

CS 327E Lab 3

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November 7, 2016

Plan for Today

- Reading Quiz
- Lab 3 Specs and Demo
- Lab 3 Work Session

Homework for Today

- Chapter 13 from our Learning SQL text
- Exercises at the end of Chapter 13

Question 1

Which of the following statements is used to create an index on a table in MySQL?

- A. UPDATE TABLE ... CREATE INDEX
- B. UPDATE TABLE ... ADD INDEX
- C. ALTER TABLE ... CREATE INDEX
- D. ALTER TABLE ... ADD INDEX
- E. CREATE TABLE ... CREATE INDEX

Question 2

MySQL server automatically creates an index on primary key column(s):

- A. True
- B. False

Question 3

MySQL server automatically creates an index on foreign key column(s):

- A. True
- B. False

Question 4

Suppose that we have a large transactions table with several million records in it and we run two main queries against this table as shown below. Which column(s) should we consider indexing in order to avoid doing a full-table scan when answering these queries?

```
SELECT txn_date, account_id, txn_type_cd, amount
FROM Transaction
WHERE txn_date > CAST('2015-12-31 23:59:59' AS datetime);
```

```
SELECT txn_date, account_id, txn_type_cd, amount
FROM Transaction
WHERE amount =< 1000
AND txn_date > cast('2015-12-31 23:59:59' AS datetime);
```

- A. txn_date, amount
- B. txn_date, account_id, amount
- C. account_id, txn_type_cd
- D. txn_type_cd, amount

Question 5

Why not index every column in the database?

- A. Indexes can slow down **updates**
- B. Indexes can slow down **inserts**
- C. Indexes can slow down **deletes**
- D. Indexes consume disk space
- E. All of the above

Lab 3 Specs

<http://www.cs.utexas.edu/~scohen/labs/lab3.pdf>

Query Interface Demo

```
Would you like to use Adam's, David's, or Ned's database connection
or enter your own custom connection?
Type a for Adam, d for David, n for Ned, or c for custom: a
```

```
Have you already created a MySQL database entitled 'FunFriends33' ? (y/n): y
```

```
Have you already created a table entitled 'CarsForSale' in your FunFriends33 database? (y/n): y
```

```
Welcome to Ranger Motors Database Query Interface!
Here you can run queries on Ranger Motors' Inventory to
to filter the inventory with custom criteria or run aggregate statistics on the inventory.
Let's get started!
```

```
First I will ask you to choose some attributes to display in the query results.
Then you can display those rows by:
```

- * filtering rows out based on the values of one or more of their attributes;
- * sorting rows based on the values of one or more of their attributes;
- * grouping the results based on a customizable statistic from the table

```
Here are the attribute names from which you can choose:
```

```
Price
Year
Make
Model
Body style
Mileage
Transmission
Engine
Drivetrain
Exterior
Interior
Doors
Stock
VIN
Fuel Mileage
Conditon
DateAdded
```

Query Interface Demo

We are now going to build the select statement for our query.
Please tell me which of the above attributes you'd like to include in the results.
To do this, type the full attribute name(s), as shown above, separated by spaces: Year

Now we will build the where statement for our query.
Please tell me which of the attributes you would like to use to filter the results,
just as you did for the select statement.
(If you would not like to filter the results,
please leave this line blank and simply press Enter/Return):

We will now build the group by and having clauses of our query.
Would you like to use an aggregate function? (y/n): y

Here are the aggregation functions from which you can choose:
* COUNT
* MAX
* MIN
* SUM
* AVG

Please enter those of the above functions you would like to use to group your results,
as shown, separated by spaces: AVG
Please enter the name of the attribute to which you wish to apply the aggregate function AVG: Price
Please enter the name of the attribute by which you would like to group these aggregations: Year

For the attribute AVG(Price)...
This attribute is numeric;
Would you like to place an equality condition or bounds on this value? (e for equality, b for bound): b
Would you like a lower bound on the value of this attribute? (y/n): n
Would you like an upper bound on the value of this attribute? (y/n): y
Would you like this bound to be inclusive or exclusive? (i/e): i
What would you like the bound to be? (enter any numeric value): 10000

We will now build the order by clause of our query.

Would you like to order the results by any attributes? (y/n): n
Year : AVG(Price) :
1998 : 5600.0000 :
2002 : 4475.0000 :
2003 : 3047.5000 :
2004 : 8550.0000 :
2005 : 9866.6667 :
2006 : 8850.0000 :
2007 : 9300.0000 :
2008 : 8800.0000 :
2009 : 9950.0000 :
2010 : 7900.0000 :