Agenda

• Announcements
• Homework for today
• Reading Quiz
• Concept Questions
• Homework for next time
Announcements

• Reading quizzes and class participation grades
• Absences
• Eric’s office hours will be Fridays 12:00pm - 2:00pm in GDC 2.112
• Daniel’s office hours will be Tuesdays 1:30pm - 3:00pm in GDC 3.302
• Please review Eric’s MySQL install instructions for OS X
• Please go see Daniel or Eric during their office hours you are still not able to get MySQL server installed on your machine
Homework for Today

• Read Chapter 2 from the *Learning SQL* book
• Installed MySQL server on your machine
• Created the bank database
• Populated the bank database
Quiz Question 1

Although the text is system-agnostic, what relational database system is used in the examples of Beaulieu’s Learning SQL?

A. PostgreSQL  
B. MySQL  
C. Microsoft SQL Server  
D. Oracle Database
Quiz Question 2

What MySQL data type is used to store fixed-length strings?

A. CHAR  
B. VARCHAR  
C. STRING  
D. STR
Quiz Question 3

Why would you choose a **TIMESTAMP** over a **DATE** type?

A. **TIMESTAMP** is more precise than a **DATE**
B. Only for representing the time
C. **TIMESTAMP** is for representing a date and time (year, month, day, hour, minute, second) while **DATE** is for representing a date (year, month, day)
D. Never—**DATE** should always be used instead of **TIMESTAMP**
Quiz Question 4

What SQL statement would you use to create a new row in a table?

A. APPEND
B. NEW
C. INSERT
D. ALTER
Quiz Question 5

Below is the output from executing a MySQL command:

```
mysql> ???????????????
+-----------------------+---------------------------+----------+----------+------------------------+-----+
| Field                 | Type                      | Null | Key    | Default                | Extra |
| branch_id             | smallint(5) unsigned      | NO   | PRI    | NULL                  | auto_increment |
| name                  | varchar(20)               | NO   |        | NULL                  |      |
| address               | varchar(30)               | YES  |        | NULL                  |      |
| city                  | varchar(20)               | YES  |        | NULL                  |      |
| state                 | varchar(2)                | YES  |        | NULL                  |      |
| zip                   | varchar(12)               | YES  |        | NULL                  |      |
+-----------------------+---------------------------+----------+----------+------------------------+-----+
```

What is the command that was executed?

A. SHOW CUSTOMER;
B. DESCRIBE CUSTOMER;
C. SELECT * FROM CUSTOMER;
D. UPDATE CUSTOMER;
Basic Concepts

- Relational model
- Relation / Entity / Table
- Field / Attribute / Column
- Row / Tuple / Record
- Cell / Value
- Primary key
- Composite primary key
- Foreign key
- Constraint

<table>
<thead>
<tr>
<th>Product</th>
<th>PName</th>
<th>Price</th>
<th>Category</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>iPhone</td>
<td>$119.99</td>
<td>Cellphone</td>
<td>Apple</td>
<td></td>
</tr>
<tr>
<td>Android</td>
<td>$299.99</td>
<td>Cellphone</td>
<td>Samsung</td>
<td></td>
</tr>
<tr>
<td>iPad</td>
<td>$149.99</td>
<td>Tablet</td>
<td>Apple</td>
<td></td>
</tr>
<tr>
<td>iClicker</td>
<td>$20.99</td>
<td>Classroom</td>
<td>iClicker</td>
<td></td>
</tr>
</tbody>
</table>
Tables Explained

- A tuple = a record
- A table = a set of records
- The schema of a table is the table name and attributes
- A key is an attribute whose value is unique (by convention, we underline the key)
Common Data Types

- CHAR, VARCHAR
- INT
- DOUBLE, FLOAT
- DATE, DATETIME
- BLOB, CLOB
Constraint types

- NOT NULL constraint
- Unique constraint
- Primary and foreign key constraint
- Check constraint
Relationships between Tables

- One-to-many relationship
- One-to-one relationship
- Many-to-many relationship
Principle of Data Independence

- Physical data independence
- Logical data independence

Examples:
- Adding / dropping a column
- Adding / dropping an index
SQL Introduction

Standard language for querying and manipulating data

Structured Query Language

Many standards out there:
• ANSI SQL
• SQL92 (a.k.a. SQL2)
• SQL99 (a.k.a. SQL3)
• Vendors support various subsets of these
• What we discuss is common to all of them
**Data Manipulation Language (DML) statements**

- SELECT
- INSERT/UPDATE/DELETE

**Data Definition Language (DDL) statements**

- CREATE/ALTER/DROP
- GRANT/REVOKE
Concept Question 1

How can Alice’s record be deleted from the Persons table?

A. Delete Persons record where person_id = 100

B. Delete Persons record where person_id = 100 and then delete Favorite_Music records where person_id = 100

C. Delete Favorite_Music records where person_id = 100 and then delete Persons records where person_id = 100

D. Either B or C

E. None of the above
Homework for Next Time

• Chapter 3 from the Learning SQL book
• Exercises at the end of Chapter 3