CS 3100: Database Programming & Design

Homework 4

Instructions:

Go to <https://www.lucidchart.com/pages/ER-diagram-symbols-and-meaning> and read the section on Physical ER diagram symbols. Please also watch the EXCELLENT 13 minutes video tutorial on understanding entity-relationship diagram (ERD) that is embedded on this webpage. This video does not just help you complete this assignment but also will be very useful when you complete the final class assignment.

After you review the ERD symbols and meaning page, please go to Canvas and open the ClassicsModel ERD

Image of ClassicModels ERD link in Canvas


Answer the following questions. Each question is worth 10 points.

1. What are the primary key(s) in each table? Primary keys are shown as yellow keys in the ERD.
   1. Payments:
      1. checkNumber
   2. Customers:
      1. customerNumber
   3. Offices:
      1. OfficeCode
   4. Employees:
      1. employeeNumber
   5. Orders:
      1. orderNumber
   6. OrderDetails:
      1. No primary key
   7. Products:
      1. productCode
   8. ProductLines:
      1. productLine
2. What are the foreign key(s) in each table? Foreign keys are shown as red keys in the ERD.
   1. Payments:
      1. customerNumber
   2. Customers:
      1. salesRepEmployeeNumber
   3. Offices:
      1. No foreign key
   4. Employees:
      1. officeCode
   5. Orders:
      1. customerNumber
   6. OrderDetails:
      1. orderNumber
      2. productCode
   7. Products:
      1. productLine
   8. ProductLines:
      1. No foreign key
3. What relationships exist between the Customers table and other tables in the ClassicsModel database?
   1. Payments
      1. For every customer in the customer table, they can have anywhere from zero payments to many different payments. Every payment in the payments table has one and only one customer tied to it.
   2. Employees
      1. Each employee in the employees database can have one or many customers assigned to him/her. Each customer in the customers table can only be assigned to one employee, but they could also have no employee assigned yet.
   3. Orders
      1. Every order in the orders table can be tied to one and only one customer in the customers table, but each customer can have many different orders.
4. What relationships exist between the Orders table and other tables in the ClassicsModel database?
   1. Customers
      1. Every order in the orders table can be tied to one and only one customer in the customers table, but each customer can have many different orders.
   2. OrderDetails
      1. Each order can have many different products but the order details can be tied back to only one order.
5. What relationships exist between the Products table and other tables in the ClassicsModels database?
   1. OrderDetails
      1. Each product can be in many different orderDetails (through orders) but each productCode in orderDetails is tied to one and only one product
   2. ProductLines
      1. Each product can come from one and only product line but product lines can have many different products
6. What relationships exist between the Employees table and other tables in the ClassicModels?
   1. Customers
      1. Each employee can have one or more customers assigned to them but each customer is only assigned to one employee or might not be assigned to an employee yet
   2. Offices
      1. Each employee works in only one office, but each offices has many employees working in it
   3. Employees
      1. Each employee in the employee table reports to only one other employee (but they could report to none at all if they’re high enough in rank) and each employee has one or more other employees reporting to them.