Database Project

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Project Outline

We will be creating a database to be used by a fictional local library in Oregon. Libraries must store detailed information about the many different types of informational mediums they possess. Having a spreadsheet or other data store to keep track of all these different sources of information is not very effective, and it would slow down the research process considerably. Using a relational database allows its users to group information together so employees and patrons of the library can efficiently search for related information. This is why we chose this theme for our database. Our database will only store information pertaining to books, but it will provide a glimpse of the utility a relational database provides its users.

Database Outline

The entities in the database are:

Book:
PK=ISBN

- ISBN (integer) - unique book identifier obtained and assigned by the publisher. Only one copy of each book is available.
- Title (string) - title of the book. Has a maximum length of 100 characters and cannot be blank. There is no default.
- Author (string) - name of the book author(s). Has a maximum length of 100 characters and cannot be blank. There is no default.
- Publisher (string) - maximum length is 50 characters. Cannot be blank. No default value.
- Location (string) - this will contain the id of the Facility at which the book is located and must be one of the following 3 options. (Main, Burbank or Riverton). Default is Main.

Author:
PK=First Name, Last Name, Publisher

- First Name (string) - maximum length is 25 characters. No default. Required.
- Last Name (string) - maximum length is 25 characters. No default. Required.
- Home city (string) - maximum length is 25 characters. No default.
- Home state (string) - maximum length is 25 characters. No default.
- Publisher (string) - will contain the id of the publisher that serves the author. No default. Required.

Publisher:

PK=Publisher ID

- Company Name (string) - Publisher's name. Maximum length is 50 characters. Required. No default.
- Owner (string) - Maximum length is 50 characters.
- City (string) - maximum length is 25 characters.
- State (string) - maximum length is 2 characters. State is identified by its abbreviation. Required.
- PublisherID (integer) - auto generated primary key, cannot be null, and no default

Facility:

PK=Facility ID

- Branch (string) - name of the library branch. Maximum length is 25 characters. Required. No default.
- City (string) - maximum length is 25 characters. Required. No default.
- State (string) - maximum length is 2 characters. Required. Default is "OR".
- Street Address (string) - maximum length is 100 characters. Required. No default.
- Capacity (# books) (integer) - maximum value is 10,000,000. No default.
- FacilityID (integer) - auto generated primary key, cannot be null, and no default

Loan:

PK=Loan Number

- Loan Number - auto generated primary key, cannot be null, and no default
- ISBN (number) - contains id of book being loaned. Required. No default.
- Customer (number) - contains id of customer receiving book. Required. No default.
- Loan Date (date) - date the book was loaned to the customer. Required. Default is the date the record is created.
- Due Date (date) - date the book is due back to the library. Required. Default is two weeks from the loan date.

Customer:

PK=Customer Number

- Customer Number (number) - auto generated primary key, cannot be null, and no default
- First Name (string) - maximum length is 25 characters. No default. Required.
- Last Name (string) - maximum length is 25 characters. No default. Required.
- Address (string)
- City (string) - maximum length is 25 characters. Required. No default.
- State (string) - maximum length is 2 characters. Required. Default is "OR".
- Zip (string) - maximum length is 5 digits. Required. No default.

The relationships in the database are:

- A book can have many authors, and an author can write many books. (Many-to-many)
- A facility can have many books, but a book can have only one facility. (One-to-many)
- A book is produced by one publisher, but a publisher produces many different books. (One-to-many)
- An author is served by one publisher, but a publisher may serve many authors. (One-to-many)
- A loan must be to one customer, but a customer may have many loans. (One-to-many)
- A loan is for one book, but a book can be loaned many times. (One-to-many)

Website URL

Website is running using "forever" on flip3:

http://flip3.engr.oregonstate.edu:6102/