**Laboratory Report Cover Sheet   
DeVry University  
College of Engineering and Information Sciences**

**Course Number: DBM438**

**Professor:**

**Laboratory Number:** 5

**Laboratory Title:** Query Optimization and the Data Dictionary

**Submittal Date:** 4/3/2016

***Objectives:***

The objective of the lab is to get a good understanding of how MySQL handles queries of different types, how the queries can be analyzed, and based on the analysis the query can be optimized.

***Lab Results from MySQL Server—As per your lab instructions, you will need to copy the contents of your lab output file in your VM into this document here before submitting this lab report to the Dropbox.***

mysql> use devrydbm438;

Database changed

mysql> drop table if exist s\_dept;

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 'exist s\_dept' at line 1

mysql> DROP TABLE IF EXISTS S\_DEPT;

Query OK, 0 rows affected (0.06 sec)

mysql> DROP TABLE IF EXISTS S\_EMP;

Query OK, 0 rows affected (0.01 sec)

mysql> SOURCE D:\DBM438\DBM438\_LeeBooks.sql

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

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Query OK, 1 row affected (0.05 sec)

mysql> SHOW TABLES;

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

| Tables\_in\_devrydbm438 |

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

| author |

| book\_author |

| book\_customer |

| book\_order |

| books |

| order\_items |

| promotion |

| publisher |

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

8 rows in set (0.03 sec)

mysql> #3.A

mysql> explain SELECT firstname, lastname, city FROM book\_customer WHERE zip = 32106;

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

| id | select\_type | table | type | possible\_keys | key | key\_len | ref | rows | Extra |

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

| 1 | SIMPLE | book\_customer | ALL | NULL | NULL | NULL | NULL | 20 | Using where |

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

1 row in set (0.02 sec)

mysql> #4.A

mysql> SELECT b.title, a.FName, a.LName FROM books b. book\_author ba, author a WHERE b.BookID = ba.BookID AND ba.AuthorID = a.AuthorID = a.AuthorID ORDER BY b.title, a.LName;

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 '. book\_author ba, author a WHERE b.BookID = ba.BookID AND ba.AuthorID = a.Author' at line 1

mysql> SELECT b.title, a.FName, a.LName FROM books b, book\_author ba, author a WHERE b.BookID = ba.BookID AND ba.AuthorID = a.AuthorID ORDER BY b.title, a.LName;

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

| title | FName | LName |

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

| BIG BEAR AND LITTLE DOVE | ROBERT | ROBINSON |

| BODYBUILD IN 10 MINUTES A DAY | LISA | PORTER |

| BODYBUILD IN 10 MINUTES A DAY | SAM | SMITH |

| BUILDING A CAR WITH TOOTHPICKS | TAMARA | KZOCHSKY |

| COOKING WITH MUSHROOMS | JACK | BAKER |

| DATABASE IMPLEMENTATION | JUAN | ADAMS |

| DATABASE IMPLEMENTATION | JAMES | AUSTIN |

| DATABASE IMPLEMENTATION | TINA | PETERSON |

| E-BUSINESS THE EASY WAY | JANICE | JONES |

| HANDCRANKED COMPUTERS | LISA | WHITE |

| HANDCRANKED COMPUTERS | WILLIAM | WHITE |

| HOLY GRAIL OF ORACLE | JAMES | AUSTIN |

| HOW TO GET FASTER PIZZA | SAM | SMITH |

| HOW TO MANAGE THE MANAGER | WILLIAM | WHITE |

| PAINLESS CHILD-REARING | JACK | BAKER |

| PAINLESS CHILD-REARING | OSCAR | FIELDS |

| PAINLESS CHILD-REARING | ROBERT | ROBINSON |

| REVENGE OF MICKEY | JANICE | JONES |

| SHORTEST POEMS | LISA | WHITE |

| THE WOK WAY TO COOK | SAM | SMITH |

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20 rows in set (0.00 sec)

mysql> quit

mysql> #5.B

mysql> use devrydbm438;

Database changed

mysql> analyze table books, book\_author, author;

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

| Table | Op | Msg\_type | Msg\_text |

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

| devrydbm438.books | analyze | status | OK |

| devrydbm438.book\_author | analyze | status | OK |

| devrydbm438.author | analyze | status | OK |

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

3 rows in set (0.28 sec)

mysql> #5.C

mysql> SELECT b.title, a.FName, a.LName FROM books b, book\_author ba, author a WHERE b.BookID = ba.BookID AND ba.AuthorID = a.AuthorID ORDER BY b.title, a.LName;

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

| title | FName | LName |

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

| BIG BEAR AND LITTLE DOVE | ROBERT | ROBINSON |

| BODYBUILD IN 10 MINUTES A DAY | LISA | PORTER |

| BODYBUILD IN 10 MINUTES A DAY | SAM | SMITH |

| BUILDING A CAR WITH TOOTHPICKS | TAMARA | KZOCHSKY |

| COOKING WITH MUSHROOMS | JACK | BAKER |

| DATABASE IMPLEMENTATION | JUAN | ADAMS |

| DATABASE IMPLEMENTATION | JAMES | AUSTIN |

| DATABASE IMPLEMENTATION | TINA | PETERSON |

| E-BUSINESS THE EASY WAY | JANICE | JONES |

| HANDCRANKED COMPUTERS | LISA | WHITE |

| HANDCRANKED COMPUTERS | WILLIAM | WHITE |

| HOLY GRAIL OF ORACLE | JAMES | AUSTIN |

| HOW TO GET FASTER PIZZA | SAM | SMITH |

| HOW TO MANAGE THE MANAGER | WILLIAM | WHITE |

| PAINLESS CHILD-REARING | JACK | BAKER |

| PAINLESS CHILD-REARING | OSCAR | FIELDS |

| PAINLESS CHILD-REARING | ROBERT | ROBINSON |

| REVENGE OF MICKEY | JANICE | JONES |

| SHORTEST POEMS | LISA | WHITE |

| THE WOK WAY TO COOK | SAM | SMITH |

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20 rows in set (0.00 sec)

mysql> EXPLAIN SELECT b.title, a.FName, a.LName FROM books b, book\_author ba, author a WHERE b.BookID = ba.BookID AND ba.AuthorID = a.AuthorID ORDER BY b.title, a.LName;

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

| id | select\_type | table | type | possible\_keys | key | key\_len | ref | rows | Extra |

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

| 1 | SIMPLE | b | ALL | PRIMARY | NULL | NULL | NULL | 14 | Using temporary; Using filesort |

| 1 | SIMPLE | ba | ref | PRIMARY,AUTHORid | PRIMARY | 4 | devrydbm438.b.BookID | 1 | Using index |

| 1 | SIMPLE | a | eq\_ref | PRIMARY | PRIMARY | 4 | devrydbm438.ba.AUTHORid | 1 | NULL |

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3 rows in set (0.00 sec)

mysql> quit

mysql> #6.D

mysql> show variables like '%log\_error%';

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

| Variable\_name | Value |

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

| binlog\_error\_action | IGNORE\_ERROR |

| log\_error | C:\ProgramData\MySQL\MySQL Server 5.6\data2\DBM438.err |

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2 rows in set (0.00 sec)

mysql> quit

***Conclusions:***

Why do you think the amount of time to execute the query took less time each subsequent time you executed it? I believe that the data has already been loaded, so after each execution query it should be shorter.

What do you think caused the difference?

With the data already being analyzed, executing the query was much quicker than without the data being analyzed.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Student:*** | KEVIN NGUYEN |  | WK5 |  | KN |
|  | Name |  | Program |  | Signature |