

Entity-relationship design for databases

Problem

Use Entity-Relationship Design to design a database to represent three entities, each entity represented by one table with a primary key. The entities are: customers, products, transaction detail. Detail is one instance of a product purchased, possibly along with other products. Describe the relationships among these entities. Create a small Excel table for each entity.

Solution

This is a problem about customers, products, and transaction details. A transaction detail is an instance of a customer purchasing a product.

The first step in solving the problem is to identify the tables (entities). These could be called "Customer," "Product", and "Purchase detail".

The next step is to identify attributes of each entity, including a primary key for each entity. A correct answer would be as follows:

Customer: cust-ID, name, address, phone

Product: prod-ID, name, price

Purchase-detail: purch-det-ID, cust-ID, prod-ID, date, qty

Notice that each table has an attribute that is an identifier for the entity, similar to a student ID or a course ID. The ID is the primary key of the table.

Finally, each of the above could be turned into a table, so that the Customer table would have 4 columns: customer-ID, name, address, and phone. In a full solution to the problem, you would create three tables, filling them out with a few sample rows.