CSC 195 2014S, Class 13: SQL

Overview

- Preliminaries.
  - Admin.
  - Questions.
- Key relational operations.
- Our database design project, continued.
- SQL - Structured/Standard Query Language.

Preliminaries

Admin

- The Grinnell Playboy incident discussed.
- There is no homework for week 14. You do need to show up for the last class.
- The W3 Schools SQL Tutorial at [http://www.w3schools.com/sql/default.asp](http://www.w3schools.com/sql/default.asp) has a nice interactive SQL interpreter.
- CS Extra Today 4:30 in 3821: Snowden.
- CS Table Tomorrow in Day PDR: Snowden.
- Spring Awakening Saturday at 7:30, Sunday at 1:00 and 7:30.
- Baseball on Sunday at 1:00ish.
- Gardner tonight.

Questions

Key relational operations

- Idea: Store stuff in tables, do interesting things by combining tables.
- Three basic kinds of operations
  - Retrieve data
    - (sometimes) Combine tables
    - Select rows of interest
    - Select columns of interest
    - (sometimes) Rearrange
  - Add data
  - Remove data
Our database design project, continued

CDThing: A collaborative database of information on recorded popular music

Identify use cases

- Given some lyrics, what are the names of the songs that include those lyrics?
  - What song includes the lyrics "I walk the lonely streets"
- What songs are there by a particular artist?
  - What songs has Drake recorded?
- Given an album (whatever that is), what songs appear on that album?
  - What songs appear on "The White Album"?
- Given a genre, what albums are in that genre?
  - What albums are hip-hop?
  - Or "how many", since there may be a lot
- Given a record label, what albums are on the record label
  - What albums are on Matador records
- How many times have our clients played this song
  - How many times did people play [song sam has never heard of]
- What are the most popular songs
  - In terms of ownership
  - In terms of plays within the past day
- What songs have a particular key or bpm
- Queries by release date or song length
  - I need a song released in the past four years that is 3:20 and about unrequited love to fill out my mix tape.

Song may be being used in two different ways

- The song itself, with a composer etc.
- A recording of a song, with a performer, etc.

One suggestion

Songs

- Unique Identifier
- Name
- Rating
- Official Lyrics
- Copyright holder

Person
• Unique identifier
• Names

Composition

• Person
• SongID
• Role

Example

Song:

112356x         Let It Be      5

Person:

12132   John Lennon
1263234  Paul McCartney

Composition

112356x         12132   Composer
1263235         1263234 Composer
1263235         1263234 Lyricist

Recording

• Unique Identifier
• SongID
• PrimaryArtistID
• FeaturedArtistID
• Length
• Rating
• Recorded Lyrics
• Track number
• Play count
• File type
• Live (perhaps date vs null)

Tracks

• AlbumID
• Track number
• PerformanceID
Performers
- PersonID
- RecordingID
- Role

Artists
- Name
- Age (Birth-Current, or Birth-Death)
- Origin
- Preferred genre
- Similar artists

Albums
- Title
- Artist
- Producer
- Rating
- Release date
- Genre
- Similar albums
- Cover art

Three kinds of relationships between data
- One to one
  - Same table
- One to many
  - Table to make linkages
- Many to many
  - Table to make linkages

**SQL - Structured/Standard Query Language**

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