IEOR 215: Homework 4

Conversion

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Problem 1

Map the US_HOUSE_OF_REPRESENTATIVE schema from Homework 1 Problem 1 into a relational schema (i.e. a set of relations). Please use the solutions presented in lab for your conversion. Specify all primary keys and foreign keys using class notation (superscripts). State clearly any assumptions you make.

Homework 1 Problem 1 is below for your convenience:

> Consider the US_HOUSE_OF_REPRESENTATIVE database for keeping track of information about votes in the U.S. House of Representatives taken during the current two-year congressional session. The database needs to keep track of each U.S. STATE's Name (e.g., 'Texas', 'New York', 'California') and include the Region of the state (whose domain is {'Northeast', 'Midwest', 'Southeast', 'Southwest', 'West'}). Each CONGRESS_PERSON in the House of Representatives is described by his or her Name, plus the District represented, the Start_date when the congressperson was first elected, and the political Party to which he or she belongs (whose domain is {'Republican', 'Democrat', 'Independent', 'Other'}). The database keeps track of each BILL (i.e., proposed law), including the Bill_name, the Date_of_vote on the bill, whether the bill Passed_or_failed (whose domain is {'Yes', 'No'}), and the Sponsor (the congressperson(s) who sponsored—that is, proposed—the bill). The database also keeps track of how each congressperson voted on each bill (domain of Vote attribute is {'Yes', 'No', 'Abstain', 'Absent'}).
>
> Draw an ER schema diagram for this application in class notation. State clearly any assumptions you make.

Solution:

Problem 2

Map the ONLINE_AUCTION schema from Homework 2 Problem 2 into a relational schema (i.e. a set of relations). Please use the solution presented in lab for your conversion. Specify all primary keys and foreign keys using class notation (superscripts). State clearly any assumptions you make.

Homework 2 Problem 2 is below for your convenience:

> Consider an ONLINE_AUCTION database system in which members (buyers and sellers) participate in the sale of items. The data requirements for this system are summarized as follows:
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> - The online site has members, each of whom is identified by a unique member number and is described by an e-mail address, name, password, home address, and phone number.
> - A member may be a buyer or a seller. A buyer has a shipping address recorded in the database. A seller has a bank account number and routing number recorded in the database.
> - Items are placed by a seller for sale and are identified by a unique item number assigned by the system. Items are also described by an item title, a description, starting bid price, bidding increment, the start date of the auction, and the end date of the auction.
> - Items are also categorized based on a fixed classification hierarchy (for example, a modem may be classified as COMPUTER → HARDWARE → MODEM).
> - Buyers make bids for items they are interested in. Bid price and time of bid are recorded. The bidder at the end of the auction with the highest bid price is declared the winner, and a transaction between buyer and seller may then proceed.
> - The buyer and seller may record feedback regarding their completed transactions. Feedback contains a rating of the other party participating in the transaction (1–10) and a comment.
>
> Design an EER diagram for the ONLINE_AUCTION database. State clearly any assumptions you make.

Solution: