Introduction to SQL – 2

Data Definition Commands

(for Lab 2)

Dr. Olaperi Okuboyejo

Sourcing a File

- When a file is sourced the lines of code in the file are executed as if they were printed at the command line.

- Create a new file in your local directory and populate with all the SQL queries you would like to execute
  - Save the file as *file_name.txt* or *file_name.sq*l

- Source the file at mysql >
  - `source <Path to the file>`

Sourcing a File

Open

Q1.SQL
~/

```
CREATE TABLE STUDENTS(
STUDENT_NUM CHAR(3),
STUDENT_LNAME VARCHAR(25),
STUDENT_FNAME VARCHAR(25),
ENROLLMENT_DATE DATE,
AGE INTEGER(3));
```

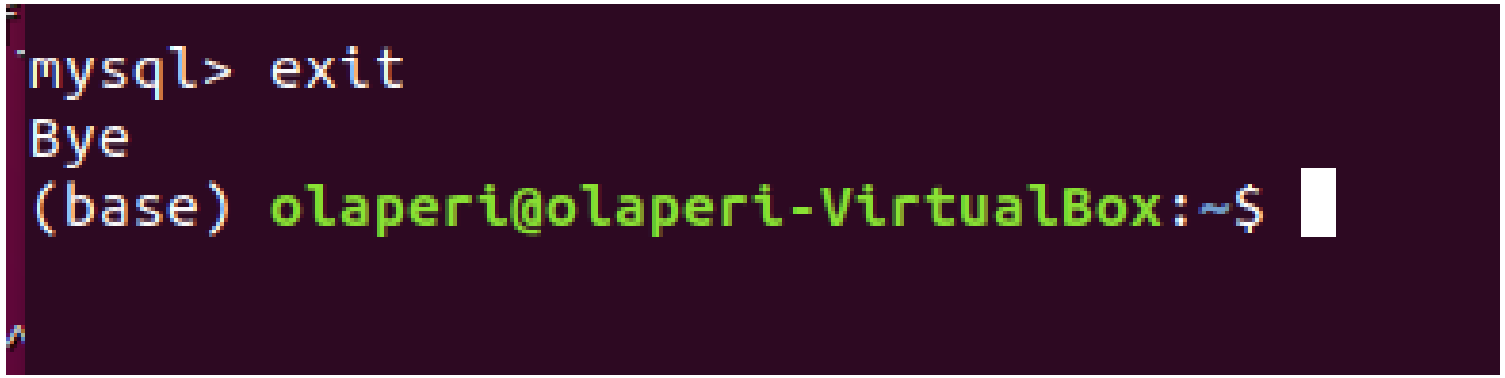
```
mysql> source /home/olaperi/Q1.SQL
Query OK, 0 rows affected (0.01 sec)

mysql>
```

Exit your database

- Once done, exit the mysql> prompt by typing:

```
exit
```



DATA DEFINITION COMMANDS: ALTER

- All changes in table structure are made by using ALTER command

- ALTER command options
  - ADD adds a column
  - MODIFY changes column data types, data constraints
  - DROP deletes a column

A table must be created first

- Let’s create a table that we can alter

```
mysql> CREATE TABLE table_lab2(
    -> first_name varchar(30),
    -> age integer);
Query OK, 0 rows affected (0.06 sec)
```

```
mysql> DESC table_lab2;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| first_name | varchar(30) | YES  |     | NULL    |       |
| age        | int         | YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
2 rows in set (0.01 sec)
```

ALTER + ADD

- ALTER + ADD to add a column

```
ALTER TABLE table_name
ADD COLUMN column_name data_type;
```

This command alters the table and adds a new column called *last_name*

```
mysql> ALTER TABLE table_lab2
    -> ADD COLUMN last_name VARCHAR(10);
Query OK, 0 rows affected (0.06 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc table_lab2;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| first_name | varchar(30) | YES  |     | NULL    |       |
| age        | int         | YES  |     | NULL    |       |
| last_name  | varchar(10) | YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

ALTER + MODIFY

- ALTER+MODIFY to changes column characteristics
- Let's change the datatype of a column

```
ALTER TABLE table_name
MODIFY COLUMN column_name data_type;
```

This command changes the data type of the column *last_name*

```
mysql> ALTER TABLE table_lab2
    -> MODIFY COLUMN last_name VARCHAR(30);

Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC table_lab2;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| first_name | varchar(30) | YES  |     | NULL    |       |
| age        | int         | YES  |     | NULL    |       |
| last_name  | varchar(30) | YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

ALTER + MODIFY

- ALTER+MODIFY to changes column characteristics
- Let's change a column name.

```
ALTER TABLE table_name
CHANGE COLUMN old_column_name new_column_name data_type;
```

This command changes the column name from *age* to *last_birthday_age*

```
mysql> ALTER TABLE table_lab2
    -> CHANGE COLUMN age last_birthday_age INTEGER;
Query OK, 0 rows affected (0.05 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC table_lab2;
+-------------------+-------------+------+-----+---------+-------+
| Field             | Type        | Null | Key | Default | Extra |
+-------------------+-------------+------+-----+---------+-------+
| first_name        | varchar(30) | YES  |     | NULL    |       |
| last_birthday_age | int         | YES  |     | NULL    |       |
| last_name         | varchar(30) | YES  |     | NULL    |       |
+-------------------+-------------+------+-----+---------+-------+
3 rows in set (0.01 sec)
```

ALTER + DROP

- ALTER+DROP deletes a column

```
ALTER TABLE table_name
DROP column_name;
```

This command deletes the last_birthday_age column

```
mysql> ALTER TABLE table_lab2 DROP last_birthday_age;
Query OK, 0 rows affected (0.05 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

RENAME

- RENAME can be used to rename a table

```
RENAME TABLE old_table_name TO new_table_name
```

First we show the existing tables.
Next, we rename table *table_lab2* to *new_table_lab2*
Next, we show the tables again to see the difference.

```
mysql> SHOW TABLES;
+--------------------+
| Tables_in_dolaperi |
+--------------------+
| my_first_table     |
| table_lab2         |
+--------------------+
2 rows in set (0.00 sec)

mysql> RENAME TABLE table_lab2 TO new_table_lab2;
Query OK, 0 rows affected (0.04 sec)

mysql> SHOW TABLES;
+--------------------+
| Tables_in_dolaperi |
+--------------------+
| my_first_table     |
| new_table_lab2     |
+--------------------+
2 rows in set (0.00 sec)
```

TRUNCATE

- TRUNCATE can be used to remove all data from a table. It retains the structure of a table

  TRUNCATE *tablename;*

To visualize how this command works, we first insert data into the table and then view (SELECT) the data.

After executing the TRUNCATE command, all the data entered is deleted.

```
mysql> INSERT INTO new_table_lab2 VALUES ('Olaperi', 'Okuboyejo');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM new_table_lab2;
+------------+-----------+
| first_name | last_name |
+------------+-----------+
| Olaperi    | Okuboyejo |
+------------+-----------+
1 row in set (0.00 sec)

mysql> TRUNCATE new_table_lab2;
Query OK, 0 rows affected (0.06 sec)

mysql> SELECT * FROM new_table_lab2;
Empty set (0.00 sec)
```

Reference

- MySQL Reference on ALTER TABLE

https://dev.mysql.com/doc/refman/8.0/en/alter-table.html

- MySQL Reference on RENAME TABLE

https://dev.mysql.com/doc/refman/8.0/en/rename-table.html

- MySQL Reference on TRUNCATE TABLE

https://dev.mysql.com/doc/refman/8.0/en/truncate-table.html