

Group B: SQL & PL/SQL

Assignment No: 4

Aim:

Design any database with at least 3 entities and relationships between them. Apply DCL and DDL commands. Draw suitable ER/EER diagram for the system.

Objective:

- To understand the different issues involved in the design and implementation of a database system
- To understand and use Data Definition Language and Data Control Language to write query for a database

Theory:

DATA DEFINITION LANGUAGE (DDL): The Data Definition Language (DDL) is used to create and destroy databases and database objects. These commands will primarily be used by database administrators during the setup and removal phases of a database project. **Some commands of DDL are:**

- CREATE – to create table (objects) in the database
- ALTER – alters the structure of the database
- DROP – delete table from the database
- TRUNCATE – remove all records from a table, including all spaces allocated for the records are removed
- RENAME – rename a table

2. CREATE:

(a) CREATE DATABASE: You can create a MySQL database by using MySQL Command
Syntax:

CREATE DATABASE database_name;

Example:

Let's take an example to create a database name "employees"

CREATE DATABASE employees;

We can check the created database by the following query:

SHOW DATABASES;

(b) USE DATABASE: Used to select a particular database.

Syntax:

```
USE database_name;
```

Example: Let's take an example to use a database name "customers".

```
USE customers;
```

(c) **DROP DATABASE:** You can drop/delete/remove a MySQL database easily with the MySQL command. You should be careful while deleting any database because you will lose your all the data available in your database.

Syntax:

```
DROP DATABASE database_name;
```

Example: Let's take an example to drop a database name "employees"

```
DROP DATABASE employees;
```

(d) **CREATE TABLE:** This is used to create a new relation (table)

The MySQL CREATE TABLE command is used to create a new table into the database.

Syntax:

Following is a generic syntax for creating a MySQL table in the database.

```
CREATE TABLE table_name (column_name column_type...);
```

Example:

Here, we will create a table named "student" in the database "mydatabase".

```
CREATE TABLE cus_tbl(
```

```
    roll_no INT NOT NULL ,
```

```
    fname VARCHAR(100) NOT NULL,
```

```
    surname VARCHAR(100) NOT NULL,
```

```
    PRIMARY KEY ( roll_no )
```

See the created table: Use the following command to see the table already created:

SHOW tables;

See the table structure: Use the following command to see the table already created:

DESCRIBE table_name;

2. ALTER:

MySQL ALTER statement is used when you want to change the name of your table or any table field. It is also used to add or delete an existing column in a table.

The ALTER statement is always used with "ADD", "DROP" and "MODIFY" commands according to the situation.

(a) **ALTER TABLE ...ADD...:** This is used to add some extra fields into existing relation.

Syntax: ALTER TABLE relation_name ADD (new field_1 data_type(size), new field_2 data_type(size),...);

Example: ALTER TABLE student ADD (Address CHAR(10));

(b) **ALTER TABLE...MODIFY...:** This is used to change the width as well as data type of fields of existing relations.

Syntax: ALTER TABLE relation_name MODIFY (field_1 newdata_type(Size), field_2 newdata_type(Size),.. .. field_newdata_type(Size));

Example: ALTER TABLE student MODIFY(fname VARCHAR(10),class VARCHAR(5));

c) **ALTER TABLE..DROP** This is used to remove any field of existing relations.

Syntax: ALTER TABLE relation_name DROP COLUMN (field_name);

Example: ALTER TABLE student DROP column (sname);

d) **ALTER TABLE..RENAME.....** This is used to change the name of fields in existing relations.

Syntax: ALTER TABLE relation_name RENAME COLUMN (OLD field_name) to (NEW field_name);

Example: ALTER TABLE student RENAME COLUMN sname to stu_name;

3. RENAME: It is used to modify the name of the existing database object.

Syntax: RENAME TABLE old_relation_name TO new_relation_name;

Example: RENAME TABLE studentd TO studentd1;

4. TRUNCATE and DROP

Difference between Truncate & Drop:-

TRUNCATE: This command will remove the data permanently. But structure will not be removed.

DROP: This command will delete the table data and structure permanently.

Syntax: TRUNCATE TABLE <Table name>

Example TRUNCATE TABLE student;

Syntax: DROP TABLE <Table name>

Example DROP TABLE student;

Data Control Language(DCL) : This is used to control privilege in Database. To perform any operation in the database, such as for creating tables, sequences or views we need privileges.

DCL defines two commands,

- **Grant :** Gives user access privileges to database.
- **Revoke :** Take back permissions from user.

Syntax: GRANT privilege_name ON object_name
TO {user_name };

Example : GRANT CREATE TABLE TO user1;

REVOKE privilege_name
ON object_name
FROM {user_name };

Example : REVOKE CREATE TABLE FROM user1;

LAB PRACTICE ASSIGNMENT:

Consider the following table structures for this assignment:

Table Name 1: **CUSTOMER**

Fields:

Cust_id varchar(10) Primary Key, C_name Varchar(15) Not NULL, City varchar(10). Table Name 2: **BRANCH**

Fields:

Branch_id Varchar(5) Primary Key, bname Varchar (15), City varchar(10).

Table Name 3: **DEPOSIT**

Fields:

Acc_no varchar(10) Primary Key, Cust_id Varchar(10) Not NULL, Amount int, Branch_id Varchar(5), Open_date date.

Table Name 4: **BORROW**

Fields:

Loan_no Varchar(5) Primary Key, Cust_id Varchar (10), Branch_id varchar(5), Amount int.

Perform the following command/operation on the above table:

- 1) Create a Database
- 2) Show Database
- 3) Use Database
- 4) Drop Database
- 5) Create tables and Describe that Tables
- 6) Alter Command
 - i) Add column address to Customer table
 - ii) Modify any column
 - iii) Rename column address to new_address
 - iv) Drop column address from Customer table
 - v) Rename table Branch to Branch1
- 6) Perform DCL Commands Grant and Revoke on Customer table
- 7) Truncate table
- 8) Drop table

Note:

- 1) For truncate and drop command create any other table
- 2) In write-up, write the description and uses of all commands with syntax in the given format
- 3) Printout should also consists of command execution in the given order only.

Conclusion:-

We have studied and created a database with at least 3 entities and relationships between them and applied DCL and DDL commands.

