Technical Report No.1 - Project Database Foundations

Daniel Alonso Chavarro Chipatecua   20241020066
Santiago Zamudio Diaz   20231020128

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This report presents the design from the ground up of the database of the application called Mercado Libre. This app is a trading platform where users can buy and sell products ranging from technology and clothing to vehicles and property. Products can be new or used and are offered by both private sellers and businesses.

1 Business Model

The application, being a trading platform, the main objective is to facilitate electronic commerce so that it is accessible for anyone to buy and sell products, and as a consequence of the above, it allows small and medium-sized companies to expand and improve their visibility.

2 Processes and Information Required

In order to build the application we require more information apart from the business model, such as user stories and from there we can extract functionalities to turn them into entities and finally make the entity relationship model.

2.1 User Stories

The first phase to be able to design the database is to know the necessities of the user. For this, first an interview was conducted with people asking what they would like to see in a Commerce applications, where they mentioned their point of view based on personal experiences with similar applications. These interviews were transformed into user stories where all the interviews are summarized, these user stories are in the format

As a (role), I want (action), so what (impact)

- **As a new user**, I want to create an account, so that I can start buying or selling products on the platform.

- **As a buyer**, I want to search for products using filters like price, category, and location, so that I can find the items that best match my needs.

- **As a seller**, I want to publish new products with descriptions, prices, and images, so that potential buyers can easily find and purchase them.

- **As a buyer**, I want to add items to my shopping cart, so that I can review and purchase multiple products at once.

- **As a buyer**, I want to see the total cost of the products in my cart, so that I can make purchasing decisions based on my budget.

- **As a buyer**, I want to pay using my preferred payment method (credit card, debit), so that I can complete my purchase securely and conveniently.

- **As a seller**, I want to offer free or discounted shipping options, so that I can attract more buyers to my products.

- **As a seller**, I want to create my own online store through Mercado Shops, so that I can showcase my brand and products more effectively.

2.2 Functionalities

Based on the user stories presented above, the application functionalities are generated, these functionalities are:

- **Advanced product search**: Filter by categories, price, location, condition (new or used), sellers, among others.

- **Shopping cart**: Possibility of adding multiple products and paying for them in a single transaction.

- **Shipping nationwide**: Through delivery provider, buyers can receive products at home or at pick-up points.

- **Purchase history**: View all purchases made on the platform.

- **Favorites**: Add products to a favorites list to review them later.

- **Product ratings**: Rate products and sellers.

- **Purchase guarantee**: Buyer protection that ensures the refund or exchange of defective products or products that do not match the description.

- **Product posting**: Easy creation and management of posts with options for categories, photos, videos, and detailed descriptions.

- **Shops**: Possibility of creating customized online stores.

- **Discounts and promotions**: Possibility of offering specific discounts or promotions on products.

3   Database design process

3.1   Define components

The components are the application modules; in this case they are:

- Transactions

- Client Service

- Products to Buy

- Delivery Service

- Sale of products

3.2   Define entities

With the components defined, we can identify main entities found from the components:

- User

- Account Status User

- Delivery

- Delivery Provider

- Status Delivery

- Product

- Product Status

- Shopping Car

- Status Car

- Transaction

- Payment Method

- Transaction Status

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- Receipt

- Favorites List

- Seller

- Store

- Client Report

- Report Category

- Status Report

3.3 Define Atributes

Now that we have the main entities we can define their attributes

1. User

    - ID_User (PK)
    - Name
    - Last_Name
    - Username
    - Email
    - Address
    - Phone
    - Date_Registered
    - Password
    - Date_Birth
    - ID_Account_Status_User (FK)

2. Delivery

    - ID_Delivery (PK)
    - ID_User (FK)
    - ID_Product (FK)
    - Mailing Address
    - Date_Created
    - Date_Estimated_Arrive
    - ID_Status_Delivery (FK)
    - ID_Provider_Delivery (FK)

- Delivery_Cost

3. Delivery Provider

    - ID_Provider_Delivery (PK)
    - Name
    - Description

4. Status Delivery

    - ID_Status_Delivery (PK)
    - Name
    - Description

5. Product

    - ID_Product (PK)
    - ID_Seller
    - Name
    - Description
    - Price
    - Quantity_Stock
    - Category
    - ID_Product_Status (FK)
    - Date_Published
    - Brand
    - Rating

6. Product Status

    - ID_Product_Status (PK)
    - Name
    - Description

7. Shopping Car

    - ID_Shopping_Car (PK)
    - ID_User (FK)
    - Date_Created
    - ID_Status_Cart (FK)

8. Status Car

- ID_Status_Shopping_Car (PK)
- Name
- Description

9. Transaction

   - ID_Transaction (PK)
   - ID_User (FK)
   - ID_Product (FK)
   - ID_Payment_Method (FK)
   - Amount
   - Date_Bought
   - ID_Transaction_Status (FK)

10. Payment Method

    - ID_Payment_Method (PK)
    - Type
    - Provider
    - Card_Number
    - Due_Date
    - Owner

11. Transaction Status

    - ID_Transaction_Status (PK)
    - Name
    - Description

12. Receipt

    - ID_Receipt (PK)
    - ID_Transaction (FK)
    - ID_User (FK)
    - Date_Created
    - Details
    - Amount_Paid
    - Taxes

13. Favorites List

- ID_Favorites_List (PK)
- ID_User (FK)
- Name
- Date_Created

14. Seller

    - ID_Seller (PK)
    - First_Name
    - Last_Name
    - Email
    - Address
    - Phone
    - Date_Registered
    - Password
    - Date_Birth
    - ID_Account_Status (FK)
    - Rating
    - Number_Sales

15. Store

    - ID_Store (PK)
    - ID_Seller (FK)
    - Name
    - Date_Created
    - Number_Products
    - Rating

16. Client Report

    - ID_Report (PK)
    - ID_User (FK)
    - ID_Delivery (FK)
    - ID_Category_Report (FK)
    - Description
    - Date_Report
    - ID_Status_Report (FK)

17. Category Report

   - ID_Category_Report (PK)
   - Name
   - Description

18. Status Report

   - ID_Status_Report (PK)
   - Name
   - Description

3.4 Relationship Table

Now I set the relationship of every entity

|	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1		✓	✓		✓		✓		✓			✓	✓	✓		✓		
2	✓		✓	✓	✓							✓		✓		✓		
3	✓	✓																
4	✓	✓																
5	✓	✓				✓	✓		✓			✓	✓	✓	✓	✓		
6					✓													
7	✓				✓			✓	✓					✓				
8							✓											
9	✓				✓		✓			✓	✓	✓						
10									✓			✓						
11									✓									
12	✓	✓			✓				✓	✓				✓				
13	✓				✓									✓				
14	✓	✓			✓		✓					✓	✓		✓	✓		
15						✓							✓			✓		
16	✓				✓								✓	✓			✓	✓
17																✓		
18																✓		

3.5 Define Relationship Types

Now I have all the relationships then assign the type of it.

- **User** – *Receipt* (One – Many)

- **User** – *Favorites List* (One – Many)

<div align="center">8</div>

- **User** – *Seller* (Many – Many)
- **User** – *Client Report* (One – Many)
- **Delivery** – *Delivery Provider* (One – Many)
- **Delivery** – *Status Delivery* (Many – One)
- **Delivery** – *Product* (Many – Many)
- **Delivery** – *Receipt* (One – Many)
- **Delivery** – *Seller* (Many – One)
- **Product** – *Product Status* (Many – One)
- **Product** – *Shopping Car* (Many – One)
- **Product** – *Transaction* (Many – One)
- **Product** – *Receipt* (Many – One)
- **Product** – *Favorites List* (Many – One)
- **Product** – *Seller* (Many – One)
- **Product** – *Store* (Many – One)
- **Product** – *Client Report* (One – Many)
- **Shopping Car** – *Status Car* (Many – One)
- **Shopping Car** – *Seller* (One – Many)
- **Transaction** – *Payment Method* (Many – One)
- **Transaction** – *Transaction Status* (Many – One)
- **Transaction** – *Receipt* (One – One)
- **Payment Method** – *Receipt* (One – Many)
- **Receipt** – *Seller* (Many – One)
- **Favorites List** – *Seller* (Many – Many)
- **Seller** – *Store* (One – Many)
- **Seller** – *Client Report* (One – Many)
- **Store** – *Client Report* (One – Many)
- **Client Report** – *Report Category* (Many – One)
- **Client Report** – *Status Report* (Many – One)

3.6 First Model Design
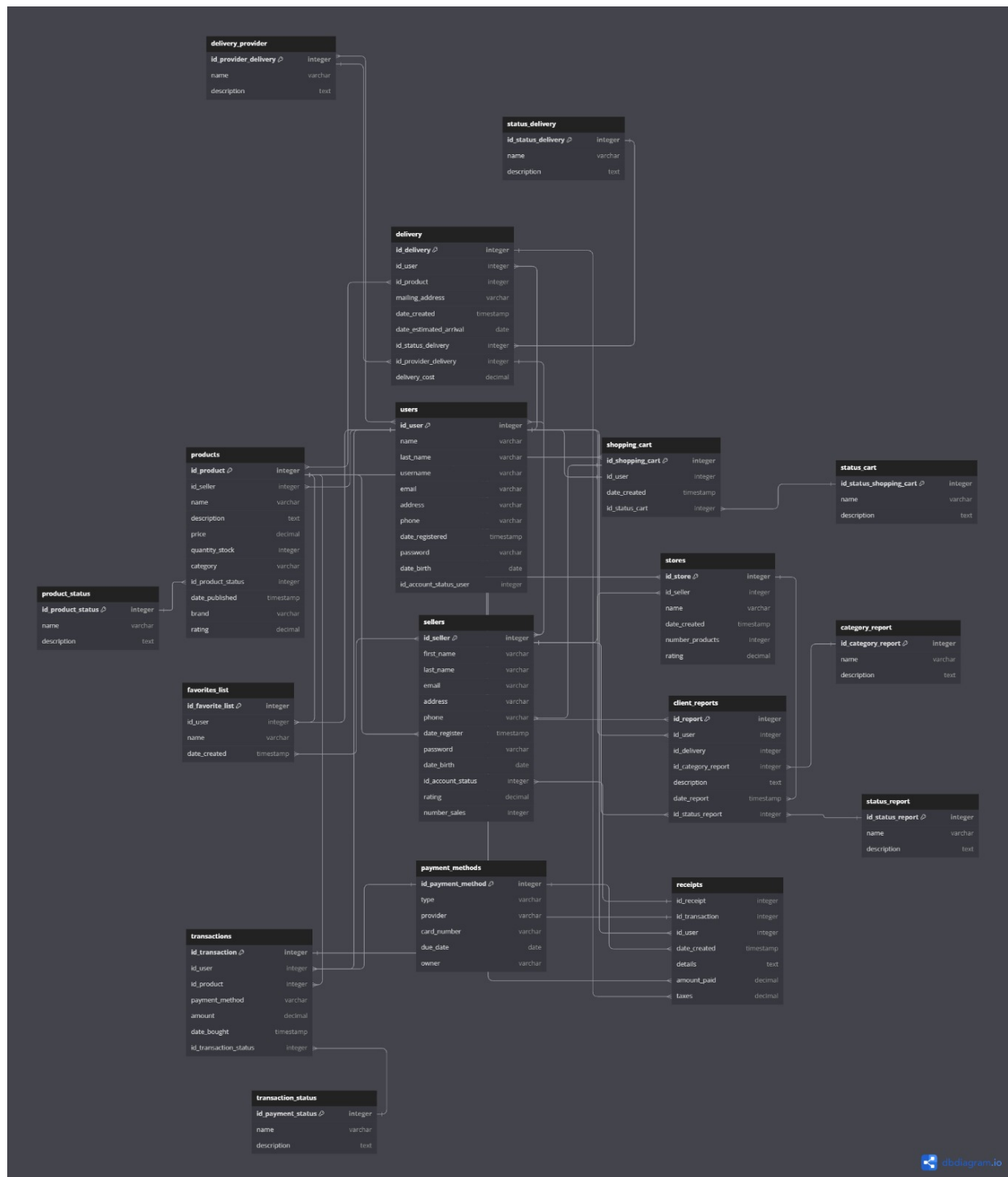
3.7 Many-Many consideration

- **User** – *Delivery Provider* (Many – Many)

- **User** – *Seller* (Many – Many)

- **Delivery** – *Product* (Many – Many)

- **Favorites List** – *Seller* (Many – Many)

New Entities

- **User/Delivery Provider**

- **User/Seller**

- **Delivery/Product**

- **Favorites List/Seller**

New Relationships

- **User** – *User/Delivery Provider* (One – Many)

- **Delivery Provider** – *User/Delivery Provider* (One – Many)

- **User** – *User/Seller* (One – Many)

- **Seller** – *User/Seller* (One – Many)

- **Delivery** – *Delivery/Product* (One – Many)

- **Product** – *Delivery/Product* (One – Many)

- **Favorites List** – *Favorites List/Seller* (One – Many)

- **Seller** – *Favorites List/Seller* (One – Many)

3.8   Final Design
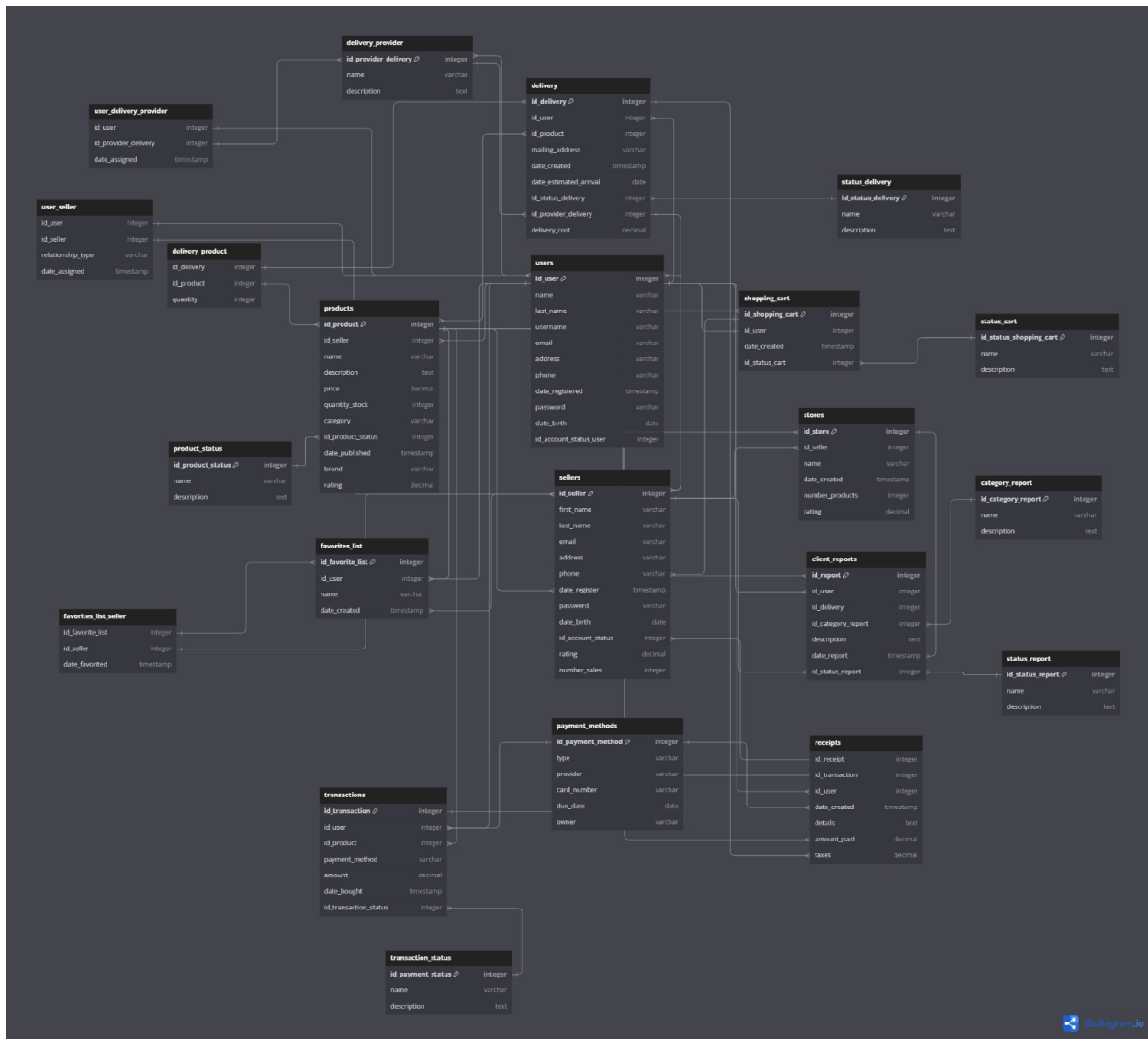
3.9   Get Data-Structured

User

- **ID_User**: int (Unique identifier for the user, PK)

- **Name**: varchar (User's first name)

- **Last_Name**: varchar (User's last name)

- **Username**: varchar (Unique username)

- **Email**: varchar (Email address)

- **Address**: varchar (Mailing address)

- **Phone**: varchar (Phone number)

- **Date_Registered**: timestamp (Date the user registered)

- **Password**: varchar (User's password)

- **Date_Birth**: date (User's date of birth)

- **ID_Account_Status_User**: int (FK to Account Status)

Delivery

- **ID_Delivery**: int (Unique identifier for the delivery, PK)

- **ID_User**: int (FK to User)

- **ID_Product**: int (FK to Product)

- **Mailing_Address**: varchar (Delivery mailing address)

- **Date_Created**: timestamp (Date the delivery was created)

- **Date_Estimated_Arrive**: date (Estimated delivery arrival date)

- **ID_Status_Delivery**: int (FK to Status Delivery)

- **ID_Provider_Delivery**: int (FK to Delivery Provider)

- **Delivery_Cost**: decimal (Cost of the delivery)

Delivery Provider

- **ID_Provider_Delivery**: int (Unique identifier for the delivery provider, PK)

- **Name**: varchar (Provider name)

- **Description**: text (Description of the provider)

Status Delivery

- **ID_Status_Delivery**: int (Unique identifier for the status delivery, PK)

- **Name**: varchar (Status name)

- **Description**: text (Description of the delivery status)

Product

- **ID_Product**: int (Unique identifier for the product, PK)

- **ID_Seller**: int (FK to Seller)

- **Name**: varchar (Product name)

- **Description**: text (Description of the product)

- **Price**: decimal (Product price)

- **Quantity_Stock**: int (Quantity of product in stock)

- **Category**: varchar (Product category)

- **ID_Product_Status**: int (FK to Product Status)

- **Date_Published**: timestamp (Date the product was published)

- **Brand**: varchar (Brand of the product)

- **Rating**: decimal (Average rating of the product)

Product Status

- **ID_Product_Status**: int (Unique identifier for the product status, PK)

- **Name**: varchar (Status name)

- **Description**: text (Description of the product status)

Shopping Cart

- **ID_Shopping_Cart**: int (Unique identifier for the shopping cart, PK)

- **ID_User**: int (FK to User)

- **Date_Created**: timestamp (Date the shopping cart was created)

- **ID_Status_Cart**: int (FK to Status Cart)

Status Cart

- **ID_Status_Shopping_Cart**: int (Unique identifier for the shopping cart status, PK)

- **Name**: varchar (Status name)

- **Description**: text (Description of the cart status)

Transaction

- **ID_Transaction**: int (Unique identifier for the transaction, PK)

- **ID_User**: int (FK to User)

- **ID_Product**: int (FK to Product)

- **Payment_Method**: varchar (Payment method used, e.g., "Card", "PayPal")

- **Amount**: decimal (Transaction amount)

- **Date_Bought**: timestamp (Date the transaction was made)

- **ID_Transaction_Status**: int (FK to Transaction Status)

Payment Method

- **ID_Payment_Method**: int (Unique identifier for the payment method, PK)

- **Type**: varchar (Payment type, e.g., "Credit Card")

- **Provider**: varchar (Payment provider, e.g., "Visa")

- **Card_Number**: varchar (Card number)

- **Due_Date**: date (Card expiration date)

- **Owner**: varchar (Cardholder's name)

Transaction Status

- **ID_Payment_Status**: int (Unique identifier for the payment status, PK)

- **Name**: varchar (Status name)

- **Description**: text (Description of the status)

Receipt

- **ID_Receipt**: int (Unique identifier for the receipt, PK)

- **ID_Transaction**: int (FK to Transaction)

- **ID_User**: int (FK to User)

- **Date_Created**: timestamp (Date the receipt was created)

- **Details**: text (Receipt details)

- **Amount_Paid**: decimal (Amount paid)

- **Taxes**: decimal (Taxes applied to the receipt)

Favorites List

- **ID_Favorite_List**: int (Unique identifier for the favorites list, PK)

- **ID_User**: int (FK to User)

- **Name**: varchar (Name of the favorites list)

- **Date_Created**: timestamp (Date the list was created)

Seller

- **ID_Seller**: int (Unique identifier for the seller, PK)

- **First_Name**: varchar (Seller's first name)

- **Last_Name**: varchar (Seller's last name)

- **Email**: varchar (Seller's email)

- **Address**: varchar (Seller's address)

- **Phone**: varchar (Seller's phone number)

- **Date_Register**: timestamp (Date the seller registered)

- **Password**: varchar (Seller's password)

- **Date_Birth**: date (Seller's date of birth)

- **ID_Account_Status**: int (FK to Account Status)

- **Rating**: decimal (Seller rating)

- **Number_Sales**: int (Number of sales made by the seller)

Store

- **ID_Store**: int (Unique identifier for the store, PK)

- **ID_Seller**: int (FK to Seller)

- **Name**: varchar (Store name)

- **Date_Created**: timestamp (Date the store was created)

- **Number_Products**: int (Number of products in the store)

- **Rating**: decimal (Store rating)

Client Report

- **ID_Report**: int (Unique identifier for the client report, PK)

- **ID_User**: int (FK to User)

- **ID_Delivery**: int (FK to Delivery)

- **ID_Category_Report**: int (FK to Report Category)

- **Description**: text (Description of the report)

- **Date_Report**: timestamp (Date the report was created)

- **ID_Status_Report**: int (FK to Status Report)

Category Report

- **ID_Category_Report**: int (Unique identifier for the report category, PK)

- **Name**: varchar (Category name)

- **Description**: text (Description of the category)

Status Report

- **ID_Status_Report**: int (Unique identifier for the report status, PK)

- **Name**: varchar (Status name)

- **Description**: text (Description of the status)

User/Delivery Provider

- **ID_User**: int (Unique identifier for the user, FK to User)

- **ID_Provider_Delivery**: int (Unique identifier for the delivery provider, FK to Delivery Provider)

- **Date_Assigned**: timestamp (Optional, tracks when the user was assigned to the delivery provider)

User/Seller

- **ID_User**: int (Unique identifier for the user, FK to User)

- **ID_Seller**: int (Unique identifier for the seller, FK to Seller)

- **Relationship_Type**: varchar (Optional, describes the user-seller relationship)

- **Date_Assigned**: timestamp (Optional, tracks when the user was connected to the seller)

Delivery/Product

- **ID_Delivery**: int (Unique identifier for the delivery, FK to Delivery)

- **ID_Product**: int (Unique identifier for the product, FK to Product)

- **Quantity**: int (Optional, tracks the quantity of the product in the delivery)

Favorites List/Seller

- **ID_Favorite_List**: int (Unique identifier for the favorites list, FK to Favorites List)

- **ID_Seller**: int (Unique identifier for the seller, FK to Seller)

- **Date_Favorited**: timestamp (Optional, tracks when the seller was added to the favorites list)

3.10 Constraints and Properties

User

- **ID_User**: `int`

  - Constraints: `PRIMARY KEY`, `NOT NULL`, `AUTO_INCREMENT`
  - Properties: Must be unique, automatically generated.

- **Name**: `string`

  - Constraints: `NOT NULL`, `VARCHAR(100)`
  - Properties: Must contain only alphabetic characters and spaces, minimum length of 2 characters.

- **Last_Name**: `string`

  - Constraints: `NOT NULL`, `VARCHAR(100)`
  - Properties: Must contain only alphabetic characters and spaces, minimum length of 2 characters.

- **Username**: `string`

  - Constraints: `NOT NULL`, `UNIQUE`, `VARCHAR(50)`
  - Properties: Must be unique, minimum length of 3 characters, can contain alphanumeric characters and underscores.

- **Email**: `string`

  - Constraints: `NOT NULL`, `UNIQUE`, `VARCHAR(100)`
  - Properties: Must follow valid email format (e.g., name@domain.com).

- **Address**: `string`

  - Constraints: `NOT NULL, VARCHAR(200)`
  - Properties: Must be a valid address.

- **Phone**: `string`

  - Constraints: `NOT NULL, VARCHAR(15)`
  - Properties: Must be a valid phone number, can contain digits, dashes, or spaces (regex check).

- **Date_Registered**: `timestamp`

  - Constraints: `NOT NULL`
  - Properties: Automatically set when the user is registered.

- **Password**: `string`

  - Constraints: `NOT NULL, VARCHAR(100)`
  - Properties: Must be securely hashed, minimum length of 8 characters.

- **Date_Birth**: `date`

  - Constraints: `NOT NULL`
  - Properties: Must be a valid date, user must be over 18 years old.

- **ID_Account_Status_User**: `int`

  - Constraints: `FOREIGN KEY, NOT NULL`
  - Properties: References the Account Status of the user.

Delivery

- **ID_Delivery**: `int`

  - Constraints: `PRIMARY KEY, NOT NULL, AUTO_INCREMENT`
  - Properties: Must be unique, automatically generated.

- **ID_User**: `int`

  - Constraints: `FOREIGN KEY, NOT NULL`
  - Properties: References the associated user.

- **ID_Product**: `int`

  - Constraints: `FOREIGN KEY, NOT NULL`
  - Properties: References the associated product.

- **Mailing_Address**: `string`

  - Constraints: `NOT NULL`, `VARCHAR(200)`
  - Properties: Must be a valid address.

- **Date_Created**: `timestamp`

  - Constraints: `NOT NULL`
  - Properties: Automatically set when the delivery is created.

- **Date_Estimated_Arrive**: `date`

  - Constraints: `NOT NULL`
  - Properties: Must be a valid date in the future.

- **ID_Status_Delivery**: `int`

  - Constraints: `FOREIGN KEY`, `NOT NULL`
  - Properties: References the delivery status.

- **ID_Provider_Delivery**: `int`

  - Constraints: `FOREIGN KEY`, `NOT NULL`
  - Properties: References the delivery provider.

- **Delivery_Cost**: `decimal(10, 2)`

  - Constraints: `NOT NULL`
  - Properties: Must be a positive value.

Delivery Provider

- **ID_Provider_Delivery**: `int`

  - Constraints: `PRIMARY KEY`, `NOT NULL`, `AUTO_INCREMENT`
  - Properties: Must be unique, automatically generated.

- **Name**: `string`

  - Constraints: `NOT NULL`, `VARCHAR(100)`
  - Properties: Must contain only alphabetic characters and spaces, minimum length of 2 characters.

- **Description**: `text`

  - Constraints: `NULL`
  - Properties: Optional description of the provider.

Status Delivery

- **ID_Status_Delivery**: int
    - Constraints: `PRIMARY KEY`, `NOT NULL`, `AUTO_INCREMENT`
    - Properties: Must be unique, automatically generated.

- **Name**: string
    - Constraints: `NOT NULL`, `VARCHAR(50)`
    - Properties: Must contain only alphabetic characters and spaces.

- **Description**: text
    - Constraints: `NULL`
    - Properties: Optional description of the status.

Product

- **ID_Product:** int
    - Constraints: PRIMARY KEY, NOT NULL, AUTO_INCREMENT
    - Properties: Must be unique, automatically generated.

- **ID_Seller:** int
    - Constraints: FOREIGN KEY, NOT NULL
    - Properties: References the seller of the product.

- **Name:** string
    - Constraints: NOT NULL, VARCHAR(100)
    - Properties: Must contain only alphabetic characters and spaces, minimum length of 2 characters.

- **Description:** text
    - Constraints: NOT NULL
    - Properties: Detailed product description.

- **Price:** decimal(10, 2)
    - Constraints: NOT NULL
    - Properties: Must be a positive value.

- **Quantity_Stock:** int
    - Constraints: NOT NULL

- Properties: Must be a non-negative integer.

- **Category:** string

  - Constraints: NOT NULL, VARCHAR(50)
  - Properties: Product category, minimum length of 2 characters.

- **ID_Product_Status:** int

  - Constraints: FOREIGN KEY, NOT NULL
  - Properties: References the product status.

- **Date_Published:** timestamp

  - Constraints: NOT NULL
  - Properties: Automatically set when the product is published.

- **Brand:** string

  - Constraints: NOT NULL, VARCHAR(50)
  - Properties: Product brand name.

- **Rating:** decimal(2, 1)

  - Constraints: NOT NULL
  - Properties: Must be between 0.0 and 5.0.

Product Status

- **ID_Product_Status:** int

  - Constraints: PRIMARY KEY, NOT NULL, AUTO_INCREMENT
  - Properties: Must be unique, automatically generated.

- **Name:** string

  - Constraints: NOT NULL, VARCHAR(50)
  - Properties: Must contain only alphabetic characters and spaces.

- **Description:** text

  - Constraints: NULL
  - Properties: Optional description of the status.

Shopping Cart

- **ID_Shopping_Cart:** int

  - Constraints: PRIMARY KEY, NOT NULL, AUTO_INCREMENT
  - Properties: Must be unique, automatically generated.

- **ID_User:** int

  - Constraints: FOREIGN KEY, NOT NULL
  - Properties: References the user who owns the cart.

- **Date_Created:** timestamp

  - Constraints: NOT NULL
  - Properties: Automatically set when the shopping cart is created.

- **ID_Status_Cart:** int

  - Constraints: FOREIGN KEY, NOT NULL
  - Properties: References the status of the cart.

Status Cart

- **ID_Status_Shopping_Cart:** int

  - Constraints: PRIMARY KEY, NOT NULL, AUTO_INCREMENT
  - Properties: Must be unique, automatically generated.

- **Name:** string

  - Constraints: NOT NULL, VARCHAR(50)
  - Properties: Must contain only alphabetic characters and spaces.

- **Description:** text

  - Constraints: NULL
  - Properties: Optional description of the status.

Transaction

- **ID_Transaction:** int

  - Constraints: PRIMARY KEY, NOT NULL, AUTO_INCREMENT
  - Properties: Must be unique, automatically generated.

- **ID_User:** int

– Constraints: FOREIGN KEY, NOT NULL

– Properties: References the user who made the transaction.

- **ID_Product:** int

    – Constraints: FOREIGN KEY, NOT NULL

    – Properties: References the product in the transaction.

- **Payment_Method:** string

    – Constraints: NOT NULL, VARCHAR(50)

    – Properties: Indicates the payment method (e.g., "Card", "PayPal").

- **Amount:** decimal(10, 2)

    – Constraints: NOT NULL

    – Properties: Must be a positive value.

- **Date_Bought:** timestamp

    – Constraints: NOT NULL

    – Properties: Automatically set when the transaction is completed.

- **ID_Transaction_Status:** int

    – Constraints: FOREIGN KEY, NOT NULL

    – Properties: References the transaction status.

Payment Method

- **ID_Payment_Method:** int

    – Constraints: PRIMARY KEY, NOT NULL, AUTO_INCREMENT

    – Properties: Must be unique, automatically generated.

- **Type:** string

    – Constraints: NOT NULL, VARCHAR(50)

    – Properties: Payment method type (e.g., "Credit Card").

- **Provider:** string

    – Constraints: NOT NULL, VARCHAR(50)

    – Properties: Payment provider (e.g., "Visa").

- **Card_Number:** string

    – Constraints: NOT NULL, VARCHAR(16)

– Properties: Must be a valid card number, only digits allowed.

- **Due_Date:** date

  – Constraints: NOT NULL
  – Properties: Must be a valid expiration date.

- **Owner:** string

  – Constraints: NOT NULL, VARCHAR(100)
  – Properties: Name of the cardholder.

Transaction Status

- **ID_Payment_Status:** int

  – Constraints: PRIMARY KEY, NOT NULL, AUTO_INCREMENT
  – Properties: Must be unique, automatically generated.

- **Name:** string

  – Constraints: NOT NULL, VARCHAR(50)
  – Properties: Must contain only alphabetic characters and spaces.

- **Description:** text

  – Constraints: NULL
  – Properties: Optional description of the status.

Receipt

- **ID_Receipt:** int

  – Constraints: PRIMARY KEY, NOT NULL, AUTO_INCREMENT
  – Properties: Must be unique, automatically generated.

- **ID_Transaction:** int

  – Constraints: FOREIGN KEY, NOT NULL
  – Properties: References the associated transaction.

- **ID_User:** int

  – Constraints: FOREIGN KEY, NOT NULL
  – Properties: References the user associated with the receipt.

- **Date_Created:** timestamp

- – Constraints: NOT NULL
- – Properties: Automatically set when the receipt is created.

- **Details:** text

  - – Constraints: NOT NULL
  - – Properties: Detailed information of the transaction.

- **Amount_Paid:** decimal(10, 2)

  - – Constraints: NOT NULL
  - – Properties: Must be a positive value.

- **Taxes:** decimal(10, 2)

  - – Constraints: NOT NULL
  - – Properties: Must be a positive value.

Favorites List

- **ID_Favorite_List:** int

  - – Constraints: PRIMARY KEY, NOT NULL, AUTO_INCREMENT
  - – Properties: Must be unique, automatically generated.

- **ID_User:** int

  - – Constraints: FOREIGN KEY, NOT NULL
  - – Properties: References the user who owns the list.

- **Name:** string

  - – Constraints: NOT NULL, VARCHAR(100)
  - – Properties: Name of the favorites list, must contain alphabetic characters.

- **Date_Created:** timestamp

  - – Constraints: NOT NULL
  - – Properties: Automatically set when the list is created.

Seller

- **ID_Seller:** int

  – Constraints: PRIMARY KEY, NOT NULL, AUTO_INCREMENT
  – Properties: Must be unique, automatically generated.

- **First_Name:** string

  – Constraints: NOT NULL, VARCHAR(100)
  – Properties: Must contain only alphabetic characters, minimum length of 2 characters.

- **Last_Name:** string

  – Constraints: NOT NULL, VARCHAR(100)
  – Properties: Must contain only alphabetic characters, minimum length of 2 characters.

- **Email:** string

  – Constraints: NOT NULL, UNIQUE, VARCHAR(100)
  – Properties: Must follow valid email format (e.g., name@domain.com).

- **Address:** string

  – Constraints: NOT NULL, VARCHAR(200)
  – Properties: Must be a valid address.

- **Phone:** string

  – Constraints: NOT NULL, VARCHAR(15)
  – Properties: Must be a valid phone number.

- **Date_Register:** timestamp

  – Constraints: NOT NULL
  – Properties: Automatically set when the seller registers.

- **Password:** string

  – Constraints: NOT NULL, VARCHAR(100)
  – Properties: Must be securely hashed, minimum length of 8 characters.

- **Date_Birth:** date

  – Constraints: NOT NULL
  – Properties: Must be a valid date.

- **ID_Account_Status:** int

  - Constraints: FOREIGN KEY, NOT NULL
  - Properties: References the seller's account status.

- **Rating:** decimal(2, 1)

  - Constraints: NOT NULL
  - Properties: Must be between 0.0 and 5.0.

- **Number_Sales:** int

  - Constraints: NOT NULL
  - Properties: Total number of sales made by the seller.

Store

- **ID_Store:** int

  - Constraints: PRIMARY KEY, NOT NULL, AUTO_INCREMENT
  - Properties: Must be unique, automatically generated.

- **ID_Seller:** int

  - Constraints: FOREIGN KEY, NOT NULL
  - Properties: References the seller who owns the store.

- **Name:** string

  - Constraints: NOT NULL, VARCHAR(100)
  - Properties: Must be unique and descriptive.

- **Date_Created:** timestamp

  - Constraints: NOT NULL
  - Properties: Automatically set when the store is created.

- **Number_Products:** int

  - Constraints: NOT NULL
  - Properties: Number of products in the store.

- **Rating:** decimal(2, 1)

  - Constraints: NOT NULL
  - Properties: Must be between 0.0 and 5.0.

Client Report

- **ID_Report:** int
    - Constraints: PRIMARY KEY, NOT NULL, AUTO_INCREMENT
    - Properties: Must be unique, automatically generated.

- **ID_User:** int
    - Constraints: FOREIGN KEY, NOT NULL
    - Properties: References the user who submitted the report.

- **ID_Delivery:** int
    - Constraints: FOREIGN KEY, NOT NULL
    - Properties: References the delivery related to the report.

- **ID_Category_Report:** int
    - Constraints: FOREIGN KEY, NOT NULL
    - Properties: References the report category.

- **Description:** text
    - Constraints: NOT NULL
    - Properties: Detailed description of the report.

- **Date_Report:** timestamp
    - Constraints: NOT NULL
    - Properties: Automatically set when the report is created.

- **ID_Status_Report:** int
    - Constraints: FOREIGN KEY, NOT NULL
    - Properties: References the report status.

Category Report

- **ID_Category_Report:** int
    - Constraints: PRIMARY KEY, NOT NULL, AUTO_INCREMENT
    - Properties: Must be unique, automatically generated.

- **Name:** string
    - Constraints: NOT NULL, VARCHAR(100)
    - Properties: Must contain only alphabetic characters and spaces.

- **Description:** text

  – Constraints: NULL
  – Properties: Optional description of the category.

Status Report

- **ID_Status_Report:** int

  – Constraints: PRIMARY KEY, NOT NULL, AUTO_INCREMENT
  – Properties: Must be unique, automatically generated.

- **Name:** string

  – Constraints: NOT NULL, VARCHAR(50)
  – Properties: Must contain only alphabetic characters and spaces.

- **Description:** text

  – Constraints: NULL
  – Properties: Optional description of the status.

User/Delivery Provider

- **ID_User:** int

  – Constraints: FOREIGN KEY, NOT NULL
  – Properties: References the user involved in the delivery provider.

- **ID_Provider_Delivery:** int

  – Constraints: FOREIGN KEY, NOT NULL
  – Properties: References the delivery provider.

- **Date_Assigned:** timestamp

  – Constraints: NULL
  – Properties: Tracks when the user was assigned to the delivery provider.

User/Seller

- **ID_User:** int

  – Constraints: FOREIGN KEY, NOT NULL
  – Properties: References the user.

- **ID_Seller:** int

- Constraints: FOREIGN KEY, NOT NULL
- Properties: References the seller.

- **Relationship_Type:** string

  - Constraints: NULL, VARCHAR(50)
  - Properties: Describes the user-seller relationship.

- **Date_Assigned:** timestamp

  - Constraints: NULL
  - Properties: Tracks when the user was connected to the seller.

Delivery/Product

- **ID_Delivery:** int

  - Constraints: FOREIGN KEY, NOT NULL
  - Properties: References the delivery.

- **ID_Product:** int

  - Constraints: FOREIGN KEY, NOT NULL
  - Properties: References the product.

- **Quantity:** int

  - Constraints: NULL
  - Properties: Tracks the quantity of the product in the delivery.

Favorites List/Seller

- **ID_Favorite_List:** int

  - Constraints: FOREIGN KEY, NOT NULL
  - Properties: References the favorites list.

- **ID_Seller:** int

  - Constraints: FOREIGN KEY, NOT NULL
  - Properties: References the seller.

- **Date_Favorited:** timestamp

  - Constraints: NULL
  - Properties: Tracks when the seller was added to the favorites list.