**DATABASE DESIGN FOR WHOLESALE MANAGEMENT SYSTEM**

**Team Members: -**

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**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 existing system uses a manual inventory system to stock products, order, and purchase items.

2. The security level of data, documents related to transactions and inventory is low.

3. Existing data does not provide any records for expiration of food items.

4. Inadequate data and unstructured information are recorded, and data cannot be accessed because the records are stored in multiple files and formats.

5. Reports for total sales of 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 being handled correctly from wholesale to store.

7. Processing, adding, and managing are difficult tasks.

8. Time consuming, insufficient data on physical counts of products.

9. Missing daily orders data, insufficient data for predicting the supplies needed, and logistics are all factors that contribute to these challenges

**Proposed Solutions: -**

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

1. Instead of manually searching for logistics availability, usernames details, we can use Natural keys in databases to prevent users for redundancies and makes the data consistent.
2. With the database design, we can obtain the pricing and customer’s details by including the Customer ID and Product ID as PRIMARY KEY that identifies the records uniquely.
3. Using a database design, even though the Manufacturing ID and Sales ID are different, we can join the two tables using JOINS functions and obtain the data from two different entities. All sales information can be obtained according to their manufacturing details.
4. The details of the cards are not specified. Using this database, we can manage the card details of customers, discounted rate can be identified.
5. 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.

**DATA MODEL E-R DIAGRAM**

Diagram, schematic

Description automatically generated

|  |  |  |
| --- | --- | --- |
| **CUSTOMER** | | |
| **Attributes** | **Data Type & Size** | **Comments** |
| Customer\_ID | NUMBER | PRIMARY KEY, AUTO GENERATED |
| First\_Name | VARCHAR(25) | NOT NULL |
| Last\_Name | VARCHAR(25) | NOT NULL |
| Email\_ID | VARCHAR(50) | UNIQUE KEY, NOT NULL |
| Phone\_No | NUMBER | NOT NULL |
| Address | VARCHAR(120) | NOT NULL |
|  |  |  |
| **LOGIN** | | |
| **Attributes** | **Data Type & Size** | **Comments** |
| Email\_ID | VARCHAR(120) | PRIMARY KEY, NOT NULL |
| Password | VARCHAR(100) | UNIQUE KEY, NOT NULL |
| Status | VARCHAR(30) | 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 |
| Product\_Name | VARCHAR(50) | NOT NULL |
| Manufacturing\_Date | DATE | NOT NULL |
| Expiry\_Date | DATE | NOT NULL |
| Product\_Price | FLOAT | NOT NULL |
|  |  |  |
| **PRODUCT\_CATEGORY** | | |
| **Attributes** | **Data Type & Size** | **Comments** |
| Category\_ID | NUMBER | PRIMARY KEY, AUTO GENERATED |
| Product\_category | VARCHAR(50) | NOT NULL |
|  |  |  |
| **WAREHOUSE** | | |
| **Attributes** | **Data Type & Size** | **Comments** |
| Product\_ID | NUMBER | A FOREIGN KEY WHICH REFERENCES Product\_ID FROM PRODUCT |
| Seller\_ID | NUMBER | A FOREIGN KEY WHICH REFERENCES Seller\_ID FROM SELLER |
| Quantity | NUMBER | NOT NULL |
|  |  |  |
| **SELLER** | | |
| **Attributes** | **Data Type & Size** | **Comments** |
| Seller\_ID | NUMBER | PRIMARY KEY, AUTO GENERATED |
| Seller\_name | VARCHAR(100) | UNIQUE KEY, NOT NULL |
| Location | VARCHAR(25) | NOT NULL |
| Contact\_No | NUMBER | UNIQUE KEY, NOT NULL |
| Email\_id | VARCHAR(120) | UNIQUE KEY, NOT NULL |
|  |  |  |
| **SUBSCRIBTION** | | |
| **Attributes** | **Data Type & Size** | **Comments** |
| Subscribtion\_ID | NUMBER | PRIMARY KEY, NOT NULL |
| Sub\_Type | VARCHAR(20) | NOT NULL |
| Discount | FLOAT | UNIQUE KEY, NOT NULL |
| Duration | VARCHAR(20) | UNIQUE KEY, NOT NULL |
| Price | FLOAT | NOT NULL |
|  |  |  |
| **CUSTOMER\_MEMBERSHIP** | | |
| **Attributes** | **Data Type & Size** | **Comments** |
| Membership\_ID | NUMBER | PRIMARY KEY |
| 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 |
| Expiry\_Date | 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 | UNIQUE KEY, NOT NULL |
| Card\_type | VARCHAR(30) | NOT NULL |
| Valid\_date | DATE | NOT NULL |
| Name\_on\_card | VARCHAR(50) | UNIQUE KEY, NOT NULL |
|  |  |  |
| **CARD\_MODE** | | |
| **Attributes** | **Data Type & Size** | **Comments** |
| Mode\_ID | NUMBER | PRIMARY KEY |
| Mode\_type | VARCHAR(20) | NOT NULL |
|  |  |  |
| **TRANSACTIONS** | | |
| **Attributes** | **Data Type & Size** | **Comments** |
| Transaction\_ID | INETGER | PRIMARY KEY |
| Mode\_ID | INETGER | A FOREIGN KEY WHICH REFERENCES Mode\_ID FROM CARD MODE |
| Transaction\_Date | TIMESTAMP | NOT NULL |
| Transaction\_amt | INETGER | NOT NULL |
|  |  |  |
| **ORDER\_PRODUCT** | | |
| **Attributes** | **Data Type & Size** | **Comments** |
| Order\_product\_ID | NUMBER | PRIMARY KEY |
| Order\_ID | NUMBER | A FOREIGN KEY WHICH REFERENCES Order\_ID FROM ORDER |
| Product\_ID | NUMBER | A FOREIGN KEY WHICH REFERENCES Product\_ID FROM PRODUCT |
| Quantity | NUMBER | NOT NULL |
| unit\_price | FLOAT | NOT NULL |
|  |  |  |
| **ORDER** | | |
| **Attributes** | **Data Type & Size** | **Comments** |
| Order\_ID | NUMBER | PRIMARY KEY |
| 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 |
| Transaction\_ID | NUMBER | A FOREIGN KEY WHICH REFERENCES Transaction\_ID FROM TRANSACTIONS |
|  |  |  |
| **ORDER\_STATUS** | | |
| **Attributes** | **Data Type & Size** | **Comments** |
| Status\_ID | NUMBER | PRIMARY KEY |
| Status | VARCHAR(30) | NOT NULL |