

Experiement-5

Title: DDL (Data Definition Language) commands with Data Constraints

Objective: To understand the concept of data constraints that are enforced on data being stored in the table. Focus on Primary Key, The Foreign Key and constraints.

Aim: To implement Data Control Language commands like GRANT and REVOKE.

Theory: DCL deals with rights, permissions, and other controls of the database system.

Exercise

1. Create table AUTHOR = {Author_ID , Lastname, Firstname, Email, City, Country}

Where:

Author_ID – text data type, 5 characters, primary key

Lastname – text data type, 15 characters, not null

Firstname – text data type, 15 characters, not null

Email – text data type, 40 characters

City – text data type, 15 characters

Country – text data type, 15 characters

Code/Output:

```
mysql> 24BCP128 PANA V BRIJESH PATEL;
ERROR 1064 (42000): You have an error in your SQL syntax; c
heck the manual that corresponds to your MySQL server versi
on for the right syntax to use near '24BCP128 PANA V BRIJESH
PATEL' at line 1
mysql> CREATE TABLE AUTHOR (
->     Author_ID CHAR(5) PRIMARY KEY,
->     Lastname VARCHAR(15) NOT NULL,
->     Firstname VARCHAR(15) NOT NULL,
->     Email VARCHAR(40),
->     City VARCHAR(15),
->     Country VARCHAR(15)
-> );
Query OK, 0 rows affected (0.04 sec)

mysql> DESC AUTHOR;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Author_ID | char(5) | NO | PRI | NULL |  |
| Lastname | varchar(15) | NO |  | NULL |  |
| Firstname | varchar(15) | NO |  | NULL |  |
| Email | varchar(40) | YES |  | NULL |  |
| City | varchar(15) | YES |  | NULL |  |
| Country | varchar(15) | YES |  | NULL |  |
+-----+-----+-----+-----+-----+-----+
6 rows in set (0.01 sec)
```

2. Create Table BOOK={ Book_ID, Book_Title, Copies}

Where:

Book_ID – text data type, 5 characters Primary Key Start with Character B

Book_Title - Text data Type Not Null

Copies- No.of copies Data Type int always greater the 2

Code/Output:

```
mysql> 24BCP128 PANA V BRIJESH PATEL;  
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 '24BCP128 PANA V BRIJESH PATEL' at line 1  
mysql> CREATE TABLE BOOK (  
->     Book_ID CHAR(5) PRIMARY KEY CHECK (Book_ID LIKE 'B%'),  
->     Book_Title VARCHAR(255) NOT NULL,  
->     Copies INT CHECK (Copies > 2)  
-> );  
Query OK, 0 rows affected (0.02 sec)  
  
mysql> DESC BOOK;  
+-----+-----+-----+-----+-----+-----+  
| Field      | Type          | Null | Key | Default | Extra |  
+-----+-----+-----+-----+-----+-----+  
| Book_ID    | char(5)       | NO   | PRI | NULL    |      |  
| Book_Title | varchar(255)  | NO   |     | NULL    |      |  
| Copies     | int           | YES  |     | NULL    |      |  
+-----+-----+-----+-----+-----+-----+  
3 rows in set (0.00 sec)
```

3. Create table AUTHOR_LIST = {Author_ID, Book_ID , Role}

Where:

Author_ID – text data type, 5 characters, referenced by Author_ID from AUTHOR table

Book_ID – text data type, 5 characters Role – text data type, 15 characters and primary key is Author_ID, Book_ID

Code/Output:

```
mysql> 24BCP128 PANA V BRIJESH PATEL;
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 '24BCP128 PANA V BRIJESH PATEL' at line
1
mysql> CREATE TABLE AUTHOR_LIST (
->   Author_ID CHAR(5),
->   Book_ID CHAR(5),
->   Role VARCHAR(15),
->   PRIMARY KEY (Author_ID, Book_ID),
->   FOREIGN KEY (Author_ID) REFERENCES AUTHOR(Author_ID),
->   FOREIGN KEY (Book_ID) REFERENCES BOOK(Book_ID)
-> );
Query OK, 0 rows affected (0.04 sec)

mysql> DESC AUTHOR_LIST;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key  | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Author_ID  | char(5)       | NO   | PRI  | NULL    |       |
| Book_ID    | char(5)       | NO   | PRI  | NULL    |       |
| Role       | varchar(15)   | YES  |      | NULL    |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

4. Add four records in each tables AUTHOR, BOOK, BOOK_LIST.

Code/Output:

```
mysql> 24BCP128 PANA V BRIJESH PATEL;
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 '24BCP128 PANA V BRIJESH PATE
L' at line 1
mysql> INSERT INTO AUTHOR VALUES
-> ('A001', 'Smith', 'John', 'john.smith@example.com', 'New York', 'USA'),
-> ('A002', 'Johnson', 'Emily', 'emily.johnson@example.com', 'Los Angeles', 'USA'),
-> ('A003', 'Williams', 'David', 'david.williams@example.com', 'Chicago', 'USA'),
-> ('A004', 'Brown', 'Linda', 'linda.brown@example.com', 'San Francisco', 'USA');
Query OK, 4 rows affected (0.01 sec)
Records: 4 Duplicates: 0 Warnings: 0

mysql> SELECT * FROM AUTHOR;
+-----+-----+-----+-----+-----+-----+
| Author_ID | Lastname | Firstname | Email                               | City          | Country |
+-----+-----+-----+-----+-----+-----+
| A001      | Smith    | John      | john.smith@example.com             | New York     | USA     |
| A002      | Johnson  | Emily     | emily.johnson@example.com          | Los Angeles  | USA     |
| A003      | Williams | David     | david.williams@example.com         | Chicago      | USA     |
| A004      | Brown    | Linda     | linda.brown@example.com            | San Francisco | USA     |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

```
mysql> 24BCP128 PANA V BRIJESH PATEL;
ERROR 1064 (42000): You have an error in your SQL
syntax; check the manual that corresponds to you
r MySQL server version for the right syntax to us
e near '24BCP128 PANA V BRIJESH PATEL' at line 1
mysql> INSERT INTO BOOK VALUES
-> ('B001', 'The Great Adventure', 10),
-> ('B002', 'Learning MySQL', 5),
-> ('B003', 'Mastering SQL', 7),
-> ('B004', 'Introduction to Databases', 3);
Query OK, 4 rows affected (0.01 sec)
Records: 4 Duplicates: 0 Warnings: 0
```

```
mysql> SELECT * FROM BOOK;
```

Book_ID	Book_Title	Copies
B001	The Great Adventure	10
B002	Learning MySQL	5
B003	Mastering SQL	7
B004	Introduction to Databases	3

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

```
mysql> 24BCP128 PANA V BRIJESH PATEL;
ERROR 1064 (42000): You have an error in your SQ
L syntax; check the manual that corresponds to y
our MySQL server version for the right syntax to
use near '24BCP128 PANA V BRIJESH PATEL' at line
1
```

```
mysql> INSERT INTO AUTHOR_LIST VALUES
```

```
-> ('A001', 'B001', 'Author'),
-> ('A002', 'B002', 'Author'),
-> ('A003', 'B003', 'Co-Author'),
-> ('A004', 'B004', 'Editor');
```

```
Query OK, 4 rows affected (0.01 sec)
Records: 4 Duplicates: 0 Warnings: 0
```

```
mysql> SELECT * FROM AUTHOR_LIST;
```

Author_ID	Book_ID	Role
A001	B001	Author
A002	B002	Author
A003	B003	Co-Author
A004	B004	Editor

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

5. Alter structure of table AUTHOR_LIST add the field Publisher data type of 30 Character.

Code/Output:

```
mysql> 24BCP128 PANA V BRIJESH PATEL;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version f
or the right syntax to use near '24BCP128 PANA V BRIJESH PATEL' at line 1
mysql> ALTER TABLE AUTHOR_LIST ADD COLUMN Publisher VARCHAR(30);
Query OK, 0 rows affected (0.02 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> DESC TABLE AUTHOR_LIST;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | select_type | table | partitions | type | possible_keys | key | key_len | ref | rows | filtered | Extra |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | SIMPLE | AUTHOR_LIST | NULL | ALL | NULL | NULL | NULL | NULL | 4 | 100.00 | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set, 1 warning (0.01 sec)

mysql> SELECT * FROM AUTHOR_LIST;
+-----+-----+-----+-----+
| Author_ID | Book_ID | Role | Publisher |
+-----+-----+-----+-----+
| A001 | B001 | Author | NULL |
| A002 | B002 | Author | NULL |
| A003 | B003 | Co-Author | NULL |
| A004 | B004 | Editor | NULL |
+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```