CS 327E Lecture 1

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Reminders

- Homework: assigned chapters from modeling book
- Short quiz based on assigned chapters
- Register your clicker and bring it each time
Heads-up on Lab 1

- Choose structured datasets (csv, xml, json, etc.)
- Choose lab partner
- Design a database schema
- Lab days: 09/19 and 09/21, due: Friday, 09/23
Question 1: What makes a good data model?

A. Completeness
B. Non-Redundancy
C. Enforcement of Business Rules
D. Data Reusability
E. All of the above
Question 2: Since data modeling costs a lot of money, businesses should try to avoid it as much as possible

A. True
B. False
Question 3: An entity class is a real-world class of things

A. True
B. False
Question 4: A good strategy for developing ER diagrams is to model from:

A. Top-down
B. Bottom-up
C. Inside-out
D. All of the above
Key Concepts

A *data model* is a collection of concepts for describing data.

A *schema* describes the structure of the data for a given data model.
Key Concepts

- Relation / Entity Class / Table
- Field / Attribute / Column
- Row / Entity / Tuple / Record
- Cell / Value
- Primary key
- Composite primary key
- Foreign key
- Constraint
Key Concepts

Entity Class = an object of interest
Attribute = property of an entity
Relationship = association between one or more entity classes

Relationship types:
- one-to-one: 📚 ↔️
- one-to-many: 📚 ↔️
- many-to-one: ↔️ 📚
- many-to-many: ↔️ ↔️
ERD Example #1

Credit: No Comment Team, CS 327E Spring 2016
## Data Dictionary

<table>
<thead>
<tr>
<th>Object</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CampaignMemberStatus</td>
<td>A status value associated with a Campaign.</td>
</tr>
<tr>
<td>CampaignOwnerSharingRule</td>
<td>Represents the rules for sharing a Campaign with User records other than the owner.</td>
</tr>
<tr>
<td>CampaignShare</td>
<td>Represents a list of access levels to a Campaign along with an explanation of the access level. For example, if you have access to a record because you own it, the Access Level value is Full and Reason for Access value is Owner.</td>
</tr>
<tr>
<td>CampaignTag</td>
<td>Associates a word or short phrase with a Campaign.</td>
</tr>
<tr>
<td>Case</td>
<td>A customer issue such as a customer’s feedback, problem, or question.</td>
</tr>
<tr>
<td>CaseArticle</td>
<td>Represents the association between a Case and a KnowledgeArticle. This object is available in API version 20.0 and later.</td>
</tr>
<tr>
<td>CaseComment</td>
<td>A comment that provides additional information about the associated Case.</td>
</tr>
<tr>
<td>CaseContactRole</td>
<td>The role that a given Contact plays on a Case.</td>
</tr>
<tr>
<td>CaseFeed</td>
<td>Represents a single feed item in the feed displayed on the detail page for a case record. This object is available in API version 18.0 and later.</td>
</tr>
<tr>
<td>CaseHistory</td>
<td>Historical information about changes that have been made to the associated Case.</td>
</tr>
<tr>
<td>CaseMilestone</td>
<td>Represents a milestone (required step in a customer support process) on a Case. This object is available in API version 18.0 and later.</td>
</tr>
<tr>
<td>CaseOwnerSharingRule</td>
<td>A rule that grants access to a case to users other than the owner.</td>
</tr>
</tbody>
</table>

Reference: [http://tinyurl.com/z6t6qs4](http://tinyurl.com/z6t6qs4)
ERD Exercise #1
Constraint Types

- NOT NULL constraint
- Unique constraint
- Primary and foreign key constraint
- Check constraint
Common Data Types

- CHAR and VARCHAR
- INTEGER
- FLOAT
- DATE and TIMESTAMP
- BLOB and CLOB
Design Tips

• **Tip 1.** Best order of modeling: 1-entity classes, 2-relationships, 3-attributes.

• **Tip 2.** Keep ER diagram to one page. If necessary, separate into views.

• **Tip 3.** Accompany diagram with data dictionary to explain important entity classes, relationships, and attributes.

• **Tip 4.** Deal with lack of information and pressing timelines. Use creativity to find a solution.
Main entrance of the 2005 Austin City Limits Music Festival in Zilker Park.

Genre: Music festival
Frequency: Annually
Location(s): Zilker Park, Austin, Texas, United States
Years active: 2002–present
Most recent: October 2–4 & 9–11, 2015
Next event: September 30–October 2 & October 7–9, 2016
Resources

• Lots of common entity types (e.g. Customer, Product, Event, etc.): http://schema.org

• ER diagramming tools: MySQL Workbench and LucidChart


Homework for Next Time

• Read Chapter 4 from our Data Modeling textbook