

MIT World Peace University

Data Base Management System

Assignment 3

NAMAN SONI ROLL No. 10

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1 Aim

Design and Develop SQL DDL statements for different system.

2 Objectives

To study DDL, DCL commands.

3 Theory

3.1 *SQL Data Definition Language (DDL)*

3.1.1 *What is Data Definition Language?*

Data Definition Language (DDL) is a computer language used to define the database schema. It includes commands to create, modify and drop database objects in the database. It is used to define the database structure or schema. It is also used to define the access permissions on the data, or the views that are presented to different users.

3.1.2 **DDL Commands**

The following are the Commands that are used in DDL:

1. CREATE Creates a new database or a new table in a database.
2. ALTER Modifies a database or a table.
3. DROP Deletes a database or a table.
4. TRUNCATE Deletes all the records from a table, including all spaces allocated for the records are removed.
5. COMMENT Adds comments to the data dictionary.
6. RENAME Renames an object.

3.1.3 **DDL Command Syntax and Examples**

1. CREATE TABLE Creates a new database table. CREATE TABLE table_name constraints (Column_name datatype (size) constraints default " Column_name datatype (size), constraint (column_name)); 2. ALTER TABLE Changes in columns and stuff. ALTER TABLE table_name ADD column_name datatype; 3. DROP TABLE Deletes a table from the database. DROP TABLE table_name; 4. RENAME TABLE Renames a table. RENAME TABLE old_name TO new_name; 5. TRUNCATE TABLE Deletes all the records from a table. TRUNCATE TABLE table_name; 6. COMMENT ON Adds comments to the data dictionary. COMMENT ON TABLE table_name IS 'comment';

3.2 *SQL Data Control Language (DCL)*

3.2.1 *What is Data Control Language?*

Data Control Language (DCL) is a computer language used to define the access permissions on the data, or the views that are presented to different users. It includes commands to grant and deny privileges on database objects to users.

3.2.2 DCL Commands

The following are the Commands that are used in DCL

1. GRANT Gives the specified privileges to the specified user.
2. REVOKE Takes back the specified privileges from the specified user.

4.3 DCL Command Syntax and Examples

1. GRANT Gives the specified privileges to the specified user. GRANT privileges ON object_name TO user_name;
2. REVOKE Takes back the specified privileges from the specified user. REVOKE privileges ON object_name FROM user_name;

4 Platform

Operating System: Arch Linux x8664 IDEs or Text Editors Used: Draw.io for Drawing the ER diagram.

5 Platform

Mac OS 64-bits

6 Output

```
1 Enter password:
2 Welcome to the MariaDB monitor.  Commands end with ; or \g.
3 Your MariaDB connection id is 3
4 Server version: 10.11.2-MariaDB Arch Linux
5
6 Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.
7
8 Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
9
10 MariaDB [(none)]> show databases;
11 +-----+
12 | Database |
13 +-----+
14 | class    |
15 | class_stuff |
16 | dbms_lab  |
17 | information_schema |
18 | mysql     |
19 | performance_schema |
20 | sys       |
21 | test      |
22 | test_libreoffice |
23 +-----+
24 9 rows in set (0.004 sec)
25
26 MariaDB [(none)]> use dbms_lab
27 Reading table information for completion of table and column names
28 You can turn off this feature to get a quicker startup with -A
29
30 Database changed
31 MariaDB [dbms_lab]> show tables;
32 +-----+
33 | Tables_in_dbms_lab |
34 +-----+
35 | books               |
36 | course              |
37 | new_book_master     |
38 | newauthor           |
39 | newbook_master      |
40 +-----+
41 5 rows in set (0.001 sec)
42
43 MariaDB [dbms_lab]> create table Hotel (HotelNo int Primary Key, Name varchar(50), City
    varchar(50));
```

```

44 Query OK, 0 rows affected (0.020 sec)
45
46 MariaDB [dbms_lab]> describe Hotel;
47 +-----+-----+-----+-----+-----+-----+
48 | Field      | Type          | Null | Key | Default | Extra |
49 +-----+-----+-----+-----+-----+-----+
50 | HotelNo    | int(11)       | NO   | PRI | NULL    |       |
51 | Name       | varchar(50)   | YES  |     | NULL    |       |
52 | City       | varchar(50)   | YES  |     | NULL    |       |
53 +-----+-----+-----+-----+-----+-----+
54 3 rows in set (0.002 sec)
55
56 MariaDB [dbms_lab]> create table Room (RoomNo int Primary Key, HotelNo int, Type varchar(50)
    , Price int, foreign key(HotelNo) references Hotel(HotelNo));
57 Query OK, 0 rows affected (0.014 sec)
58
59 MariaDB [dbms_lab]> describe Room;
60 +-----+-----+-----+-----+-----+-----+
61 | Field      | Type          | Null | Key | Default | Extra |
62 +-----+-----+-----+-----+-----+-----+
63 | RoomNo     | int(11)       | NO   | PRI | NULL    |       |
64 | HotelNo    | int(11)       | YES  | MUL | NULL    |       |
65 | Type       | varchar(50)   | YES  |     | NULL    |       |
66 | Price      | int(11)       | YES  |     | NULL    |       |
67 +-----+-----+-----+-----+-----+-----+
68 4 rows in set (0.002 sec)
69
70 MariaDB [dbms_lab]> create table Booking (HotelNo int, GuestNo int, DateFrom date, DateTo
    date, RoomNo int, foreign key(HotelNo) references Hotel(HotelNo), foreign key(RoomNo)
    references Room(RoomNo));
71 Query OK, 0 rows affected (0.011 sec)
72
73 MariaDB [dbms_lab]> describe Booking;
74 +-----+-----+-----+-----+-----+-----+
75 | Field      | Type          | Null | Key | Default | Extra |
76 +-----+-----+-----+-----+-----+-----+
77 | HotelNo    | int(11)       | YES  | MUL | NULL    |       |
78 | GuestNo    | int(11)       | YES  |     | NULL    |       |
79 | DateFrom   | date          | YES  |     | NULL    |       |
80 | DateTo     | date          | YES  |     | NULL    |       |
81 | RoomNo     | int(11)       | YES  | MUL | NULL    |       |
82 +-----+-----+-----+-----+-----+-----+
83 5 rows in set (0.002 sec)
84
85 MariaDB [dbms_lab]> create table Guest(GuestNo int primary key, GuestName varchar(50),
    GuessAddress varchar(50));
86 Query OK, 0 rows affected (0.007 sec)
87
88 MariaDB [dbms_lab]> alter table Booking add constraint foreign key(GuestNo) references Guest
    (GuestNo);
89 Query OK, 0 rows affected (0.022 sec)
90 Records: 0 Duplicates: 0 Warnings: 0
91
92 MariaDB [dbms_lab]> describe Booking;
93 +-----+-----+-----+-----+-----+-----+
94 | Field      | Type          | Null | Key | Default | Extra |
95 +-----+-----+-----+-----+-----+-----+
96 | HotelNo    | int(11)       | YES  | MUL | NULL    |       |
97 | GuestNo    | int(11)       | YES  | MUL | NULL    |       |
98 | DateFrom   | date          | YES  |     | NULL    |       |
99 | DateTo     | date          | YES  |     | NULL    |       |
100 | RoomNo     | int(11)       | YES  | MUL | NULL    |       |
101 +-----+-----+-----+-----+-----+-----+
102 5 rows in set (0.004 sec)
103
104 MariaDB [dbms_lab]> describe Guest;
105 +-----+-----+-----+-----+-----+-----+
106 | Field      | Type          | Null | Key | Default | Extra |

```

```

107 +-----+-----+-----+-----+-----+-----+
108 | GuestNo      | int(11)      | NO   | PRI | NULL |      |
109 | GuestName     | varchar(50)  | YES  |     | NULL |      |
110 | GuessAddress  | varchar(50)  | YES  |     | NULL |      |
111 +-----+-----+-----+-----+-----+-----+
112 3 rows in set (0.001 sec)
113
114 MariaDB [dbms_lab]> describe Room;
115 +-----+-----+-----+-----+-----+-----+
116 | Field      | Type          | Null | Key | Default | Extra |
117 +-----+-----+-----+-----+-----+-----+
118 | RoomNo     | int(11)       | NO   | PRI | NULL    |      |
119 | HotelNo    | int(11)       | YES  | MUL | NULL    |      |
120 | Type       | varchar(50)   | YES  |     | NULL    |      |
121 | Price      | int(11)       | YES  |     | NULL    |      |
122 +-----+-----+-----+-----+-----+-----+
123 4 rows in set (0.002 sec)
124
125 MariaDB [dbms_lab]> describe Hotel;
126 +-----+-----+-----+-----+-----+-----+
127 | Field      | Type          | Null | Key | Default | Extra |
128 +-----+-----+-----+-----+-----+-----+
129 | HotelNo    | int(11)       | NO   | PRI | NULL    |      |
130 | Name       | varchar(50)   | YES  |     | NULL    |      |
131 | City       | varchar(50)   | YES  |     | NULL    |      |
132 +-----+-----+-----+-----+-----+-----+
133 3 rows in set (0.002 sec)
134
135 MariaDB [dbms_lab]> create table emp(eno int primary key, ename varchar(50), zip int check(
136 zip in (400110, 400111)), hdate date unique);
137 Query OK, 0 rows affected (0.009 sec)
138
139 MariaDB [dbms_lab]> describe emp;
140 +-----+-----+-----+-----+-----+-----+
141 | Field      | Type          | Null | Key | Default | Extra |
142 +-----+-----+-----+-----+-----+-----+
143 | eno        | int(11)       | NO   | PRI | NULL    |      |
144 | ename      | varchar(50)   | YES  |     | NULL    |      |
145 | zip        | int(11)       | YES  |     | NULL    |      |
146 | hdate      | date          | YES  | UNI | NULL    |      |
147 +-----+-----+-----+-----+-----+-----+
148 4 rows in set (0.002 sec)
149
150 MariaDB [dbms_lab]> create table parts(pno int primary key, pname varchar(50), qty_on_hand
151 int not null, price int);
152 Query OK, 0 rows affected (0.007 sec)
153
154 MariaDB [dbms_lab]> describe parts;
155 +-----+-----+-----+-----+-----+-----+
156 | Field      | Type          | Null | Key | Default | Extra |
157 +-----+-----+-----+-----+-----+-----+
158 | pno        | int(11)       | NO   | PRI | NULL    |      |
159 | pname      | varchar(50)   | YES  |     | NULL    |      |
160 | qty_on_hand | int(11)       | NO   |     | NULL    |      |
161 | price      | int(11)       | YES  |     | NULL    |      |
162 +-----+-----+-----+-----+-----+-----+
163 4 rows in set (0.002 sec)
164
165 MariaDB [dbms_lab]> create table customer(cno primary key, cname varchar(50), street varchar
166 (50), Zip int not null, phone int not null unique);
167 ERROR 4161 (HY000): Unknown data type: 'primary'
168 MariaDB [dbms_lab]> create table customer(cno int primary key, cname varchar(50), street
169 varchar(50), Zip int not null, phone int not null unique);
170 Query OK, 0 rows affected (0.009 sec)
171
172 MariaDB [dbms_lab]> describe customer;
173 +-----+-----+-----+-----+-----+-----+
174 | Field      | Type          | Null | Key | Default | Extra |
175 +-----+-----+-----+-----+-----+-----+

```

```

171 +-----+-----+-----+-----+-----+-----+
172 | cno      | int(11) | NO  | PRI | NULL | | |
173 | cname    | varchar(50) | YES | | NULL | | |
174 | street   | varchar(50) | YES | | NULL | | |
175 | Zip      | int(11) | NO  | | NULL | | |
176 | phone    | int(11) | NO  | UNI | NULL | | |
177 +-----+-----+-----+-----+-----+
178 5 rows in set (0.002 sec)
179
180 MariaDB [dbms_lab]> create table Orders(ono int primary key, cno int, receivedDate date,
      shippedDate date, foreign key(cno) references customer(cno));
181 Query OK, 0 rows affected (0.010 sec)
182
183 MariaDB [dbms_lab]> describe Orders;
184 +-----+-----+-----+-----+-----+-----+
185 | Field      | Type      | Null | Key | Default | Extra |
186 +-----+-----+-----+-----+-----+-----+
187 | ono        | int(11)   | NO   | PRI | NULL    | |
188 | cno        | int(11)   | YES  | MUL | NULL    | |
189 | receivedDate | date     | YES  | | NULL    | |
190 | shippedDate | date     | YES  | | NULL    | |
191 +-----+-----+-----+-----+-----+
192 4 rows in set (0.002 sec)
193
194 MariaDB [dbms_lab]> create table odetails(ono int, pno int, qty int, foreign key(ono)
      references Orders(ono));
195 Query OK, 0 rows affected (0.009 sec)
196
197 MariaDB [dbms_lab]> describe odetails;
198 +-----+-----+-----+-----+-----+-----+
199 | Field | Type      | Null | Key | Default | Extra |
200 +-----+-----+-----+-----+-----+-----+
201 | ono   | int(11)   | YES  | MUL | NULL    | |
202 | pno   | int(11)   | YES  | | NULL    | |
203 | qty   | int(11)   | YES  | | NULL    | |
204 +-----+-----+-----+-----+-----+
205 3 rows in set (0.002 sec)
206
207 MariaDB [dbms_lab]> create table zipcode(zip int primary key, city varchar(50) not null
      check(city in ('Pune', 'Mumbai')));
208 Query OK, 0 rows affected (0.008 sec)
209
210 MariaDB [dbms_lab]> describe zipcode;
211 +-----+-----+-----+-----+-----+-----+
212 | Field | Type      | Null | Key | Default | Extra |
213 +-----+-----+-----+-----+-----+-----+
214 | zip   | int(11)   | NO   | PRI | NULL    | |
215 | city  | varchar(50) | NO   | | NULL    | |
216 +-----+-----+-----+-----+-----+
217 2 rows in set (0.002 sec)

```

7 Conclusion

Thus we have learned DDL and DCL commands throughly.

8 FAQ's

8.1 How to drop a column from a table?

ALTER TABLE table_name DROP COLUMN column_name;

8.2 How to add a primary key in an already existing table?

```
ALTER TABLE table_name ADD PRIMARY KEY (column_name);
```

8.3 How to create a new user in MySQL?

```
CREATE USER 'username'@'localhost' IDENTIFIED BY 'password';
```