**IS 306 Data Management Communications and Networking**

**HOP02 – Inspecting the Database and Extracting Data**

1/5/2019 Developed by Clark Ngo

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**Before You Start**

* Version numbers may not match with the most current version at the time of writing. If given the option to choose between stable release (long-term support) or most recent, please choose the stable release rather than beta-testing version.
* This tutorial targets Windows users and MacOS users.
* There might be subtle discrepancies along the steps. Please use your best judgement while going through this cookbook style tutorial to complete each step.
* For your working directory, use your course number. This tutorial may use a different course number as an example.
* The directory path shown in screenshots may be different from yours.
* If you are not sure what to do or confused with any steps:
  1. Consult the resources listed below.
  2. If you cannot solve the problem after a few tries, ask a TA for help.

**Learning Outcomes**

Students will be able to:

* Inspect Tables using SHOW
* Inspect Columns using DESCRIBE
* Extract Data using SELECT

**Resources**

* SQL Tutorial – <https://www.w3schools.com/sql/default.asp>

**Preparation**

**Run your Docker Application**

Find the Docker App and double-click

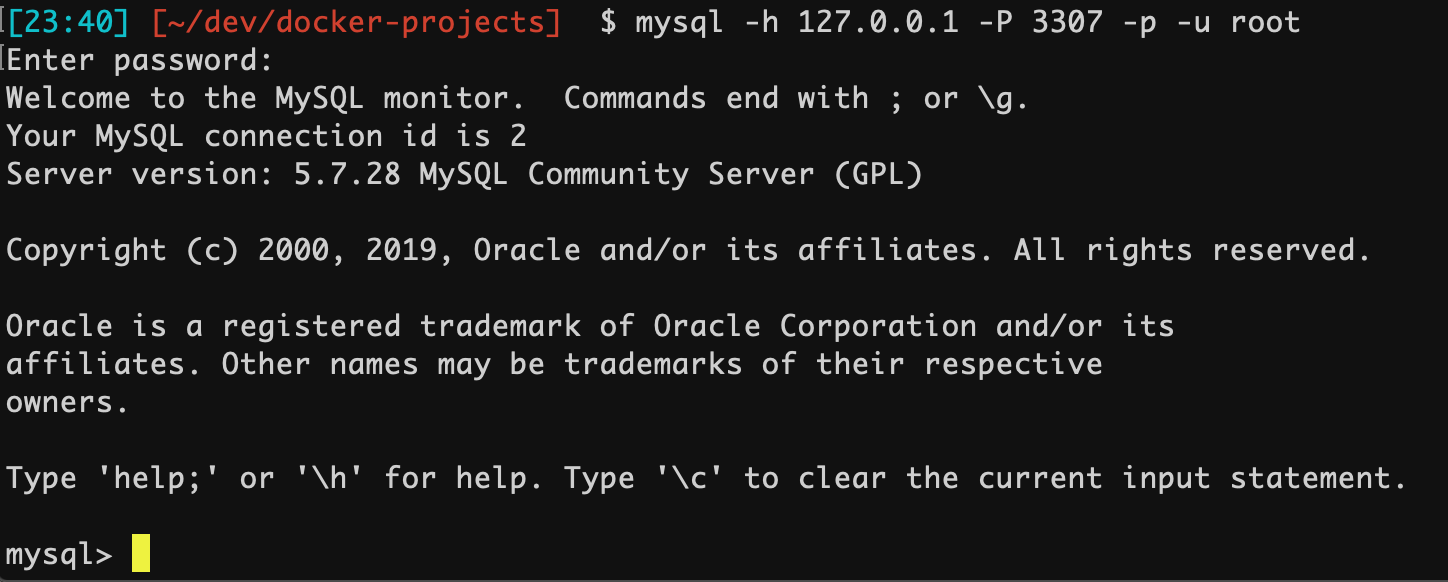
**Run an MySQL interactive shell**

Open your terminal / command prompt and type the following:

mysql -h 127.0.0.1 -P 3307 -p -u root

When prompted for password: *passwd*

Example output in MacOS:



**Use a Database**

**Syntax: USE *database\_name*;**

USE classicmodels;

**SQL Command: SHOW**

**Show tables in a database**

**Syntax: SHOW TABLES;**

SHOW TABLES;

+-------------------------+

| Tables\_in\_classicmodels |

+-------------------------+

| customers |

| employees |

| offices |

| orderdetails |

| orders |

| payments |

| productlines |

| products |

+-------------------------+

8 rows in set (0.00 sec)

**Questions you can answer for submission:**

Technical: What is the command for? Why would you use the command?

Application: Based on the tables in the database, what type of business uses this type of information? Why does it need this information?

Best practice: Should we use singular or plural nouns for tables names? Why?

**SQL Command: DESCRIBE**

**Show tables in a database**

**Syntax: DESCRIBE *name\_of\_table*;**

DESCRIBE customers;

+------------------------+---------------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+------------------------+---------------+------+-----+---------+-------+

| customerNumber | int(11) | NO | PRI | NULL | |

| customerName | varchar(50) | NO | | NULL | |

| contactLastName | varchar(50) | NO | | NULL | |

| contactFirstName | varchar(50) | NO | | NULL | |

| phone | varchar(50) | NO | | NULL | |

| addressLine1 | varchar(50) | NO | | NULL | |

| addressLine2 | varchar(50) | YES | | NULL | |

| city | varchar(50) | NO | | NULL | |

| state | varchar(50) | YES | | NULL | |

| postalCode | varchar(15) | YES | | NULL | |

| country | varchar(50) | NO | | NULL | |

| salesRepEmployeeNumber | int(11) | YES | MUL | NULL | |

| creditLimit | decimal(10,2) | YES | | NULL | |

+------------------------+---------------+------+-----+---------+-------+

13 rows in set (0.01 sec)

Note for submission: Use DESCRIBE with other tables. Don’t use the customers table.

**Questions you can answer for submission:**

Technical: What is the command for? Why would you use the command?

Technical: Why do we need to assign Type to Field? What are the different types?

Technical: What is PRI? Why do we need it?

Technical: What is NULL? Why do we need it?

Best Practice: When do you use Type varchar and when do use Type int for Fields using numbers?

Best Practice: What is the naming convention for Field names? Why use that?

**SQL Command: SELECT**

**Show all values in a column**

**Syntax: SELECT *column\_name* FROM *table\_name*;**

SELECT contactLastName FROM customers;

+-----------------+

| contactLastName |

+-----------------+

| Schmitt |

| King |

| Ferguson |

| Labrune |

| Bergulfsen |

| Nelson |

| Piestrzeniewicz |

| Keitel |

| Murphy |

| Lee |

Note for submission: Use SELECT with other columns. Don’t use the contactLastName column.

**Questions you can answer for submission:**

Technical: What is the command for? Why would you use the command?

Technical: When do you use Type int versus Type decimal? Why?

Observation: How many rows were returned? What does that mean?

Best Practice: When do you use Type varchar and when do use Type int for Fields using numbers?

**SQL Command: SELECT**

**Show all values in a column with 2 columns**

**Syntax: SELECT *column\_name*, *column\_name* FROM *table\_name*;**

SELECT paymentDate, amount FROM payments;

+-------------+-----------+

| paymentDate | amount |

+-------------+-----------+

| 2004-10-19 | 6066.78 |

| 2003-06-05 | 14571.44 |

| 2004-12-18 | 1676.14 |

| 2004-12-17 | 14191.12 |

| 2003-06-06 | 32641.98 |

| 2004-08-20 | 33347.88 |

| 2003-05-20 | 45864.03 |

Note for submission: Don’t use the same example as above.

**Questions you can answer for submission:**

Technical: What is the command for? Why would you use the command?

Technical: When would you use multiple columns to extract data and why?

Observation: How many rows were returned? What does that mean?

Best practice: Should there be an order for displaying columns? Why?

Best practice: Why do we write SQL statements in UPPERCASE?