Assignment 3: Entity Relation Diagrams

Raymond Law
CS 085

Perquisite – Install MySQL, MySQL Workbench and Set the Path

`https://www.dropbox.com/s/h0dmow9qs5gbnlt/install-mysql.pptx?dl=1`

Entity Relation Diagrams

Using the MySQL Workbench draft an ERR Diagram of the following scenario to the best of your ability. Do note the description below is lousy at best. This was defined by a manager and not a database developer, you will need to translate the business logic into something meaningful. This requires adding attributes not mentioned and perhaps revising tables (adding new attributes, adding new foreign keys, adding new tables) as you get more information. Save your design as corporation.mwb, when finished you can test your design using the Menu Bar >Database >Forward Engineering tool

Scenario – The Corporation

The world's largest megacompany. Everybody knows them by name, yet it is a mystery how they operate. They have their fingers in every sector from Agriculture to Zoning and have more than a few . They are known for their innovative technologies as well as its unscrupulous cutthroat work force. The entire business was built upon competition, stepping above your colleagues to reach the next, or get fired trying. Your first job as the new Database Administrator is to create a new suggestion for a database to management. You will be showcasing to them a ER Diagram of a new database design that will replace the existing one. The main goal of this redesign is to reduce redundancy, while still being able to access all necessary data.

- A product pipeline is devised into several stages, each one requiring a separate table
- Initially during the planning stages an early product is called a design. A design needs a ID, name, description, employeeID of the designer, and draft. The draft attribute needs to be able to support 5000 characters.
- Once the design is perfected, a prototype is crafted and tested. A prototype needs an ID, description, employeedID of the prototyper, version, blueprint, and needs to be able to refer back to the original design. It also needs 2 additional attributes, a status attribute to determine whether the product has been approved, workinprogress,

rejected, or abandoned. It also needs the date of last status change. The blueprint attribute needs to be able to support 5000 characters. A particular design blueprint can yield many prototypes, but each prototype belongs to one design.

- Many prototypes no not go past this stage, but a select few are accepted and become "products", of course these are just accepted blueprints. The products relation requires at minimum an ID number, a product name, and the employeeID of the manager who approved the prototype. We also need to be able to refer to the original prototype data

- Products are then sent to manufacturing where they are mass produced as inventory. The inventory relation creates a new record for every batch of products created. It needs (at minimum) to have an ID, a reference to the product information, a date created, a date expired (if applicable, not all products expire), quantity available, and employeeID of the production manager. In addition we may need to stop the sale of a product (due to a recall). We need to be able to do this without deleting the items all together; Add an active boolean attribute that will default to TRUE. All inventory elements are kept together until sold, if part of an inventory item is sold, the quantity decreases until it hits 0

- Until they are sold inventory items are stored at a warehouse. There are many Warehouses each has its own WarehouseID, Maximum Square footage, Square Footage Available, and EmployeeID of the warehouse manager. A warehouse can house many different inventory items, but no inventory element will ever be split between multiple warehouses. This is to reduce issues related to recalls.

- Clients will place orders for inventory items. Clients need to supply a Name, Shipping Address, Billing Address in order for us to do buisness with them. We also internally track, the number of orders a customer has placed, their last order date, and a balance, used to simplify Customer Service issues. (A CSR can issue a credit to the balance attribute of the account which will be applied to their next order) Once an item sold to a client is sold we no longer care about which warehouse it originated from.

- To place an order a client needs to go through a salesman. Each order is for only 1 type of product, if a particular customer wants many different products, they need to place multiple orders.

- An order itself is only composed of an Inventory item, a ClientID, a Quantity ordered, a Date ordered, Payment type, EmployeedID of the salesman, and an Order Status (Processing, Cancelled, Shipped, Delivered, Refunded).

- Employees have (at minimum) an EmployeeID, Name, Contact Information, a Job Title, Salary, Date Hired, and Date Terminated, and a large 5000 character section for "notes". Many employees no longer work here, but we still use their work in the product designs, and may need to refer to the original creator

Make sure your design is able to answer the following questions. In a seperate word document, explain the sequence of relational algebra operations needed to do this.
(Ex.First natural join A and B. From the result perform a selection on attribute X)

- Who was the designer of the Software product that was sold to Seacom Interactive last week?
- Who runs the Warehouse that houses Inventory Item 5001 is currently at?
- Who was the original designer of the product with productname "Silly Fun Edible String"
- How many prototypes did the product with productname "My First Chain Saw" go through?
- Find all salesmen who have had an order refunded.

Submission

Email csci085@gmail.com with your submission.
You should have 2 files, corporation.mwb, and a seperate file detailing your answers to the questions.

Subject: CS085 – REPLACE_WITH_YOUR_NAME – Assignment 3