Simple Shop Design

Definition

3 entities on conceptual level, customer, order, product.

Assumption: all IDs are Guid (ready for CQRS).

- 1 customer can place 1 or multiple orders
- 1 order can only have 1 customer
- 1 order can contain multiple products
- 1 product can be ordered many times by 1 customer
- Same product can appear in multiple orders

Relationship

- Customer to Order is 1 to many
- Order to Product is Many to Many

Design

1. Customers
   a. ID GUID
   b. Name string
   c. Age short
   d. Address string
2. Orders
   a. ID GUID
   b. Order Date
   c. Is Shipped Bool
   d. CustomerID GUID foreign key
3. Products
   a. ID GUID
   b. Name String
   c. SerialNumber GUID
4. OrderProducts (relationship table)
   a. ID GUID
   b. ProductID GUID foreign key
   c. OrderID GUID foreign key

Add row version to each table to avoid concurrency issue

Business Logic (create and update)

Customer

- Name must be at least 10 chars long and can not be null or empty – CODE 101
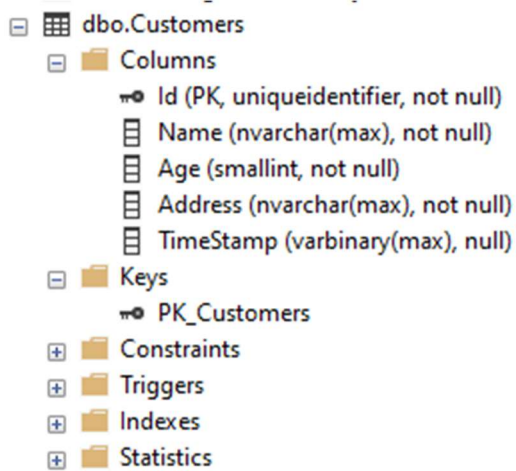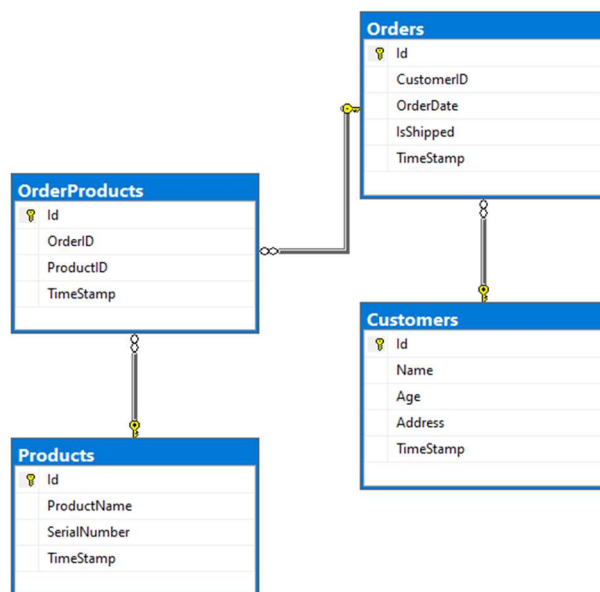- Age must be between 18 and 100 – CODE 102

Order

- Order Date can not be earlier than 01/01/2000 – CODE 201
- Order Date can not be later than 2020/12/31 – CODE 201

Product

- Name must be at least 5 chars long and can not be null or empty – CODE 301

Schema:

Orders
- Id
- CustomerID
- OrderDate
- IsShipped
- TimeStamp

OrderProducts
- Id
- OrderID
- ProductID
- TimeStamp

Customers
- Id
- Name
- Age
- Address
- TimeStamp

Products
- Id
- ProductName
- SerialNumber
- TimeStamp

dbo.Customers
- Columns
  - Id (PK, uniqueidentifier, not null)
  - Name (nvarchar(max), not null)
  - Age (smallint, not null)
  - Address (nvarchar(max), not null)
  - TimeStamp (varbinary(max), null)
- Keys
  - PK_Customers
- Constraints
- Triggers
- Indexes
- Statistics

- ⊟ 🔲 dbo.OrderProducts
  - ⊟ 📁 Columns
    - 🔑 Id (PK, uniqueidentifier, not null)
    - 🔑 OrderID (FK, uniqueidentifier, not null)
    - 🔑 ProductID (FK, uniqueidentifier, not null)
    - 🔲 TimeStamp (varbinary(max), null)
  - ⊟ 📁 Keys
    - 🔑 PK_OrderProducts
    - 🔑 FK_OrderProducts_Orders_OrderID
    - 🔑 FK_OrderProducts_Products_ProductID
  - ⊞ 📁 Constraints
  - ⊞ 📁 Triggers
  - ⊞ 📁 Indexes
  - ⊞ 📁 Statistics

- ⊟ 🔲 dbo.Orders
  - ⊟ 📁 Columns
    - 🔑 Id (PK, uniqueidentifier, not null)
    - 🔑 CustomerID (FK, uniqueidentifier, not null)
    - 🔲 OrderDate (datetime2(7), not null)
    - 🔲 IsShipped (bit, not null)
    - 🔲 TimeStamp (varbinary(max), null)
  - ⊟ 📁 Keys
    - 🔑 PK_Orders
    - 🔑 FK_Orders_Customers_CustomerID
  - ⊞ 📁 Constraints
  - ⊞ 📁 Triggers
  - ⊞ 📁 Indexes
  - ⊞ 📁 Statistics

- ⊟ 🔲 dbo.Products
  - ⊟ 📁 Columns
    - 🔑 Id (PK, uniqueidentifier, not null)
    - 🔲 ProductName (nvarchar(max), not null)
    - 🔲 SerialNumber (uniqueidentifier, not null)
    - 🔲 TimeStamp (varbinary(max), null)
  - ⊟ 📁 Keys
    - 🔑 PK_Products
  - ⊞ 📁 Constraints
  - ⊞ 📁 Triggers
  - ⊞ 📁 Indexes
  - ⊞ 📁 Statistics