



# **Database Systems Project**

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# 1 Functional Requirements

## 1. User Management

- **Admin**
  - **Add User (Employee/Customer/Analyst):**
    - Fields for first name, last name, role, username, password, address, salary (employee, analyst), contact details.
    - Password complexity requirements.
    - Enforce unique usernames (across all user types) and emails (for customers).
  - **Remove User:**
    - Select user.
    - Confirmation for security.
    - Options for archiving vs. deleting data (e.g., customer orders for reporting).
  - **Edit User:**
    - Modify user information (excluding usernames).
  - **Manage Own Profile:**
    - View/edit name, password, address.

## 2. Inventory Management

- **Employee**
  - **View Inventory Levels:**
    - Real-time inventory view with clear thresholds, search/filter functionality.
    - Highlight items below reorder levels.
  - **Generate Reorder Requests:**
    - Automatic low-stock notifications.
  - **Receive Inventory:**
    - Update inventory quantities when new stock arrives.
    - Potential link to supplier purchase orders.
  - **Ingredient-Level Tracking:**
    - System deducts ingredient quantities from `InventoryItems` based on `Recipes` and sales in `TransactionItems`.

### 3. Product Management

- **Admin**

- **Menu Management:**

- Add/edit/remove menu items with name, description, price, images, category, availability toggles.
    - Create/modify menu sections/categories.
    - Create new menus i: e Vegan Menu etc.

- **Recipe Management:**

- Create/edit recipes.
    - Link ingredients and quantities to recipe.

- **Ingredient Management:**

- Add/edit/remove ingredients with name, unit, cost, supplier information.

### 4. Order Management

- **Customer**

- **Browse Menu**

- Detailed menu view with descriptions.
    - Searching and filtering capabilities.

- **Place Order:**

- Add items to cart (quantity selection).
    - Select pickup/delivery time (if applicable).
    - Apply promotions/discounts, redeem loyalty points.
    - Provide payment information.
    - Review and confirm order.

- **Track Order Status:**

- Real-time updates: "Preparing," "Ready," "Out for Delivery," etc.

- **View Order History:**

- Past orders with details, ability to reorder easily.

- **Employee**

- **Process Order (Cashier/Kitchen Staff):**

- View incoming orders.
    - Change order status: "In Progress," "Ready," "Completed."

- Manage fulfillment and communicate with delivery agents, if applicable.

## 5. Promotions & Loyalty

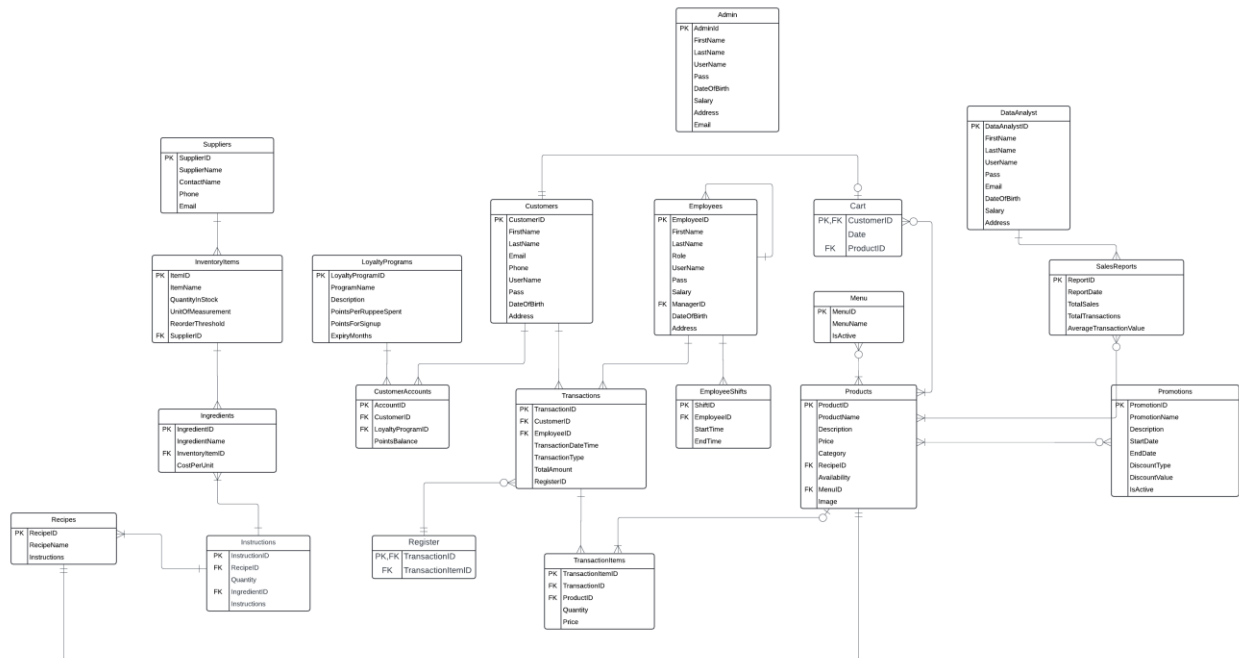
- **Admin**
  - **Promotions:**
    - Create promotions (percentage off, fixed amount, item-specific, etc.)
    - Set start/end dates, active/inactive toggles.
    - Manage promotional codes.
  - **Loyalty Program:**
    - Create/edit programs with points accrual rules, expiry, welcome bonus, etc.
    - Enroll/unenroll customers.
    - Tiered loyalty systems
- **Customer**
  - **Enroll in Loyalty:**
    - Opt in during signup or later.
  - **Track Loyalty Points:**
    - Clear points balance display.
  - **Redeem Loyalty Points:**
    - Apply points during checkout.

## 6. Reporting & Analytics

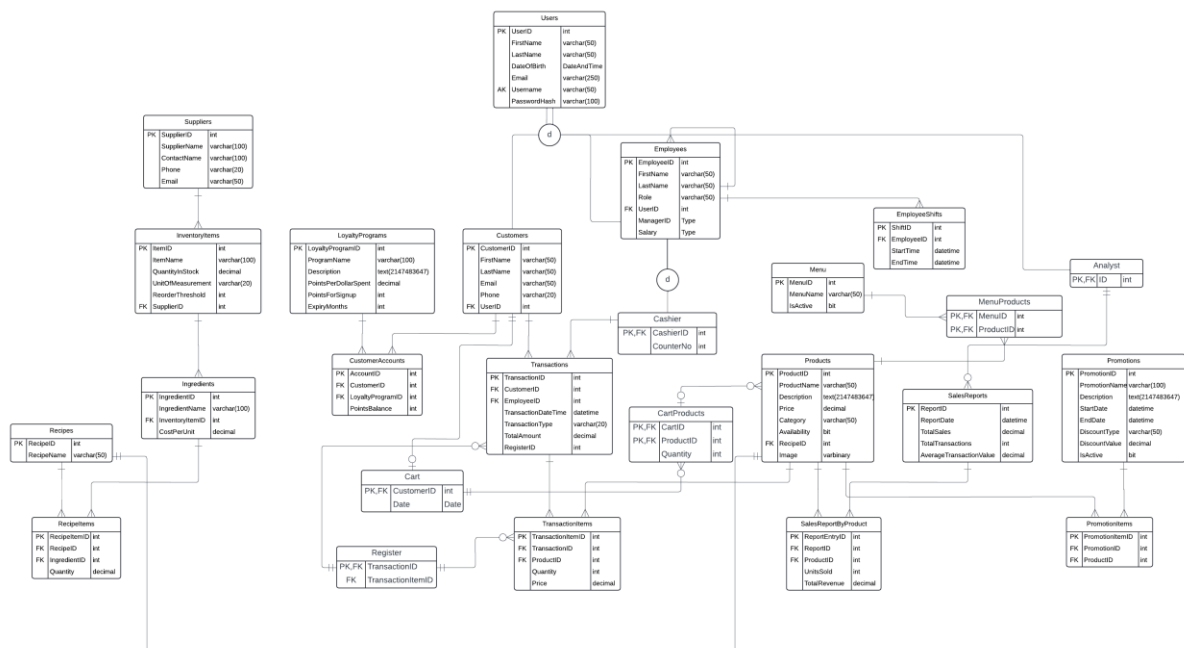
- **Data Analyst**
  - **Sales Dashboard:**
    - Visuals of key metrics: sales trends (daily, weekly, monthly), revenue, top-selling products, average transaction value, etc.
    - Filters by date range, product category.
  - **Customer Behavior:**
    - Customer segmentation.
    - Peak time analysis.
    - Customer Loyalty Tracking.
  - **Promotion Analysis:** Track redemption rates and effectiveness of promotions.
- **Manager**
  - Daily/weekly sales snapshots.

- Staff performance reports

## 2 Entity Relation Diagram

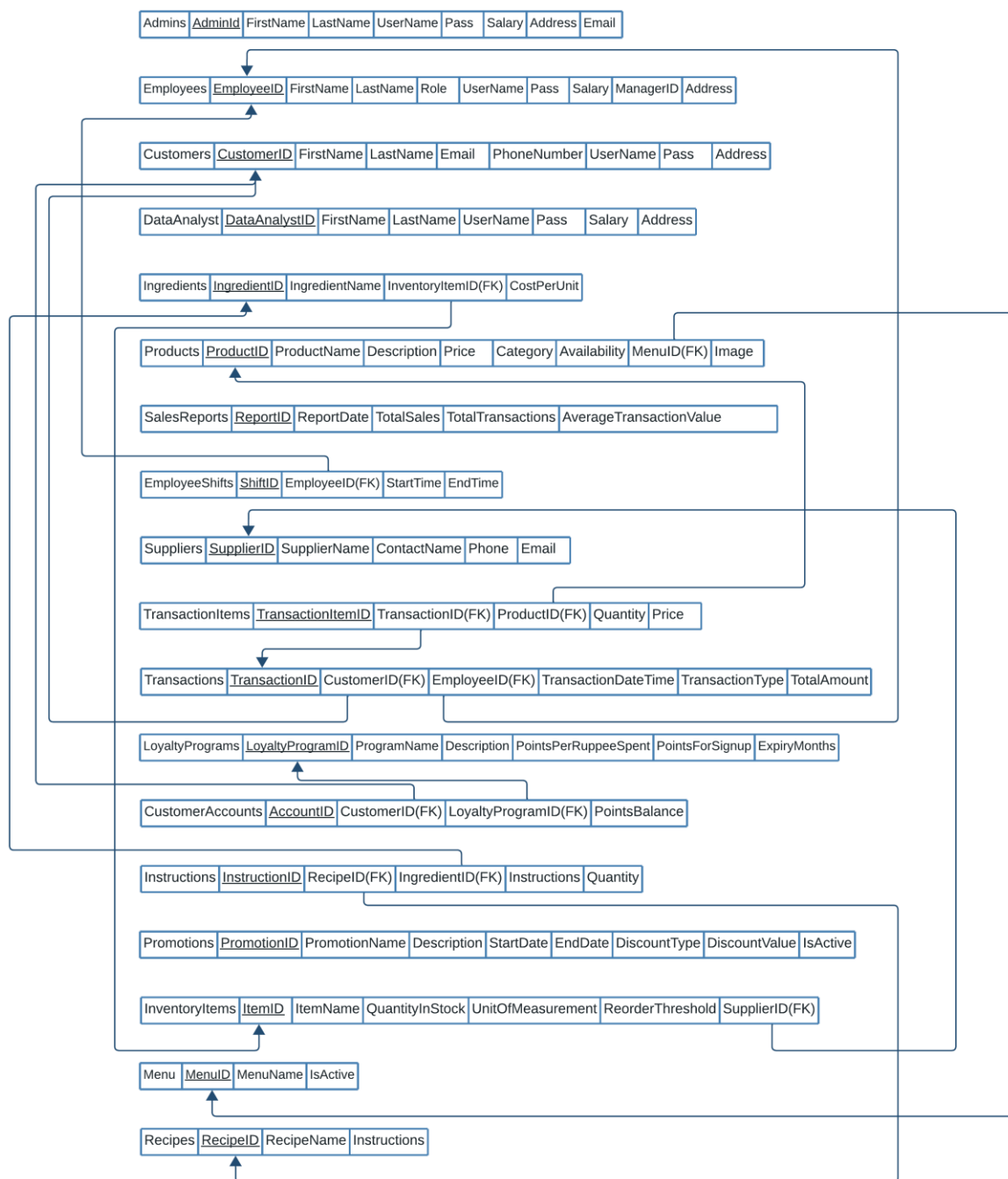


## 3 Enhanced Entity Relation Diagram

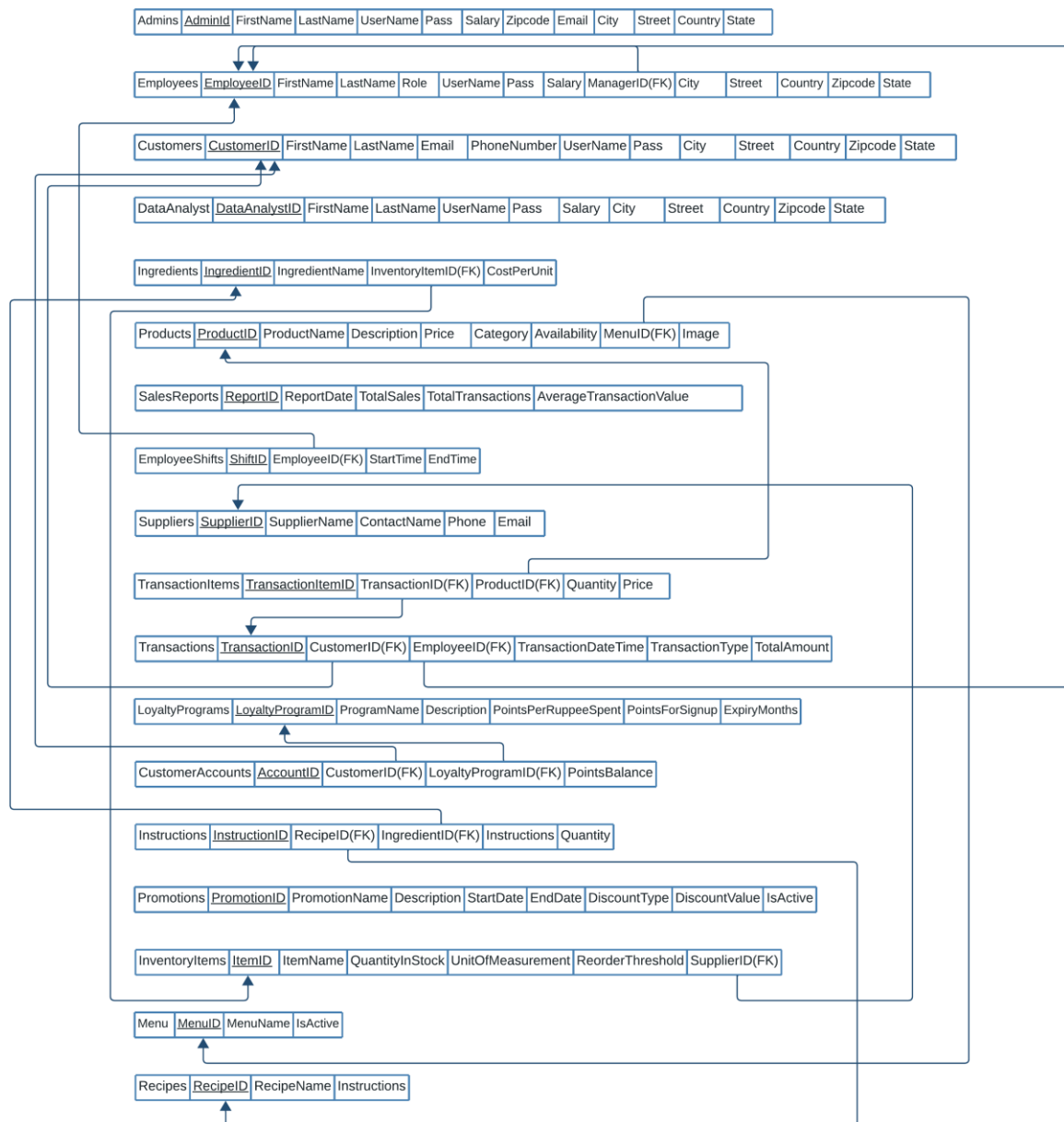


## 4 Relation Schema

Original Schema from Entity Relation Diagram.

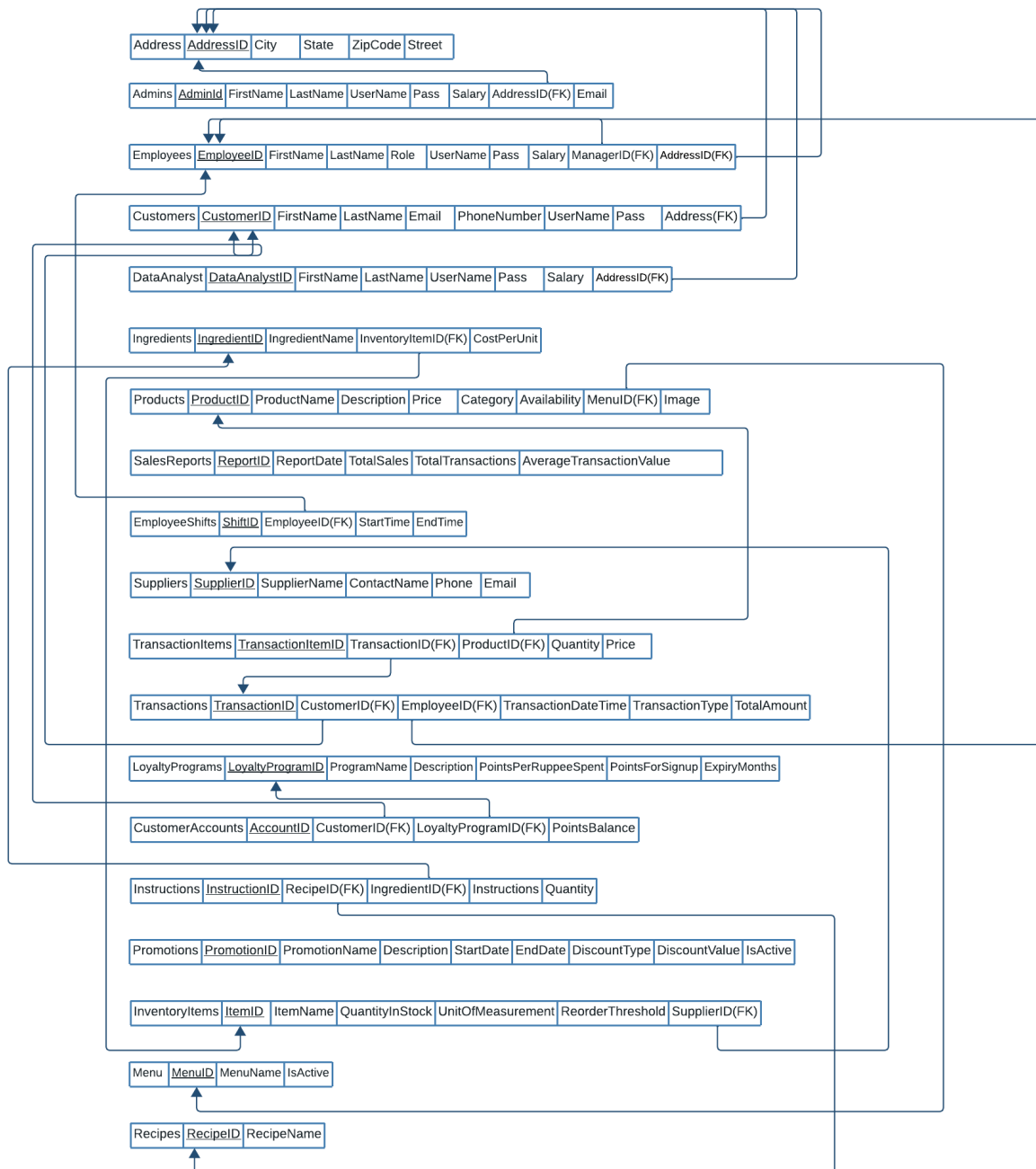


The below schema is in both 1NF and 2NF.





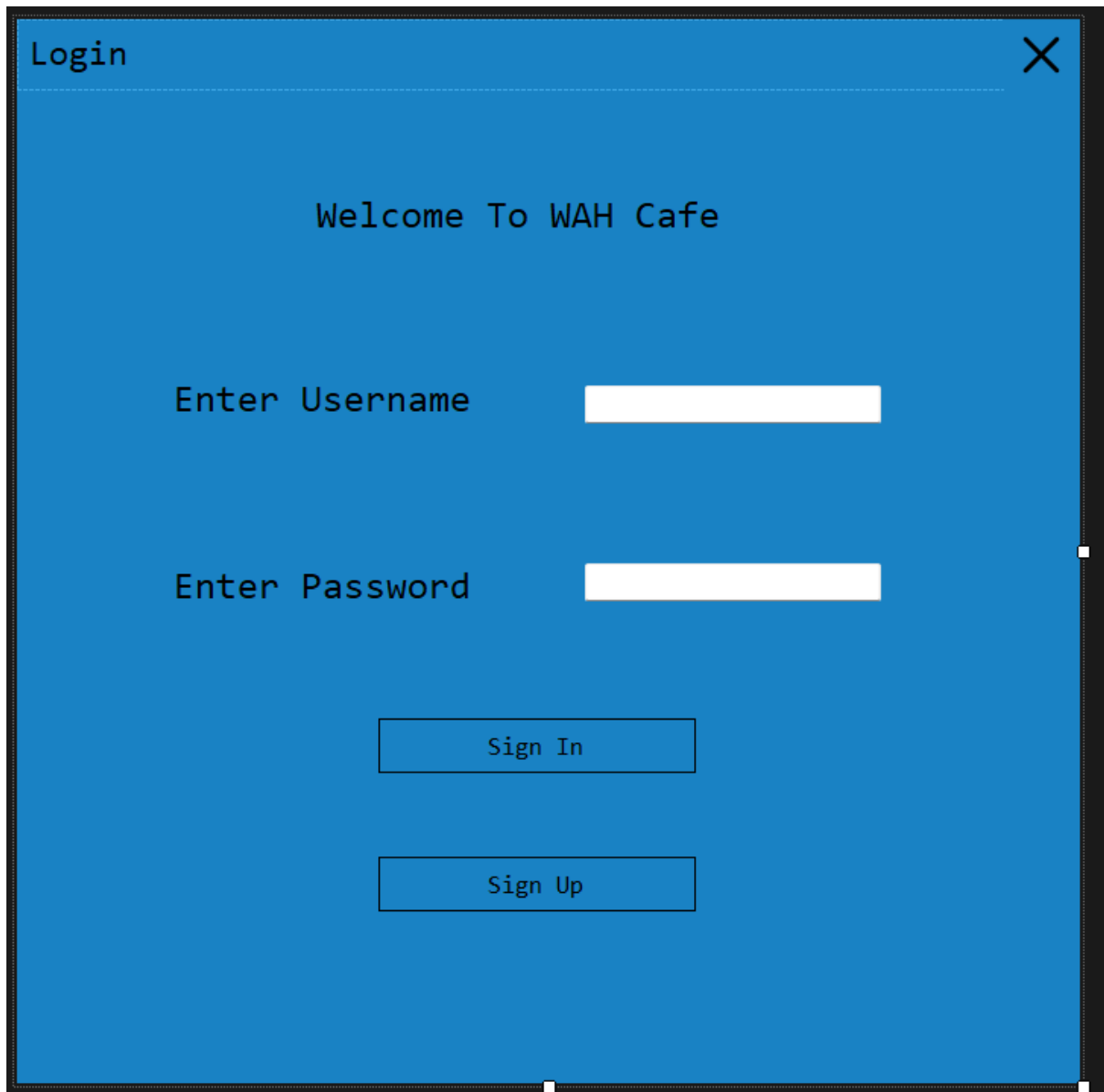
The below schema is in 3NF.



## 5 Usage Guidelines

- Enter the username and password in the login form if you are an admin employee, customer or data analyst.
- If you have not registered, you can click on the sign-up button and sign up as a customer.
- If you are a customer logged in, you can view the menu. Select a menu from the menu table and view the related products to add product to Court. Click on add to card button.
- If you are a customer and want to manage your profile, click on the profile button
- If you want to view the latest notifications, click on the notifications button
- If as a customer want to view your history of orders, click on history button
- If you want to place an order, click on the card button and if you want to remove product, click on remove, otherwise click on place order button
- If you are an admin, click on the profile button to manage your profile. Click on the manager employees' button to add remove or edit an employee click on the manage customer button to add remove or view customers.
- If you are an employee, click on inventory button to view inventory and send notifications button to send promo promotions click on report button to generate reports. Click on history to view orders processed click on profile button to manage your profile.
- If you are on the manage inventory form, click on add new item to add a new item to the inventory or delete an item or update the item details in the table and click on save button.
- If you are on the reports form, click on a button from 1 to 18 to view accordingly reports and as well as on view 1-6 buttons.

## 6 Screenshots of Project



A screenshot of a login form titled "Login" in the top-left corner, with a close button (X) in the top-right corner. The form has a blue background and a black border. The text "Welcome To WAH Cafe" is centered at the top. Below it, there are two input fields: "Enter Username" and "Enter Password", each followed by a white rectangular input box. At the bottom, there are two buttons: "Sign In" and "Sign Up", each enclosed in a black rectangular box.

Login

Welcome To WAH Cafe

Enter Username

Enter Password

Sign In

Sign Up

Sign Up

Enter Username

Enter Password

Confirm Password

Sign In

Sign Up

Add Customer

First Name

Date of Birth

Sunday , 5 May 2024 ▾

Last Name

Email

Phone Number

Username

Password

Address

Save

Clear

Add New Item

SupplierId	SupplierName	ContactName	Phone	Email

Item Name

Quantity

Measurement Unit

Reorder Threshold

Supplier ID

Add

AdminForm

Profile

Manage Employees

Manage Customer

Add Employee Edit Employee Delete Employee

AdminForm

Profile

Manage Employees

Manage Customer

Add Customer

Edit Customer

Delete Customer

View Customers

Admin Form

Profile

First name -

Last Name -

Email -

Address -

Username -

Password -

Save Edit Clear

Cart Form

ProductId	ProductName	Description	Price

Place Order

Remove From Cart

Customer Form

View Menu

Profile

Notificatio

History

Cart

Profile

First name -

Last Name -

Email -

Phone Number -

Address -

Username -

Password -

Save Edit Clear



Customer Form

View Menu

Profile

Notificatio

History

Cart

PromotionName	Description	EndDate	DiscountValue
---------------	-------------	---------	---------------

Customer Form

View Menu

Profile

Notificatio

History

Cart

TransactionId	TransactionDate	TransactionType	TotalAmount
---------------	-----------------	-----------------	-------------



Edit Customer Form

First Name  Date of Birth

Last Name

Email

Phone Number

Username

Password

Address

EmployeeForm

Inventory

Send Notifications

Report

History

Profile

Profile

First name -

Last Name -

Email -

Phone Number -

Address -

Username -

Password -

EmployeeForm

Inventory

Send Notifications

Report

History

Profile

PromotionId	PromotionName	StartDate	EndDate	DiscountValue
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Add Delete

EmployeeForm

History

Inventory

Send Notifications

Report

History

Profile

TransactionId	TransactionDate	TransactionType	TotalAmount
---------------	-----------------	-----------------	-------------

Inventory Form

Manage Inventory

	ItemId	ItemName	QuantityInStock	UnitOfMeasure	ReorderThreshold
*					

Add New Item

Save

Report Form

Reports

Query

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