

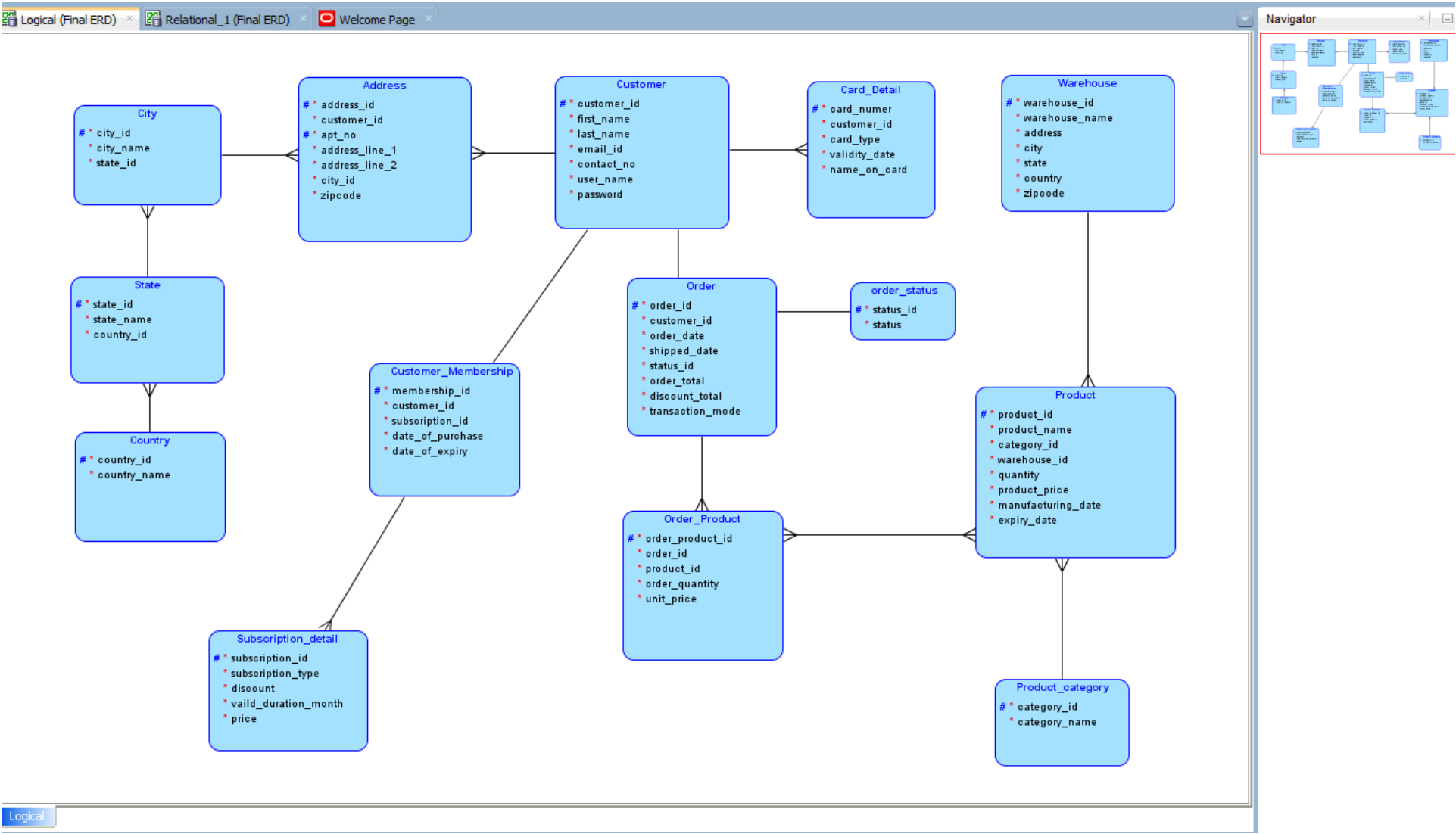
# DATABASE DESIGN FOR WHOLESALE MANAGEMENT SYSTEM

## Project - 3

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DATA MODEL E-R DIAGRAM



CUSTOMER

Attributes	Data Type & Size	Comments
Customer_id	NUMBER	PRIMARY KEY, AUTO GENERATED
First_Name	VARCHAR2(50)	NOT NULL
Last_Name	VARCHAR2(50)	NOT NULL
Email_id	VARCHAR2(50)	UNIQUE KEY, NOT NULL
Contact_No	NUMBER	NOT NULL
User_name	VARCHAR2(50)	UNIQUE KEY, NOT NULL
Password	VARCHAR2(100)	NOT NULL

PRODUCT

Attributes	Data Type & Size	Comments
Product_id	NUMBER	PRIMARY KEY, AUTO GENERATED
Category_id	NUMBER	A FOREIGN KEY WHICH REFERENCES Category_ID FROM PRODUCT CATEGORY, NOT NULL
Product_Name	VARCHAR2(50)	NOT NULL
Warehouse_id	NUMBER	NOT NULL, FOREIGN KEY REFERENCE Warehouse_ID FROM WAREHOUSE TABLE
Manufacturing_Date	DATETIME	NOT NULL
Expiry_Date	DATETIME	NOT NULL
Product_Price	FLOAT	NOT NULL
Quantity	NUMBER	NOT NULL

PRODUCT\_CATEGORY

Attributes	Data Type & Size	Comments
Category_id	NUMBER	PRIMARY KEY, AUTO GENERATED
Category_name	VARCHAR(50)	NOT NULL, UNIQUE KEY

WAREHOUSE

Attributes	Data Type & Size	Comments
Warehouse_id	NUMBER	PRIMARY KEY, AUTO GENERATED
Warehouse_name	VARCHAR2(50)	NOT NULL
Address	VARCHAR2(100)	NOT NULL
City	VARCHAR2(50)	NOT NULL
State	VARCHAR2(50)	NOT NULL
Country	VARCHAR2(50)	NOT NULL
Zipcode	NUMBER	NOT NULL

SUBSCRIPTION

Attributes	Data Type & Size	Comments
Subscription_id	NUMBER	PRIMARY KEY, NOT NULL
Subscription_Type	VARCHAR(20)	NOT NULL
Discount	FLOAT	UNIQUE KEY, NOT NULL
Valid_Duration_Month	VARCHAR(20)	UNIQUE KEY, NOT NULL
Price	FLOAT	NOT NULL

CUSTOMER\_MEMBERSHIP

Attributes	Data Type & Size	Comments
Membership_id	NUMBER	PRIMARY KEY, NOT NULL
Customer_id	NUMBER	A FOREIGN KEY WHICH REFERENCES Customer_id FROM CUSTOMER
Subscription_id	NUMBER	A FOREIGN KEY WHICH REFERENCES Subscription_id FROM SUBSCRIPTION
Date_of_Purchase	TIMESTAMP	NOT NULL
Date_of_expiry	TIMESTAMP	NOT NULL

CARD\_DETAILS

Attributes	Data Type & Size	Comments
Customer_id	NUMBER	A FOREIGN KEY WHICH REFERENCES Customer_ID FROM CUSTOMER
Card_number	NUMBER	PRIMARY KEY, NOT NULL
Card_type	VARCHAR(30)	NOT NULL
Validity_date	DATE	NOT NULL
Name_on_card	VARCHAR(50)	NOT NULL

ORDER\_PRODUCT

Attributes	Data Type & Size	Comments
Order_product_id	NUMBER	PRIMARY KEY, NOT NULL
Order_id	NUMBER	A FOREIGN KEY WHICH REFERENCES Order_ID FROM ORDER
Product_id	NUMBER	A FOREIGN KEY WHICH REFERENCES Product_ID FROM PRODUCT
Order_Quantity	NUMBER	NOT NULL
unit_price	FLOAT	NOT NULL

ORDER

Attributes	Data Type & Size	Comments
Order_id	NUMBER	PRIMARY KEY, NOT NULL
Customer_id	NUMBER	A FOREIGN KEY WHICH REFERENCES Customer_ID FROM CUSTOMER
Order_date	TIMESTAMP	NOT NULL
Shipped_Date	DATE	NOT NULL
Status_ID	NUMBER	A FOREIGN KEY WHICH REFERENCES Status_ID FROM ORDER STATUS
Order_total	FLOAT	NOT NULL
Discount_total	FLOAT	NOT NULL
Transaction_mode	VARCHAR2(50)	NOT NULL

ORDER\_STATUS

Attributes	Data Type & Size	Comments
Status_ID	NUMBER	PRIMARY KEY, NOT NULL
Status	VARCHAR(30)	NOT NULL, UNIQUE KEY

COUNTRY

Attributes	Data Type & Size	Comments
Country_id	NUMBER	PRIMARY KEY, NOT NULL
Country_name	VARCHAR2(50)	NOT NULL, UNIQUE KEY

STATE		
Attributes	Data Type & Size	Comments
State_id	NUMBER	PRIMARY KEY, NOT NULL
State_name	VARCHAR2(50)	NOT NULL, UNIQUE KEY
Country_id	NUMBER	NOT NULL, A FOREIGN KEY WHICH REFERENCES Status_ID FROM COUNTRY

CITY		
Attributes	Data Type & Size	Comments
City_id	NUMBER	PRIMARY KEY, NOT NULL
City_name	VARCHAR2(50)	NOT NULL
State_id	NUMBER	NOT NULL, A FOREIGN KEY WHICH REFERENCES State_ID FROM STATE

**Objectives: -**

To design a database for wholesale companies which can provide the following features: -

- Accuracy in maintaining data and inventory structure.
- Managing the product storage and summarize point of sales.
- To provide sales data for each day.
- To provide details on goods expiry dates.
- Eradicate the redundancies.
- To maintain the integrity of data.

**Problem Statement: -**

1. The current system stocks products, orders, and purchases items using a manual inventory system.
2. The level of security for data, transactional documents, and inventory is low.
3. Existing data does not include any records of food expiration dates.
4. Inadequate and unstructured data is recorded, and data cannot be accessed because records are stored in multiple files and formats.
5. Total sales reports for the day are determined by the amount of money in the cashier deck, making it impossible to provide data to the owner for him to make sound business decisions.
6. Billing information, tickets, and coupons are not properly handled from wholesale to store.
7. The tasks of processing, adding, and managing are difficult.
8. Time-consuming and insufficient data on physical product counts.
9. Missing daily order data, insufficient data for predicting supply requirements, and logistics are all factors that contribute to these difficulties.
10. Updating the database on regular basis so that product's list, quantity left, and amount required may be calculated.
11. By providing the necessary data to the user privileges and the information which need to be provided are provided through customer's id, their location and amount of product that are purchased.
12. Once the payment is processed the database will update the stocks and amount needed to be delivered and updated quantity is displayed in database

**Proposed Solutions: -**

To overcome the above problems, a database model can be used. The solutions are: -

1. Rather than manually searching for logistics availability and username details, we can use natural keys in databases to prevent user redundancy and ensure data consistency.
2. Using the database design, we can obtain pricing and customer information by including the Customer ID and Product ID as PRIMARY KEYS that uniquely identify the records.
3. No information about the cards is provided. Using this database, we can manage customer credit card information and identify discounted rates.
4. Managing of subscription is difficult so using this database, the subscription expiry dates, balance of customers in cards and discounted rates can be identified and managed properly.
5. Keep note of product identifiers, names, and quantities.
6. Keep note of the customer's information, including the buyer's id, name, address, and the product id that must be purchased.
7. Information about the consumer, such as name, email address, and customer ID.
8. A list of payments that have been made or are currently being processed.
9. If the amount falls below a particular level, the product will be purchased. Make a monthly profit calculation.
10. If the needed quantity is not in stock, it cannot be sold to the customer, and the delivery date must be postponed until the work can be completed

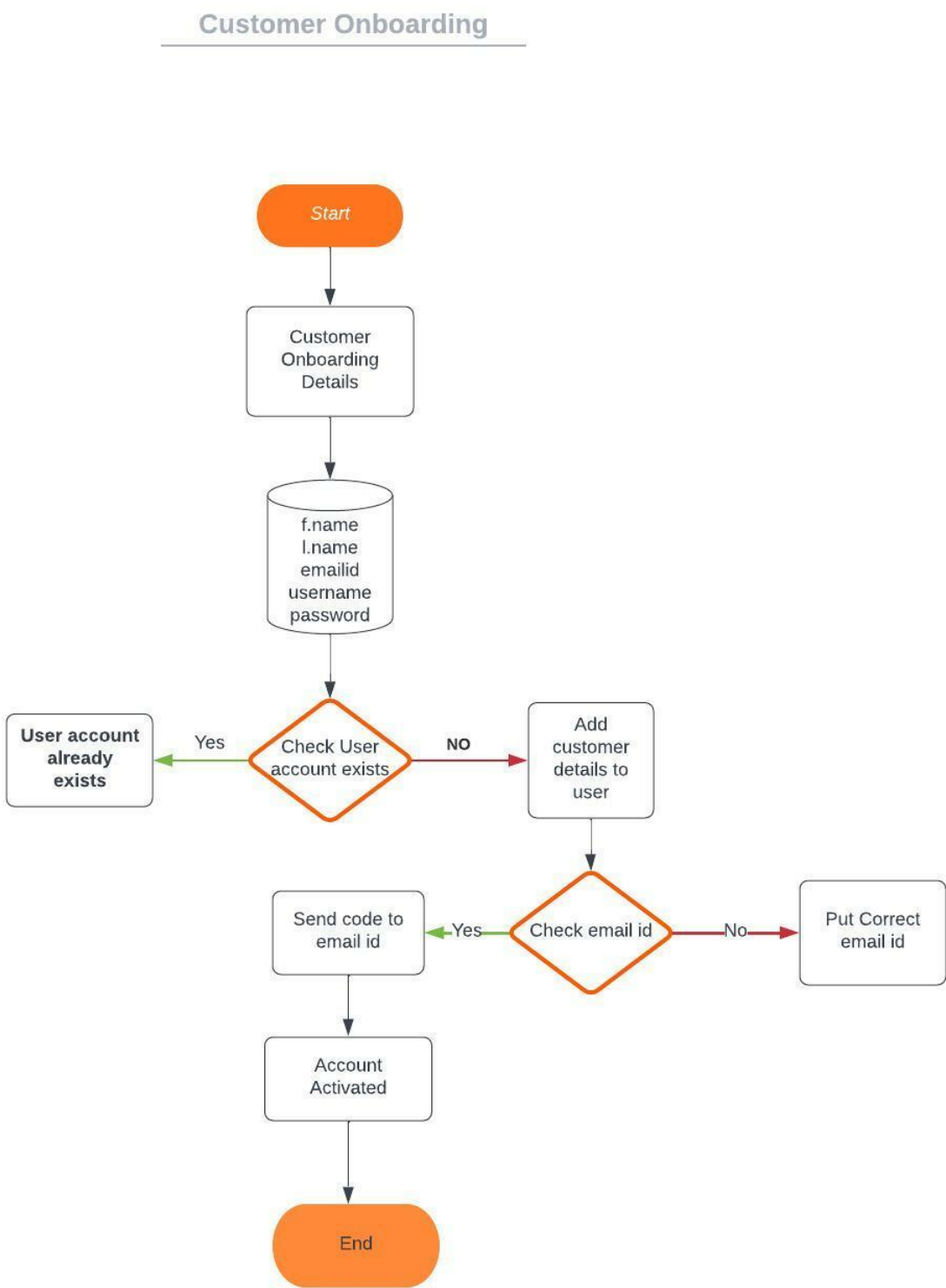
## Views

1. Customers view (**product id, product name, unit price, quantity, product category, and wholesaler name**) when they want to buy products.
2. When a consumer selects all of the products on the site, the order product **entity (product id, product\_name with unit price, and order\_total at the end, where they can view the total of the products in the cart)** is automatically added to the cart.
3. Customers view the card data (**card\_number, card\_type, validity\_time, name\_on\_card**) once they proceed with the payment and select which card they want to use for the purchase.
4. If the Wholesaler admin wants to assure the entire income between dates, he should look at the order (**order\_id, order\_date, and discount\_amt**), and then sum of (**discount\_amt**) will give him the total revenue between those days, allowing us to filter out the data based on order date.
5. If a wholesaler needs to examine customer information from a specific city, state, or country, they can look up (**customer\_id, first\_name, last\_name, contact\_no, city\_name, state\_name, country\_name**) and filter the data by city, state, and country.
6. If a wholesaler wants to inspect a product and its quantity, he can look at the (**product\_id, category\_name, product\_name, and quantity**) to get an idea of the stock and plan stock for the future.
7. If a wholesaler wants to examine how many orders were placed in each city, state, or country, he can filter the data by city, state, or country and see (**order\_id, customer.first\_name, customer.last\_name**) and total number of entities gives the data of number of customers.
8. If the management department wants to examine the subscription details, they filter out the data depending on the subscription type (**membership id, customer.first\_name, customer.last\_name, subscription\_type, date\_of\_purchase and date\_of\_expiry, customer.contact\_no, customer.email\_id**). This allows management to determine which customers are nearing the end of their subscriptions and send them a renewal email.

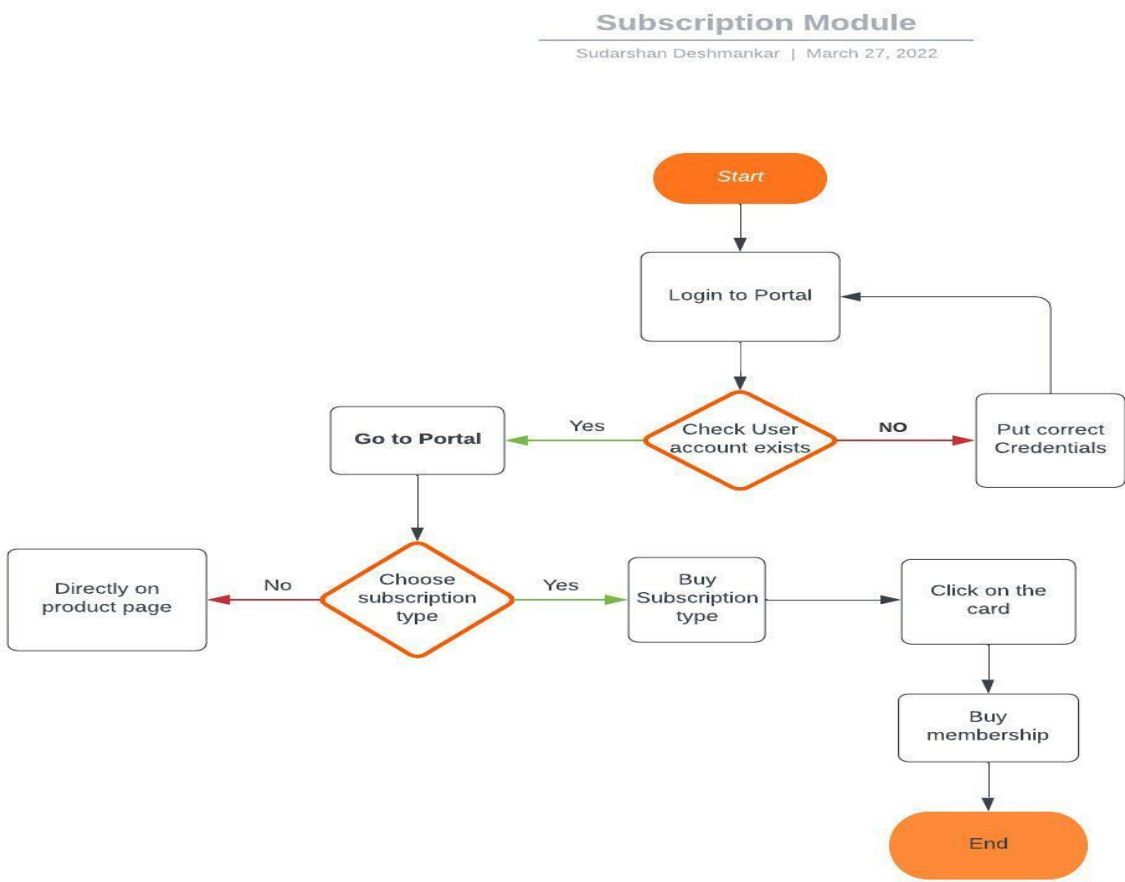
**Note :- (.....) = shows all the attributes from different entities**

# Data Flow Diagram

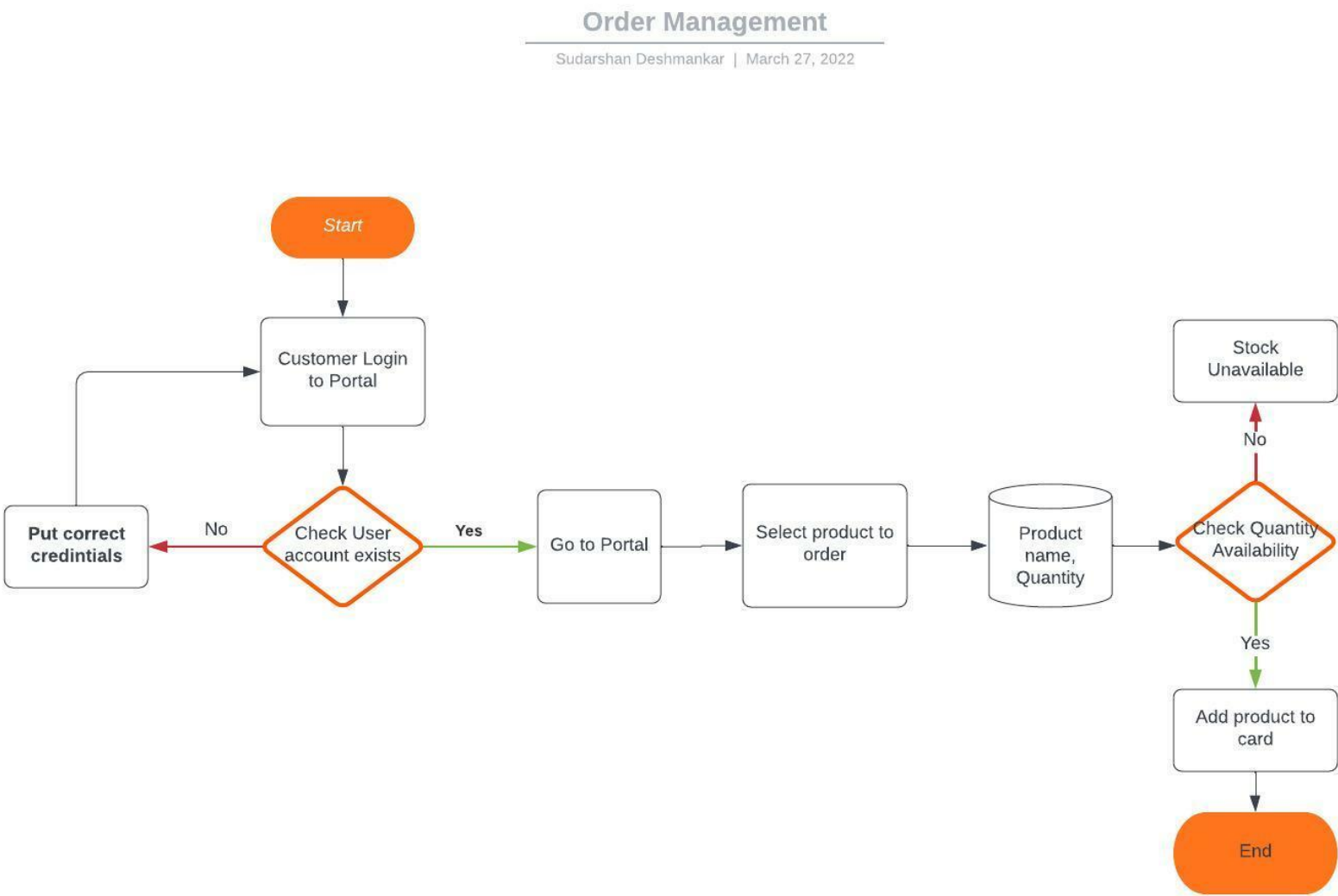
## 1. Customer Onboarding



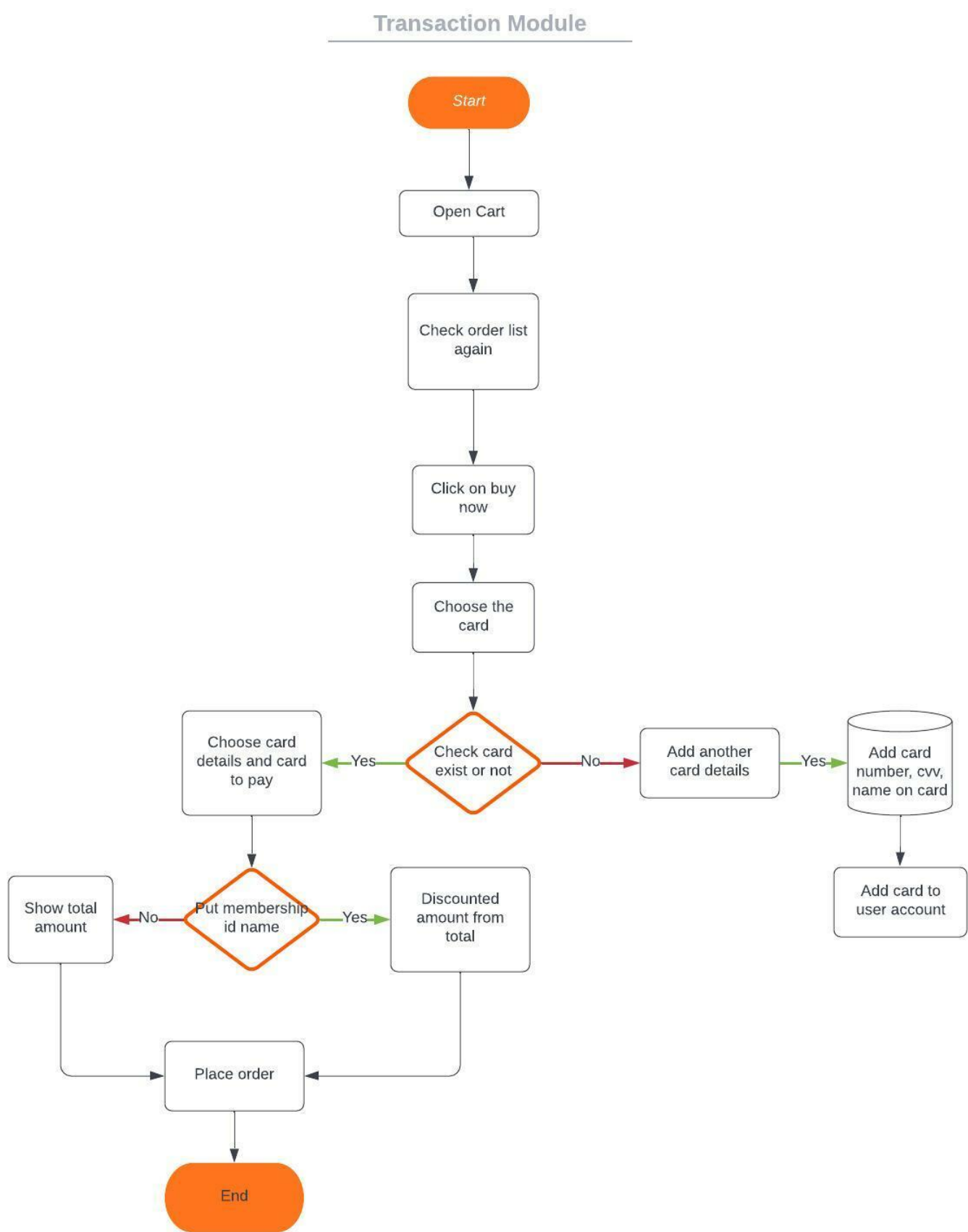
2. Subscription Module



3. Order Management



4. Transaction Module



## Define Security

**User Level Access: -**

Customer: -

- Permissions
  1. Access to previous Order details
  2. Access to product category on portal
  3. Access to order status
  4. Access to contact details
  5. Access to order\_product (cart details)

Administrator: -

- Permissions
  1. Customer Detail of every customer
  2. Access to customer address details
  3. Access to warehouse details
  4. Access to product details

Subscription Handler Manager: -

- Permissions
  1. Accessibility and update of subscription details
  2. Access to customer membership details

Transaction Manager: -

- Permissions
  1. Access to all card details
  2. Access to all order details