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**DBMS**

**ASSIGNMENT 5: Logical DB design**

**3/5/2024**

1. [5] Solve Exercise 17.8 from the course textbook. (Pg. 509) Create logical design from the given conceptual design.

A diagram of a product

Description automatically generated

**PaymentMethod (**pMethodNo, paymentType, details)

**Primary Key** pMethodNo

**Invoice** (inoviceNo, paymentDueDate, paymentStatus, amountDue, pMethodNo, OrderNo)

**Primary Key** invoiceNo

**Foreign Key** pMethodNo **references** PaymentMethod (pMethodNo)

**Foreign Key** OrderNo **references** Order (orderNo)

**Product** (productNo, productName, description, stockQuantity)

**Primary Key** productNo

**Customer** (customerNo, firstname, lastname, email, phoneNumber, state, city, zipcode)

**Primary** Key customerNo

**Order** (**orderNo**, orderDate, deliveryDate, status, customerNo, employeeNo)

**Primary Key** orderNo

**Foreign Key** customerNo **references** Customer (customerNo)

**Foreign Key** employeeNo **refererences** Employee (employeeNo)

**OrderDetail** (orderDetailNo, quantityOrdered, priceEach, orderNo, productNo)

Primary Key orderDetailNo

**Foreign Key** orderNo **references** Order (orderNo)

**Foreign Key** productNo **references** product (productNo)

**Employee** (employeeNo, firstname, lastname, salary)

**Primary Key** employeeNo

**Shipment** (shipmentNo, shipmentDate, deliveryDate, status, orderDetailNo, employeeNo, sMethodNo)

**Primary Key** shipmentNo

**Foreign Key** orderDetailNo **references** OrderDetail (orderDetailNo)

**Foreign Key** employeeNo **references** Employee (employeeNo)

**Foreign Key** sMethodNo **references** ShipmentMethod(sMethodNo)

**ShipmentMethod** (sMethodNo, methodName, details)

**Primary Key** sMethodNo

1. [5] Solve problem 17.16 from the course textbook. The given ER diagram shows only entities and primary key attributes. The absence of recognizable named entities or relationships is to emphasize the rule-based nature of the mapping rules described previously in Step 2.1 of logical database design.

A diagram of a computer

Description automatically generated

Answer the following questions with reference to how the ER model in the above figure maps to relational tables.

1. How many relations will represent the ER model?

6 relations

1. How many foreign keys are mapped to the relation representing X?

There are 2 of them (dNo, bNo)

1. Which relation(s) will have no foreign key?

A, C, D, E

1. Using only the letter identifier for each entity, provide appropriate names for the relations mapped from the ER model.

**A** (aNo)

**Primary Key** aNo

B (bNo, aNo)

**Primary Key** bNo

**Foreign Key** aNo **references** A(aNo)

C(cNo)

**Primary Key** cNo

CX (cNo, xNo)

**Primary Key** cNO, xNo

**Foreign Key** cNO **references** C(cNo)

**Foreign Key** xNo **references** X(xNo)

X(xNo, dNo, bNo, eNo)

**Primary Key** xNo

**Alternate Key** eNo

**Foreign Key** dNo **references** D(dNo)

**Foreign Key** bNo **referencs** B(bNo)

D(dNo)

**Primary Key** dNo

1. If the cardinality for each relationship is changed to one-to-one with total participation for all entities, then how many relations would be derived from this version of the ER model?

One (1)