

Project Assignment 1

Due in class on January 14th 2004

Description

El Cheapo Inc is planning to open an on-line music store, MP3s'R'US. You have been hired by El Cheapo in order to design the database that will back their Internet store.

MP3s'R'Us will allow its customers to browse the available songs on-line, listen to samples, buy music (in the form of MP3 files), alter their personal information, and rate songs or artists that appear in the catalog.

After meeting with the executives from El Cheapo, you have gathered the following requirements regarding the information that will be stored in the database:

At an abstract level, the database will store information on songs, customers, recording firms, and artists. A song must have at least one artist. Songs may belong to musical albums, which are also associated with artists.

A song has a title, duration, and a year of release. For each song, the store will offer different MP3 files with varying bit-rates and prices accordingly (if you do not know what a bit-rate is, here's the scoop: the higher the bit-rate, the better the mp3 file will sound). Each song may also be associated with multiple genres, where each genre has a name.

An artist has a name, a birth date, a birthplace, and is associated with exactly one recording firm. An album has a name, a year of release, and is also associated with exactly one recording firm. For the needs of the Internet store, a recording firm has a name, and an address.

A customer has a name, an e-mail address, a birth date, and a list of preferred genres. For authentication purposes, the system must also record a user-name and a password. A user can rate a song, an artist, or an album as: "amazing!" ; "good" ; "bad"; or, "it sucks!".

A single user can have multiple credit cards registered, and the system must record the card type, the card number, the expiration date, and the billing address for each credit card. Whenever a user buys a song, the system must record the transaction. The relevant information includes the customer, the credit card used, the song, and the quality of the MP3 file that the user bought.

What to turn in

Design an E-R diagram for the database of MP3s'R'Us. The E-R model that you design should definitely cover the requirements of the system, as outlined by the executives of

El Cheapo. If you feel that additional information needs to be modeled, add it to your diagram and explain (concisely) why it is there.

When drawing your diagram you must:

- Specify the domain of each attribute (use the types string, date, integer, and float).
- Underline key attributes.
- Indicate key and participation constraints wherever they apply.
- Indicate weak entities and their identifying relationships wherever they exist. If you include ISA hierarchies, make sure you use the right notation.

It is not necessary to fit the whole diagram in one page. If the diagram is too big, then break it up in multiple parts and repeat entity sets in each part as needed. If an entity set is repeated in multiple parts, you need to specify the domains of its attributes only once.

NOTE: Save a copy of your diagram before turning it in, as you will need it for the subsequent parts of the project.