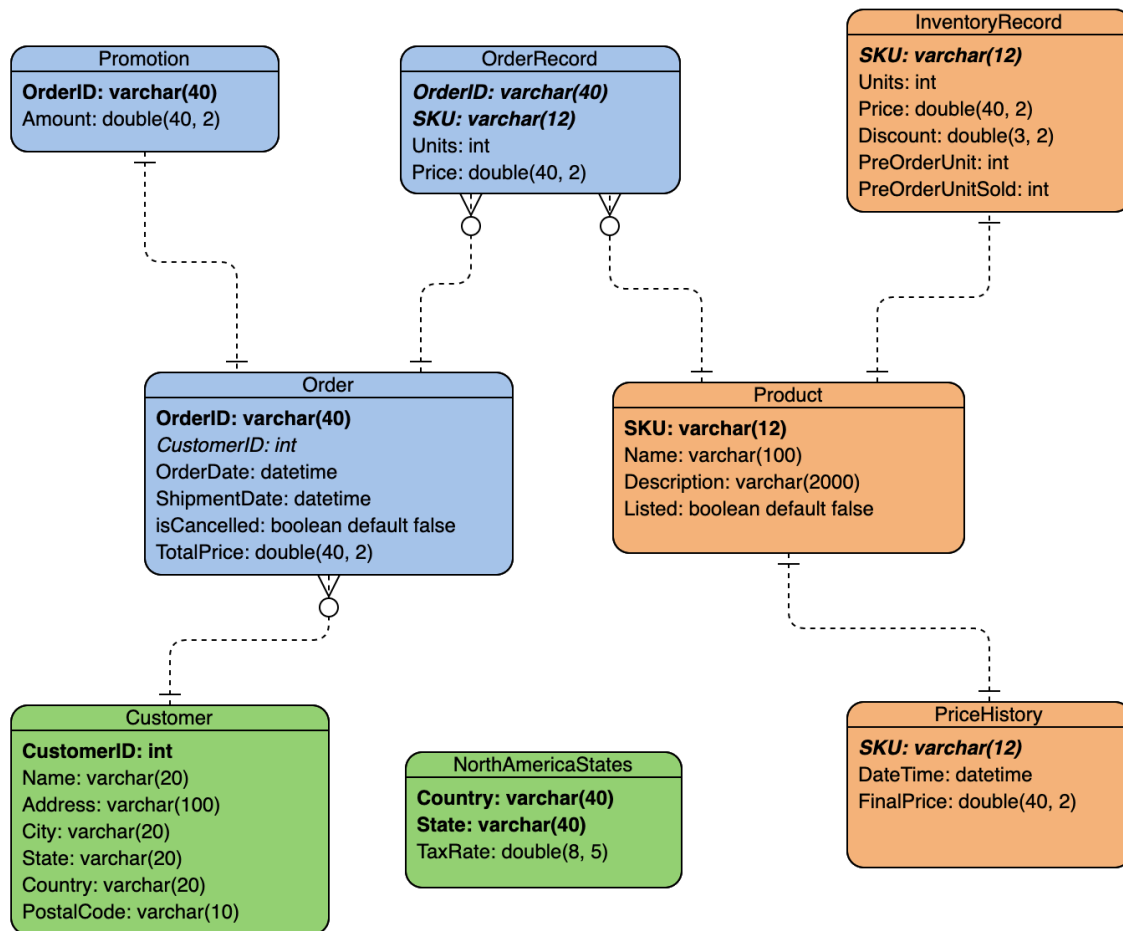


# Project Design

The data model for the project is based on the concept of products that can be purchased, inventories of products available for purchase, customers who purchase products, and orders for products by customers.

## Schema for InOrder System



## Tables and Constraints

### 1. Product

- SKU (Primary Key): A 12-character value of the form AA-NNNNNN-CC that identifies a product, where A is an upper-case letter, N is a digit from 0-9, and C is either a digit or an upper case letter. For example, "AB-123456-0N".
- Name: A string of upto 100 characters that represents the name of the product.
- Description: A string of upto 2000 characters that represents a product description.
- Listed: A boolean represents if the product is listed on website.

Constraints:

- Primary Key: SKU

- SKU needs to follow the specific form
- Attribute values cannot be null, except Description
- Name cannot be empty string
- Default value for Listed is false

## 2. **InventoryRecord**

- Units: An int value that represents the number of units in stock.
- Price: A double value with 2 digits after the decimal place that represents the price per unit before discount
- Discount: A double value between 0 and 1 with 2 digits after the decimal place that represents the discount adding to the price
- PreOrderUnit: An int value that represents the number of pre-order units left.
- PreOrderUnitSold: An int value that represents the number of pre-order units that already sold.
- SKU: A 12-character value that identifies a product

Constraints:

- Primary key: SKU
- Foreign key: Product(SKU)
- All int and double attribute values cannot be less than 0
- Default value for Discount is 1
- Default values for PreOrderUnit and PreOrderUnitSold are 0

## 3. **PriceHistory**

- DateTime: A datetime value that represents the time when the price changes
- FinalPrice: A double value with 2 digits after the decimal place that represents the price after discount
- SKU: A 12-character value that identifies a product

Constraints:

- Primary key: SKU and DateTime
- Foreign key: Product(SKU)
- Attribute values cannot be null
- FinalPrice cannot be less than 0

## 4. **Customer**

- CustomerID: An int value that identifies the customer.
- Name: A string of upto 20 characters that represents the name of the customer.
- Address: A string of upto 100 characters that represents the address of the customer.
- City: A string of upto 20 characters that represents the city.
- State: A string of upto 20 characters that represents the state.
- Country: A string of upto 20 characters that represents the country.
- PostalCode: A string of upto 10 characters that represents the postal code.

Constraints:

- Primary key: CustomerID
- Attribute values cannot be null

- State and Country must be valid in North America

## 5. **Order**

- CustomerID: An int value that identifies the customer.
- OrderID: A string of upto 40 characters that identifies the order.
- OrderDate: A datetime value that represents the time when the customer places order.
- ShipmentDate: A datetime value that represents the time when the order is shipped.
- isCancelled: A boolean that indicates whether the order is cancelled.
- TotalPrice: A double value with 2 digits after the decimal place that represents the total price of the order

Constraints:

- Primary key: OrderID
- Foreign key: Customer(CustomerID)
- Attribute values cannot be null, except ShipmentDate
- OrderID cannot be null
- Default value for isCancelled is false
- TotalPrice cannot be less than 0

## 6. **OrderRecord**

- OrderID: A string of upto 40 characters that identifies the order.
- SKU: A 12-character value that identifies a product
- Units: A int value that represents the number of units of a product bought in an order
- Price: A double value with 2 digits after the decimal place that represents the price per unit after discount for a product

Constraints:

- Primary key: OrderID and SKU
- Foreign key: Order(OrderID), Product(SKU)
- Units and Price cannot be less than 0

## 7. **Promotion**

- OrderID: A string of upto 40 characters that identifies the order.
- Amount: A double value with 2 digits after the decimal place that represents the promotion amount can be deducted from the order total price.

Constraints:

- Primary key: OrderID
- Foreign key: Order(OrderID)
- Amount cannot be less than 0

## 8. **NorthAmericaStates**

- Country: A string of upto 40 characters that represents the country.
- State: A string of upto 40 characters that represents the state.
- TaxRate: A double value with 5 digits after the decimal place that represents the tax rate of the state.

Constraints:

- Primary key: Country and State
- Attribute values cannot be null
- TaxRate is between 0 and 1, default value is 0