Trevor Paige

3/11/2024

ER Diagram homework :Database Modeling Using ER diagrams

Due Date: Friday March 8,

(early submission by March 4 - earns 2 bonus points)

Points: 60 points (work will be examined for plagiarism.)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**Instructions:**

**No SQL Statements Required**: This assignment does not involve the use of SQL statements.

**Independent Work**: Work independently on completing this assignment.

**Submission**: Submit your work on Blackboard. You can submit your diagram in Word, PowerPoint, or as an image.

Refer to the tables below to answer the following questions:

1. Provide a list of all entities.
2. Specify suitable primary keys for each entity.
3. Specify any candidate keys
4. Identify composite, multivalued, derived attributes, and weak entities where applicable.
5. List the cardinality between entities when applicable (1:1, 1: N, M:N).

**ER Diagram Creation:**

Use Microsoft Word, PowerPoint, or Excel to draw an ER diagram.

Model the database described below:

**Customer Table: (similar to the customer table used in homework 2)**

Fields: CustomerId (unique identifier), Title (e.g., Mr. Ms. Optional), FirstName, LastName (required), Street Address (required), City (required), State (required), ZipCode (required), PhoneNumber (optional), Email (required and unique).

Optional: Value can be null.

Required: Value cannot be null.

**Product Table:**

Fields: ProductID (unique), ProductName, Brand, Price, Quantity (Quantity at Hand), DateAdded (Date when Product was added).

**Business Transactions Table:**

Fields: CustomerID, ProductID, PurchaseDate, QuantityPurchased, PaymentMethod.

Include at least 3 different transactions based on your role as the customer.

* **Transactions:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CustomerID** | **ProductID** | **PurchaseDate** | **QuantityPurchased** | **PaymentMethod** |
| **1** | **1** | **2/17/2024** | **2** | **Visa** |
| **2** | **1** | **3/8/2024** | **5** | **MasterCard** |
| **1** | **3** | **3/9/2024** | **3** | **Visa** |

Supplier Table (New Table):

**Supplier Table:**

Create the appropriate columns (minimum 5) to include in an additional table named, supplier table. The newly added “Supplier" table should include relevant fields about the suppliers of various products. Include information relevant to the supplier table in answering the afore 5 questions including the creation of ER diagram.

* **Columns** = SupplierID, Supplier Name, Supplier Phone, Street Address, City, State, Zip, Email

**Entities:**

Customer Table = Customer

Product Table = Product

Business Transaction Table = Transaction

Supplier Table = Supplier

**Primary Keys:**

Customer = CustomerID

Product = ProductID

Transaction = N/A

Supplier = SupplierID

**Candidate Keys:**

Customer = Email

Product = N/A

Transaction = N/A

Supplier = Supplier Email

**Composite Attributes:**

Customer = Name (Title, FirstName, LastName), Address (Street, City, State, Zip)

Product = N/A

Transaction = N/A

Supplier = Address (Street, City, State, Zip)

**Multivalued Attributes**

Customer = N/A

Product = N/A

Transaction = N/A

Supplier = N/A

**Derived Attributes**

Customer = N/A

Product = N/A

Transaction = N/A

Supplier = N/A

\*Note: I thought about putting State here due to the Zip Code, however, the same Zip Code can sometimes cross state borders.

**Weak Entities**

Customer = N/A

Product = N/A

Transaction = N/A

Supplier = N/A

**Cardinality**

Customer orders Product (One to Many)

Product creates Transaction (Many to One)

Supplier provides Product (One to Many)

A diagram of a product

Description automatically generated