



CONESTOGA

Connect Life and Learning

Assignment – 7

Team	4 – Loblaws (alias used - Loblyst)
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Loblyst E-commerce System Database Documentation

A. Database Overview

System Usage Summary:

The Loblyst e-commerce database serves as the main data repository for managing online retail operations, including customer accounts, product listings, orders, payments, and delivery. It operates as a production database with high availability and is managed by the IT team with restricted access to sensitive data.

Objectives:

The database supports all essential functions of the Loblyst platform, including inventory management, order fulfilment, customer support, and data analytics.

Here is an expanded table layout incorporating the additional entities and fields for the Loblyst e-commerce system:

Entity	Attributes
1. Customer	CustomerID (PK), Name, Email, Password, Address, Phone, AccountStatus, LoyaltyPoints, DateJoined, AccountType
2. Product	ProductID (PK), Name, Price, StockStatus, CategoryID (FK), Description, Weight, Dimensions, Brand, SKU, ImageURL
3. Order	OrderID (PK), CustomerID (FK), TotalAmount, OrderStatus, FulfillmentMethod, OrderDate, DiscountCodeID (FK), ShippingAddress, BillingAddress, ShippingMethod
4. Cart	CartID (PK), CustomerID (FK), ProductID (FK), Quantity, TotalPrice
5. Payment	PaymentID (PK), OrderID (FK), PaymentType, PaymentStatus, Amount, TransactionID, PaymentDate, Currency
6. Store	StoreID (PK), Location, StockAvailability
7. Delivery	DeliveryID (PK), DriverID, OrderID (FK), DeliveryStatus, DeliveryAddress, EstimatedTime, VehicleID, DeliveryDate, DriverContact
8. CustomerSupport	SupportID (PK), CustomerID (FK), IssueType, ResolutionStatus, SupportCategory, ResponseTime
9. Promotion	PromotionID (PK), PromotionDetails, StartDate, EndDate
10. Category	CategoryID (PK), Name, ParentCategoryID (self-referencing FK)
11. Wishlist	WishlistID (PK), CustomerID (FK), ProductID (FK), DateAdded
12. Review	ReviewID (PK), ProductID (FK), CustomerID (FK), Rating, Comment, ReviewDate

13. DiscountCode	DiscountCodeID (PK), Code, DiscountAmount, ExpiryDate
14. Product_Promotion	ProductPromotionID (PK), ProductID (FK), PromotionID (FK), StartDate, EndDate, DiscountAmount, Status, CreatedDate, LastUpdate
15. Order_Product	OrderProductID, OrderID, ProductID, Quantity, UnitPrice, TotalPrice
16. Cart_Product	CartProductID, CartID, ProductID, Quantity, TotalPrice

High-level Overview of Individual Entities

Here the individual table attributes and data types are detailed below:

Table: Customer

Field	Data Type	Key
CustomerID	INT	PK
Name	VARCHAR(100)	
Email	VARCHAR(100)	
Password	VARCHAR(100)	
Address	VARCHAR(255)	
Phone	VARCHAR(15)	
AccountStatus	ENUM('Active', 'Inactive')	
LoyaltyPoints	INT	
DateJoined	DATE	
AccountType	ENUM('Regular', 'Premium')	

Table: Product

Field	Data Type	Key
ProductID	INT	PK
Name	VARCHAR(100)	
Price	DECIMAL(10, 2)	
StockStatus	ENUM('In Stock', 'Out of Stock')	
CategoryID	INT	FK
Description	TEXT	
Weight	DECIMAL(5, 2)	
Dimensions	VARCHAR(50)	
Brand	VARCHAR(50)	

SKU	VARCHAR(20)	
ImageURL	VARCHAR(255)	

Table: Category

Field	Data Type	Key
CategoryID	INT	PK
Name	VARCHAR(50)	
ParentCategoryID	INT	FK (self-referencing)

Table: Order

Field	Data Type	Key
OrderID	INT	PK
CustomerID	INT	FK
TotalAmount	DECIMAL(10, 2)	
OrderStatus	ENUM('Pending', 'Shipped', 'Delivered', 'Canceled')	
FulfillmentMethod	ENUM('Pickup', 'Delivery')	
OrderDate	DATE	
DiscountCodeID	INT	FK
ShippingAddress	VARCHAR(255)	
BillingAddress	VARCHAR(255)	
ShippingMethod	VARCHAR(50)	

Table: DiscountCode

Field	Data Type	Key
DiscountCodeID	INT	PK
Code	VARCHAR(20)	
DiscountAmount	DECIMAL(5, 2)	
ExpiryDate	DATE	

Table: Cart

Field	Data Type	Key
CartID	INT	PK
CustomerID	INT	FK
ProductID	INT	FK
Quantity	INT	
TotalPrice	DECIMAL(10, 2)	

Table: Payment

Field	Data Type	Key
PaymentID	INT	PK
OrderID	INT	FK
PaymentType	ENUM('Credit Card', 'Debit Card', 'PayPal', 'Bank Transfer')	
PaymentStatus	ENUM('Completed', 'Pending', 'Failed')	
Amount	DECIMAL(10, 2)	
TransactionID	VARCHAR(50)	
PaymentDate	DATE	
Currency	VARCHAR(3)	

Table: Store

Field	Data Type	Key
StoreID	INT	PK
Location	VARCHAR(100)	
StockAvailability	BOOLEAN	

Table: Delivery

Field	Data Type	Key
DeliveryID	INT	PK
DriverID	INT	FK
OrderID	INT	FK
DeliveryStatus	ENUM('In Transit', 'Delivered', 'Failed')	
DeliveryAddress	VARCHAR(255)	
EstimatedTime	TIME	

VehicleID	INT	
DeliveryDate	DATE	
DriverContact	VARCHAR(15)	

Table: CustomerSupport

Field	Data Type	Key
SupportID	INT	PK
CustomerID	INT	FK
IssueType	ENUM('Billing', 'Technical', 'Account', 'Other')	
ResolutionStatus	ENUM('Open', 'In Progress', 'Resolved', 'Closed')	
SupportCategory	VARCHAR(100)	
ResponseTime	INT	

Table: Promotion

Field	Data Type	Key
PromotionID	INT	PK
PromotionDetails	TEXT	
StartDate	DATE	
EndDate	DATE	

Table: Wishlist

Field	Data Type	Key
WishlistID	INT	PK
CustomerID	INT	FK
ProductID	INT	FK
DateAdded	DATE	

Table: Review

Field	Data Type	Key
ReviewID	INT	PK
ProductID	INT	FK
CustomerID	INT	FK

Rating	INT	
Comment	TEXT	
ReviewDate	DATE	

Table: Product_Promotion

Field	Data Type	Key
ProductPromotionID	INT	PK
ProductID	INT	FK (Product)
PromotionID	INT	FK (Promotion)
StartDate	DATE	
EndDate	DATE	
DiscountAmount	DECIMAL(10, 2)	
Status	VARCHAR(50)	
CreatedDate	DATETIME	
LastUpdate	DATETIME	

Table: Order_Product

Field	Data Type	Key
OrderProductID	INT	PK
OrderID	INT	FK (Order)
ProductID	INT	FK (Product)
Quantity	INT	
UnitPrice	DECIMAL(10, 2)	
TotalPrice	DECIMAL(10, 2)	

Table: Cart_Product

Field	Data Type	Key
CartProductID	INT	PK
CartID	INT	FK (Cart)
ProductID	INT	FK (Product)
Quantity	INT	
TotalPrice	DECIMAL(10, 2)	

Identified Relationships between Entities

- **Customer - Order:** Customer places an Order.
- **Order - Product:** Order contains Products.
- **Order - Store:** Order fulfilled by Store.
- **Cart - Product:** Cart contains Products.
- **Order - Payment:** Order has a Payment.
- **Delivery - Driver:** Delivery assigned to Driver.
- **Customer - CustomerSupport:** Customer contacts Customer Support.
- **Product - Promotion:** Promotion applied to Products.
- **Product - Category:** Each Product belongs to a Category.
- **Customer - Wishlist:** Customers have Wishlists with saved items.
- **Customer - Review:** Customers submit Reviews for Products.
- **Order - DiscountCode:** Discount codes applied to Orders.

Here's a table showing the type of relationship between the main tables in the Loblyst e-commerce ERD:

Table 1	Relationship Type	Table 2	Description
Customer	One-to-Many	Order	A customer can place multiple orders, but each order is placed by a single customer.
Order	Many-to-Many	Product	An order can contain multiple products, and each product can belong to multiple orders. Implemented via a join table (e.g., Order_Product).
Order	Many-to-One	Store	Each order is fulfilled by a single store, but a store can fulfil multiple orders.
Cart	Many-to-Many	Product	A cart can contain multiple products, and each product can appear in multiple carts. Implemented via a join table (e.g., Cart_Product).
Order	One-to-One	Payment	Each order has a single payment, and each payment corresponds to a single order.
Delivery	Many-to-One	Driver	Each delivery is assigned to a single driver, but a driver can handle multiple deliveries.
Customer	One-to-Many	CustomerSupport	A customer can contact support multiple times, but each support request is for a single customer.
Product	Many-to-Many	Promotion	A product can have multiple promotions, and a promotion can apply to multiple products.

			Implemented via a join table (e.g., Product_Promotion).
Product	Many-to-One	Category	Each product belongs to a single category, but a category can include multiple products.
Customer	One-to-Many	Wishlist	Each customer can have multiple items in their wish list, but each wishlist item is for one customer.
Customer	One-to-Many	Review	A customer can submit multiple reviews, but each review is submitted by one customer.
Product	One-to-Many	Review	Each product can have multiple reviews, but each review is associated with a single product.
Order	Many-to-One	DiscountCode	Each order can use a single discount code, but a discount code can apply to multiple orders.

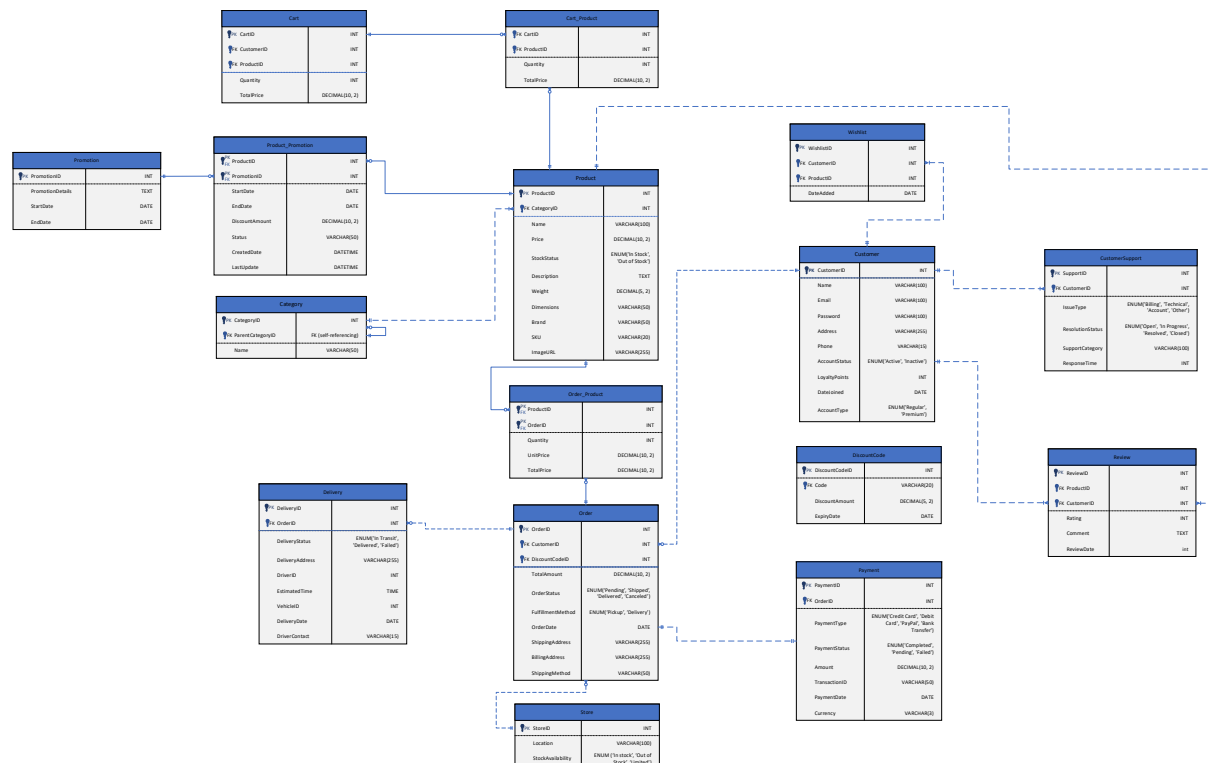
B. Schema Organization

The Schema organisation of the Loblyst platform Database is described below:

1. **User Management Schema** (user_management)
 - **Tables:** Customer, CustomerSupport, Wishlist
2. **Product Management Schema** (product_management)
 - **Tables:** Product, Category, Promotion, Product_Promotion, Review
3. **Order Management Schema** (order_management)
 - **Tables:** Order, Order_Product, Cart, Cart_Product, DiscountCode
4. **Payment and Delivery Schema** (payment_delivery)
 - **Tables:** Payment, Delivery, Store

C. ERD Diagram

The entity relationship diagram for the Loblyst database is shown below using the Microsoft Visio Tool.



The Loblyst E-commerce platform's database is designed to be in the Third Normal Form (3NF), ensuring data is structured to reduce redundancy and improve data integrity. Each table is organized to ensure that non-key attributes are only dependent on primary keys, thereby eliminating transitive dependencies. This structure allows for efficient data retrieval and modification, minimizing anomalies during data updates. As a result, the database is optimized for scalability and consistency, essential for a robust and high-performance e-commerce system.

D. Detailed Database Data Specification: Schema - Wise

Schema: user_management

Table : user_management .Customer

Table: Customer

Field	Data Type	Key
CustomerID	INT	PK
Name	VARCHAR(100)	
Email	VARCHAR(100)	
Password	VARCHAR(100)	
Address	VARCHAR(255)	
Phone	VARCHAR(15)	
AccountStatus	ENUM('Active', 'Inactive')	
LoyaltyPoints	INT	
DateJoined	DATE	
AccountType	ENUM('Regular', 'Premium')	

Field: user_management .Customer.CustomerID

Attribute	Details
Field Name	CustomerID
Type	INT
Length	N/A
Purpose	Unique identifier for each customer
Unit Type	N/A
Range of Possible Values	1 - 99999999
Value Explanation	Sequential ID assigned automatically
Precision and Scale	N/A
State	Non-modifiable, system-generated
Sources	System-generated upon customer registration
Security/Privacy	Primary key, confidential
Constraints	Primary Key, UNIQUE

Field: user_management .Customer.Name

Attribute	Details
Field Name	Name
Type	VARCHAR
Length	255
Purpose	Stores the full name of the customer
Unit Type	N/A
Range of Possible Values	Alphanumeric, max length 255
Value Explanation	User-entered name for account identification
Precision and Scale	N/A
State	Modifiable by customer
Sources	User input during registration
Security/Privacy	General information, user-identifiable
Constraints	NOT NULL

Field: user_management .Customer.Email

Attribute	Details
Field Name	Email
Type	VARCHAR
Length	255
Purpose	Stores customer's email address for contact and login
Unit Type	N/A
Range of Possible Values	Valid email format, max length 255
Value Explanation	Required for login and account recovery
Precision and Scale	N/A
State	Modifiable by customer
Sources	User input during registration
Security/Privacy	Sensitive information, encrypted for privacy
Constraints	UNIQUE, NOT NULL

Field: user_management .Customer.Password

Attribute	Details
Field Name	Password
Type	VARCHAR
Length	255
Purpose	Stores hashed password for account security
Unit Type	N/A
Range of Possible Values	Min length 8 characters, max length 255
Value Explanation	Encrypted format for secure login
Precision and Scale	N/A
State	Modifiable by customer
Sources	User input, encrypted at storage
Security/Privacy	Highly sensitive, encrypted and masked
Constraints	NOT NULL

Field: user_management .Customer.Address

Attribute	Details
Field Name	Address
Type	VARCHAR
Length	500
Purpose	Stores the customer's residential or delivery address
Unit Type	N/A
Range of Possible Values	Alphanumeric, max length 500
Value Explanation	Customer-entered address for delivery purposes
Precision and Scale	N/A
State	Modifiable by customer
Sources	User input during registration or profile update
Security/Privacy	User-identifiable information
Constraints	NULLABLE

Field: user_management .Customer.Phone

Attribute	Details
Field Name	Phone
Type	VARCHAR
Length	15
Purpose	Stores the customer's contact phone number
Unit Type	N/A
Range of Possible Values	Numeric, length 10-15 characters
Value Explanation	Required for customer contact and verification
Precision and Scale	N/A
State	Modifiable by customer
Sources	User input during registration or profile update
Security/Privacy	Sensitive information, partially masked in displays
Constraints	UNIQUE, NULLABLE

Field: user_management .Customer.AccountStatus

Attribute	Details
Field Name	AccountStatus
Type	ENUM (Active, Suspended, Closed)
Length	N/A
Purpose	Indicates the current status of the customer's account
Unit Type	N/A
Range of Possible Values	Defined set (Active, Suspended, Closed)
Value Explanation	Reflects the operational state of the account
Precision and Scale	N/A
State	Modifiable by the system or customer service
Sources	System or customer service update
Security/Privacy	General information
Constraints	NOT NULL, default to Active

Field: user_management .Customer.LoyaltyPoints

Attribute	Details
Field Name	LoyaltyPoints
Type	INT
Length	N/A
Purpose	Tracks points accrued through purchases for rewards
Unit Type	Points
Range of Possible Values	0 - 999999
Value Explanation	Represents rewards balance for customer
Precision and Scale	N/A
State	Modifiable based on customer purchases
Sources	System-calculated after transactions
Security/Privacy	General information
Constraints	DEFAULT 0, NOT NULL

Field: user_management .Customer.DateJoined

Attribute	Details
Field Name	DateJoined
Type	DATE
Length	N/A
Purpose	Records the date the customer registered their account
Unit Type	Date
Range of Possible Values	Valid date format (YYYY-MM-DD)
Value Explanation	Used for customer analytics and account tracking
Precision and Scale	N/A
State	Non-modifiable, system-generated
Sources	System-generated on account creation
Security/Privacy	General information
Constraints	NOT NULL

Field: user_management .Customer.AccountType

Attribute	Details
Field Name	AccountType

Type	ENUM (Standard, Premium, VIP)
Length	N/A
Purpose	Identifies the type of account based on membership level
Unit Type	N/A
Range of Possible Values	Defined set (Standard, Premium, VIP)
Value Explanation	Used to provide tier-based benefits and features
Precision and Scale	N/A
State	Modifiable by system or customer service
Sources	Determined based on subscription level or activity
Security/Privacy	General information
Constraints	NOT NULL, default to Standard

Table: user_management.CustomerSupport

Table: CustomerSupport

Field	Data Type	Key
SupportID	INT	PK
CustomerID	INT	FK
IssueType	ENUM('Billing', 'Technical', 'Account', 'Other')	
ResolutionStatus	ENUM('Open', 'In Progress', 'Resolved', 'Closed')	
SupportCategory	VARCHAR(100)	
ResponseTime	INT	

Field: user_management.CustomerSupport.CustomerID

Attribute	Details
Field Name	CustomerID
Type	INT
Length	N/A
Purpose	Unique identifier for each customer
Unit Type	N/A
Range of Possible Values	1 - 99999999
Value Explanation	Sequential ID assigned automatically
Precision and Scale	N/A
State	Non-modifiable, system-generated

Sources	System-generated upon customer registration
Security/Privacy	Primary key, confidential
Constraints	Primary Key, UNIQUE

Field: user_management.CustomerSupport.Name

Attribute	Details
Field Name	Name
Type	VARCHAR
Length	255
Purpose	Stores the full name of the customer
Unit Type	N/A
Range of Possible Values	Alphanumeric, max length 255
Value Explanation	User-entered name for account identification
Precision and Scale	N/A
State	Modifiable by customer
Sources	User input during registration
Security/Privacy	General information, user-identifiable
Constraints	NOT NULL

Field: user_management.CustomerSupport.Email

Attribute	Details
Field Name	Email
Type	VARCHAR
Length	255
Purpose	Stores customer's email address for contact and login
Unit Type	N/A
Range of Possible Values	Valid email format, max length 255
Value Explanation	Required for login and account recovery
Precision and Scale	N/A
State	Modifiable by customer
Sources	User input during registration
Security/Privacy	Sensitive information, encrypted for privacy
Constraints	UNIQUE, NOT NULL

Field: user_management.CustomerSupport.Password

Attribute	Details
Field Name	Password
Type	VARCHAR
Length	255
Purpose	Stores hashed password for account security
Unit Type	N/A
Range of Possible Values	Min length 8 characters, max length 255
Value Explanation	Encrypted format for secure login
Precision and Scale	N/A
State	Modifiable by customer
Sources	User input, encrypted at storage
Security/Privacy	Highly sensitive, encrypted and masked
Constraints	NOT NULL

Field: user_management.CustomerSupport.Address

Attribute	Details
Field Name	Address
Type	VARCHAR
Length	500
Purpose	Stores the customer's residential or delivery address
Unit Type	N/A
Range of Possible Values	Alphanumeric, max length 500
Value Explanation	Customer-entered address for delivery purposes
Precision and Scale	N/A
State	Modifiable by customer
Sources	User input during registration or profile update
Security/Privacy	User-identifiable information
Constraints	NULLABLE

Field: user_management.CustomerSupport.Phone

Attribute	Details
Field Name	Phone

Type	VARCHAR
Length	15
Purpose	Stores the customer's contact phone number
Unit Type	N/A
Range of Possible Values	Numeric, length 10-15 characters
Value Explanation	Required for customer contact and verification
Precision and Scale	N/A
State	Modifiable by customer
Sources	User input during registration or profile update
Security/Privacy	Sensitive information, partially masked in displays
Constraints	UNIQUE, NULLABLE

Field: user_management.CustomerSupport.AccountStatus

Attribute	Details
Field Name	AccountStatus
Type	ENUM (Active, Suspended, Closed)
Length	N/A
Purpose	Indicates the current status of the customer's account
Unit Type	N/A
Range of Possible Values	Defined set (Active, Suspended, Closed)
Value Explanation	Reflects the operational state of the account
Precision and Scale	N/A
State	Modifiable by the system or customer service
Sources	System or customer service update
Security/Privacy	General information
Constraints	NOT NULL, default to Active

Field: user_management.CustomerSupport.LoyaltyPoints

Attribute	Details
Field Name	LoyaltyPoints
Type	INT
Length	N/A
Purpose	Tracks points accrued through purchases for rewards

Unit Type	Points
Range of Possible Values	0 - 999999
Value Explanation	Represents rewards balance for customer
Precision and Scale	N/A
State	Modifiable based on customer purchases
Sources	System-calculated after transactions
Security/Privacy	General information
Constraints	DEFAULT 0, NOT NULL

Field: user_management.CustomerSupport.DateJoined

Attribute	Details
Field Name	DateJoined
Type	DATE
Length	N/A
Purpose	Records the date the customer registered their account
Unit Type	Date
Range of Possible Values	Valid date format (YYYY-MM-DD)
Value Explanation	Used for customer analytics and account tracking
Precision and Scale	N/A
State	Non-modifiable, system-generated
Sources	System-generated on account creation
Security/Privacy	General information
Constraints	NOT NULL

Field: user_management.CustomerSupport.AccountType

Attribute	Details
Field Name	AccountType
Type	ENUM (Standard, Premium, VIP)
Length	N/A
Purpose	Identifies the type of account based on membership level
Unit Type	N/A
Range of Possible Values	Defined set (Standard, Premium, VIP)
Value Explanation	Used to provide tier-based benefits and features

Precision and Scale	N/A
State	Modifiable by system or customer service
Sources	Determined based on subscription level or activity
Security/Privacy	General information
Constraints	NOT NULL, default to Standard

Field: user_management.CustomerSupport.SupportID

Attribute	Details
Field Name	SupportID
Type	INT
Length	N/A
Purpose	Unique identifier for each support request
Unit Type	N/A
Range of Possible Values	1 - 99999999
Value Explanation	Sequential ID assigned automatically
Precision and Scale	N/A
State	Non-modifiable, system-generated
Sources	System-generated upon creating a new support request
Security/Privacy	Primary key, confidential
Constraints	Primary Key, UNIQUE

Field: user_management.CustomerSupport.CustomerID

Attribute	Details
Field Name	CustomerID
Type	INT (Foreign Key)
Length	N/A
Purpose	References the customer associated with the support request
Unit Type	N/A
Range of Possible Values	Matches the CustomerID in the Customer table
Value Explanation	Links support request to specific customer
Precision and Scale	N/A
State	Non-modifiable, system-managed
Sources	Derived from the associated customer record

Security/Privacy	Sensitive information, user-identifiable
Constraints	Foreign Key referencing Customer.CustomerID, NOT NULL

Field: user_management.CustomerSupport.IssueType

Attribute	Details
Field Name	IssueType
Type	ENUM (Billing, Technical, Account, Other)
Length	N/A
Purpose	Identifies the type of issue reported by the customer
Unit Type	N/A
Range of Possible Values	Defined set (Billing, Technical, Account, Other)
Value Explanation	Helps categorize and prioritize support cases
Precision and Scale	N/A
State	Modifiable by customer service
Sources	User input or customer service classification
Security/Privacy	General information
Constraints	NOT NULL

Field: user_management.CustomerSupport.ResolutionStatus

Attribute	Details
Field Name	ResolutionStatus
Type	ENUM (Open, In Progress, Resolved, Closed)
Length	N/A
Purpose	Tracks the current status of the support request
Unit Type	N/A
Range of Possible Values	Defined set (Open, In Progress, Resolved, Closed)
Value Explanation	Indicates progress and outcome of support case
Precision and Scale	N/A
State	Modifiable by customer service
Sources	Updated by customer service representative
Security/Privacy	General information
Constraints	NOT NULL

Field: user_management.CustomerSupport.SupportCategory

Attribute	Details
Field Name	SupportCategory
Type	VARCHAR
Length	100
Purpose	Provides further categorization of the issue
Unit Type	N/A
Range of Possible Values	Alphanumeric, max length 100
Value Explanation	Sub-category within the main issue type
Precision and Scale	N/A
State	Modifiable by customer service
Sources	Set by customer service representative
Security/Privacy	General information
Constraints	NULLABLE

Field: user_management.CustomerSupport.ResponseTime

Attribute	Details
Field Name	ResponseTime
Type	INT
Length	N/A
Purpose	Stores the time taken (in minutes) to respond to the support request
Unit Type	Minutes
Range of Possible Values	0 - 1440 (24 hours in minutes)
Value Explanation	Tracks efficiency of support team response
Precision and Scale	N/A
State	Modifiable by system
Sources	System-calculated based on request and response times
Security/Privacy	General information
Constraints	NULLABLE

Table: user_management.Wishlist

Table: Wishlist

Field	Data Type	Key
WishlistID	INT	PK
CustomerID	INT	FK
ProductID	INT	FK
DateAdded	DATE	

Field: user_management.Wishlist.WishlistID

Attribute	Details
Field Name	WishlistID
Type	INT
Length	N/A
Purpose	Unique identifier for each wishlist entry
Unit Type	N/A
Range of Possible Values	1 - 99999999
Value Explanation	Sequential ID assigned automatically
Precision and Scale	N/A
State	Non-modifiable, system-generated
Sources	System-generated upon creating a new wishlist entry
Security/Privacy	Primary key, confidential
Constraints	Primary Key, UNIQUE

Field: user_management.Wishlist.CustomerID

Attribute	Details
Field Name	CustomerID
Type	INT (Foreign Key)
Length	N/A
Purpose	References the customer associated with the wishlist item
Unit Type	N/A
Range of Possible Values	Matches CustomerID in the Customer table
Value Explanation	Links wishlist entry to specific customer

Precision and Scale	N/A
State	Non-modifiable, system-managed
Sources	Derived from the associated customer record
Security/Privacy	Sensitive information, user-identifiable
Constraints	Foreign Key referencing Customer.CustomerID, NOT NULL

Field: user_management.Wishlist.ProductID

Attribute	Details
Field Name	ProductID
Type	INT (Foreign Key)
Length	N/A
Purpose	References the product added to the wishlist
Unit Type	N/A
Range of Possible Values	Matches ProductID in the Product table
Value Explanation	Links wishlist entry to specific product
Precision and Scale	N/A
State	Non-modifiable, system-managed
Sources	Derived from the associated product record
Security/Privacy	General information
Constraints	Foreign Key referencing Product.ProductID, NOT NULL

Field: user_management.Wishlist.DateAdded

Attribute	Details
Field Name	DateAdded
Type	DATE
Length	N/A
Purpose	Stores the date the product was added to the wishlist
Unit Type	Date
Range of Possible Values	Valid date values in the format YYYY-MM-DD
Value Explanation	Tracks when the product was added to wishlist
Precision and Scale	N/A
State	Modifiable by customer
Sources	User input

Security/Privacy	General information
Constraints	NOT NULL

Schema: product_management

Table: product_management.Product

Table: Product

Field	Data Type	Key
ProductID	INT	PK
Name	VARCHAR(100)	
Price	DECIMAL(10, 2)	
StockStatus	ENUM('In Stock', 'Out of Stock')	
CategoryID	INT	FK
Description	TEXT	
Weight	DECIMAL(5, 2)	
Dimensions	VARCHAR(50)	
Brand	VARCHAR(50)	
SKU	VARCHAR(20)	
ImageURL	VARCHAR(255)	

Field: ProductID

Attribute	Details
Field Name	ProductID
Type	INT
Length	N/A
Purpose	Unique identifier for each product
Unit Type	N/A
Range of Possible Values	1 - 99999999
Value Explanation	Sequential ID assigned automatically
Precision and Scale	N/A
State	Non-modifiable, system-generated
Sources	System-generated upon product creation
Security/Privacy	Primary key, general

Constraints	Primary Key, UNIQUE
--------------------	----------------------------

Field: Name

Attribute	Details
Field Name	Name
Type	VARCHAR
Length	100
Purpose	Stores the name of the product
Unit Type	N/A
Range of Possible Values	N/A
Value Explanation	Descriptive name provided by the user
Precision and Scale	N/A
State	Modifiable by product admin
Sources	User input
Security/Privacy	General
Constraints	NOT NULL, unique within certain product categories

Field: Price

Attribute	Details
Field Name	Price
Type	DECIMAL
Length	10,2
Purpose	Stores the price of the product
Unit Type	Currency
Range of Possible Values	0.00 - 99999999.99
Value Explanation	Specifies cost per unit
Precision and Scale	Precision 10, Scale 2
State	Modifiable by product admin
Sources	User input
Security/Privacy	General
Constraints	NOT NULL

Field: StockStatus

Attribute	Details
Field Name	StockStatus
Type	ENUM
Length	N/A
Purpose	Indicates stock availability
Unit Type	N/A
Range of Possible Values	'In Stock', 'Out of Stock'
Value Explanation	Defined list indicates product stock level
Precision and Scale	N/A
State	Modifiable based on inventory
Sources	Inventory management system
Security/Privacy	General
Constraints	NOT NULL

Field: CategoryID

Attribute	Details
Field Name	CategoryID
Type	INT (Foreign Key)
Length	N/A
Purpose	References the category the product belongs to
Unit Type	N/A
Range of Possible Values	Matches CategoryID in Category table
Value Explanation	Links product to a specific category
Precision and Scale	N/A
State	Modifiable by product admin
Sources	Product management system
Security/Privacy	General
Constraints	Foreign Key referencing Category.CategoryID, NOT NULL

Field: Description

Attribute	Details
Field Name	Description
Type	TEXT
Length	N/A
Purpose	Detailed description of the product
Unit Type	N/A
Range of Possible Values	N/A
Value Explanation	Contains product features and specifications
Precision and Scale	N/A
State	Modifiable by product admin
Sources	User input
Security/Privacy	General
Constraints	None

Field: Weight

Attribute	Details
Field Name	Weight
Type	DECIMAL
Length	5,2
Purpose	Stores the weight of the product
Unit Type	Kilograms (kg) or pounds (lb)
Range of Possible Values	0.00 - 999.99
Value Explanation	Specifies physical weight of the product
Precision and Scale	Precision 5, Scale 2
State	Modifiable by product admin
Sources	User input
Security/Privacy	General
Constraints	NULL allowed if weight is unknown

Field: Dimensions

Attribute	Details
Field Name	Dimensions
Type	VARCHAR
Length	50
Purpose	Stores the dimensions of the product
Unit Type	Centimeters (cm) or inches (in)
Range of Possible Values	N/A
Value Explanation	Format: Length x Width x Height
Precision and Scale	N/A
State	Modifiable by product admin
Sources	User input
Security/Privacy	General
Constraints	NULL allowed if dimensions are unknown

Field: Brand

Attribute	Details
Field Name	Brand
Type	VARCHAR
Length	50
Purpose	Stores the brand name of the product
Unit Type	N/A
Range of Possible Values	N/A
Value Explanation	Brand name of product manufacturer
Precision and Scale	N/A
State	Modifiable by product admin
Sources	User input
Security/Privacy	General
Constraints	NULL allowed if brand is unknown

Field: SKU

Attribute	Details
Field Name	SKU (Stock Keeping Unit)
Type	VARCHAR
Length	20
Purpose	Unique identifier for inventory management
Unit Type	N/A
Range of Possible Values	N/A
Value Explanation	Inventory code assigned to product
Precision and Scale	N/A
State	Modifiable by inventory manager
Sources	Inventory management system
Security/Privacy	General
Constraints	UNIQUE, NOT NULL

Field: ImageURL

Attribute	Details
Field Name	ImageURL
Type	VARCHAR
Length	255
Purpose	Stores the URL of the product's image
Unit Type	N/A
Range of Possible Values	N/A
Value Explanation	URL linking to product image hosted online
Precision and Scale	N/A
State	Modifiable by product admin
Sources	User input or image hosting system
Security/Privacy	General
Constraints	NULL allowed if image not available

Table: product_management.Category

Table: Category

Field	Data Type	Key
CategoryID	INT	PK
Name	VARCHAR(50)	
ParentCategoryID	INT	FK (self-referencing)

Field: product_management.Category.CategoryID

Attribute	Details
Field Name	CategoryID
Type	INT
Length	N/A
Purpose	Unique identifier for each category
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	Sequential or randomly assigned integer values
Precision and Scale	N/A
State	Not modifiable after creation
Sources	System-generated
Security/Privacy	General
Constraints	Primary Key, must be unique and non-null

Field: product_management.Category.Name

Attribute	Details
Field Name	Name
Type	VARCHAR

Length	100
Purpose	Stores the name of the category
Unit Type	N/A
Range of Possible Values	Any alphanumeric text within 100 characters
Value Explanation	Descriptive name for the category
Precision and Scale	N/A
State	Modifiable by admin
Sources	User input
Security/Privacy	General
Constraints	Non-null, must be unique

Field: product_management.Category.ParentCategoryID

Attribute	Details
Field Name	ParentCategoryID
Type	INT
Length	N/A
Purpose	Refers to the CategoryID of the parent category
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	CategoryID of the parent category; null if no parent
Precision and Scale	N/A
State	Modifiable by admin
Sources	User input or system assignment
Security/Privacy	General
Constraints	Foreign Key referencing CategoryID, nullable if no parent

Table: product_management.Product_Promotion

Table: Product_Promotion

Field	Data Type	Key
ProductPromotionID	INT	PK
ProductID	INT	FK (Product)
PromotionID	INT	FK (Promotion)
StartDate	DATE	
EndDate	DATE	
DiscountAmount	DECIMAL(10, 2)	
Status	VARCHAR(50)	
CreatedDate	DATETIME	
LastUpdate	DATETIME	

Field: product_management.Product_Promotion.ProductPromotionID

Attribute	Details
Field Name	ProductPromotionID
Type	INT
Length	N/A
Purpose	Unique identifier for each product-promotion relationship
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	System-generated ID for the unique entry
Precision and Scale	N/A
State	Not modifiable after creation
Sources	System-generated

Security/Privacy	General
Constraints	Primary Key, must be unique and non-null

Field: product_management.Product_Promotion.ProductID

Attribute	Details
Field Name	ProductID
Type	INT
Length	N/A
Purpose	Identifies the product in the promotion
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	Foreign key to Product table
Precision and Scale	N/A
State	Not modifiable after creation
Sources	User input
Security/Privacy	General
Constraints	Foreign Key referencing Product table, non-null

Field: product_management.Product_Promotion.PromotionID

Attribute	Details
Field Name	PromotionID
Type	INT
Length	N/A
Purpose	Identifies the promotion applied to the product
Unit Type	N/A

Range of Possible Values	Positive integers
Value Explanation	Foreign key to Promotion table
Precision and Scale	N/A
State	Not modifiable after creation
Sources	User input
Security/Privacy	General
Constraints	Foreign Key referencing Promotion table, non-null

Field: product_management.Product_Promotion.StartDate

Attribute	Details
Field Name	StartDate
Type	DATE
Length	N/A
Purpose	Start date of the promotion for this product
Unit Type	Date
Range of Possible Values	Any valid date within system constraints
Value Explanation	Overrides general promotion start date if specified
Precision and Scale	N/A
State	Modifiable
Sources	User input
Security/Privacy	General
Constraints	Nullable, default to general promotion start date

Field: product_management.Product_Promotion.EndDate

Attribute	Details
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Field Name	EndDate
Type	DATE
Length	N/A
Purpose	End date of the promotion for this product
Unit Type	Date
Range of Possible Values	Any valid date within system constraints
Value Explanation	Overrides general promotion end date if specified
Precision and Scale	N/A
State	Modifiable
Sources	User input
Security/Privacy	General
Constraints	Nullable, default to general promotion end date

Field: product_management.Product_Promotion.DiscountAmount

Attribute	Details
Field Name	DiscountAmount
Type	DECIMAL
Length	N/A
Purpose	Specifies the discount for the product under this promotion
Unit Type	Percentage or fixed amount
Range of Possible Values	Positive numbers, typically within 0-100 for percentage or specified monetary unit
Value Explanation	Represents discount applied only to this product
Precision and Scale	Precision 5, Scale 2
State	Modifiable
Sources	User input

Security/Privacy	General
Constraints	Nullable, default to 0 if no product-specific discount

Field: product_management.Product_Promotion.Status

Attribute	Details
Field Name	Status
Type	ENUM (Active, Inactive)
Length	N/A
Purpose	Indicates if the promotion for this product is active
Unit Type	N/A
Range of Possible Values	"Active", "Inactive"
Value Explanation	Specifies if promotion is currently valid for product
Precision and Scale	N/A
State	Modifiable
Sources	User input
Security/Privacy	General
Constraints	Default to "Active"

Field: product_management.Product_Promotion.CreatedDate

Attribute	Details
Field Name	CreatedDate
Type	DATETIME
Length	N/A
Purpose	Tracks the date and time when this relationship was created
Unit Type	Date and time
Range of Possible Values	Any valid datetime within system constraints
Value Explanation	Automatically set upon creation
Precision and Scale	N/A

State	Not modifiable
Sources	System-generated
Security/Privacy	General
Constraints	Non-null, default to current timestamp

Field: product_management.Product_Promotion.LastUpdated

Attribute	Details
Field Name	LastUpdated
Type	DATETIME
Length	N/A
Purpose	Tracks the last date and time when this relationship was updated
Unit Type	Date and time
Range of Possible Values	Any valid datetime within system constraints
Value Explanation	Automatically updated upon modification
Precision and Scale	N/A
State	Modifiable
Sources	System-generated
Security/Privacy	General
Constraints	Non-null, default to current timestamp

Table: product_management.Review

Table: Review

Field	Data Type	Key
ReviewID	INT	PK
ProductID	INT	FK
CustomerID	INT	FK
Rating	INT	

Comment	TEXT	
ReviewDate	DATE	

Field: product_management.Review.ReviewID

Attribute	Details
Field Name	ReviewID
Type	INT
Length	N/A
Purpose	Unique identifier for each review
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	System-generated unique ID for each review
Precision and Scale	N/A
State	Not modifiable after creation
Sources	System-generated
Security/Privacy	General
Constraints	Primary Key, must be unique and non-null

Field: product_management.Review.ProductID

Attribute	Details
Field Name	ProductID
Type	INT
Length	N/A
Purpose	Identifies the product being reviewed
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	Foreign key to Product table
Precision and Scale	N/A
State	Not modifiable after creation
Sources	User input
Security/Privacy	General
Constraints	Foreign Key referencing Product table, non-null

Field: product_management.Review.CustomerID (FK)

Attribute	Details
Field Name	CustomerID
Type	INT
Length	N/A
Purpose	Identifies the customer submitting the review
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	Foreign key to Customer table
Precision and Scale	N/A
State	Not modifiable after creation
Sources	User input
Security/Privacy	General
Constraints	Foreign Key referencing Customer table, non-null

Field: product_management.Review.Rating

Attribute	Details
Field Name	Rating
Type	INT
Length	N/A
Purpose	Numeric rating given by the customer
Unit Type	N/A
Range of Possible Values	Typically, 1 to 5
Value Explanation	Scale for product quality or satisfaction
Precision and Scale	N/A
State	Modifiable
Sources	User input
Security/Privacy	General
Constraints	Non-null, check constraint for values within 1–5 range

Field: product_management.Review.Comment

Attribute	Details
Field Name	Comment
Type	TEXT
Length	Variable (up to 2000 characters)
Purpose	Customer's detailed feedback on the product
Unit Type	N/A
Range of Possible Values	Free text
Value Explanation	Allows customer to provide detailed feedback
Precision and Scale	N/A
State	Modifiable
Sources	User input
Security/Privacy	General, review content may be moderated
Constraints	Nullable, limited to 2000 characters

Field: product_management.Review.ReviewDate

Attribute	Details
Field Name	ReviewDate
Type	DATETIME
Length	N/A
Purpose	Date and time the review was submitted
Unit Type	Date and time
Range of Possible Values	Any valid datetime within system constraints
Value Explanation	Tracks when the review was submitted
Precision and Scale	N/A
State	Not modifiable
Sources	System-generated
Security/Privacy	General
Constraints	Non-null, default to current timestamp

Schema: order_management

Table: order_management.Order

Table: Order

Field	Data Type	Key
OrderID	INT	PK
CustomerID	INT	FK
TotalAmount	DECIMAL(10, 2)	
OrderStatus	ENUM('Pending', 'Shipped', 'Delivered', 'Canceled')	
FulfillmentMethod	ENUM('Pickup', 'Delivery')	
OrderDate	DATE	

Field: order_management.Order.OrderID

Attribute	Details
Field Name	OrderID
Type	INT
Length	N/A
Purpose	Unique identifier for each order
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	System-generated unique ID for each order
Precision and Scale	N/A
State	Not modifiable after creation
Sources	System-generated
Security/Privacy	General
Constraints	Primary Key, must be unique and non-null

Field: order_management.Order.CustomerID

Attribute	Details
Field Name	CustomerID
Type	INT

Length	N/A
Purpose	Identifies the customer who placed the order
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	Foreign key to Customer table
Precision and Scale	N/A
State	Not modifiable after creation
Sources	User input
Security/Privacy	General
Constraints	Foreign Key referencing Customer table, non-null

Field: order_management.Order.TotalAmount

Attribute	Details
Field Name	TotalAmount
Type	DECIMAL
Length	N/A
Purpose	Total cost of the order after applying discounts
Unit Type	Currency
Range of Possible Values	Positive decimal values
Value Explanation	Sum of all item prices in the order minus discounts
Precision and Scale	Precision 10, Scale 2
State	Calculated by system
Sources	Calculated
Security/Privacy	General
Constraints	Non-null, must be positive

Field: order_management.Order.OrderStatus

Attribute	Details
Field Name	OrderStatus
Type	ENUM (Pending, Shipped, Delivered, Cancelled, Returned)
Length	N/A
Purpose	Status of the order within the fulfillment process
Unit Type	N/A

Range of Possible Values	"Pending", "Shipped", "Delivered", "Cancelled", "Returned"
Value Explanation	Reflects the current status of the order
Precision and Scale	N/A
State	Modifiable
Sources	System-generated/user-updated
Security/Privacy	General
Constraints	Non-null, default to "Pending"

Field: order_management.Order.FulfillmentMethod

Attribute	Details
Field Name	FulfillmentMethod
Type	ENUM (Home Delivery, In-Store Pickup)
Length	N/A
Purpose	Specifies how the order will be fulfilled
Unit Type	N/A
Range of Possible Values	"Home Delivery", "In-Store Pickup"
Value Explanation	Indicates if the order will be shipped or picked up
Precision and Scale	N/A
State	Modifiable
Sources	User input
Security/Privacy	General
Constraints	Non-null, defaults to "Home Delivery"

Field: order_management.Order.OrderDate

Attribute	Details
Field Name	OrderDate
Type	DATETIME
Length	N/A
Purpose	Date and time when the order was placed
Unit Type	Date and time
Range of Possible Values	Any valid datetime within system constraints
Value Explanation	Tracks when the order was created
Precision and Scale	N/A

State	Not modifiable
Sources	System-generated
Security/Privacy	General
Constraints	Non-null, defaults to current timestamp

Field: order_management.Order.DiscountCodeID (FK)

Attribute	Details
Field Name	DiscountCodeID
Type	INT
Length	N/A
Purpose	Identifies the discount code applied to the order
Unit Type	N/A
Range of Possible Values	Positive integers or null
Value Explanation	Foreign key to DiscountCode table
Precision and Scale	N/A
State	Modifiable
Sources	User input
Security/Privacy	General
Constraints	Foreign Key referencing DiscountCode table, nullable

Field: order_management.Order.ShippingAddress

Attribute	Details
Field Name	ShippingAddress
Type	VARCHAR
Length	255
Purpose	Address where the order will be shipped
Unit Type	N/A
Range of Possible Values	Valid address format
Value Explanation	Contains customer's shipping address
Precision and Scale	N/A
State	Modifiable
Sources	User input
Security/Privacy	Private

Constraints	Non-null for home delivery orders
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Field: order_management.Order.BillingAddress

Attribute	Details
Field Name	BillingAddress
Type	VARCHAR
Length	255
Purpose	Address used for billing the order
Unit Type	N/A
Range of Possible Values	Valid address format
Value Explanation	Contains customer's billing address
Precision and Scale	N/A
State	Modifiable
Sources	User input
Security/Privacy	Private
Constraints	Non-null

Field: order_management.Order.ShippingMethod

Attribute	Details
Field Name	ShippingMethod
Type	ENUM (Standard, Express, Overnight)
Length	N/A
Purpose	Specifies the shipping method chosen for the order
Unit Type	N/A
Range of Possible Values	"Standard", "Express", "Overnight"
Value Explanation	Indicates the speed of shipping chosen by the customer
Precision and Scale	N/A
State	Modifiable
Sources	User input
Security/Privacy	General
Constraints	Non-null, defaults to "Standard"

Table: order_management.Order_Product

Table: Order_Product

Field	Data Type	Key
OrderProductID	INT	PK
OrderID	INT	FK (Order)
ProductID	INT	FK (Product)
Quantity	INT	
UnitPrice	DECIMAL(10, 2)	
TotalPrice	DECIMAL(10, 2)	

Field: order_management.Order_Product.OrderProductID

Attribute	Details
Field Name	OrderProductID
Type	INT
Length	N/A
Purpose	Unique identifier for each record in the table
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	System-generated unique ID for each line item
Precision and Scale	N/A
State	Not modifiable after creation
Sources	System-generated
Security/Privacy	General
Constraints	Primary Key, must be unique and non-null

Field: order_management.Order_Product.OrderID

Attribute	Details
Field Name	OrderID
Type	INT
Length	N/A
Purpose	Identifies which order this line item belongs to
Unit Type	N/A

Range of Possible Values	Positive integers
Value Explanation	Foreign key referencing the Order table
Precision and Scale	N/A
State	Not modifiable after creation
Sources	System-generated/user input
Security/Privacy	General
Constraints	Foreign Key referencing Order table, non-null

Field: order_management.Order_Product.ProductID

Attribute	Details
Field Name	ProductID
Type	INT
Length	N/A
Purpose	Identifies the product included in this order line
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	Foreign key referencing the Product table
Precision and Scale	N/A
State	Not modifiable after creation
Sources	System-generated/user input
Security/Privacy	General
Constraints	Foreign Key referencing Product table, non-null

Field: order_management.Order_Product.Quantity

Attribute	Details
Field Name	Quantity
Type	INT
Length	N/A
Purpose	Specifies the quantity of the product ordered
Unit Type	Units
Range of Possible Values	Positive integers
Value Explanation	Represents the number of units of the product ordered
Precision and Scale	N/A

State	Modifiable
Sources	User input
Security/Privacy	General
Constraints	Non-null, must be positive

Field: order_management.Order_Product.UnitPrice

Attribute	Details
Field Name	UnitPrice
Type	DECIMAL
Length	N/A
Purpose	Records the price per unit of the product at order time
Unit Type	Currency
Range of Possible Values	Positive decimal values
Value Explanation	Price per unit at the time of order, stored for historical tracking
Precision and Scale	Precision 10, Scale 2
State	Not modifiable after creation
Sources	System-calculated or user input
Security/Privacy	General
Constraints	Non-null, must be positive

Field: order_management.Order_Product.TotalPrice

Attribute	Details
Field Name	TotalPrice
Type	DECIMAL
Length	N/A
Purpose	Total cost for the line item (Quantity * UnitPrice)
Unit Type	Currency
Range of Possible Values	Positive decimal values
Value Explanation	Calculated value for quantity times unit price
Precision and Scale	Precision 10, Scale 2
State	Not modifiable after creation
Sources	System-calculated
Security/Privacy	General

Constraints	Non-null, must be positive
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Table: order_management.Cart

Table: Cart

Field	Data Type	Key
CartID	INT	PK
CustomerID	INT	FK
ProductID	INT	FK
Quantity	INT	
TotalPrice	DECIMAL(10, 2)	

Field: order_management.Cart.CartID

Attribute	Details
Field Name	CartID
Type	INT
Length	N/A
Purpose	Unique identifier for each cart entry
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	System-generated unique ID for each cart entry
Precision and Scale	N/A
State	Not modifiable after creation
Sources	System-generated
Security/Privacy	General
Constraints	Primary Key, must be unique and non-null

Field: order_management.Cart.CustomerID

Attribute	Details
Field Name	CustomerID
Type	INT
Length	N/A
Purpose	Identifies the customer associated with the cart item

Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	Foreign key linking to the Customer table
Precision and Scale	N/A
State	Not modifiable after creation
Sources	System-generated/user input
Security/Privacy	General
Constraints	Foreign Key referencing Customer table, non-null

Field: order_management.Cart.ProductID

Attribute	Details
Field Name	ProductID
Type	INT
Length	N/A
Purpose	Identifies the product added to the cart
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	Foreign key linking to the Product table
Precision and Scale	N/A
State	Not modifiable after creation
Sources	User input
Security/Privacy	General
Constraints	Foreign Key referencing Product table, non-null

Field: order_management.Cart.Quantity

Attribute	Details
Field Name	Quantity
Type	INT
Length	N/A
Purpose	Specifies the number of units of the product in the cart
Unit Type	Units
Range of Possible Values	Positive integers
Value Explanation	Indicates the quantity of each product in the cart

Precision and Scale	N/A
State	Modifiable
Sources	User input
Security/Privacy	General
Constraints	Non-null, must be positive

Field: order_management.Cart.TotalPrice

Attribute	Details
Field Name	TotalPrice
Type	DECIMAL
Length	N/A
Purpose	Total price for the product line in the cart (Quantity * UnitPrice)
Unit Type	Currency
Range of Possible Values	Positive decimal values
Value Explanation	Calculated as quantity multiplied by the unit price of the product
Precision and Scale	Precision 10, Scale 2
State	Calculated by system
Sources	System-calculated
Security/Privacy	General
Constraints	Non-null, must be positive

Table: order_management.Cart_Product

Table: Cart_Product

Field	Data Type	Key
CartProductID	INT	PK
CartID	INT	FK (Cart)
ProductID	INT	FK (Product)
Quantity	INT	
TotalPrice	DECIMAL(10, 2)	

Field: order_management.Cart_Product.CartProductID

Attribute	Details
Field Name	CartProductID
Type	INT
Length	N/A
Purpose	Unique identifier for each record in the table
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	System-generated unique ID for each record in the cart-product relationship
Precision and Scale	N/A
State	Not modifiable after creation
Sources	System-generated
Security/Privacy	General
Constraints	Primary Key, must be unique and non-null

Field: order_management.Cart_Product.CartID

Attribute	Details
Field Name	CartID
Type	INT
Length	N/A
Purpose	Identifies the cart associated with the product
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	Foreign key linking to the Cart table
Precision and Scale	N/A
State	Not modifiable after creation
Sources	System-generated/user input
Security/Privacy	General
Constraints	Foreign Key referencing the Cart table, non-null

Field: order_management.Cart_Product.ProductID

Attribute	Details
Field Name	ProductID
Type	INT
Length	N/A
Purpose	Identifies the product in the cart
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	Foreign key linking to the Product table
Precision and Scale	N/A
State	Not modifiable after creation
Sources	System-generated/user input
Security/Privacy	General
Constraints	Foreign Key referencing the Product table, non-null

Field: order_management.Cart_Product.Quantity

Attribute	Details
Field Name	Quantity
Type	INT
Length	N/A
Purpose	Specifies the quantity of the product in the cart
Unit Type	Units
Range of Possible Values	Positive integers
Value Explanation	Indicates how many units of a product are in the cart
Precision and Scale	N/A
State	Modifiable
Sources	User input
Security/Privacy	General
Constraints	Non-null, must be positive

Field: order_management.Cart_Product.TotalPrice

Attribute	Details
Field Name	TotalPrice
Type	DECIMAL
Length	N/A
Purpose	Total cost for the product line in the cart (Quantity * UnitPrice)
Unit Type	Currency
Range of Possible Values	Positive decimal values
Value Explanation	Calculated as quantity multiplied by unit price
Precision and Scale	Precision 10, Scale 2
State	Calculated by system
Sources	System-calculated
Security/Privacy	General
Constraints	Non-null, must be positive

Table: order_management.DiscountCode

Table: DiscountCode

Field	Data Type	Key
DiscountCodeID	INT	PK
Code	VARCHAR(20)	
DiscountAmount	DECIMAL(5, 2)	
ExpiryDate	DATE	

Field: order_management.DiscountCode.DiscountCodeID

Attribute	Details
Field Name	DiscountCodeID
Type	INT
Length	N/A
Purpose	Unique identifier for each discount code
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	System-generated unique ID for each discount code

Precision and Scale	N/A
State	Not modifiable after creation
Sources	System-generated
Security/Privacy	General
Constraints	Primary Key, must be unique and non-null

Field: order_management.DiscountCode.Code

Attribute	Details
Field Name	Code
Type	VARCHAR
Length	50
Purpose	The actual discount code that users can apply
Unit Type	N/A
Range of Possible Values	Alphanumeric values, usually uppercase or mixed case
Value Explanation	Code given to customers to receive a discount
Precision and Scale	N/A
State	Modifiable
Sources	Admin input
Security/Privacy	General
Constraints	Unique, non-null

Field: order_management.DiscountCode.DiscountAmount

Attribute	Details
Field Name	DiscountAmount
Type	DECIMAL
Length	N/A
Purpose	The amount or percentage of the discount applied
Unit Type	Currency or Percentage
Range of Possible Values	Positive decimal values, can be either fixed amount or percentage
Value Explanation	Discount value applied when code is used (either as a fixed amount or percentage off)
Precision and Scale	Precision 10, Scale 2

State	Modifiable
Sources	Admin input
Security/Privacy	General
Constraints	Non-null, must be a positive value

Field: order_management.DiscountCode.ExpiryDate

Attribute	Details
Field Name	ExpiryDate
Type	DATETIME
Length	N/A
Purpose	The date and time when the discount code expires
Unit Type	Date/Time
Range of Possible Values	Any valid future date and time
Value Explanation	The date after which the discount code can no longer be used
Precision and Scale	N/A
State	Modifiable
Sources	Admin input
Security/Privacy	General
Constraints	Must be a valid future date

Schema: payment_delivery

Table: payment_delivery.Payment

Table: Payment

Field	Data Type	Key
PaymentID	INT	PK
OrderID	INT	FK
PaymentType	ENUM('Credit Card', 'Debit Card', 'PayPal', 'Bank Transfer')	
PaymentStatus	ENUM('Completed', 'Pending', 'Failed')	
Amount	DECIMAL(10, 2)	
TransactionID	VARCHAR(50)	
PaymentDate	DATE	
Currency	VARCHAR(3)	

Field: payment_delivery.Payment.PaymentID

Attribute	Details
Field Name	PaymentID
Type	INT
Length	N/A
Purpose	Unique identifier for each payment record
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	System-generated unique ID for each payment transaction
Precision and Scale	N/A
State	Not modifiable after creation
Sources	System-generated
Security/Privacy	General
Constraints	Primary Key, must be unique and non-null

Field: payment_delivery.Payment.OrderID

Attribute	Details
Field Name	OrderID
Type	INT
Length	N/A
Purpose	Identifies the order for which the payment was made
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	Foreign key linking to the Order table
Precision and Scale	N/A
State	Not modifiable after creation
Sources	System-generated
Security/Privacy	General
Constraints	Foreign Key referencing Order table, non-null

Field: payment_delivery.Payment.PaymentType

Attribute	Details
Field Name	PaymentType
Type	VARCHAR
Length	50
Purpose	Specifies the method of payment (e.g., Credit Card, PayPal, etc.)
Unit Type	N/A
Range of Possible Values	Alphanumeric values (e.g., "Credit Card", "PayPal", "Bank Transfer")
Value Explanation	Describes the method by which the customer paid for the order
Precision and Scale	N/A
State	Modifiable
Sources	User input
Security/Privacy	Sensitive, ensure encryption for payment methods
Constraints	Non-null, limited to predefined options

Field: payment_delivery.Payment.PaymentStatus

Attribute	Details
Field Name	PaymentStatus
Type	VARCHAR
Length	50
Purpose	Indicates the status of the payment (e.g., Completed, Pending, Failed)
Unit Type	N/A
Range of Possible Values	Alphanumeric values (e.g., "Completed", "Pending", "Failed")
Value Explanation	Describes the current status of the payment
Precision and Scale	N/A
State	Modifiable
Sources	System-generated or User input
Security/Privacy	General
Constraints	Non-null, limited to predefined options

Field: payment_delivery.Payment.Amount

Attribute	Details
Field Name	Amount
Type	DECIMAL
Length	N/A
Purpose	The total amount of money paid for the order
Unit Type	Currency
Range of Possible Values	Positive decimal values
Value Explanation	Total payment amount for the order, including taxes and fees
Precision and Scale	Precision 10, Scale 2
State	Modifiable
Sources	User input/system-calculated
Security/Privacy	Sensitive, ensure encryption for financial data
Constraints	Non-null, must be positive

Field: payment_delivery.Payment.TransactionID

Attribute	Details
Field Name	TransactionID
Type	VARCHAR
Length	100
Purpose	Unique identifier for the payment transaction
Unit Type	N/A
Range of Possible Values	Alphanumeric values
Value Explanation	Transaction reference number provided by the payment gateway
Precision and Scale	N/A
State	Not modifiable after creation
Sources	Payment gateway system
Security/Privacy	Sensitive, ensure encryption
Constraints	Non-null, must be unique

Field: payment_delivery.Payment.PaymentDate

Attribute	Details
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Field Name	PaymentDate
Type	DATETIME
Length	N/A
Purpose	The date and time when the payment was processed
Unit Type	Date/Time
Range of Possible Values	Any valid date and time
Value Explanation	The exact timestamp when the payment transaction was completed
Precision and Scale	N/A
State	Not modifiable after creation
Sources	Payment gateway system
Security/Privacy	General
Constraints	Non-null, must be a valid date

Field: payment_delivery.Payment.Currency

Attribute	Details
Field Name	Currency
Type	VARCHAR
Length	3
Purpose	Specifies the currency used for the payment (e.g., USD, EUR)
Unit Type	N/A
Range of Possible Values	Currency codes (e.g., "USD", "EUR", "INR")
Value Explanation	Denotes the currency in which the payment was made
Precision and Scale	N/A
State	Modifiable
Sources	User input
Security/Privacy	General
Constraints	Non-null, valid Currency code

Table: payment_delivery. Delivery

Table: Delivery

Field	Data Type	Key
DeliveryID	INT	PK

DriverID	INT	FK
OrderID	INT	FK
DeliveryStatus	ENUM('In Transit', 'Delivered', 'Failed')	
DeliveryAddress	VARCHAR(255)	
EstimatedTime	TIME	
VehicleID	INT	
DeliveryDate	DATE	
DriverContact	VARCHAR(15)	

Field: payment_delivery. Delivery.DeliveryID

Attribute	Details
Field Name	DeliveryID
Type	INT
Length	N/A
Purpose	Unique identifier for each delivery record
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	System-generated unique ID for each delivery entry
Precision and Scale	N/A
State	Not modifiable after creation
Sources	System-generated
Security/Privacy	General
Constraints	Primary Key, must be unique and non-null

Field: payment_delivery. Delivery.DriverID

Attribute	Details
Field Name	DriverID
Type	INT
Length	N/A
Purpose	Identifies the driver assigned to the delivery
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	Foreign key linking to the Driver table (if applicable)

Precision and Scale	N/A
State	Not modifiable after creation
Sources	System-generated/user input
Security/Privacy	Sensitive (Driver information)
Constraints	Foreign Key referencing the Driver table (if applicable), non-null

Field: payment_delivery. Delivery.OrderID

Attribute	Details
Field Name	OrderID
Type	INT
Length	N/A
Purpose	Identifies the order associated with the delivery
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	Foreign key linking to the Order table
Precision and Scale	N/A
State	Not modifiable after creation
Sources	System-generated
Security/Privacy	General
Constraints	Foreign Key referencing Order table, non-null

Field: payment_delivery. Delivery.DeliveryStatus

Attribute	Details
Field Name	DeliveryStatus
Type	ENUM
Length	50
Purpose	Describes the current status of the delivery (e.g., Pending, In Transit, Delivered, etc.)
Unit Type	N/A
Range of Possible Values	Alphanumeric values (e.g., "Pending", "In Transit", "Delivered")
Value Explanation	Indicates where the delivery currently stands
Precision and Scale	N/A
State	Modifiable

Sources	System-generated/user input
Security/Privacy	General
Constraints	Non-null, limited to predefined options

Field: payment_delivery. Delivery.DeliveryAddress

Attribute	Details
Field Name	DeliveryAddress
Type	VARCHAR
Length	255
Purpose	The address where the order is to be delivered
Unit Type	Address
Range of Possible Values	Any valid address format
Value Explanation	Full delivery address for the destination
Precision and Scale	N/A
State	Modifiable
Sources	User input
Security/Privacy	Sensitive (ensure encryption if needed)
Constraints	Non-null, must be a valid address format

Field: payment_delivery. Delivery.EstimatedTime

Attribute	Details
Field Name	EstimatedTime
Type	DATETIME
Length	N/A
Purpose	The estimated time of delivery completion
Unit Type	Date/Time
Range of Possible Values	Any valid date and time in the future
Value Explanation	Expected time for the delivery to reach the destination
Precision and Scale	N/A
State	Modifiable
Sources	System-calculated based on route and expected conditions
Security/Privacy	General
Constraints	Non-null, must be a future date and time

Field: payment_delivery. Delivery.VehicleID

Attribute	Details
Field Name	VehicleID
Type	INT
Length	N/A
Purpose	Identifies the vehicle assigned to the delivery
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	Foreign key linking to the Vehicle table (if applicable)
Precision and Scale	N/A
State	Not modifiable after creation
Sources	System-generated/user input
Security/Privacy	General
Constraints	Foreign Key referencing the Vehicle table (if applicable), non-null

Field: payment_delivery. Delivery.DeliveryDate

Attribute	Details
Field Name	DeliveryDate
Type	DATETIME
Length	N/A
Purpose	The actual date and time the delivery occurred
Unit Type	Date/Time
Range of Possible Values	Any valid date and time
Value Explanation	The timestamp when the delivery was completed
Precision and Scale	N/A
State	Modifiable
Sources	System-generated
Security/Privacy	General
Constraints	Non-null, must be a valid date

Field: payment_delivery.Delivery.DriverContact

Attribute	Details
Field Name	DriverContact
Type	VARCHAR
Length	50
Purpose	The contact information for the driver
Unit Type	Phone number/email
Range of Possible Values	Valid phone number or email address format
Value Explanation	Used to contact the driver during delivery
Precision and Scale	N/A
State	Modifiable
Sources	User input
Security/Privacy	Sensitive (ensure encryption for phone/email)
Constraints	Non-null, must follow valid format

Table: payment_delivery.Store

Table: Store

Field	Data Type	Key
StoreID	INT	PK
Location	VARCHAR(100)	
StockAvailability	BOOLEAN	

Field: payment_delivery.Store.StoreID

Attribute	Details
Field Name	StoreID
Type	INT
Length	N/A
Purpose	Unique identifier for each store
Unit Type	N/A
Range of Possible Values	Positive integers
Value Explanation	System-generated unique ID for each store entry
Precision and Scale	N/A
State	Not modifiable after creation

Sources	System-generated
Security/Privacy	General
Constraints	Primary Key, must be unique and non-null

Field: payment_delivery.Store.Location

Attribute	Details
Field Name	Location
Type	VARCHAR
Length	255
Purpose	Describes the physical location of the store
Unit Type	Address
Range of Possible Values	Any valid address or location name
Value Explanation	Full location or address where the store is situated
Precision and Scale	N/A
State	Modifiable
Sources	User input
Security/Privacy	General
Constraints	Non-null, must be a valid address format

Field: payment_delivery.Store.StockAvailability

Attribute	Details
Field Name	StockAvailability
Type	ENUM
Length	50
Purpose	Indicates the availability of stock in the store
Unit Type	N/A
Range of Possible Values	Alphanumeric values (e.g., "In Stock", "Out of Stock", "Limited")
Value Explanation	Describes whether the store has available stock, or if it is limited or out of stock
Precision and Scale	N/A
State	Modifiable
Sources	System-generated or User input
Security/Privacy	General
Constraints	Non-null, limited to predefined options

References

Conestoga College. (n.d.). Database Management Systems. Week 6: Entity Relationship Model.
<https://conestoga.desire2learn.com/>