

DFD For Business Management Software

(GROUP 27)

DILENDRA (190101034)

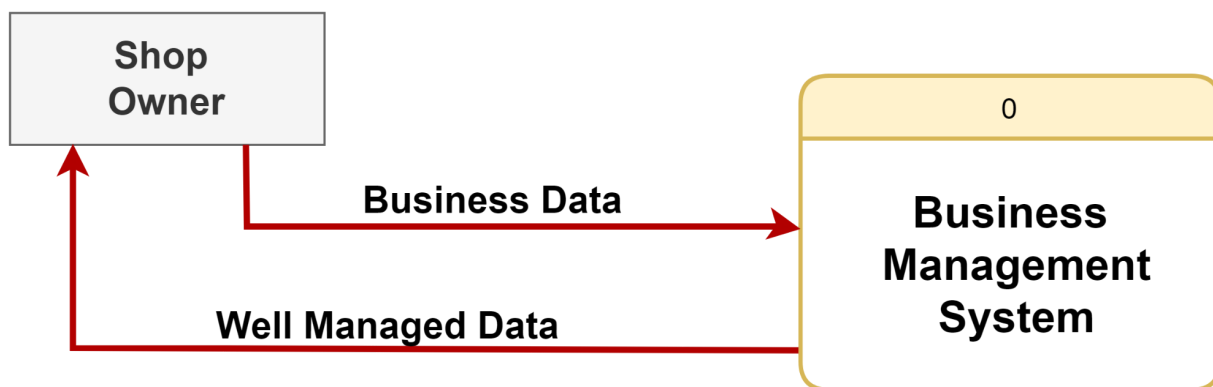
EKESHWAR (190101036)

KSHITIJ (190101046)

VIVEK (190101100)

This Data Flow Diagram document provides a low-level description of the Business Management Software, providing insight into the structure and design of each component. It also shows how the functions described in the SRS will be implemented, and helps the reader visualise the platform's operation.

DFD Level 0 -



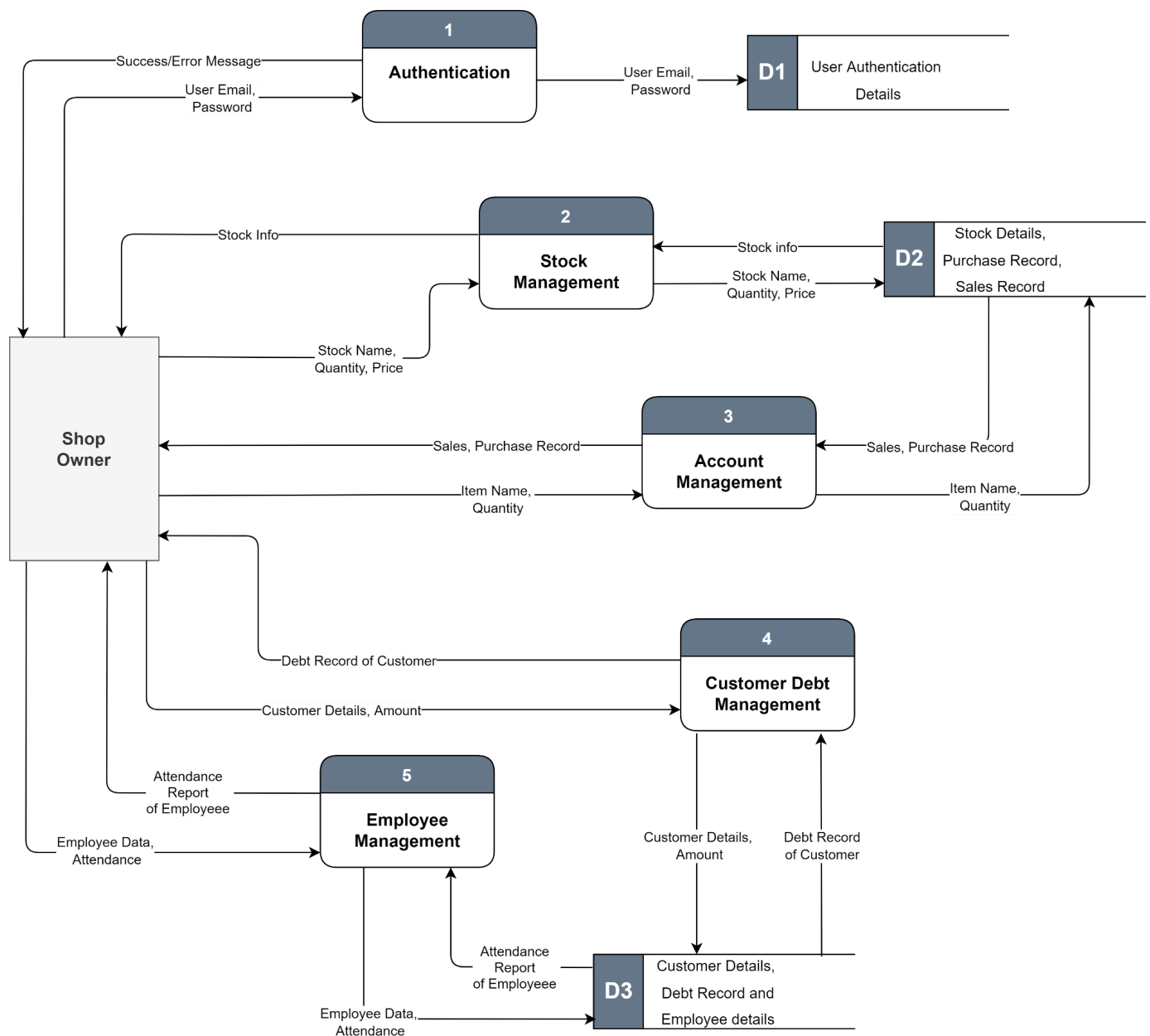
There are 5 main modules:

- 1. Authentication:-** This module is used for the creation of user accounts and user authentication to access user details.
- 2. Stock Management:-** This module deals with the organisation of all the stocks data of the user in the form of List and Table.
- 3. Account Management:-** This module deals with the organisation of all the account related data of items of the user in the form of List and Table. It basically provides a sales and purchase list of items along with their account details.
- 4. Customer Debt Management:-** This module deals with all the records of customers and management of their data or details according to the requirement. This is all organised in the form of List and Table.
This basically involves all types of management of customers like their details, items bought, accounts etc.

5. Employee Management:-This module deals with all the records of Employee and management of their data or details according to the requirement .This all organised in the form of List and Table.

This involves all types of management of employees like their attendance, details etc.

The interaction between the modules and the data stores are as shown in the below **Data Flow Diagram (DFD) Level 1 :**



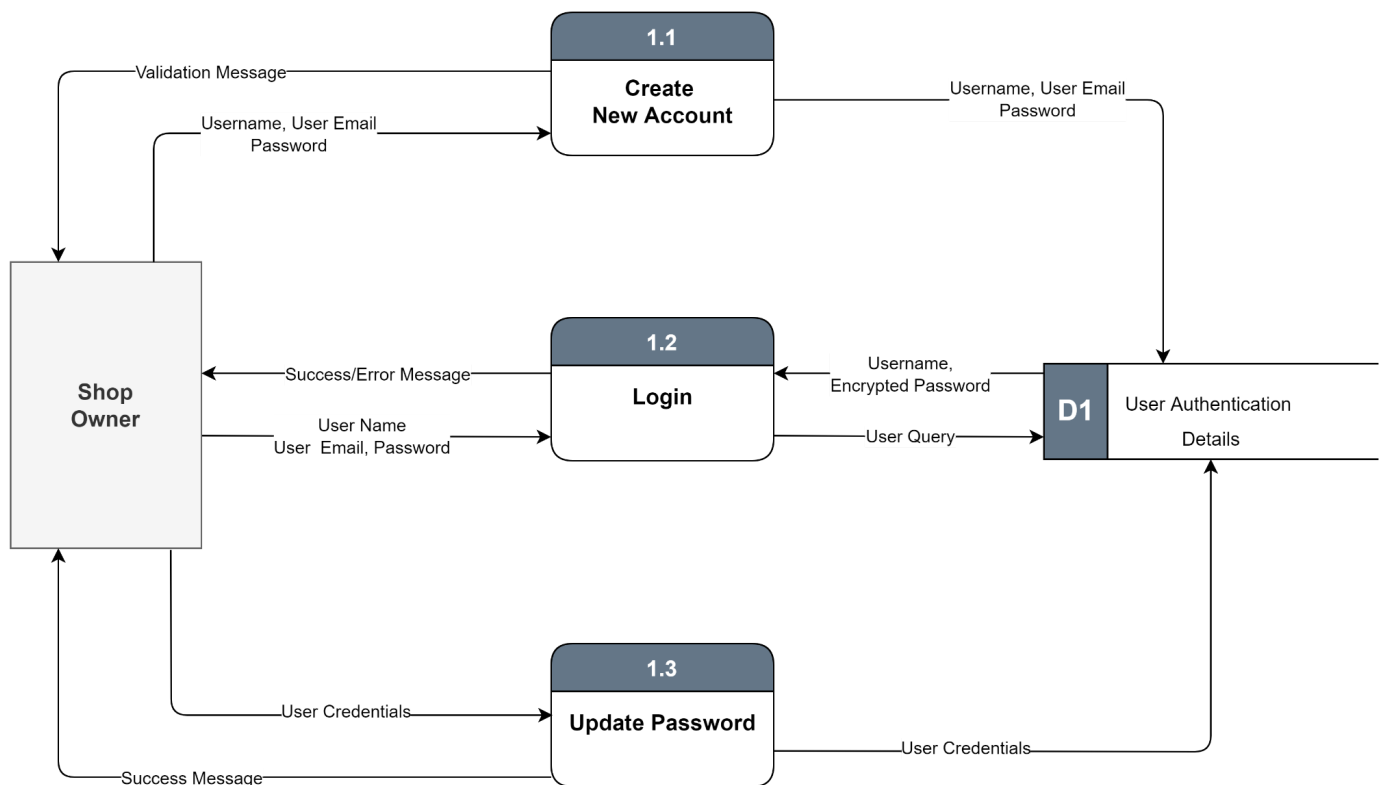
Decomposition Description (Data Flow Diagram):-

Module 1- Authentication

There are 3 main processes in this module :

- 1. Create New Account:-** This process deals with the registration or creation of a new user where username, user email and password to be set are taken as input from the user. A new entry is created in the User Authentication Details(Data Store D1) and a validation message is sent to the user from the process.
- 2. Login:-** This process deals with the authentication of an existing user wherein the user email and password is taken as input and verified with the User Authentication Detail(Data Store D1). An appropriate validation message is sent to the user.
- 3. Update Password:-** This process deals with the updation of user password where user credentials along with new password is taken and updated in Data Store D1. A success message is sent to the user.

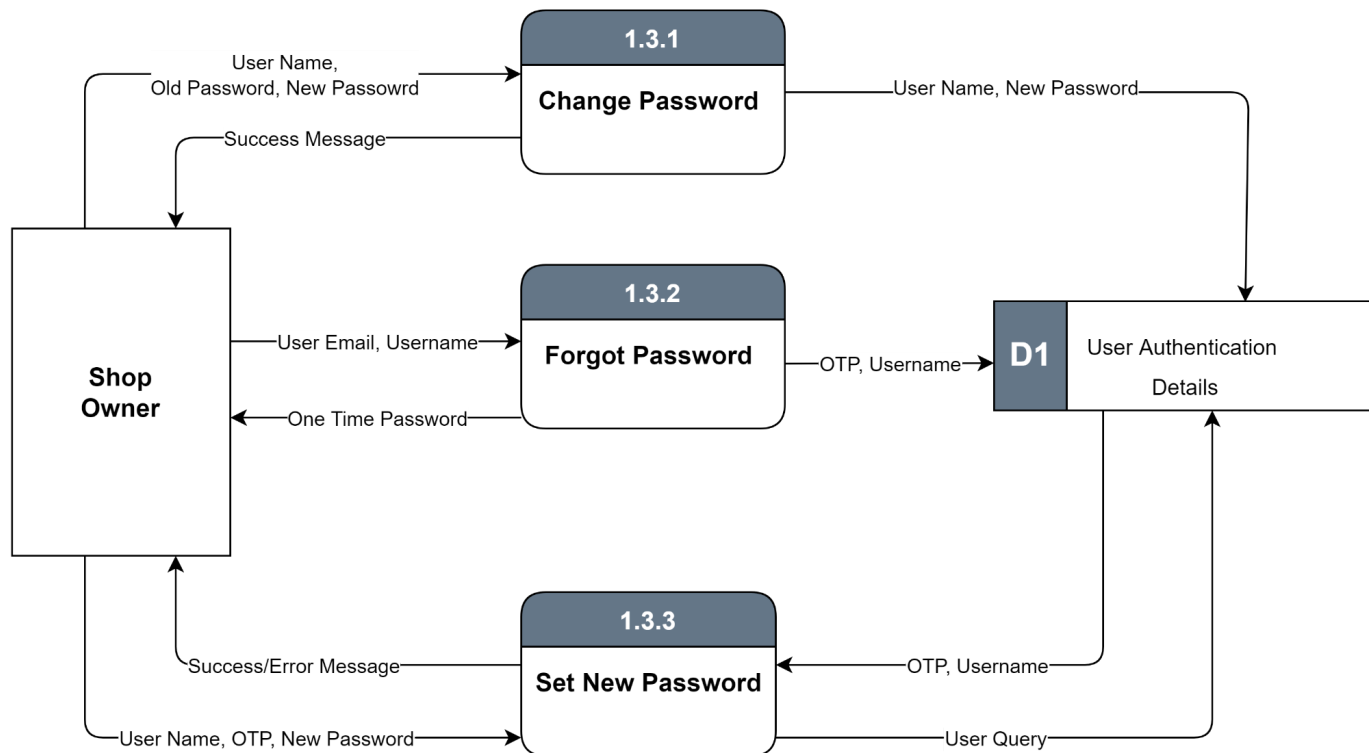
DFD Level 2, Module 1 : Authentication



Process 1.3 - Update Password:

1. **Change Password** : This process deals with Updating the user password. It takes input as user name, old password and new password from the user and stores the new password in the Data Store D1, and then it returns a Success Message.
2. **Forgot Password** : This process deals with Logging in when the user forgets his/her Password. It takes input as user email, and then sends an OTP to Email which the user has to enter. Also this OTP along with user email is stored in Data Store D1.
3. **Set New Password** : This process deals with Changing the user password. It takes input as user email, new password and OTP from the user and stores the new password in the Data Store D1, and then it returns a Success Message.

DFD Level 3, Process 1.3 : Update Password



Module 2 - Stock Management

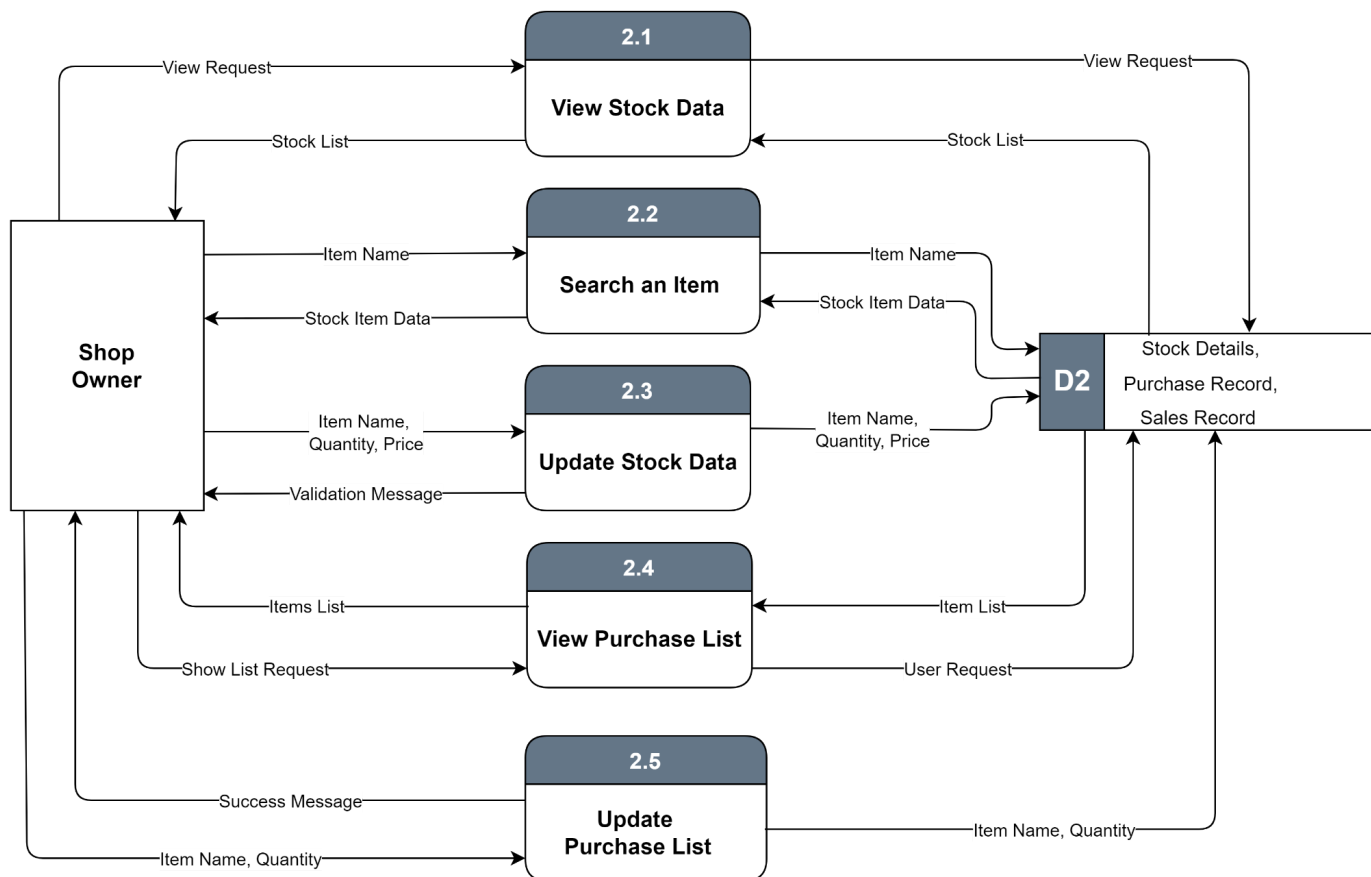
There are 5 main processes in this module :

1. **View Stock Data:-** This process gives the stock list as output on a request(View Request) from the user. This process collects all items which are currently present in stock from Data Store D2 and returns a well maintained stock list (Item Name, Quantity in stock) to the user.
2. **Search an Item:-** This process gives the data of specified item currently present in the Stock, collected from Data Store D2. An item name is taken as input from the user and the process

searches for the corresponding item in Data Store D2 and returns detailed data of the input item.

3. **Update Stock Data:-** This process deals with updation of the data of items in the stock list of the shop. In this process item name, quantity, price is taken as input and according to that new entry added in the Data Store D2.
4. **View Purchase List:-** This process gives a well maintained Purchase list of items to be purchased according to the given request (Show List Request) as input. According to this input Purchase list of items returns to the user via View Purchase List process.
5. **Update Purchase List:-** This process deals with the addition of new items (which are going to be purchased) or deletion of existing items(purchased). It takes item name and its quantity as input and according to that new entry of data(items and its quantity) created in Data Store D2 or entry of existing data(items and its quantity) is deleted.

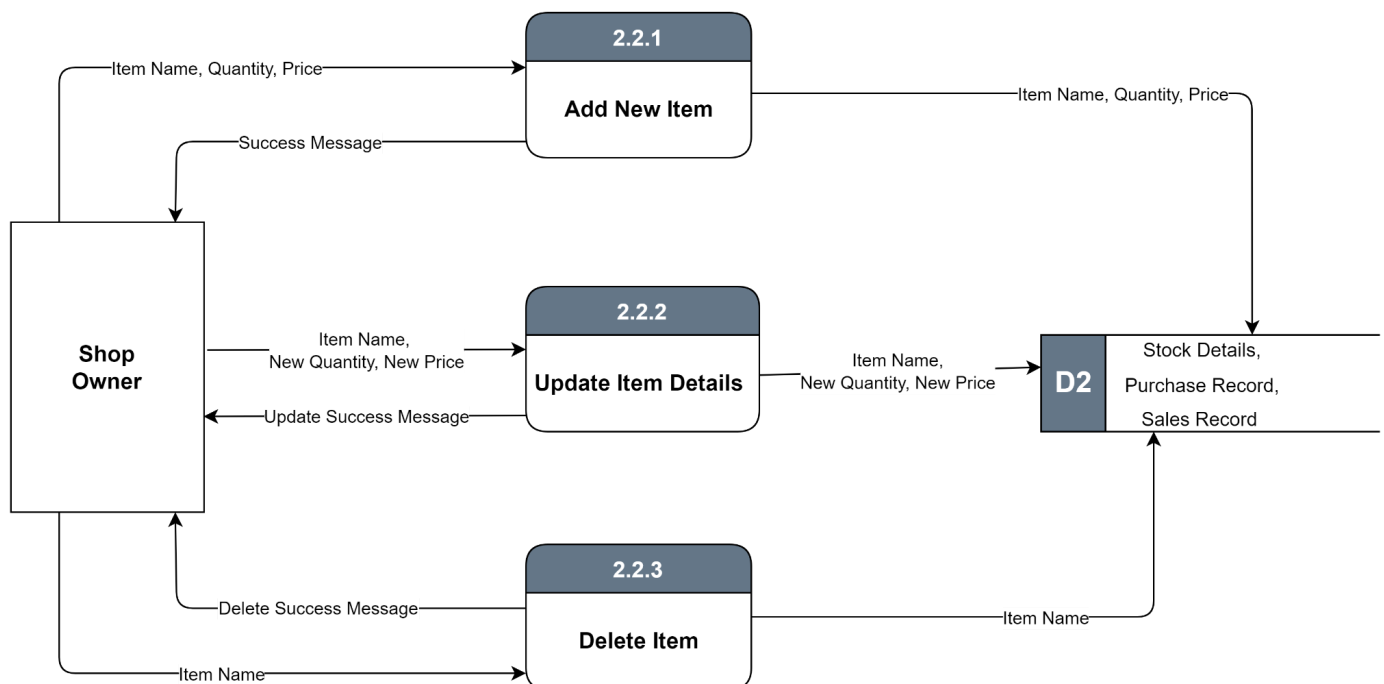
DFD Level 2, Module 2 : Stock Management



Process 2.3, Update Stock Data

- 1. Add New Item:-** This process adds an item detail under stock details in Data Store D2. In this process item name, quantity, price is taken as input and according to that new entry added in the Data Store D2. A success message is also displayed to user after addition.
- 2. Update Item Details:-** This process deals with the updation of existing item details under stock details in the Data Store in D2. Item Name, new quantity, new price is taken as input from the user and the corresponding item details are updated in Data Store D2 by the process. An update success message is also returned to the user.
- 3. Delete Item:-** This process deals with deletion of item data from the Data Store D2. It takes the item name, which needs to be deleted, as an input from the user and then updates the same in the Data Store D2. After that, a Success message is returned to the user from the Delete Item process.

DFD Level 3, Process 2.3 : Update Stock Data

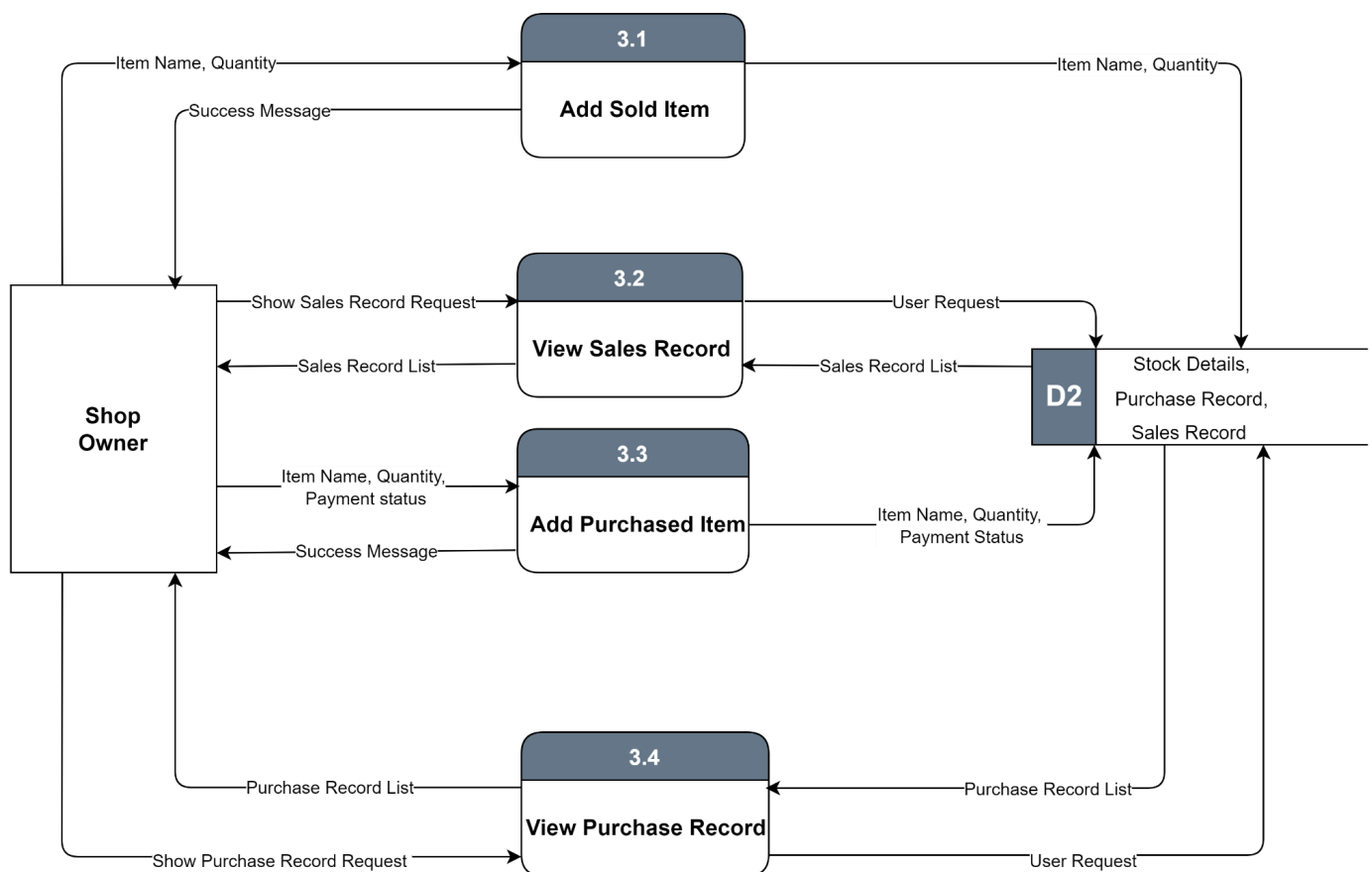


Module 3 - Account Management

There are 4 main processes in this module :

1. **Add Sale:-** This process deals with the addition of a sale item consisting of details like item name, quantity and price. According to this information a new entry created in the Data Store D2 and after that Success message is returned to the user from the Add a Sale process.
2. **View Sales Record:-** This process gives the Sale Record of a day/person/item. It takes necessary input from the user and outputs all the suitable Sale Records from Data Store D2.
3. **Add Purchased Item:-** This process deals with the addition of an expense item consisting of details like item name, quantity and payment status. According to this information a new entry created in the Data Store D2 and after that Success message is returned to the user from the Add Expense process.
4. **View Purchase Record:-** This process gives the Expense Record of a day/person/item. It takes necessary input from the user and outputs all the suitable Expense Records from Data Store D2.

DFD Level 2, Module 3 : Account Management

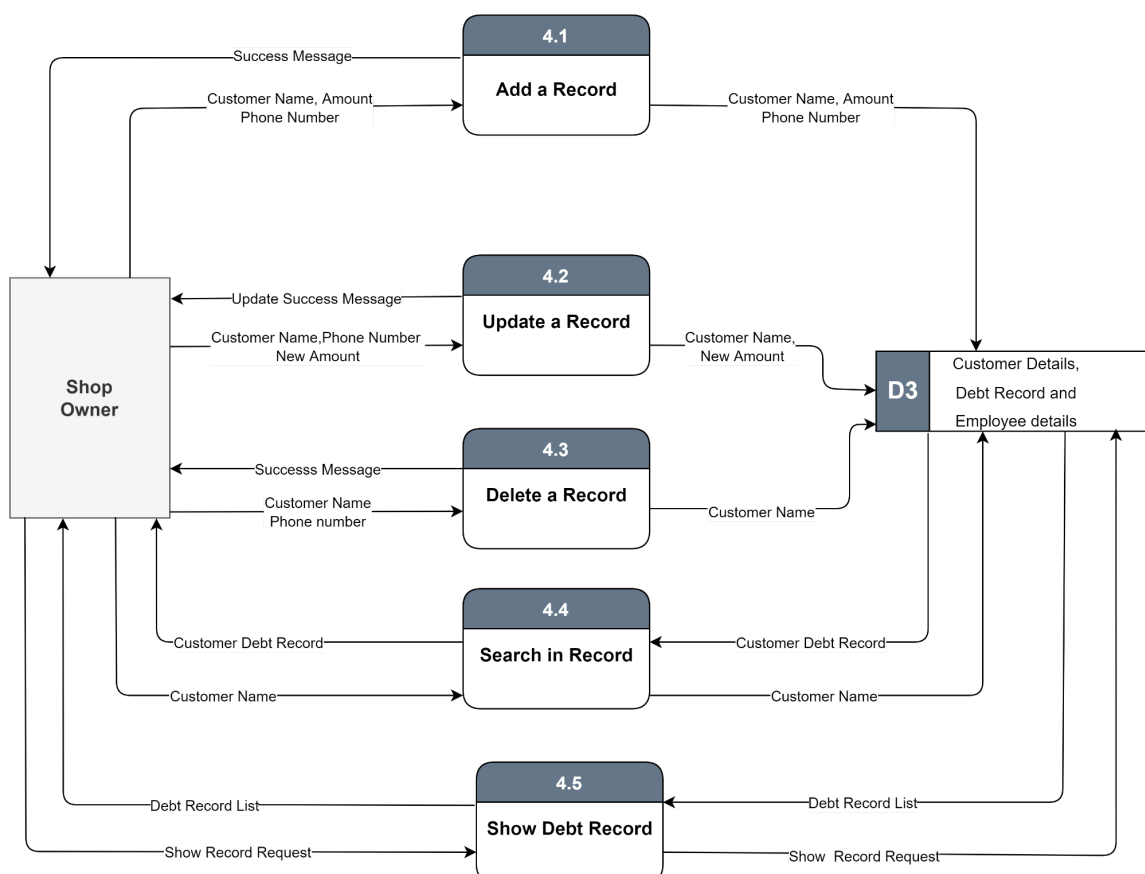


Module 4 - Customer Debt Management

There are 5 main processes in this module :

- 1. Add a Record:-** This process deals with the addition of customers details like amount(Debt), name, phone number. Customer Name, Amount, Phone Number are taken as input and according to this information a new entry created in the Data Store D3 and after that Success message is returned to the user from the Add a Record process.
- 2. Update a Record:-** This process deals with the updation of customers debt. Here customer name, phone number and new amount given as input and according to that information of debt is updated in Data Store D3 and after that update success message returns to the user from Update a Record process.
- 3. Delete a Record:-** This process deals with deletion of customer debt (After pay off) from the debt record. It takes the customer name and phone number, whose debt record is to be deleted, as an input from the user and then updates the same in the Data Store D3.
- 4. Search In Record:-** This process gives the debt record of a particular customer, collected from Data Store D3. A customer name and phone number is taken as input from the user and the process searches for the corresponding debt record in Data Store D3 and returns a detailed debt record of the input.
- 5. Show Debt Record:-** This process deals with displaying the debt record of customers to user. The user requests to show the debt record from process and process returns a well maintained Debt Record collected from Data Store D3.

DFD Level 2, Module 4 : Customer Debt Management

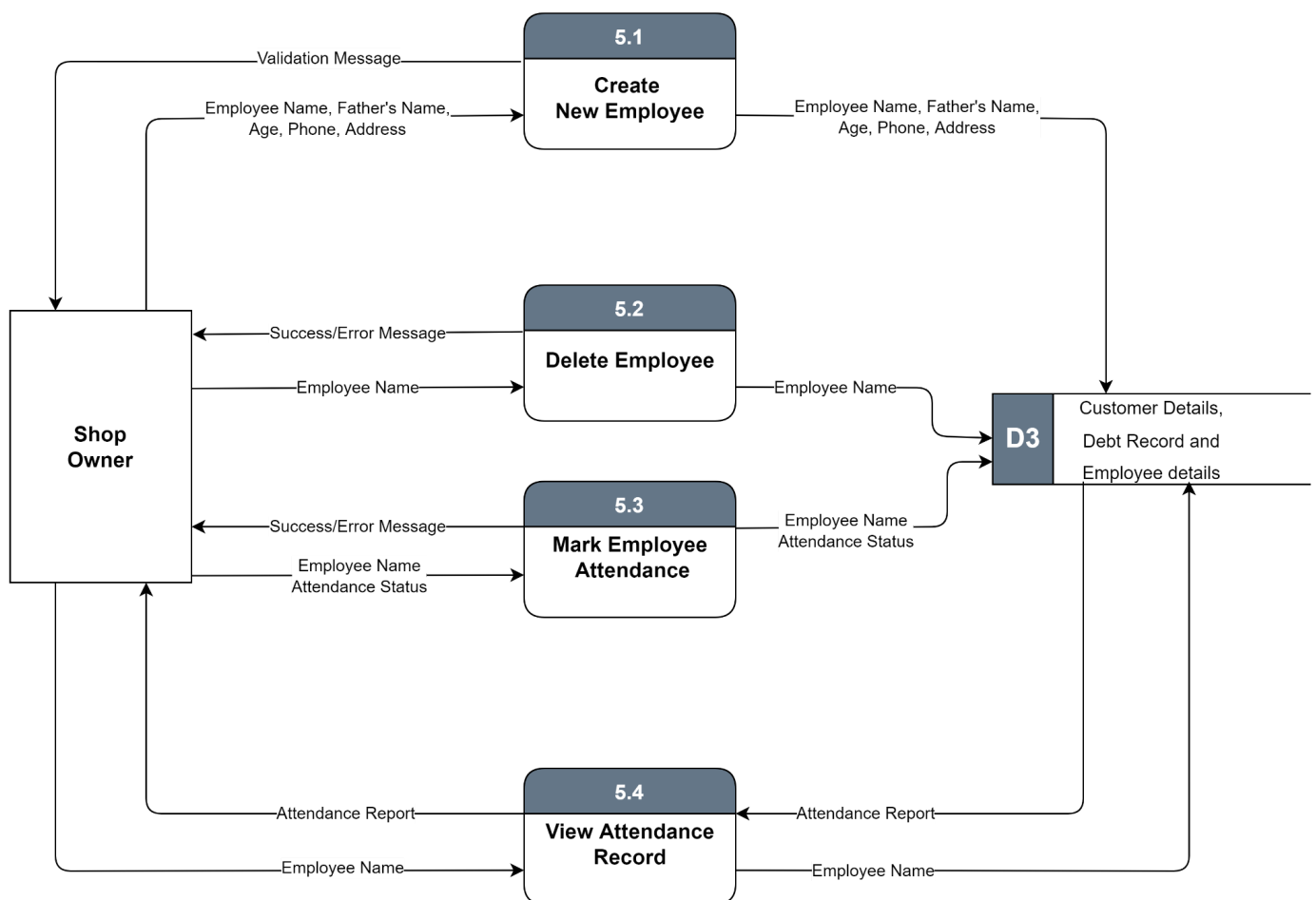


Module 5 - Employee Management

There are 4 main processes in this module :

- 1. Create New Employee:-** This Process deals with the Creation of a New Employee. It takes relevant information like Name, Father's Name, Age, Phone Number, Address from the User and according to this information a new entry created in the Data Store D3 and after that Success message is returned to the user from the Create a New Employee process.
- 2. Delete Employee:-** This process deals with deletion of an existing employee from the employee register. It takes the Employee name, who needs to be deleted, as an input from the user and then updates the same in the Data Store D3. After that, a Success message is returned to the user from the Delete Employee process.
- 3. Mark Attendance:-** This process deals with Marking the attendance of a particular employee. It takes Employee Name as input and then updates the same in Data Store D3. After that, a Success message is returned to the user from the Mark Attendance process.
- 4. View Attendance Record:-** This process deals with Viewing the attendance of a particular employee. It takes Employee Name as input and then returns the Employee Attendance record from Data Store D3.

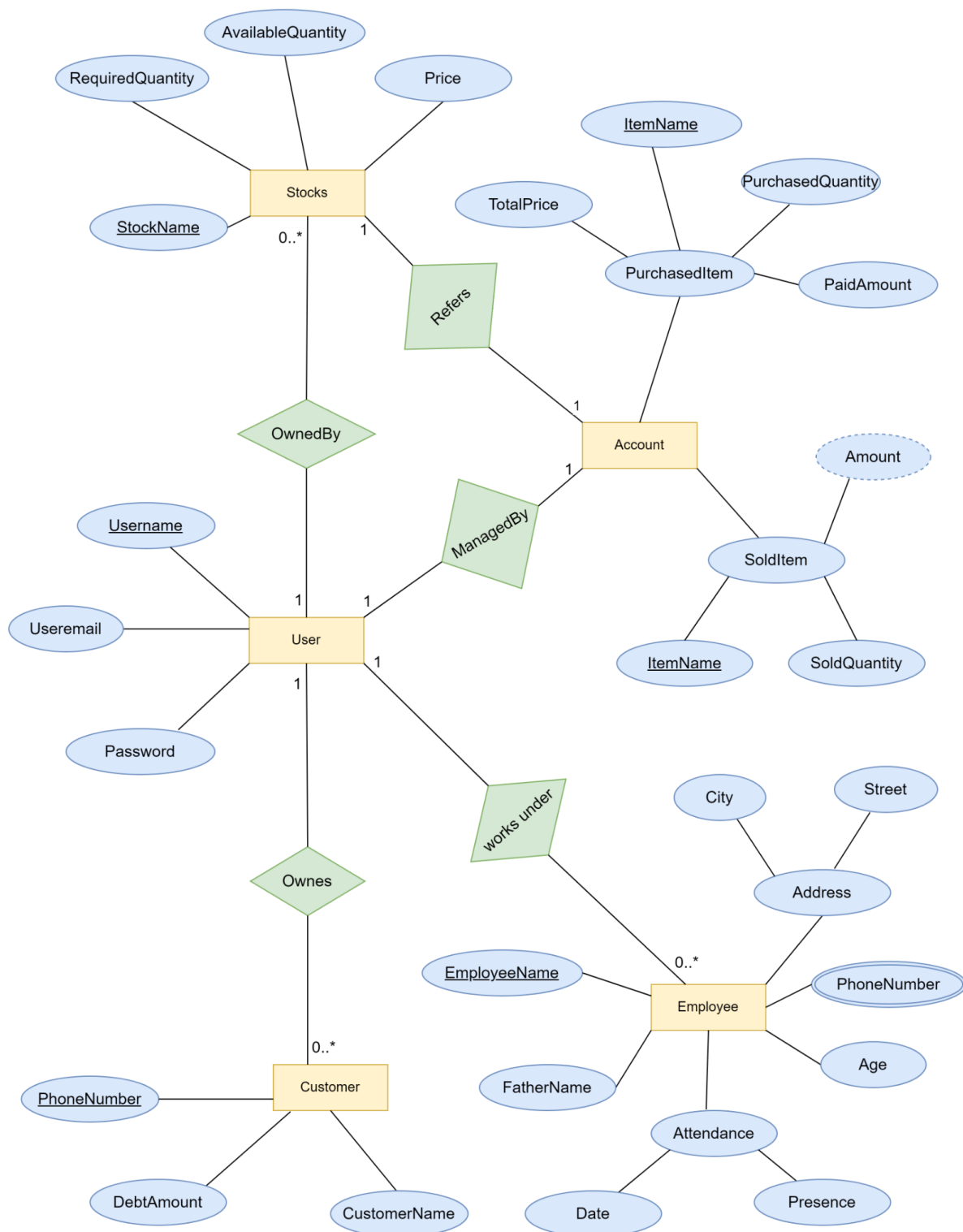
DFD Level 2, Module 5 : Employee Management



Data Store Design and their relationship (ERD):-

Data Description:-

The following entity-relationship diagram graphically explains how data would be stored and used in the applications. The rectangles represent the actual entity (data stores), The ellipses attached to each entity (data store) represent attributes that characterise it, and the diamonds describe the relationship between data stores. This entity-relationship diagram follows the **standard ER diagram conventions**.



Data Dictionary:-

User :-

This entity contains all the details of the owner (user)who uses this application.This entity Contains following attributes.

- **Username:-**Account name or username set by user(owner). Username will be the primary key(uniquely assigned) so that no two users have the same username.
- **Password:-**Ensures protection to users profile so that a user can safely access his/her data.
- **Useremail:-** Every account will be linked with one email address.This would help to access the account easily.

Stocks :-

This entity contains all the details of the stocks.This stores the stocks of every type of items.this entity related to User entity by OwnedBy relation.This basically tells that how much stock of particular item owned by user(owner) and in this relation one user can have multiple stocks of items. This entity contains following attributes.

- **StockName:** StockName attributes are used as the primary key to uniquely identify the items.
- **RequiredQuantity:-**RequiredQuantity attribute is used to tell the required quantity of items which are going to be purchased from big vendors.
- **AvailableQuantity:-** AvailableQuantity attribute is used to tell the available quantity of items which are going to be sold.
- **Price:-**In these attributes prices of items or stocks will be written.

Account :-

This entity contains all the details of the Account for each stock(item). This stores the sale/buy for every type of items.This entity related to User entity by ManageBy relation.This basically tells that how much amount (quantity and price) of particular item sold and purchased by user(owner).and in this relation one user can have only one account(for each item).This entity also related to Stock entity by Refers relation.This is one a one relation .In this relation Account entity fetching price of item (since they had same primary key which is Itemname) from Stocks entity. This entity contains the following attributes.

- **PurchasedItem:-**Attribute created by user.It is a composite attribute.This attribute is composed of many other attributes. This attribute basically tells the details of the purchase account .Here are the following composed attributes.
 - **ItemName:-** ItemName attributes are used as the primary key to uniquely identify the items.
 - **TotalPrice:-**TotalPrice attributes are used to tell the total price of items that are purchased.
 - **PurchasedQuantity:-** This tells the purchased quantity of the item.

- **PaidAmount:-** This tells how much amount has been paid to the big vendor by the user(owner).
- **SoldItem:-** Attribute created by user. It is a composite attribute. This attribute is composed of many other attributes. This attribute basically tells the details of the sold account. Here are the following composed attributes.
 - **ItemName:-** ItemName attributes are used as the primary key to uniquely identify the items.
 - **Amount:-** This is a derived attribute. Since this is derived from quantity and price (taken from Stock entity) of item. This basically tells the total amount of sale for a particular item.
 - **SoldQuantity:-** This tells the purchased quantity of the item.

Customer:-

This entity contains all the details of customer. This stores the data of customers like Phone number, debtAmount, name. This entity is related to the User entity by Ownes relation. For one user there can be multiple customers so this is one to many one relationship between User and Customer entity.

- **PhoneNumber:-** This basically tells the phone number of the customers and also used as a unique key.
- **DebtAmount:-** This attribute tells about the pending debt on a particular customer.
- **CustomerName:-** This attribute tells the customers name.

Employee:-

This entity contains all the details related to the employee of the shop. This stores the data of the employees such as employee's name, father's name, Phone Number, Age, His/Her Attendance and address of the employee. This entity is related to User entity by Works Under relation. For one user there can be multiple employees so this is one to many one relationship between User and Employee Entity.

- **EmployeeName:-** Employee name which is assigned to access uniquely or basically assigned as primary key.
- **FatherName:-** Father's name of a particular Employee.
- **Phone Number:** This attribute tells about the employee's Phone Number. This is a multi-valued Field as an employee can have more than one phone number.
- **Age:** This attribute tells about the Age of an employee.
- **Attendance:** Attendance of an employee on a particular date. It is a composite attribute. Every attendance contains Date and Presence attributes.
- **Address:-** This is a composite of other attributes. This attribute tells the address of a particular employee. Every Address is further characterised by following attributes-
 - **City:-** City of particular employee where he/she lives.
 - **Street:-** Street where he/she lives.