

Week 2: Database & ER Design for Sales Database

1. For each entity, provide the name, description, fields, data type, primary key, and foreign key.

List of Entities in the model:

| Entity | Description |
|----------------------|--|
| Customer | Person or Organization who bought or may buy product/parts |
| Sales Representative | Designated Employee/Representative who Facilitates Sale |
| Part | Product and Part Offerings |
| Order | Purchase Record Placed by customer |
| Order Lines | Records corresponding to each Part within an order |

| Entity Name: | Customer |
|------------------|--------------------------------|
| Description: | Organization/Person Buys Parts |
| Field | Data Type |
| CustomerID (PK) | VARCHAR(25) |
| LastName | VARCHAR(50) |
| FirstName | VARCHAR(50) |
| StreetAddress | VARCHAR(255) |
| City | VARCHAR(25) |
| State | VARCHAR(25) |
| ZipCode | VARCHAR(10) |
| CurrentBalance | FLOAT |
| CreditLimit | FLOAT |
| SalesRepID (FK1) | VARCHAR(25) |

| | |
|----------------------|----------------------------|
| Entity Name: | SalesRepresentative |
| Description: | Individual helping sell |
| Field | Data Type |
| SalesRepID (PK, FK1) | VARCHAR(25) |
| LastName | VARCHAR(50) |
| FirstName | VARCHAR(50) |
| StreetAddress | VARCHAR(255) |
| City | VARCHAR(25) |
| State | VARCHAR(25) |
| ZipCode | VARCHAR(10) |
| Region | VARCHAR(50) |
| RegionDescription | VARCHAR(255) |
| TotalCommission | FLOAT |
| CommissionRate | FLOAT |

| | |
|---------------------|--------------------|
| Entity Name: | Order |
| Description: | Record of Purchase |
| Field | Data Type |
| OrderID (PK, FK1) | VARCHAR(25) |
| Date | TIMESTAMP(0) |
| CustomerID (FK2) | VARCHAR(25) |
| ShippingDate | TIMESTAMP(0) |

| | |
|---------------------|-------------------------|
| Entity Name: | Part |
| Description: | Product & Prt Offerings |
| Field | Data Type |
| PartID (PK, FK1) | VARCHAR(25) |
| PartDescription | VARCHAR(255) |
| UniteOnHand | INTEGER |
| Class | VARCHAR(255) |
| WarehouseNumber | VARCHAR(25) |
| UnitPrice | FLOAT |

| | |
|-------------------|--|
| Entity Name: | OrderLines |
| Description: | Lines Corresponding to parts in an order |
| Field | Data Type |
| OrderID (PK, FK1) | VARCHAR(25) |
| PartID (PK, FK2) | VARCHAR(25) |
| NumberOrdered | INTEGER |
| QuotedPrice | FLOAT |

Directly-related entity type pairs (Relationships)

Customer – Order

Part – Order

Sales Representative – Customer

Order – Order Lines

2. For each direct entity type pair, provide the business rules.

Customer – Order

A Customer has One or many orders.

Customer 1:M Order

Part – Order

A Part may have zero or more orders.

Part 0:M Order

Sales Representative – Customer

A Sales Representative may have zero or many customers.

SalesRepresentative 0:M Customer

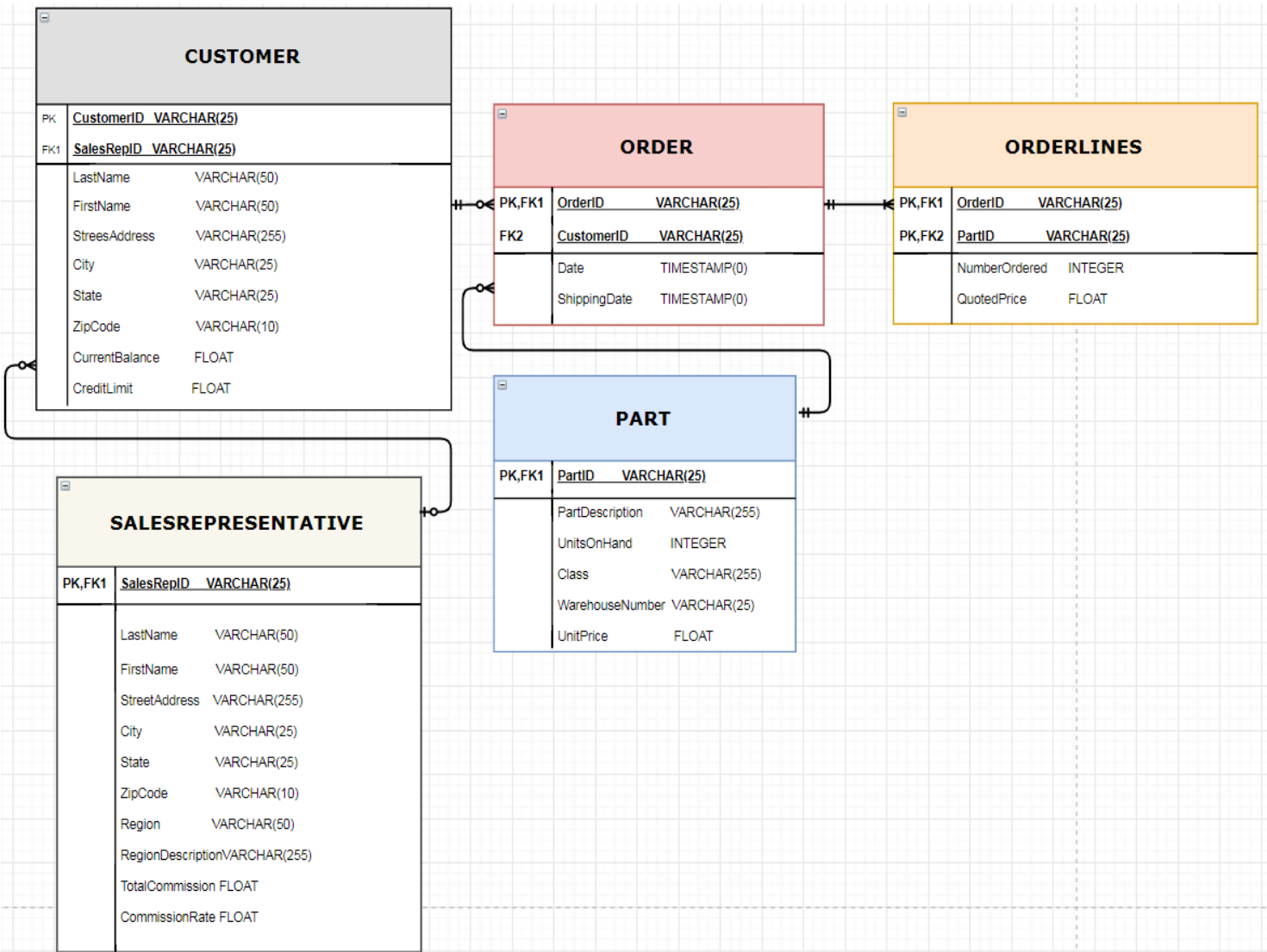
Order – Order Lines

An Order must have one or more Lines

Order 1:M OrderLines

3. Provide the ERD.

Entity Relationship Diagram



References:

Oppel, A. J. (2009). *Databases: A beginner's guide*. New York, NY: McGraw-Hill.

Laureate Education (Producer). (2011a). *Designing a database* [Video file]. Baltimore, MD: Author.