

Build the LABINFO Data Warehouse

Tuesday, March 24, 2020 1:03 PM

Purpose: The purpose of this project is to reinforce the knowledge you have gained so far about data warehouses, specifically developing a data warehouse database from business rules.

Required Items:

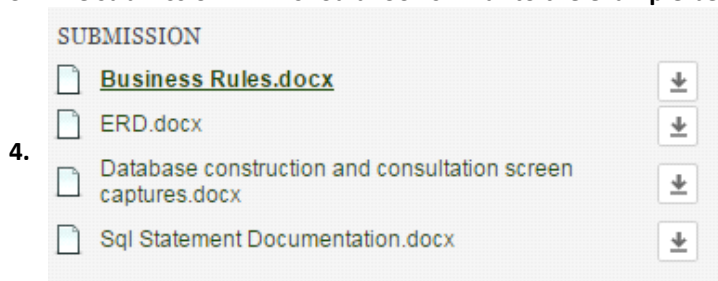
1. The **Business Rules** from the **Construct a Dimensional Model** assignment
2. **ERD Dimensional Model** only you constructed as result of the **Construct a Dimensional Model** assignment. You *do not need* to include the **images** where you showed your work.
3. The final result of the **Build a Data Warehouse - Phase 1** assignment

Assignment description:

You will formally document and produce the **LABINFO** database as a project portfolio. The **first attempt** will be due by the end of this module. I expect first attempt to include **documentation, staging and database construction** which should be completed by the end of **this module**. The **final attempt** which should include everything else including the selection and update queries will be *due* at the **same time** your **final exam** is *due*. See the syllabus for final exam due date.

Project deliverables (What you will submit to Blackboard):

1. Use the Steps below to build the database in MariaDB MySQL database.
2. You will produce 4 MS Office Documents
3. The submission in BB should look similar to the example below...



Constraints:

In order to get credit you must:

1. Type the **business rules** you used to create your ERD into MS Word
2. Provide **SQL Statement Documentation**-- a **formalized version of your ERD and SQL Statements** -
This means you should...
 - a. Type all of the **SQL statements** into a text editor like notepad.exe.
 - b. Build your **ERD** in PowerPoint, Visio or some graphical software
3. I *suggest* you do the steps above FIRST before attempting the **Database Construction and Consultation procedure below**
4. Execute the **Database Construction and Consultation procedure below**
5. Provide screen captures or pictures from YOUR database session for EACH statement and its result
6. There should be a **separate document** with a **title page** for each of the following:
 - a. Business Rules
 - b. ERD
 - c. SQL Documentation
 - d. Database construction screen captures
7. Add the **Title page** to the **top** of each document using the following definition
 - a. Section Title
 - b. Assignment Title
 - c. Student Name
 - d. Course and Section

- e. Date and time the drawing was completed
 - f. Version in the form of v1, v2, v3 etc...
8. The file name of the document should be the same as the section title
 9. Upload **each** document to the assignment on BB

Database Construction and Consultation procedure:

► Staging

- I suggest **you not use** SGS (Spartan Green Sky for this). But if it is your only option, just know you will be reinstalling the software each time you log into SGS.
- *Install* MariaDB MySQL Engine. Click the link below for details. Or scroll down to the section if the link doesn't work.
 - [MariaDB Installation](#)
- *Test* Maria DB command line client. Click the link below for details. Or scroll down to the section if the link doesn't work.
 - [MariaDB Test Procedure](#)
- *Create* **PRODUCTION** database with the .sql script attached to the assignment. Click the link below for details. Or scroll down to the section if the link doesn't work.
 - [Create the PRODUCTION database](#)
- *Build* the **data warehouse** using the SQL DDL statements from **Build a Data Warehouse - Phase 1** to
 - *Create* the **LABINFO** Database
 - Name the database with the following convention:
 - **LABINFO_<your last name><first initial>**
 - Example for Grover Walters: **LABINFO_WALTERSG**
 - *Create* **tables**
 - **IMPORTANT:** make sure you **do not use any delimiters at all** which is legal in this RDBMS platform.
 - **Example:**
 - `CREATE TABLE IF NOT EXISTS MAJOR (MAJOR_ID INT NOT NULL, MAJOR_NAME VARCHAR(25), PRIMARY KEY(MAJOR_ID)) ;`
 - **Insert Data** (see the next section for details)
- Use SQL statements **Build a Data Warehouse - Phase 1** to *query and update* the knowledge engine. Use **ALL** of the statements you created as part of your documentation. (**DO NOT TYPE THE EXAMPLES BELOW**. They are only examples. Use **YOUR** statements **you** created).
- *Log screen captures* of each statement. Use the Snipping Tool or something similar in Windows to help you. Look up its usage on Youtube.com if you are not familiar with the tool.
- **SOME Examples:**

```
MariaDB [production]> CREATE DATABASE LABINFO_WALTERSG;
Query OK, 1 row affected (0.00 sec)
```

```
► MariaDB [production]> USE LABINFO_WALTERSG;
Database changed
MariaDB [LABINFO_WALTERSG]>
```

Show ALL Output Windows (not just these examples!)

```
► MariaDB [production]> USE LABINFO_WALTERSG;
Database changed
MariaDB [LABINFO_WALTERSG]> CREATE TABLE IF NOT EXISTS DIM_SEMESTER (SEMESTER_ID VARCHAR(4) NOT NULL, SEMESTER_DESCRIPTION VARCHAR(45), SEMESTER_BEGINS DATE, SEMESTER_ENDS DATE, PRIMARY KEY (SEMESTER_ID)) ;
Query OK, 0 rows affected (0.09 sec)
```

```

MariaDB [LABINFO WALTERSG]> SELECT DISTINCT TM.TIME_DESCRIPTION, SUM(TOTAL_VISITS) AS TOT_VISITS, SUM(TOTAL_TIME) AS TOT
_MINUTES, SUM(TOTAL_TIME)/60 AS TOT_HOURS, (SUM(TOTAL_TIME)/60)/SUM(TOTAL_VISITS) AS AVG_TIME
-> FROM USEFACT AS UF, DIM_MAJOR AS MJ, DIM_CLASS AS CLS, DIM_GROUP_PROJECTS AS GP, DIM_SEMESTER AS SEM, DIM_TIME AS
TM
-> WHERE UF.GROUP_PROJECT_ID = GP.GROUP_PROJECT_ID AND
-> UF.MAJOR_CODE = MJ.MAJOR_CODE AND
-> UF.CLASS_ID = CLS.CLASS_ID AND
-> UF.SEMESTER_ID = SEM.SEMESTER_ID AND
-> UF.TIME_ID = TM.TIME_ID
-> GROUP BY TM.TIME_DESCRIPTION;

```

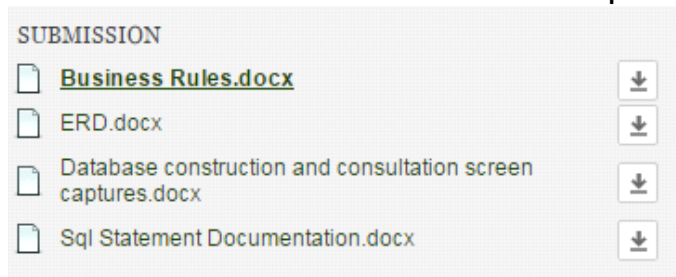
TIME_DESCRIPTION	TOT_VISITS	TOT_MINUTES	TOT_HOURS	AVG_TIME
Afternoon	16115	1939912	32331.8667	2.00632123
Morning	13265	1611200	26853.3333	2.02437492
Night	6709	809888	13498.1333	2.01194415

3 rows in set (0.07 sec)

- ▶ Make sure your statements produce some result as indicated in the examples. You should *fix any errors* until you get a useable result. Since you are using your own inserted data, there should be no SQL statements that produce an empty set. Otherwise, your grade for this portion of the assignment will be affected.
- ▶ If you have to *fix* any **original SQL statement**, you should *apply* that change in your **SQL documentation** as well. Not doing so will result in a lower grade for this portion of the assignment.

Submission Checklist

- ☐ 1. A separate document with a **title page** for each of the following:
 - ☐ a. Business Rules
 - ☐ b. ERD
 - ☐ c. SQL Statement Documentation
 - ☐ d. Database construction and consultation screen captures
- ☐ 2. All images are clearly visible
- ☐ 3. Every document has a title page
- ☐ 4. Documents are named properly
- ☐ 5. Upload 4 MS Office Documents
 - a. The submission in BB should look similar to the example below...



There will be a **grading rubric** applied so that you can see how your grade will be influenced by various assessment factors and ultimately understand your mistakes--after which you may revise and resubmit for a better grade. The rubric is indicated by a box at the top of the blackboard assignment.



Rubric Example Icon

MariaDB Installation

Monday, October 31, 2016 9:21 AM

I suggest you **not use** SGS (Spartan Green Sky for this). But if it is your only option, just know you will be reinstalling the software each time you log into SGS.

Do not try to download the software from the MariaDB site. If you have MySQL command line or MariaDB (which uses the MySQL engine), then you do not need to install anything. You may move on to the next step of staging.

Click the link found in the module called MariaDB Installer. This is for Windows users only. (The files are also found in the Downloads folder under Course Information)



MariaDB Installer (Windows) ▼

Use the link above as an option if you are working with Windows and having trouble finding the correct version of MariaDB. If you are using a Mac, choose the latest MacOS version from the link provided in the assignment sheet. Those with MySQL already installed may use the command-line version only. I do not want to see screen captures of the GUI version. :)

I also left basic instructions for Mac Users... Try to use a PC if you can.

Downloads ▼

Build Content ▼ Assessments ▼ Tools ▼ Partner Content ▼



mariadb-10.0.30-win32.zip ▼



Mac OSX - mysql-8.0.18-macos10.14 ▼



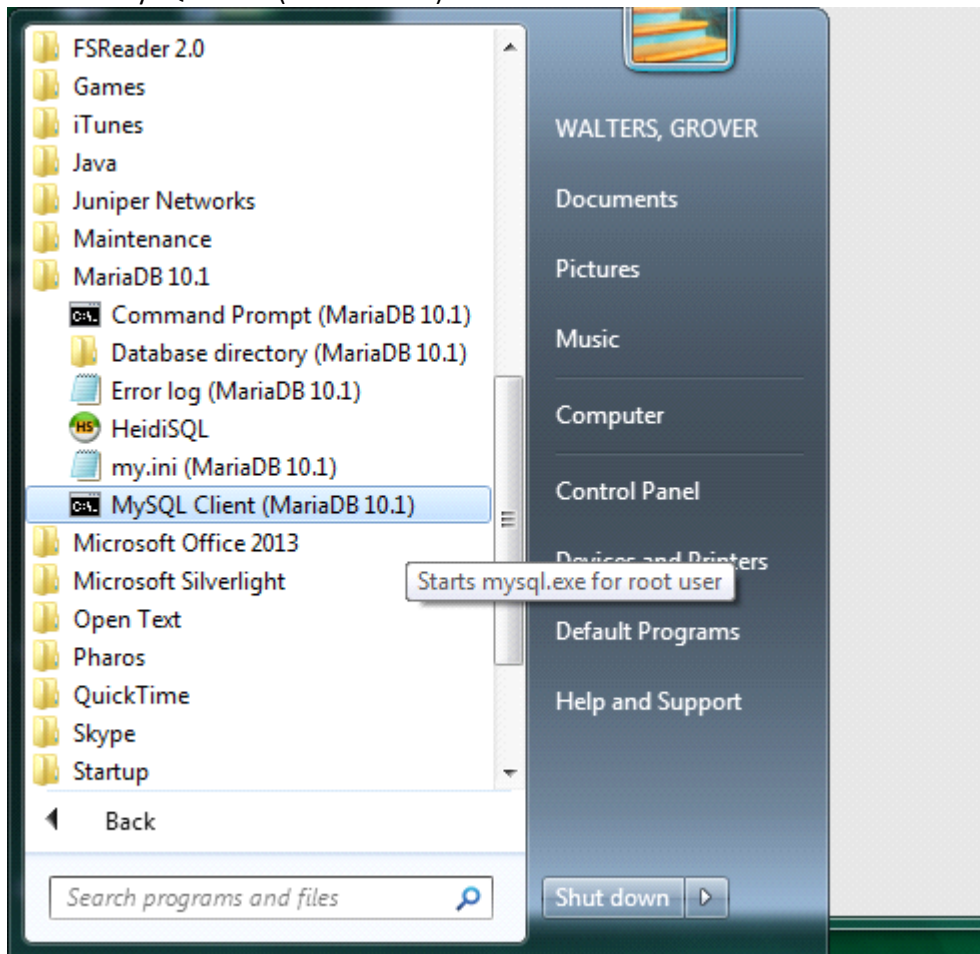
MySQL Mac - instructions ▼ A↓

MariaDB Test Procedure

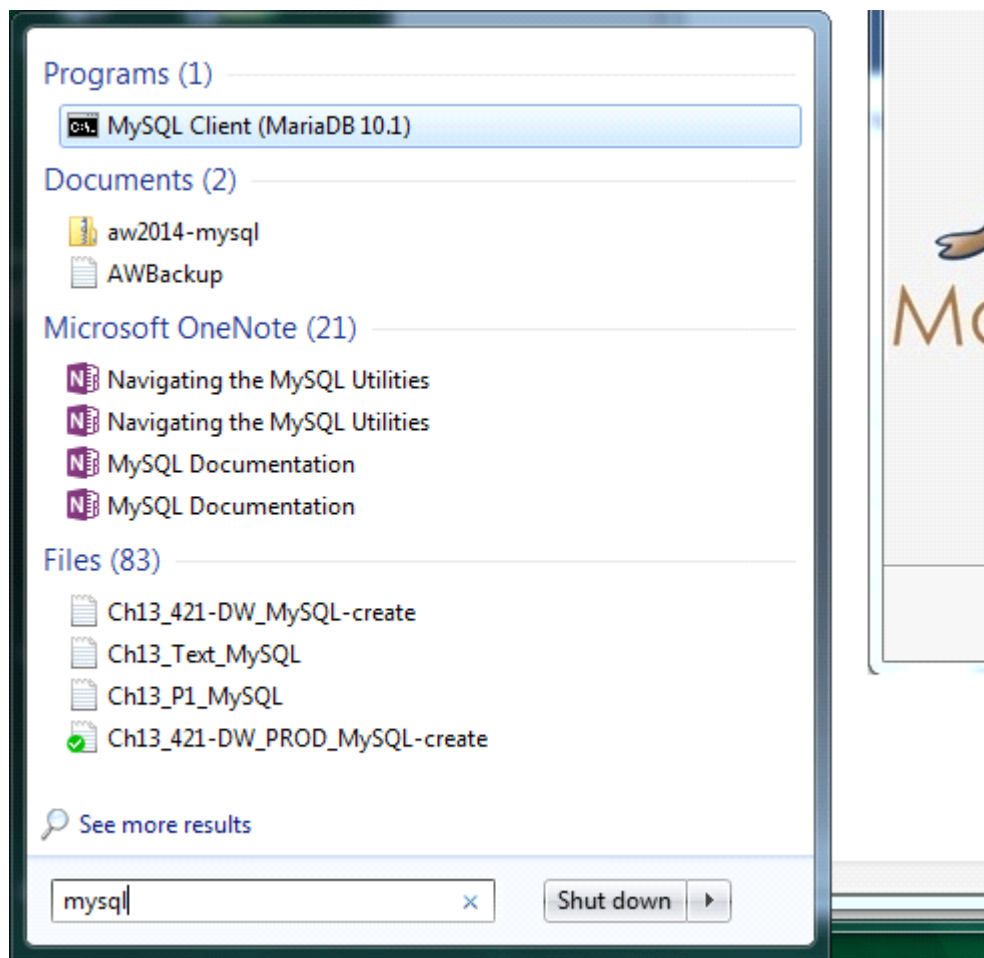
Wednesday, November 02, 2016 1:32 PM

1. Find the MySQL Client (MariaDB xxx)

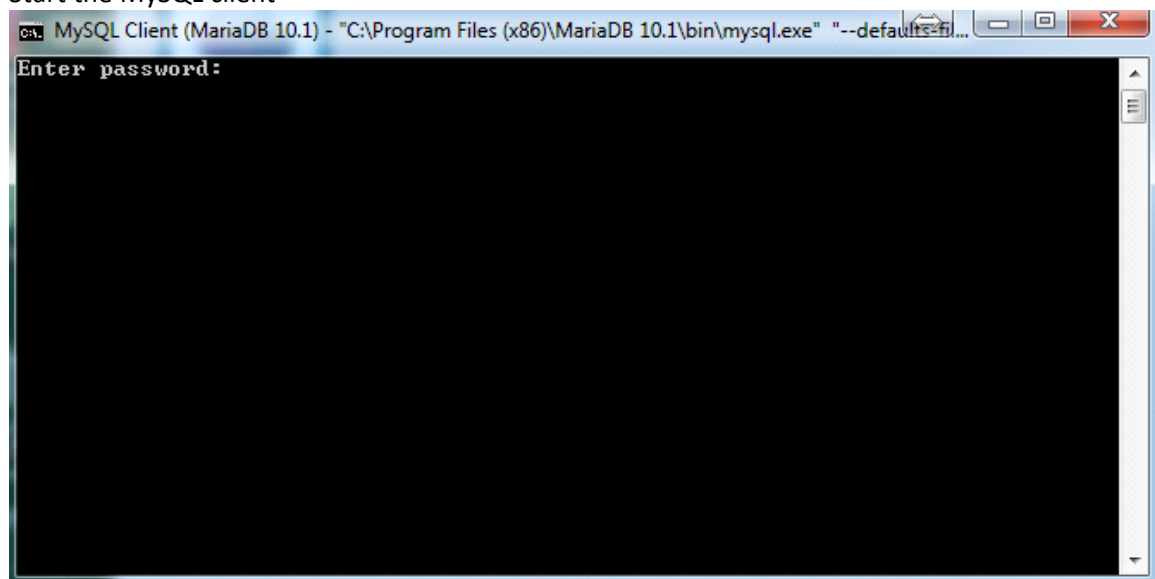
- 2.



Or



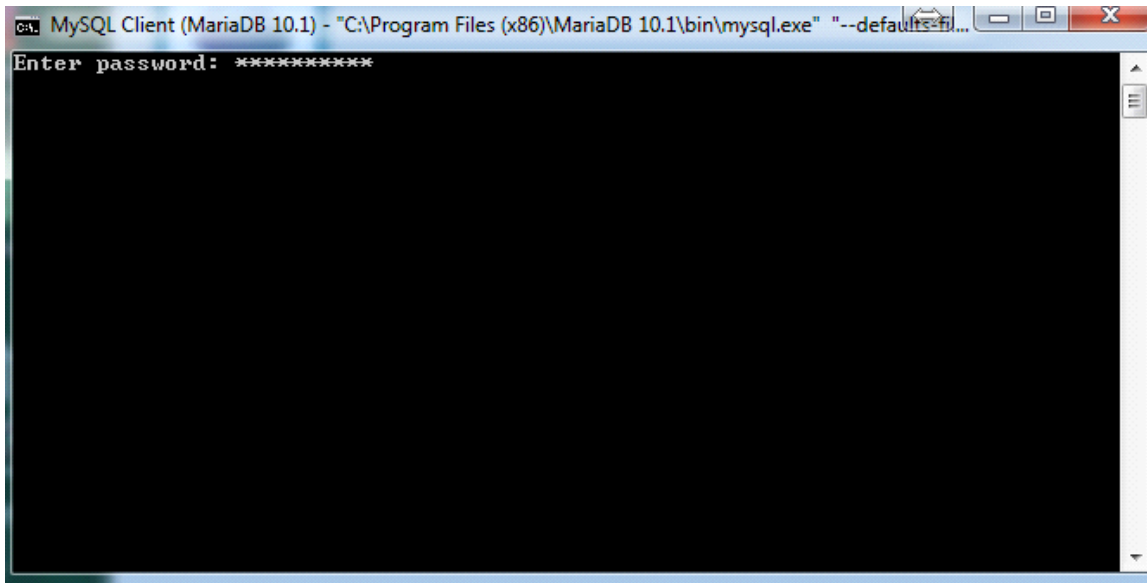
3. Start the MySQL client



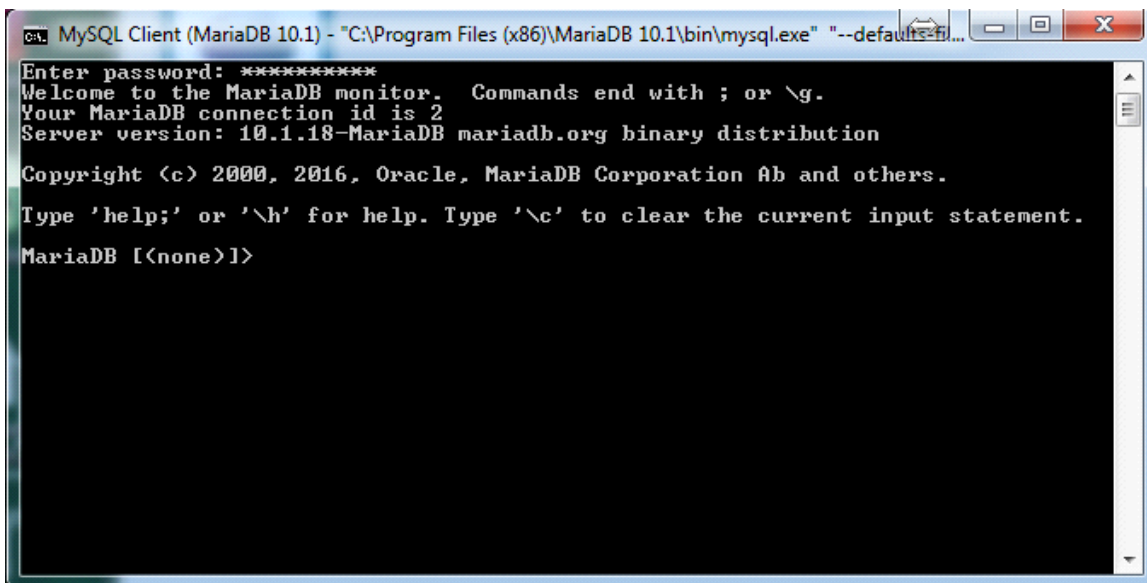
- 4.

5. Enter the password **upstate325**

6.

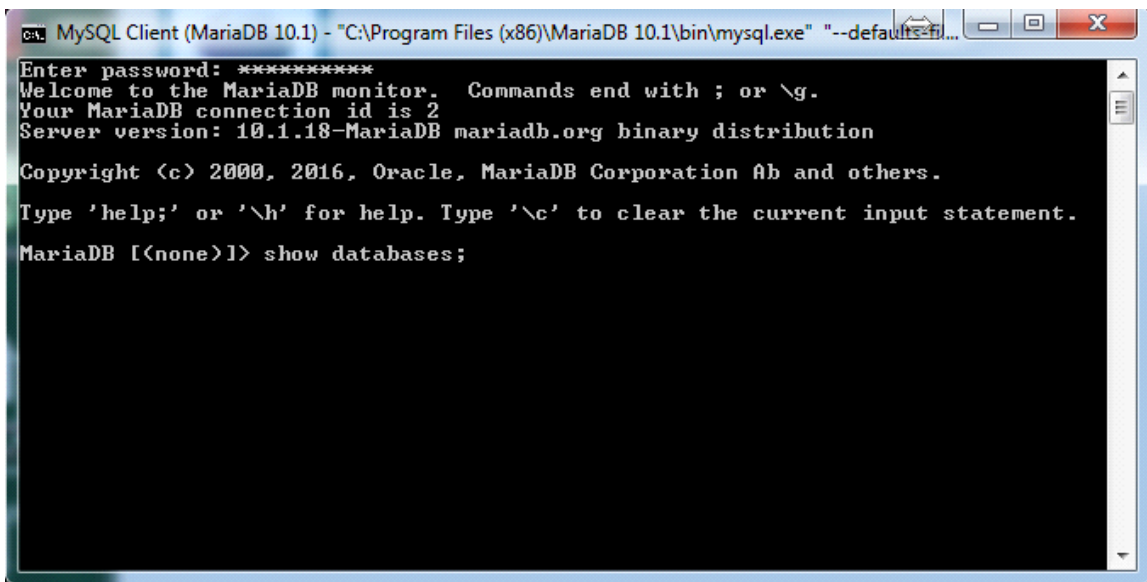


7.



8. If the password is correct and access is granted the screen should appear as above

9.



10. Type **show databases;** and **hit enter.**

11.

```

C:\. MySQL Client (MariaDB 10.1) - "C:\Program Files (x86)\MariaDB 10.1\bin\mysql.exe" "--defaults-f...
Enter password: *****
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 2
Server version: 10.1.18-MariaDB mariadb.org binary distribution

Copyright (c) 2000, 2016, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| test |
+-----+
4 rows in set (0.00 sec)

MariaDB [(none)]>

```

12. The screen should display 4 databases

13.

```

C:\. MySQL Client (MariaDB 10.1) - "C:\Program Files (x86)\MariaDB 10.1\bin\mysql.exe" "--defaults-f...
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]> show tables from mysql;
+-----+

```

14. Type show tables from mysql; and hit enter

15.

```

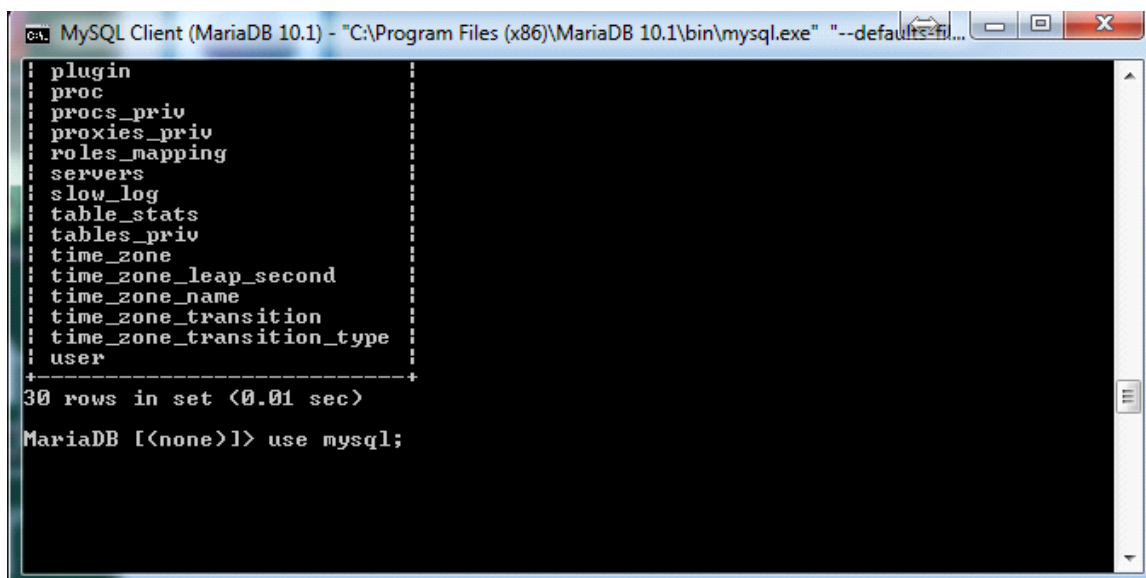
C:\. MySQL Client (MariaDB 10.1) - "C:\Program Files (x86)\MariaDB 10.1\bin\mysql.exe" "--defaults-f...
+-----+
| help_relation |
| help_topic |
| host |
| index_stats |
| innodb_index_stats |
| innodb_table_stats |
| plugin |
| proc |
| procs_priv |
| proxies_priv |
| roles_mapping |
| servers |
| slow_log |
| table_stats |
| tables_priv |
| time_zone |
| time_zone_leap_second |
| time_zone_name |
| time_zone_transition |
| time_zone_transition_type |
| user |
+-----+
30 rows in set (0.01 sec)

MariaDB [(none)]>

```

16. **30 rows** should *appear* in a list of all the tables in the **mysql** table

17.

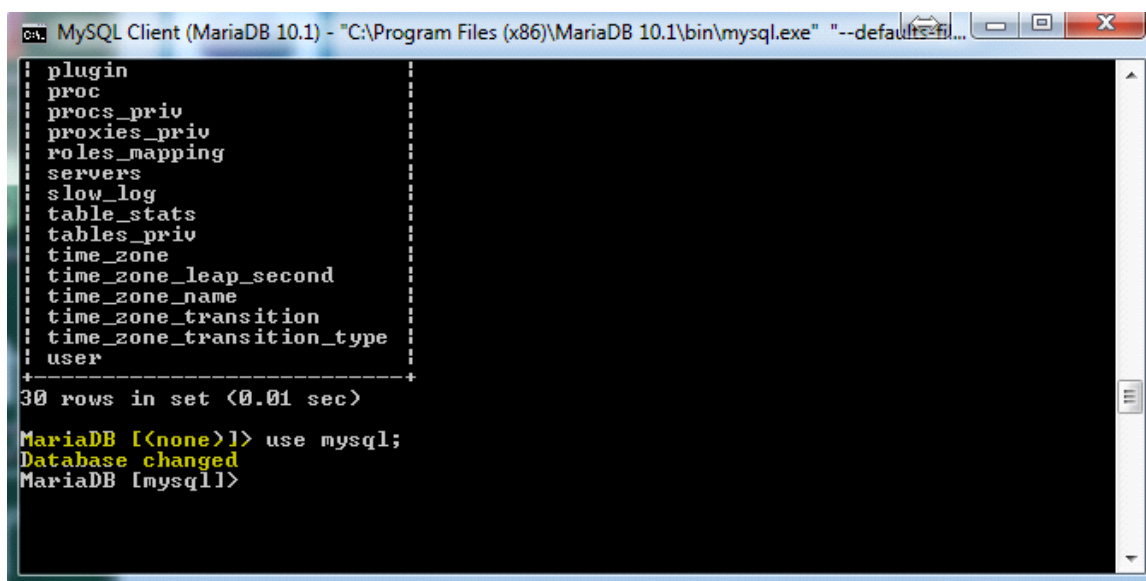


```
MySQL Client (MariaDB 10.1) - "C:\Program Files (x86)\MariaDB 10.1\bin\mysql.exe" "--default-fi...
+-----+
| plugin |
| proc   |
| procs_priv |
| proxies_priv |
| roles_mapping |
| servers |
| slow_log |
| table_stats |
| tables_priv |
| time_zone |
| time_zone_leap_second |
| time_zone_name |
| time_zone_transition |
| time_zone_transition_type |
| user |
+-----+
30 rows in set (0.01 sec)

MariaDB [(none)]> use mysql;
```

18. Type **use mysql;**

19.



```
MySQL Client (MariaDB 10.1) - "C:\Program Files (x86)\MariaDB 10.1\bin\mysql.exe" "--default-fi...
+-----+
| plugin |
| proc   |
| procs_priv |
| proxies_priv |
| roles_mapping |
| servers |
| slow_log |
| table_stats |
| tables_priv |
| time_zone |
| time_zone_leap_second |
| time_zone_name |
| time_zone_transition |
| time_zone_transition_type |
| user |
+-----+
30 rows in set (0.01 sec)

MariaDB [(none)]> use mysql;
Database changed
MariaDB [mysql]>
```

20. If successful, the result **Database changed** will *appear*

21.

```

MySQL Client (MariaDB 10.1) - "C:\Program Files (x86)\MariaDB 10.1\bin\mysql.exe" "--defaults-f...
+-----+
| help_relation      |
| help_topic         |
| host               |
| index_stats        |
| innodb_index_stats |
| innodb_table_stats |
| plugin             |
| proc               |
| procs_priv         |
| proxies_priv       |
| roles_mapping      |
| servers            |
| slow_log           |
| table_stats        |
| tables_priv        |
| time_zone          |
| time_zone_leap_second |
| time_zone_name     |
| time_zone_transition |
| time_zone_transition_type |
| user               |
+-----+
30 rows in set (0.01 sec)

MariaDB [(none)]> show columns from user;

```

22. Type `show columns from user;` and *hit enter*

23.

```

+-----+
| Lock_tables_priv | enum('N','Y') | NO | | N |
| Execute_priv     | enum('N','Y') | NO | | N |
| Repl_slave_priv  | enum('N','Y') | NO | | N |
| Repl_client_priv | enum('N','Y') | NO | | N |
| Create_view_priv | enum('N','Y') | NO | | N |
| Show_view_priv   | enum('N','Y') | NO | | N |
| Create_routine_priv | enum('N','Y') | NO | | N |
| Alter_routine_priv | enum('N','Y') | NO | | N |
| Create_user_priv  | enum('N','Y') | NO | | N |
| Event_priv       | enum('N','Y') | NO | | N |
| Trigger_priv     | enum('N','Y') | NO | | N |
| Create_tablespace_priv | enum('N','Y') | NO | | N |
| ssl_type         | enum('', 'ANY', 'X509', 'SPECIFIED') | NO | | N |
| ssl_cipher       | blob         | NO | | NULL |
| x509_issuer      | blob         | NO | | NULL |
| x509_subject     | blob         | NO | | NULL |
| max_questions    | int(11) unsigned | NO | | 0 |
| max_updates      | int(11) unsigned | NO | | 0 |
| max_connections  | int(11) unsigned | NO | | 0 |
| max_user_connections | int(11)      | NO | | 0 |
| plugin           | char(64)      | NO | |  |
| authentication_string | text         | NO | | NULL |
| password_expired | enum('N','Y') | NO | | N |
| is_role          | enum('N','Y') | NO | | N |
| default_role     | char(80)      | NO | |  |
| max_statement_time | decimal(12,6) | NO | | 0.000000 |
+-----+
46 rows in set (0.04 sec)

MariaDB [mysql]>

```

24. 46 rows should appear in a list.

25. If all statements return no errors, the test of the installation is complete

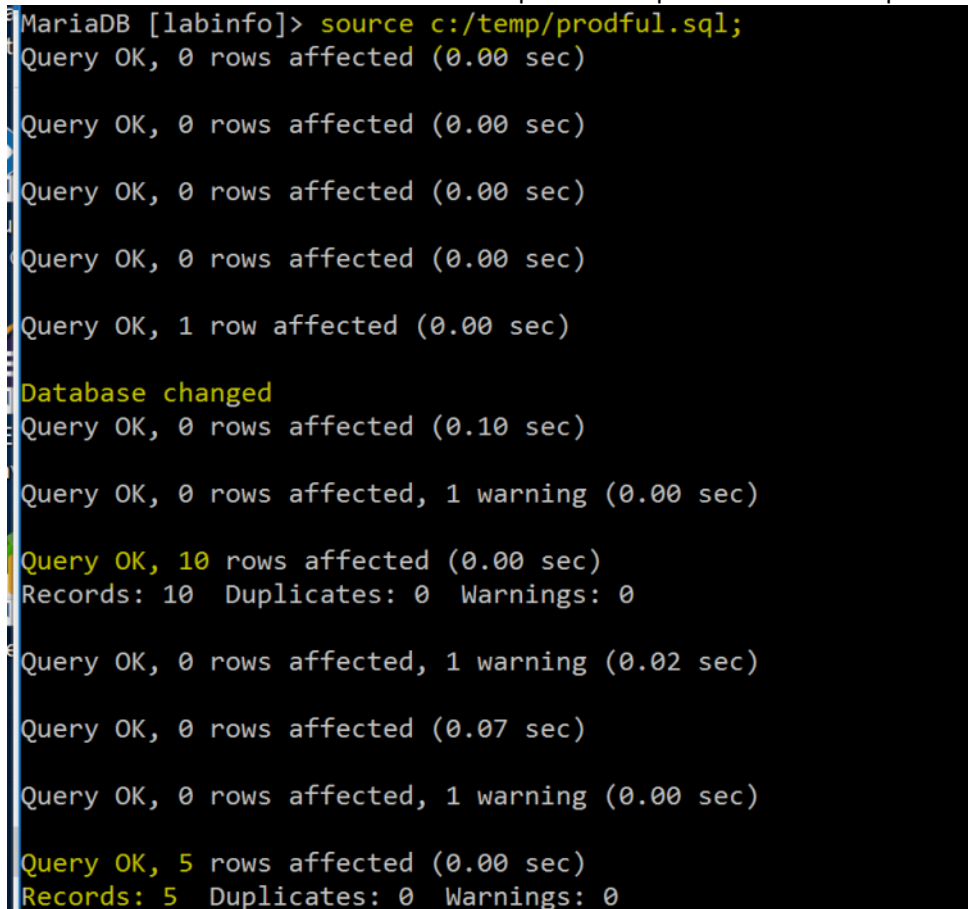
Create the PRODUCTION database

Thursday, November 10, 2016 7:34 AM

1. Perform the following steps on the **Informatics** desktop pool
2. Ensure the **MariaDB** is already installed - See [MariaDB Test Procedure](#) if you are unsure is completed
3. Create a **folder** called **TEMP** on the **root of the C: drive**. You should already know how to do this. If not, consult youtube.com for one of hundreds of video tutorials on *how to create a folder on the root of c:.*
4. Download the **.sql script file** from the assignment and **move** it to the **C:\TEMP** folder. Again, you should already know how to do this. If not, consult youtube.com for one of hundreds of video tutorials on the subject.
5. If it is not already open, *open* the **mariaDB Client** window. You did this step in the [MariaDB Test Procedure](#).
6. In the mariaDB window type in the **following statement** to *create and load* the **PRODUCTION** database.

a. **source c:/temp/prodful.sql;**

- b. Make sure you use "/" forward slashes! DON'T FORGET THE SEMICOLON " ; "
- c. Press **enter**. It will take anywhere from 15 seconds to 30 seconds finish the database creation. You will see the result of each step in the script. Here is an example...



```
MariaDB [labinfo]> source c:/temp/prodful.sql;
Query OK, 0 rows affected (0.00 sec)

Query OK, 0 rows affected (0.00 sec)

Query OK, 0 rows affected (0.00 sec)

Query OK, 0 rows affected (0.00 sec)

Query OK, 1 row affected (0.00 sec)

Database changed
Query OK, 0 rows affected (0.10 sec)

Query OK, 0 rows affected, 1 warning (0.00 sec)

Query OK, 10 rows affected (0.00 sec)
Records: 10 Duplicates: 0 Warnings: 0

Query OK, 0 rows affected, 1 warning (0.02 sec)

Query OK, 0 rows affected (0.07 sec)

Query OK, 0 rows affected, 1 warning (0.00 sec)

Query OK, 5 rows affected (0.00 sec)
Records: 5 Duplicates: 0 Warnings: 0
```

- e. If you see any errors and do not see Database changed as indicated in the example above, then you most likely typed the statement wrong did not copy the database to the c:\temp folder
- f. Here is an example of the error you will get if the client cannot find the sql file. If you see this, then redo the steps again.

g. MariaDB [labinfo]> source c:/temp/prodful.sql;
ERROR: Failed to open file 'c:\temp\prodful.sql', error: 2

7. Test a query on the production database to ensure it is available and properly populated.

a. MariaDB [production]> select * from group_projects;

GROUP_PROJECT_ID	GROUP_PROJECT_DESCRIPTION
1	Customer Service Proposal
2	Map Regional Sales
3	Document Customer Service Solution
4	Customer Service iPhone App
5	Document Customer Service iPhone App

5 rows in set (0.03 sec)

8. If you see a positive result, then you may continue the next step in the process.