prompt - mysql -u root -p
mysql> select avg(percentage) from student;
+-----+
| avg(percentage) |
+-----+
|      89.6667  |
+-----+
1 row in set (0.00 sec)

mysql>
```

Experiment Name / No.: 5

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Experiment - 5

Aim To implement computations done on data of the given table.

Objectives To understand computations done on data of the given table with built in func.

Theory

* group func / Aggregate func.

A group of func returns a result based on group of rows.

1. avg

eg: select avg (total) from student;

2. max

eg: select max (percentage) from student;

3. min

eg: select min (marks) from student;

4. sum

eg: select sum (price) from product;

* count func

In order to count the number of rows, count func is used.

Teacher's Signature

```

Command Prompt : mysql -u root -p
mysql> select sum(sell_price) from product_master;
+-----+
| sum(sell_price) |
+-----+
| 2300 |
+-----+
1 row in set (0.00 sec)

mysql> select count(*) as no_of_students from student;
+-----+
| no_of_students |
+-----+
| 3 |
+-----+
1 row in set (0.00 sec)

mysql> select count(name) from student;
+-----+
| count(name) |
+-----+
| 3 |
+-----+
1 row in set (0.00 sec)

mysql> select count(distinct name) as name from student;
+-----+
| name |
+-----+
| 3 |
+-----+
1 row in set (0.00 sec)

mysql>

```

```

Command Prompt : mysql -u root -p
mysql> select max(salary) as salary, deptno from employee group by deptno;
+-----+-----+
| salary | deptno |
+-----+-----+
| 2000 | 10 |
| 3000 | 20 |
| 3500 | 21 |
+-----+-----+
3 rows in set (0.00 sec)

mysql> select max(salary) as sal, deptno from employee group by deptno having count(*) >= 2;
+-----+-----+
| sal | deptno |
+-----+-----+
| 2000 | 10 |
+-----+-----+
1 row in set (0.00 sec)

mysql>

```

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1.	count(*) It counts all, including duplicates & null. eg:- select count(*) from student;	
2.	count(column_name) to avoid null values. eg:- select count(total) from order;	
3.	count(distinct column_name) It avoids the repeated & null values. eg: select count(distinct ordid) from order;	
*10	<u>Special Clause</u>	
1.	group by clause This allows us to use simultaneous column name & group func. eg: select max(percentage), deptname from student group by deptname;	
2.	Having clause This is used to specify conditions on rows retrieved by using group by clause. eg: select max(percentage), deptname from student group by deptname having count(*) >= 50;	
3.	In / not in used to select a row from a specific set of values.	
4.	Any used to compare with a specific set of values.	
25		Teacher's Signature...

```

mysql> SELECT name, sal, exp, Promotion_info(exp) as Promote
-> from emp;
-> //
+-----+-----+-----+-----+
| name | sal | exp | Promoted |
+-----+-----+-----+-----+
| Someone | 1200000 | 5 | NO |
| Mr. Brown | 3000000 | 12 | YES |
| Mr. James | 600000 | 1 | NO |
| Miss Jessica | 750000 | 4 | NO |
| Miss Jessica Jones | 1000000 | 6 | YES |
+-----+-----+-----+-----+
5 rows in set (0.01 sec)

mysql> -

```

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5 Between / not between used to find b/w the ranges.

6 Like / not like used to do the pattern matching.

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```

Command Prompt - mysql -u root -p
mysql> DELIMITER //
mysql> CREATE PROCEDURE get_employee()
-> begin
-> SELECT * FROM employee where sal > 100000;
-> SELECT COUNT(deptno) as Deptno from employee;
-> END ///
Query OK, 0 rows affected (0.01 sec)

mysql> call get_employee();
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'call get_employee();' at line 1
mysql> call get_employee();
-> /
+-----+-----+-----+-----+-----+-----+
| empno | ename | design | sal | deptno | job |
+-----+-----+-----+-----+-----+-----+
| 22 | Vathsath | CEO | 203130 | 10 | S02 | 2001-01-13 | NULL |
| 100 | Someone | Eng | 10000000 | 23 | Mechanic | 2001-09-09 | 1000 |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.01 sec)

+-----+
| Deptno |
+-----+
| 11 |
+-----+
1 row in set (0.01 sec)
Query OK, 0 rows affected (0.01 sec)

mysql>

```

```

Command Prompt - mysql -u root -p
mysql> DELIMITER //
mysql> CREATE FUNCTION Promotion_info(
-> exp int
-> )
-> RETURNS VARCHAR(10)
-> DETERMINISTIC
-> BEGIN
-> DECLARE result varchar(10);
-> IF exp < 6 THEN
-> SET result = 'NO';
-> ELSEIF exp>=6 THEN
-> SET result = 'YES';
-> END IF;
-> RETURN (result);
-> END///
Query OK, 0 rows affected (0.01 sec)

```

Experiment Name / No:	7
Date:	Camlin Page No. 15 Data 29/1/121
<u>Experiment-7</u>	
Aim To Implement procedure & function in DBMS	
Objective To understand Procedure & func.	
<p>Theory</p> <p><u>procedure</u> → → A procedure is a collection of pre-compiled sql statement stored inside the database.</p> <p>→ → Stored procedure are created to perform one of more DML operations on database</p>	
<p><u>functions</u> → → MySQL stored func provide a powerful & flexible way to manipulate & process data. You can define & run stored func on any hosting server that uses MySQL.</p>	
<p><u>Procedure</u></p> <p>* <u>syntax of Procedure</u> →</p> <p>delimiter //</p> <p>CREATE PROCEDURE procedure (IN (input) OUT (output) INTOUT) parameter-name datatype.)</p> <p>BEGIN SELECT</p> <p>Declaration - section</p> <p>Executable - section</p> <p>END //</p> <p>delimiter ;</p>	

Teacher's Signature:

* syntax of func

DELIMITER //

CREATE FUNCTION function_name [(parameters datatype, [parameters datatype])] RETURNS return - datatype

5 BEGIN

declaration - section

execution - section

10 END //

DELIMITER

```

mysql> select parents.name, children.name
    from parents
    inner join children
    on parents.pid = children.pid;
+-----+-----+
| name | name |
+-----+-----+
| Sanchi | Aryan |
| Sanchi | Aayush |
| Sanchi | Neeraj |
| Aayush | Lekha |
| Aayush | Lalli |
| Neeraj | Faizan |
+-----+-----+
4 rows in set (0.00 sec)

mysql> select parents.name, children.name
    from parents
    left join children
    on parents.pid = children.pid;
+-----+-----+
| name | name |
+-----+-----+
| Sanchi | Aryan |
| Sanchi | Aayush |
| Sanchi | Neeraj |
| Aayush | Lekha |
| Aayush | Lalli |
| Neeraj | Faizan |
+-----+-----+
6 rows in set (0.00 sec)

mysql> select parents.name, children.name
    from parents
    right join children
    on parents.pid = children.pid;
+-----+-----+
| name | name |
+-----+-----+
| Sanchi | Aryan |
| Sanchi | Aayush |
| Sanchi | Neeraj |
| Aayush | Lekha |
| Aayush | Lalli |
| Neeraj | Faizan |
+-----+-----+
6 rows in set (0.00 sec)

mysql>

```



B

Experiment Name / No.:	Camlin / Page No. 17 Date 6 / 12 / 21
Experiment - B	
Aim	To implement joins
Objective	To understand types of joins
Theory	
<p>Join: As the name shows, JOIN means to combine something. In case of SQL, join means "to combine two or more tables".</p> <p>The SQL join clause takes records from two or more tables & combining it.</p>	
Types of JOINS	
<p>1) Inner JOIN (simple join): It is used to return all rows from multiple table where the join cond'n is satisfied. It is the most common Type of join.</p>	
<p>2) Left Outer JOIN → It returns all rows from the left hand table specified & only those rows from the other table where the join cond'n is fulfilled.</p>	
<p>3) Right Outer JOIN → It returns all rows from the right hand table specified & only those rows from the other table where the join cond'n is fulfilled.</p>	
25	
Teacher's Signature: _____	

Procedure

1) Inner JOIN :-

select column σ

from table name

InnerJoin table 2

on table name column σ = table 2. column σ ;

2) Left Outer JOIN :-

select column σ

from table 1

LEFT [OUTER] JOIN table 2

on table 1. column σ = table 2. column σ ;

3) Right Outer JOIN :-

select column σ

from table 2

RIGHT [OUTER] JOIN table 1

on table 2. column σ = table 1. column σ ;*RR*

```
Command Prompt - mysql -u root -p
mysql> CREATE PROCEDURE cursorExample()
-> BEGIN
->   DECLARE i int;
->   DECLARE n varchar(20);
->   DECLARE cur CURSOR FOR SELECT name, percentage FROM student;
->   OPEN cur;
->   FETCH cur INTO n, i;
->   SELECT n, i;
->   CLOSE cur;
-> END; //
Query OK, 0 rows affected (0.01 sec)

mysql> call cursorExample();
-> //
+-----+-----+
| n    | i    |
+-----+-----+
| Umesh | 94 |
+-----+-----+
1 row in set (0.01 sec)

Query OK, 0 rows affected (0.01 sec)
mysql>
```

Experiment Name / No.: 8
Camin Page No. 19
Date 22/11/21

Experiment 6

Aim: To implement a cursor

Objectives To understand cursor & its use

Theory A cursor is a structure that allows you to go over records sequentially, & perform processes base on the result. Cursors are non-scrollable, read only & insensitive.

Procedure.

Syntax of cursor

• first, declare a cursor by using the DECLARE statement.

15 `DECLARE cursor-name cursor for select statement;`
 `OPEN cursor-name;`
 `FETCH cursor-name into variable list;`
 `CLOSE cursor-name;`

20 `DECLARE CONTINUE HANDLER FOR NOT FOUND SET Finished=1;`

Teacher's Signature: