PoS and Inventory Solution for Restaurants

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Approval Certificate

This project titled "**PoS and Inventory Solution for Restaurants**" submitted by **Fahima Chowdhury**, Student ID: **012142003**, has been accepted as Satisfactory in fulfillment of the requirement for the degree of Master of Science in Computer Science and Engineering on [Date].

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Declaration

This is to certify that the work entitled "**PoS and Inventory Solution for Restaurants**" is the outcome of the research carried out by me under the supervision of Prof. Dr. Mohammad Nurul Huda, Professor and Coordinator - MSCSE.

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In my capacity as supervisor of the candidate's project, I certify that the above statements are true to the best of my knowledge.

_____

Prof. Dr. Mohammad Nurul Huda
Director - MSCSE

Abstract

This project was proposed by a coffee shop. The purpose was to manage the sales and the inventory effect by the sales.

Presently the system is working as a Point of sales and as an Inventory Management as well. In the system there is an option to add a recipe of a particular item. If that Item is sale according to the recipe the ingredients will be deducted from the inventory. Also from the inventory you can also add semi-finished product to the inventory and use it as ingredient of a finished product. If that semi-finished product is produced in house then also whenever the semi-finished is added the recipe will help deduct the raw items from the inventory to produce that. To maintain the security the credentials are encrypted.

Acknowledgement

I would like to express my deepest appreciation to all those who helped me to study the actual problem that restaurants are facing while selling items and managing their inventory at a time. They also helped me by providing me the opportunity to use their sample data and test my solution on them. A Special gratitude to my Supervisor Prof. Dr. Mohammad Nurul Huda whose contribution in simulating suggestions and confidence in me encouraged me to coordinate my project especially in writing this report.

Furthermore I would also like to acknowledge with much appreciation the crucial role of the owner of the coffee shop who gave permission to use all the required equipment and necessary materials to complete the solution. Last but not least, many thanks go to the head of the project, our Senior Developer MD. Shafiqur Rahman whose have invested his full effort in guiding me in achieving the goal. I have to appreciate the guidance given by the panels especially in our project proposal presentation that has improved our presentation skills thanks to their comment and advices.

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Chapter 1

Introduction

“PoS and Inventory Solution for Restaurants" is a software solution proposed by me to resolve inventory problems in restaurants. This solution uses the recipe stored in the system by the management. The main purpose of this solution to calculate the raw inventory. It can also serve you the semi-finished product that are used to prepare main course. These semi-finished product also need raw items to prepare. The system can calculate this as well with the help of the recipe for the semi-finished product and store this as the inventory item for the main course to use it as raw.

Moreover, its main purpose is to save time, money and resource at a time. Which can bring revenue for the business.

Chapter 2

Background and Literature Review

The main goal of my project to solve the inventory management issue of a restaurant. Restaurants face problem while dealing with the raw inventory items. For example if a Food is made up with some flour, eggs, butter and some self-made Sause. And this self-made souse also takes some raw items. To make the food first you have to make the souse. After making souse obviously you will preserve it for future. But after preserving it they will not calculate the raw materials. They start preparing the main course. In the day end they have to spend time and money to calculate the inventory to start for the next day.

From above situation I have come up with my software to resolve this. The main Idea is to have a recipe already stored in the system. With the help of that recipe we can deduct raw items while preparing souse for preservation which is known as semi-finished product in my system. More over whenever they prepare main course with combination of other items the semi-finished product is also work as inventory item which will be deducted when they sell the food. In the day end they don't need to calculate all the inventory. All they have to do is match the number what is left in the inventory and what number the system says.

Yes there might be slight miscalculation as we are human. Such as the system says 2 kg sugar left but they find 2.8 kg sugar is there in the store. My system has solution for that too. There is an adjustment window through which you can store the actual number.

2.1 Features

Following are the features of the solution:

- User Management
  - Add New User

- Role Management

- Inventory Management
  - Product Management
    - Category
    - Sub-Category
    - Product
    - Recipe Builder
    - Sales Price
    - Unit of Measurement
    - Stock Transactions
    - Wastage
    - Semi Finished Kitchen Items
  - Store Management
    - Add New Store
    - Store Dashboard
  - Stock Adjustment
- Purchase Store Items
  - Add New Purchase
  - Supplier Management
    - Add New Supplier

        - Supplier Payment

- Manage WIFI
- Promo and Discount
    - Business Promotion
    - All Discount
- Point of Sales
- Kitchen Display
- Data Report
    - Item Reports
    - Stock Reports
    - Purchase Reports
    - Seles Reports
- Void Invoice

Chapter 3

Feature Description

Authentication is a must in every system. To assure this we have managed the database access by config.txt file. In this file the username and password is encrypted along with machine number. Whenever a user run this application, it decrypt the username and password and connect the system with database. Then the user provide the individual username and password to login. **Figure 1** is the home view of a user.

Following are the details process flow of this solution:

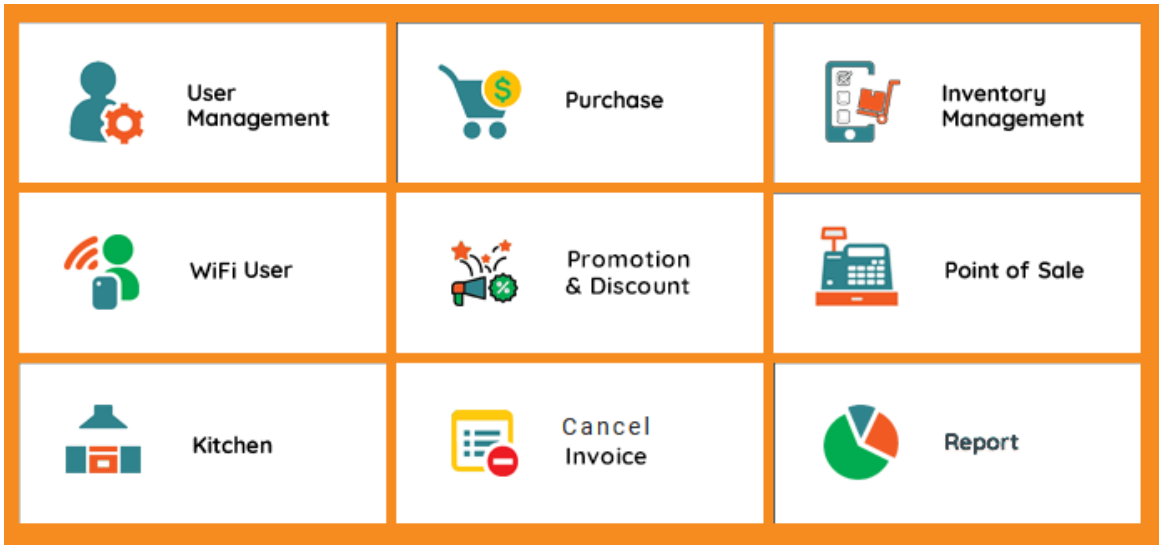

Figure 1: User Home

3.1 User Management

User Management feature is a authentication and permission control setting module. This module provides a dashboard with all the users enlisted in the database. This dashboard has access to edit and delete any user. If a user is edited then it will update in the “users” and “user_role” tables. For Delete it will update the “users” table’s status from 1 to 0.

It gives you the mechanism to create new user and manage them with the role accordingly. It comes with the features bellow:

- Create User
- Role Management

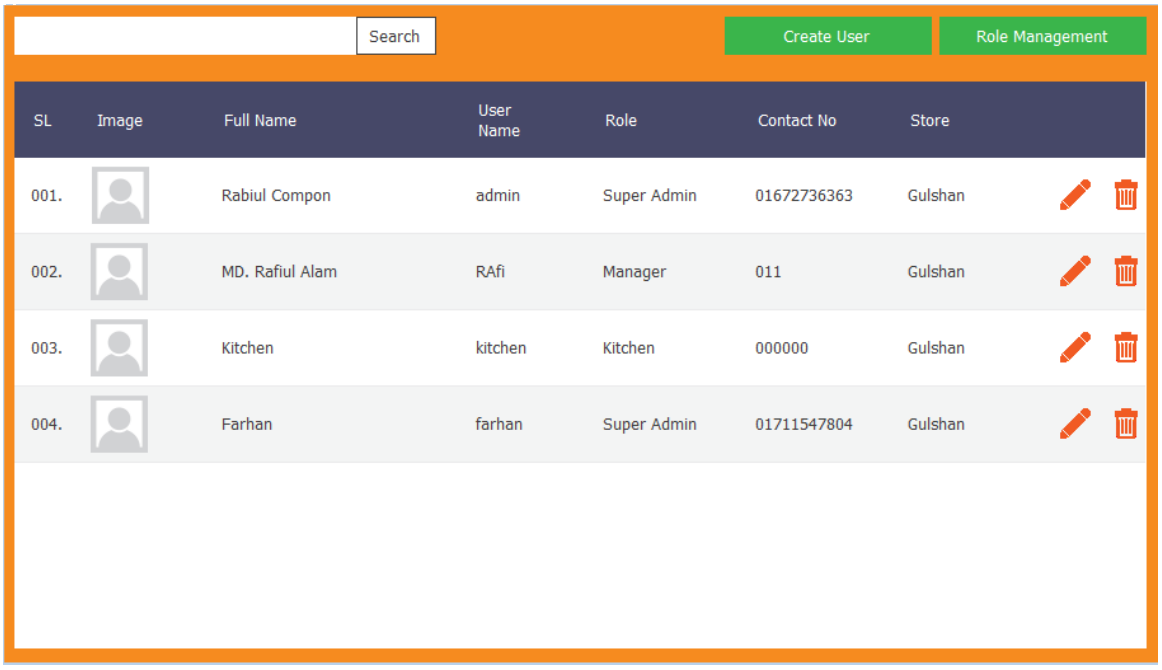

Figure 2: User Management

3.1.1 Create User

Here a user form need to be filled up. All the fields are mandatory in this form. This will create rows in “users” and “user_role“ tables. The user will be created for the branch you have logged in.

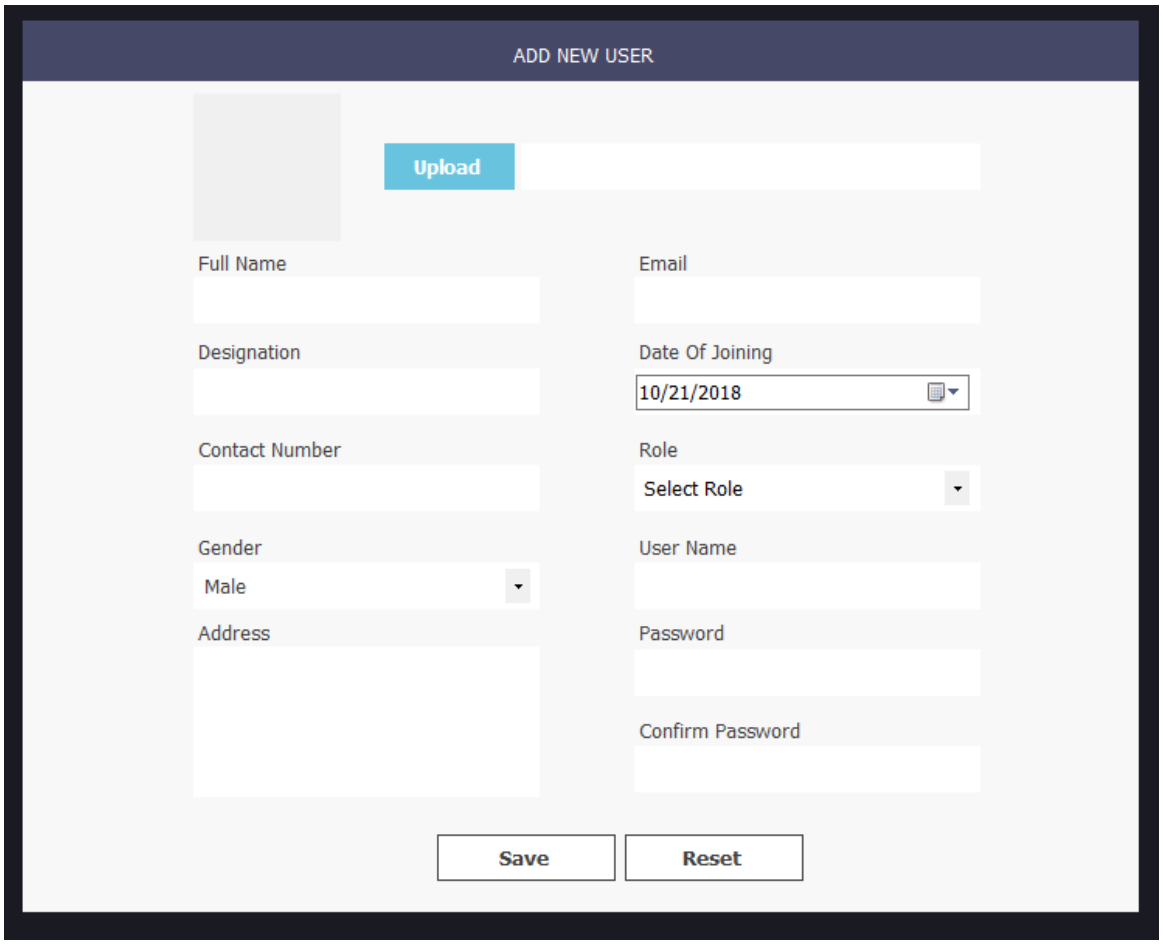

Figure 3: Create User

3.1.2 Role Management

Role Management helps the User Management to set user access control to a feature. When a feature is assign to a role and that role is assign to any user then that user is permitted to access that feature. This UI comes with a list of roles. From the list roles can be edited which will update the information in the "roles" table. When a role is deleted then the status of the role in the "roles" table is changed from 1 to 0.

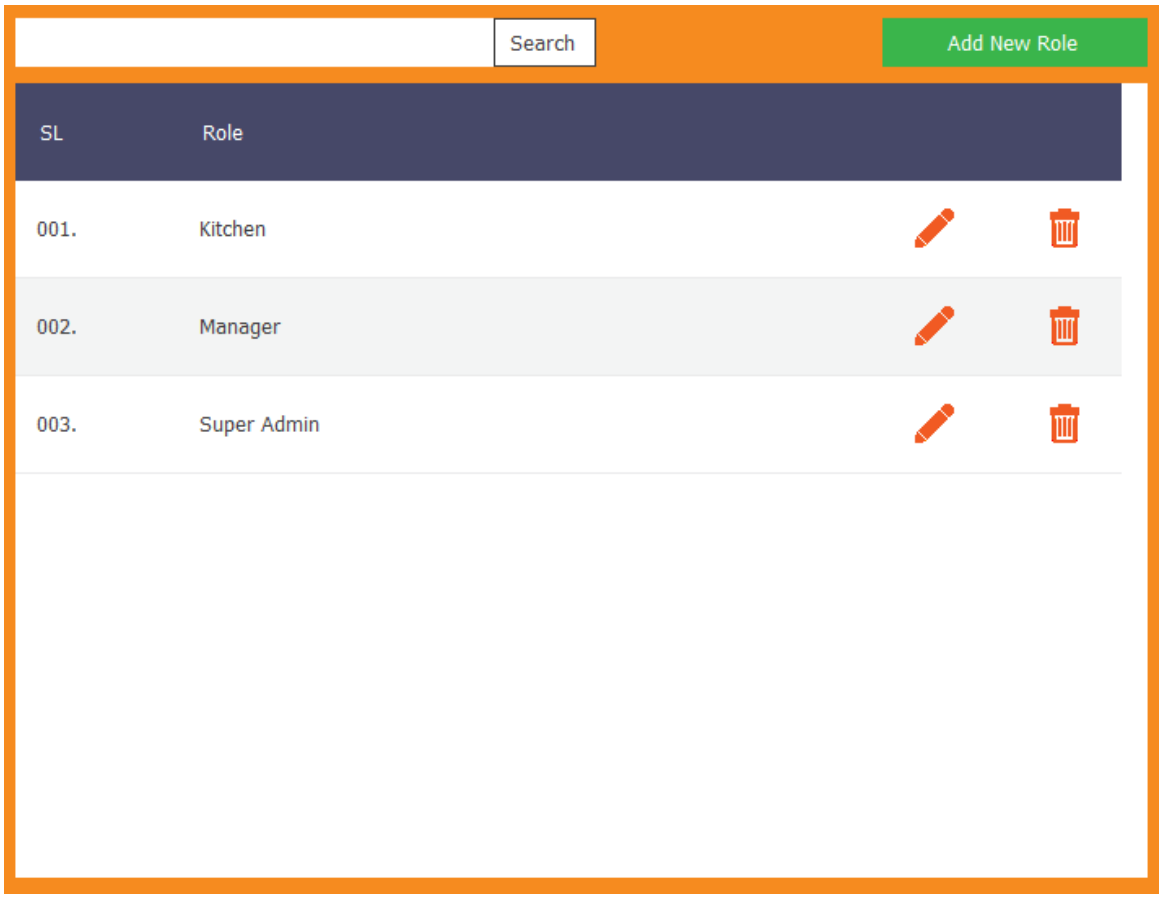

Figure 4: Role Management

Following are the features in Role Management:

- Add New Role

3.1.2.1 Add New Role

In this control user can create a new role and assign any feature to that role. Here a user can see a feature list that populates from "`permissions`" table with checkbox. The features which are selected will be assign to that role that role.

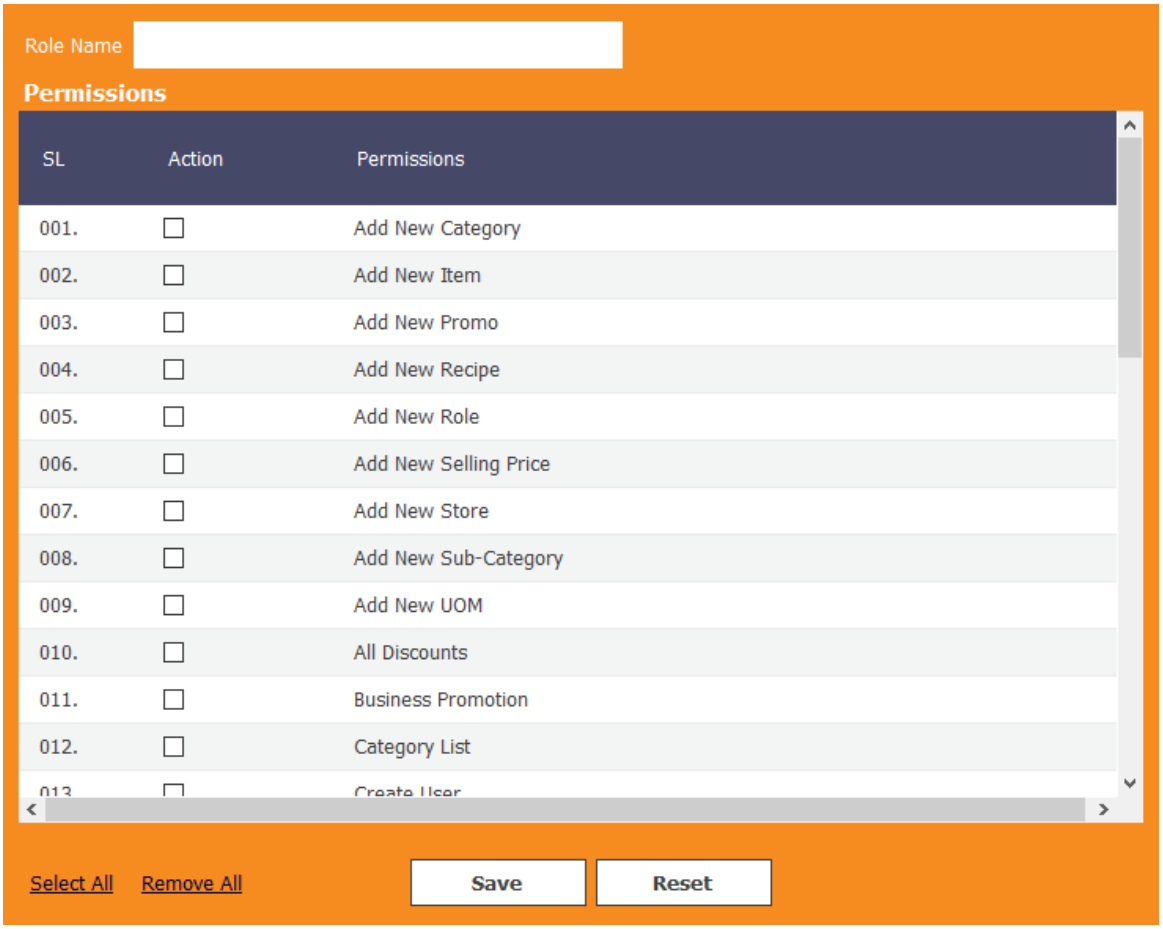

Figure 4: Add New Role

3.2 Purchase

When there is Inventory then there is Purchase as must. At any Business there are raw material. We either need to make them or buy them from others. In an automated system Purchase module do that job for us. In this system we provide a partially functioning Purchase module.

It populates the list of purchases done for the branch from “purchases” table. The details button will show the items purchased against that voucher from “purchase_items” table. There is also Payment and Adjustment in the dashboard described in 3.3.1 and 3.3.2

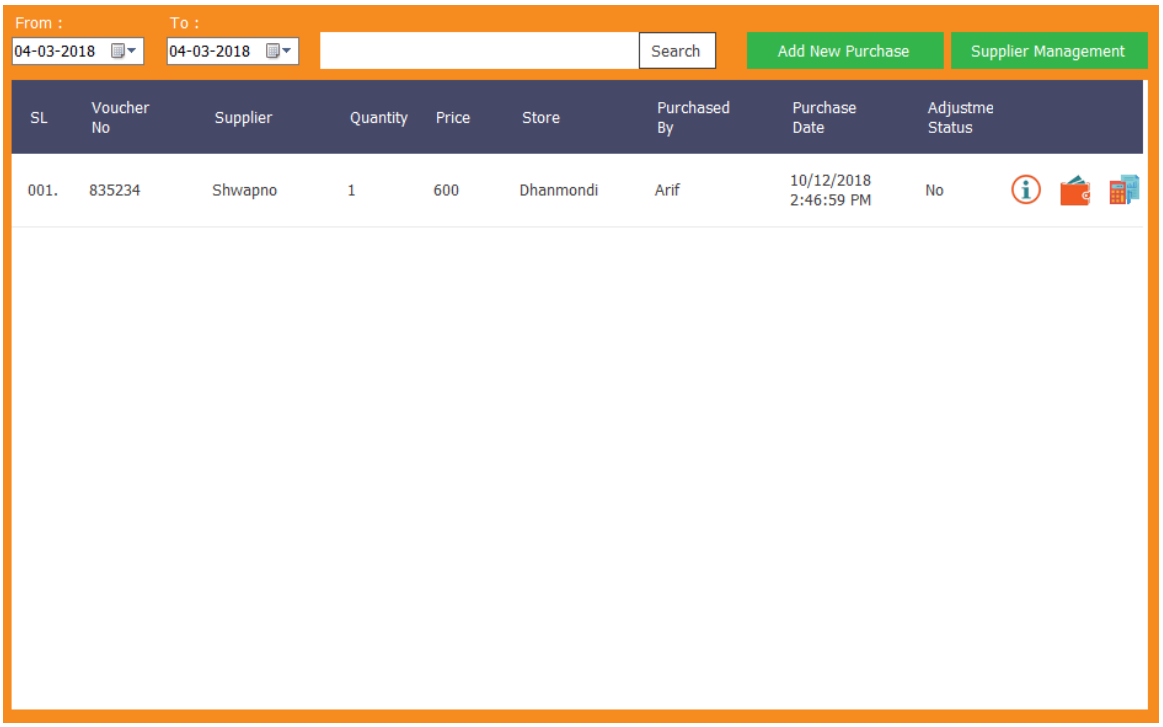

Figure 5: Purchase

3.2.1 Purchase Payment

Purchase payment gives a control to make payment against each purchase order. Usually every industry has some due against their purchases. They have to pay the dues and keep the track record side by side. This feature serves user to make the due payment.

It gets all the payment done against this voucher from "purchase_payments" table. User can pay the due amount from here. It will add a payment record in the "purchase_payments" table. All the fields except remarks are mandatory.

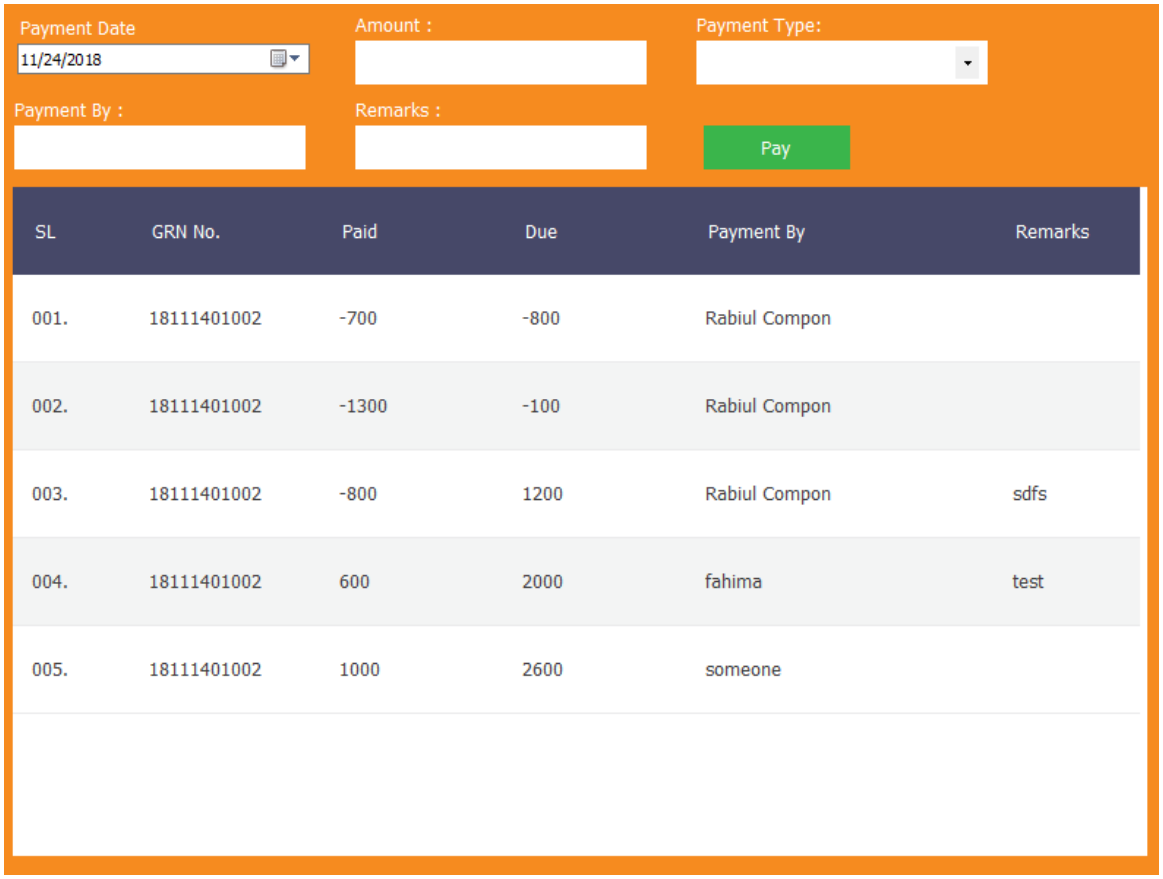

Figure 6: Purchase Payment

3.2.2 Purchase Adjustment

User do the purchases which can create miscalculation due to a human input mistake. Moreover suppose a user purchased some chunk of product and found it faulty. So they return it to the retailer and will adjust the payment with future purchase orders. The problem is the current purchase is already recorded in the system. To serve that purpose we provide “Purchase Adjustment” feature.

In “Purchase Adjustment” user gets to see all the items purchased. User can change the quantity and price of any item. The unit price will change accordingly by the system. A User can also delete any item. If a user change any Item a confirm button will appear. After confirming the item will add a record in “purchase-adjustment” table. After that it will Update the info in “purchase_items” table. Then it will update the stock quantity and unit price in “items” table. It will also create a record in “inventory_history” with transaction type “purchase_adjustment”. After that it will create a row in “purchase_payments” table where price will be difference between the current calculated payable amount after adjustment and previous payable amount. Due amount will be summation of due amount and difference between the current calculated payable amount after adjustment and previous payable amount. And the payment type will be “Adjustment”. In “purchases” table system will update the total price by the current calculated price.

If user delete any Item in that case the Item will be deleted from “purchase_items” table. Rest of the process will be as above except for “purchases” table. Here it will also update the number of items in “purchases” table.

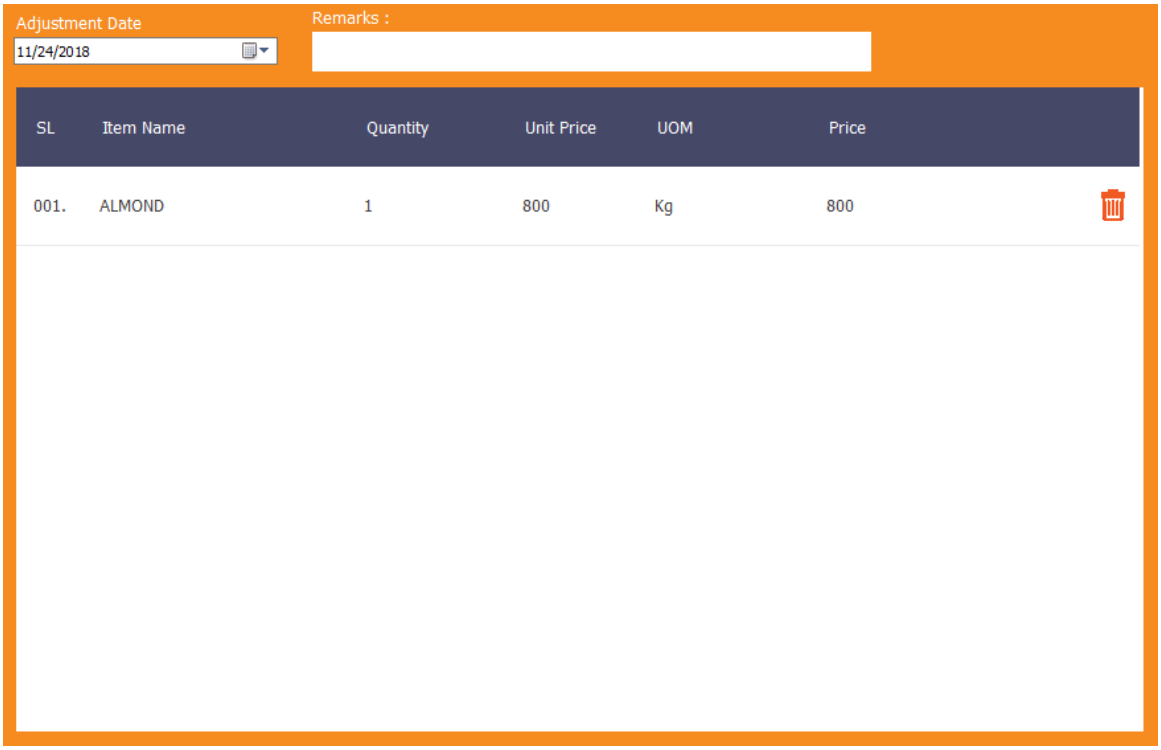

Figure 7: Purchase Adjustment

3.2.3 Supplier Management

User needs Supplier Management to get an over view of all the suppliers the business deals with along with their information. We present this feature to manipulate the suppliers' informations.

In Supplier management a dashboard will appear with a list of suppliers from the "suppliers" table. Edit and Delete option will update the info in "suppliers" table. For Delete it will update the status if the supplier to 0 in "suppliers" table. There also a Supplier Payment option which is described in 3.3.3.2.

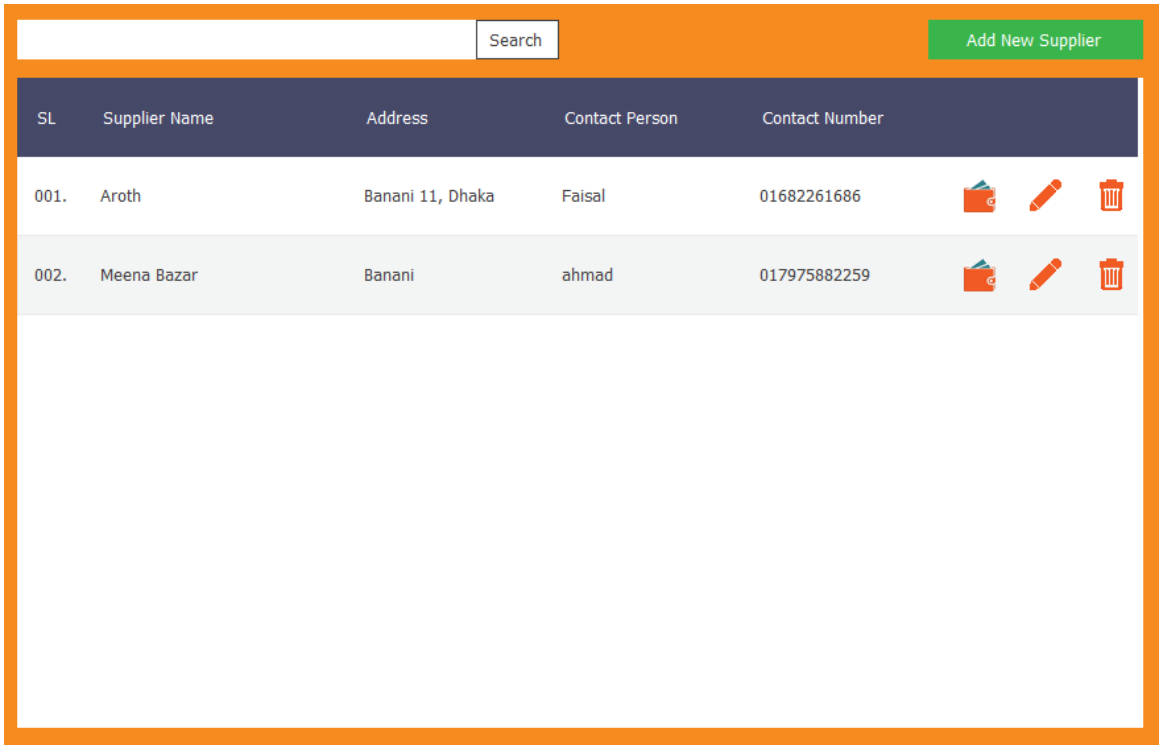

Figure 8: Supplier

3.2.3.1 Add New Supplier

Here a User can add a supplier for the branch. All the fields in Figure: 28 are mandatory. Saving the information will insert it in “suppliers” table.

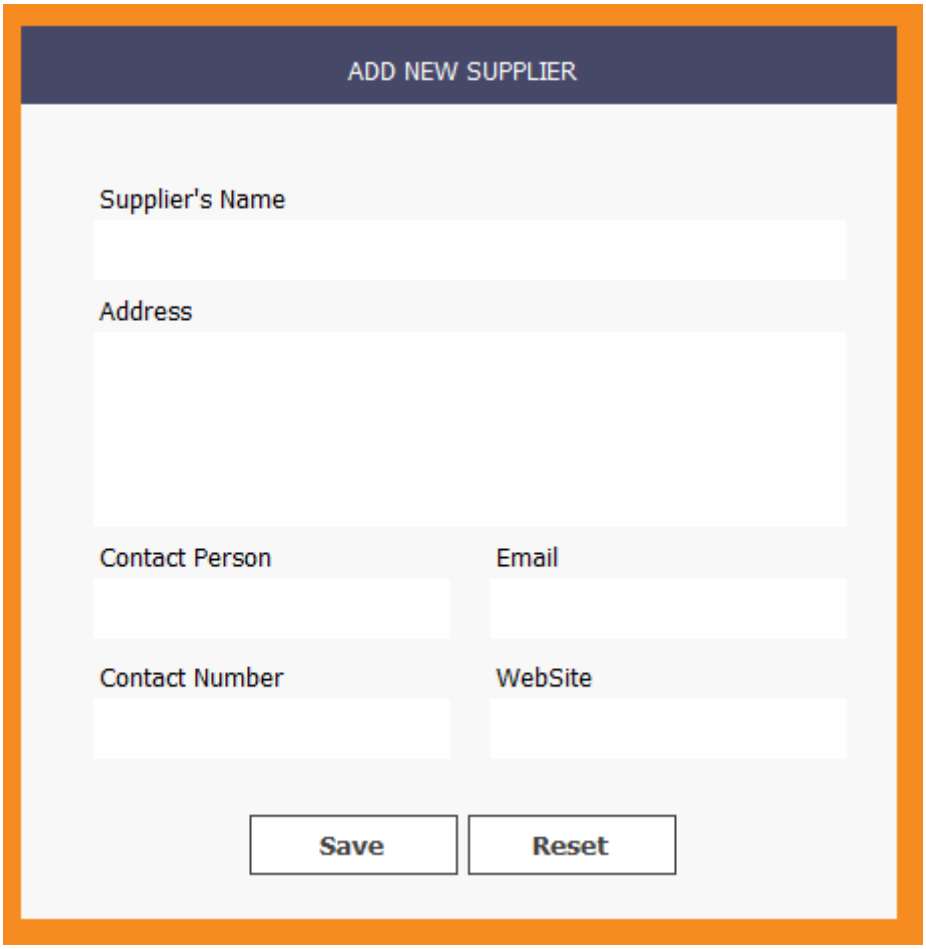

Figure 9: Add New Supplier

3.2.3.2 Supplier Payment

Sometimes a business need to calculate and close the dues with suppliers instead of individual purchase order. For that they need to go through all the orders they have maid. Not only has that but also calculated all the dues against them before they pay. This will affect the reports. Supplier Payment makes that easier. It will do the calculation and tracking for user. User can forget about the Report. System will do it by itself.

Supplier Payment will first generate a list of Purchases with paid and due amount done from that supplier. User can pay against any purchase. When User hit the pay button it will add a payment record in the "purchase_payments" table. All the fields are mandatory.

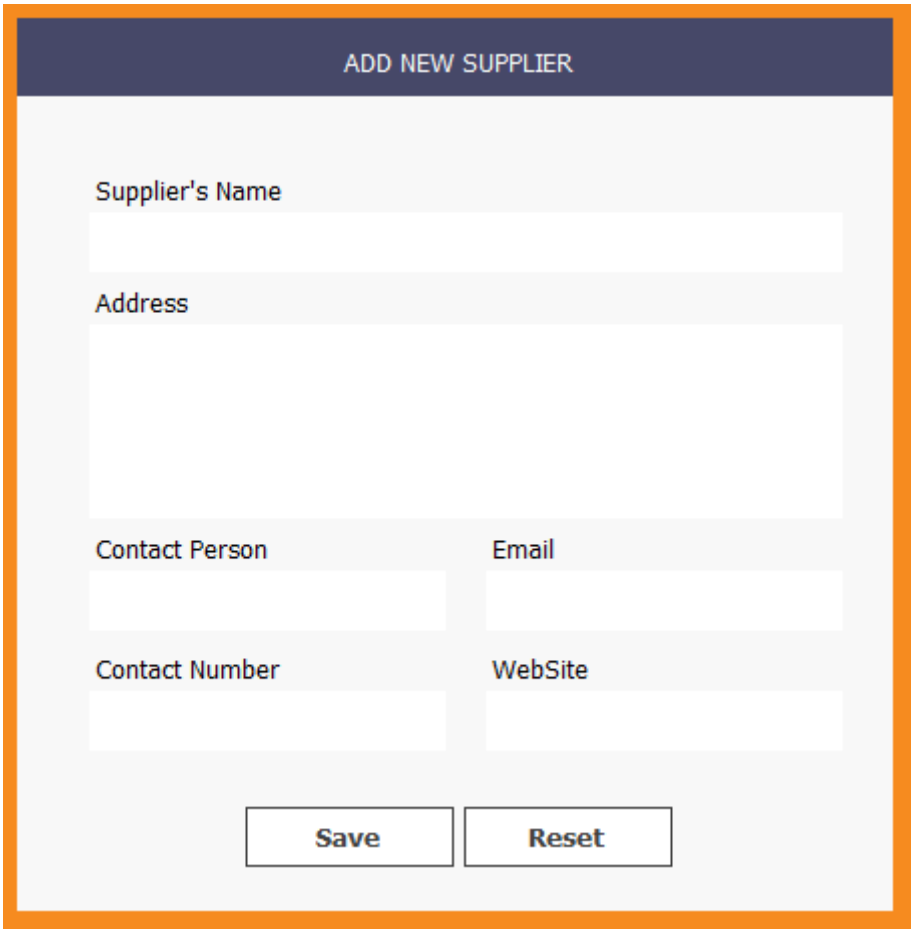

Figure 10: Supplier Payment

3.3 Inventory Management

We present you “Inventory Management” feature that will keep track of every raw, finished, semi-finished and sellable items. It will also keep the record of every uses and movements of those items in the system.

Initially list of items in the “items” table of the branch you are logged in will populate in the grid. There is a dropdown list of sub store of same branch populated from “sub_stores”. When a sub store is selected from a list it will populate items from “sub_store_wise_items” of same branch. We can also search items by name followed by selected sub store. There is a stock level indicator for each items.

Stock Indicator calculation:

```
If (reorder quantity >= stock quantity)
Reorder difference = reorder quantity - stock quantity;
Else If (reorder quantity < stock quantity)
Reorder difference = stock quantity - reorder quantity;

If (2 * reorder quantity) >= stock quantity)
Double reorder difference = (2 * reorder quantity) - stock quantity
Else If (2 * reorder quantity) < stock quantity)
Double reorder difference = stock quantity - (2 * reorder quantity);

If (minimum quantity >= stock quantity)
Minimum difference = minimum quantity - stock quantity;
Else If (minimum quantity < stock quantity)
Minimum difference = stock quantity - minimum quantity;

If (Reorder difference > Double reorder difference)

GREEN STATUS;

Else If (stock quantity > reorder quantity && Reorder difference <= Double reorder
difference)
LIGHT GREEN STATUS;
```

Else If (stock quantity <= reorder quantity && Minimum difference > Reorder difference)

YELLOW STATUS;

Else If (stock quantity > minimum quantity && Minimum difference <= Reorder difference)

ORANGE;

Else If (stock quantity <= minimum quantity)

RED STATUS;

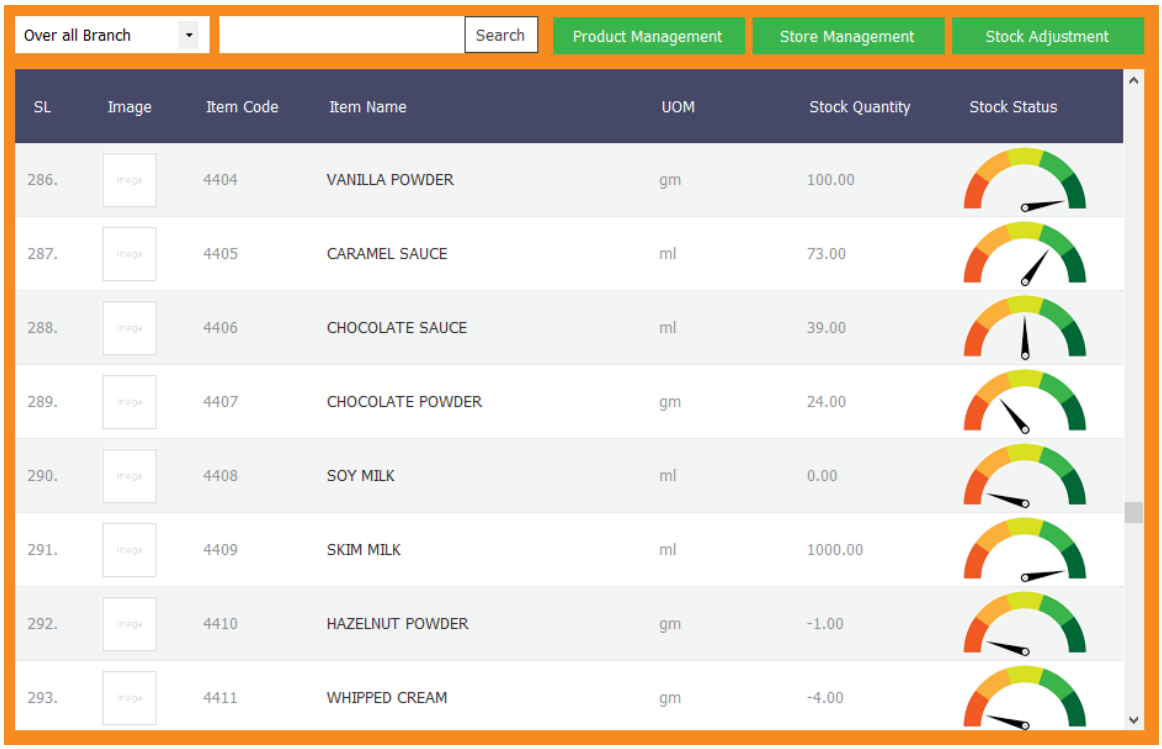

Figure 11: Inventory Management

Inventory Management comes with the features below:

- Product Management
- Store Management

- Stock Adjustment

3.3.1 Product Management

"Product Management" the name explains itself. Here we can do all the stuffs related to the product. This is a whole package of creating, setting and manipulating items. It comes with our main feature recipe. User can set recipe from here.The dashboard provides user following features shown in **Figure 12:**

Figure 12: Product Management

- Category
- Sub Category
- Unit of Measurement
- Product
- Recipe
- Semi Finished Product
- Sale Price
- Stock Transaction
- Wastage

3.3.1.1 Category

A Category list populates from the “categories” table for the branch the user has logged in. Categories can be edited from that dashboard. It will update the info in the “categories” table. It has a Delete option as well. This action will update the status from 1 to 0 of the category of that branch in “categories” table. If any sub category exists under that category of that branch. The status of that sub category will change to 0 at “sub_categories” table.

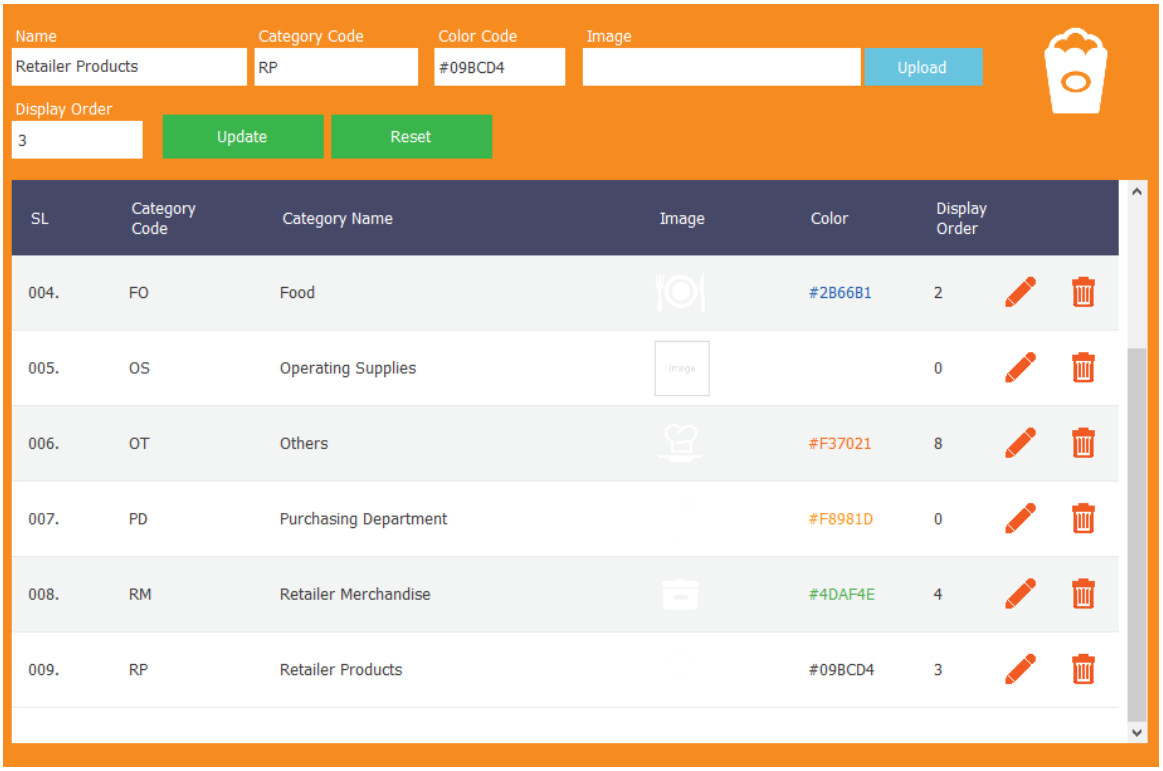

Figure 13: Category

It comes with “Add New Category” feature.

3.3.1.1.1 Add New Category

Here we have input fields in the dashboard. To add a new category the Name field and Display order field are mandatory (Figure 13). It will add a new category for the branch the user has logged in from.

3.3.1.2 Sub Category

The sub category grid will populate sub categories of the branch from “sub_categories” table and the dropdown list of categories of came branch from “categories” table. From this sub category list we can edit any sub category which will update the information in ”sub_categories” table. If we delete any sub category it will change the status of that sub category from 1 to 0 at “sub_categories” table.

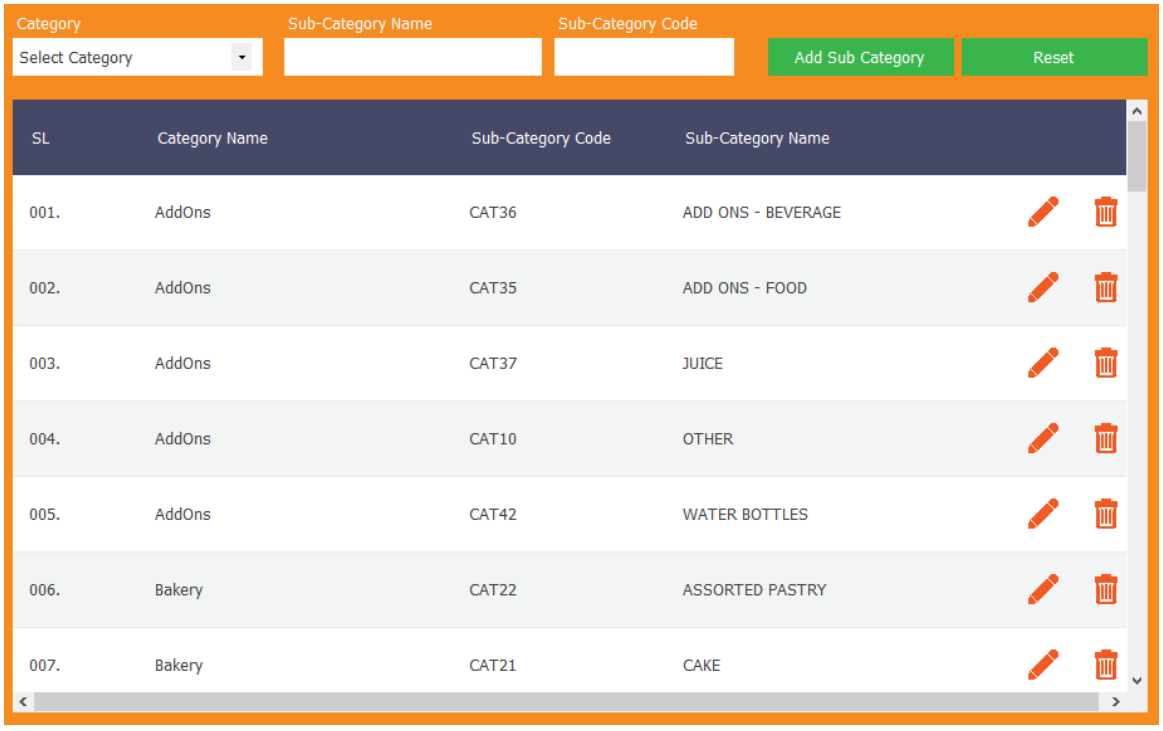

Figure 14: Sub Category

It comes with “Add New Sub Category” feature.

3.3.1.2.1 Add New Sub Category

Here we have input fields in the dashboard. To add a new sub category the Category field and Name field are mandatory (Figure 14). The sub category will be added against the branch from which it has been created.

3.3.1.3 Unit of Measurement

The unit grid will populate unit of measurement (UoM) from “uoms” table. From this unit list we can edit any unit which will update the information in ”uoms” table. If we delete any unit it will change the status of that unit from 1 to 0 at “uoms” table.

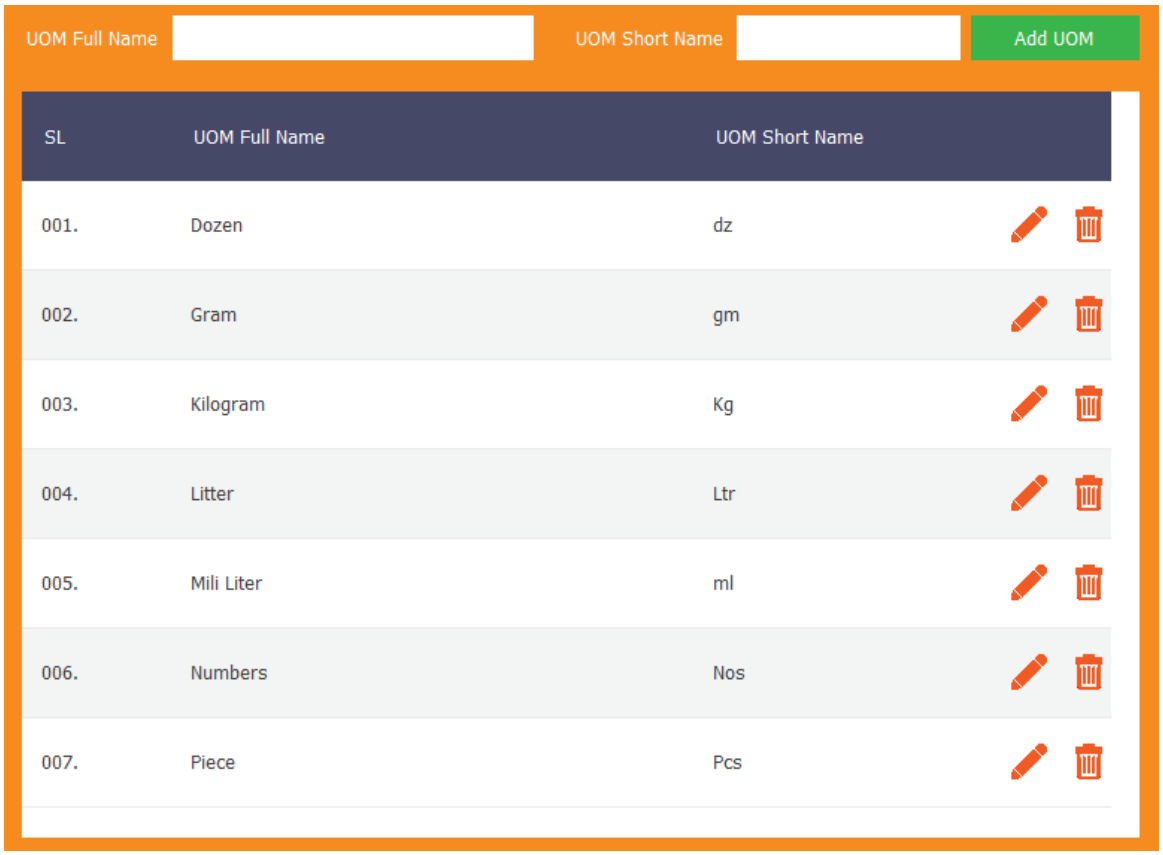

Figure 15: Unit of Measurement

3.3.1.3.1 Add New Unit of Measurement

Here we have input fields in the dashboard. To add a new unit the Full Name field and Short Name field are mandatory (**Figure 15**).

3.3.1.4 Product

The product grid will populate products of the branch the user has logged in from "items" table. From this product list we can edit any item of that branch which will update the information in "items" table. If we delete any item it will change the status of that item from 1 to 0 at "items" table.

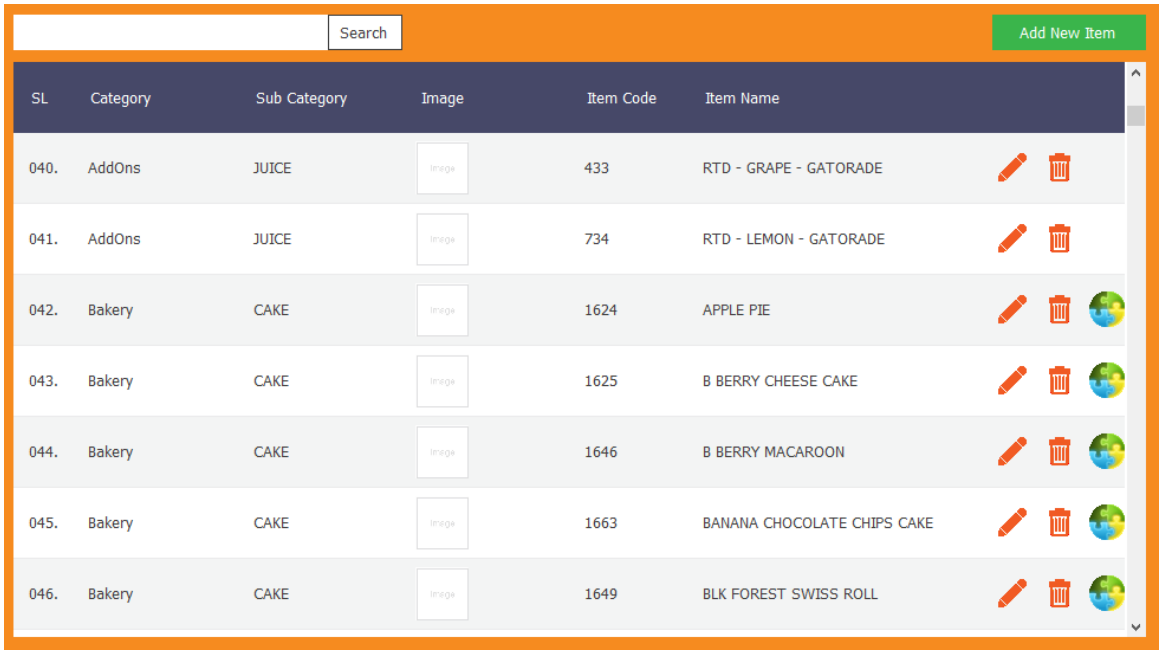

Figure 16: Product

"Add new product" button will provide a form to save a new product in the record.

3.3.1.4.1 Add New Product

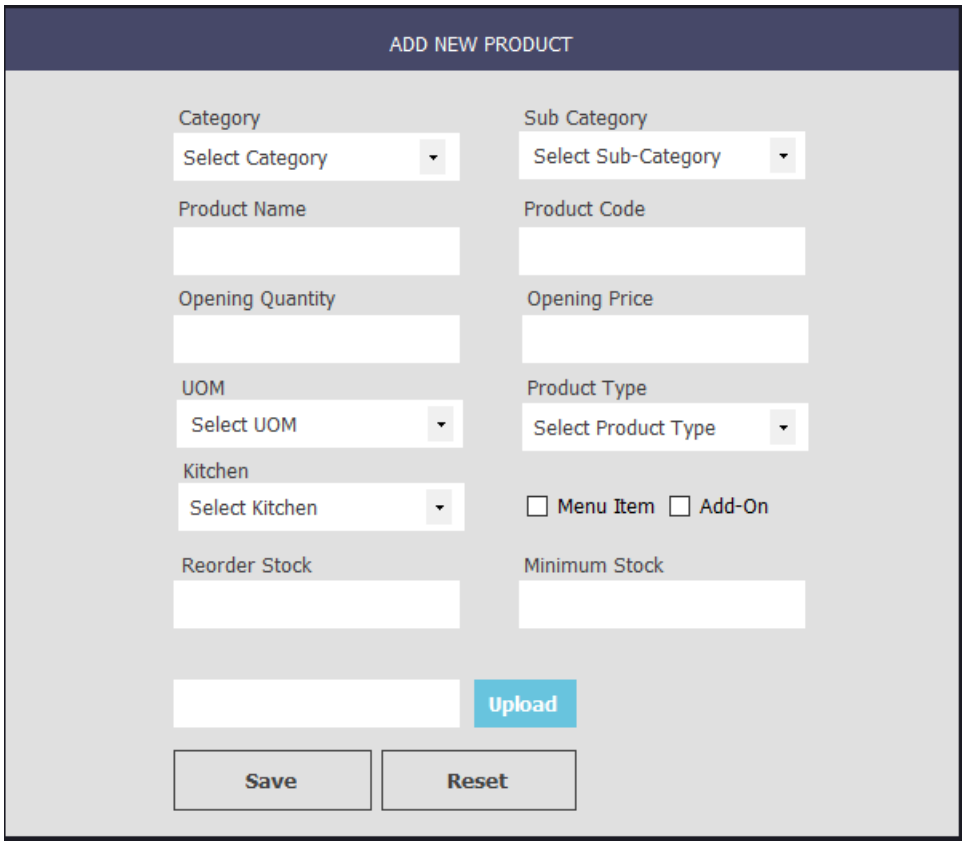

Figure 17: Add New Product

All the input fields in Figure: 17 are mandatory except for Check boxes and Image upload. If we add an item that we want it in the sell menu list we will check the "Menu Item" check box. If it is an add-on menu then simply check the Add-On check box. Saving the product will add an item in the "items" table against the branch user has logged in.

3.3.1.5 Recipe

“Recipe” is the main feature of this solution. By creating a recipe in the system we saves it for our future sale and transaction. It solves our day to day task and increase productivity.

A recipe list of the branch will populate in the dashboard from “recipes” table as Figure: 12. Edit option will provide you a window where you can edit Items, Quantity, Unit of Measurement and the Finished Quantity. This will update the data in the “recipes” table.
If someone Deletes the recipe of an Item then it will delete the recipes items from “recipes” table.

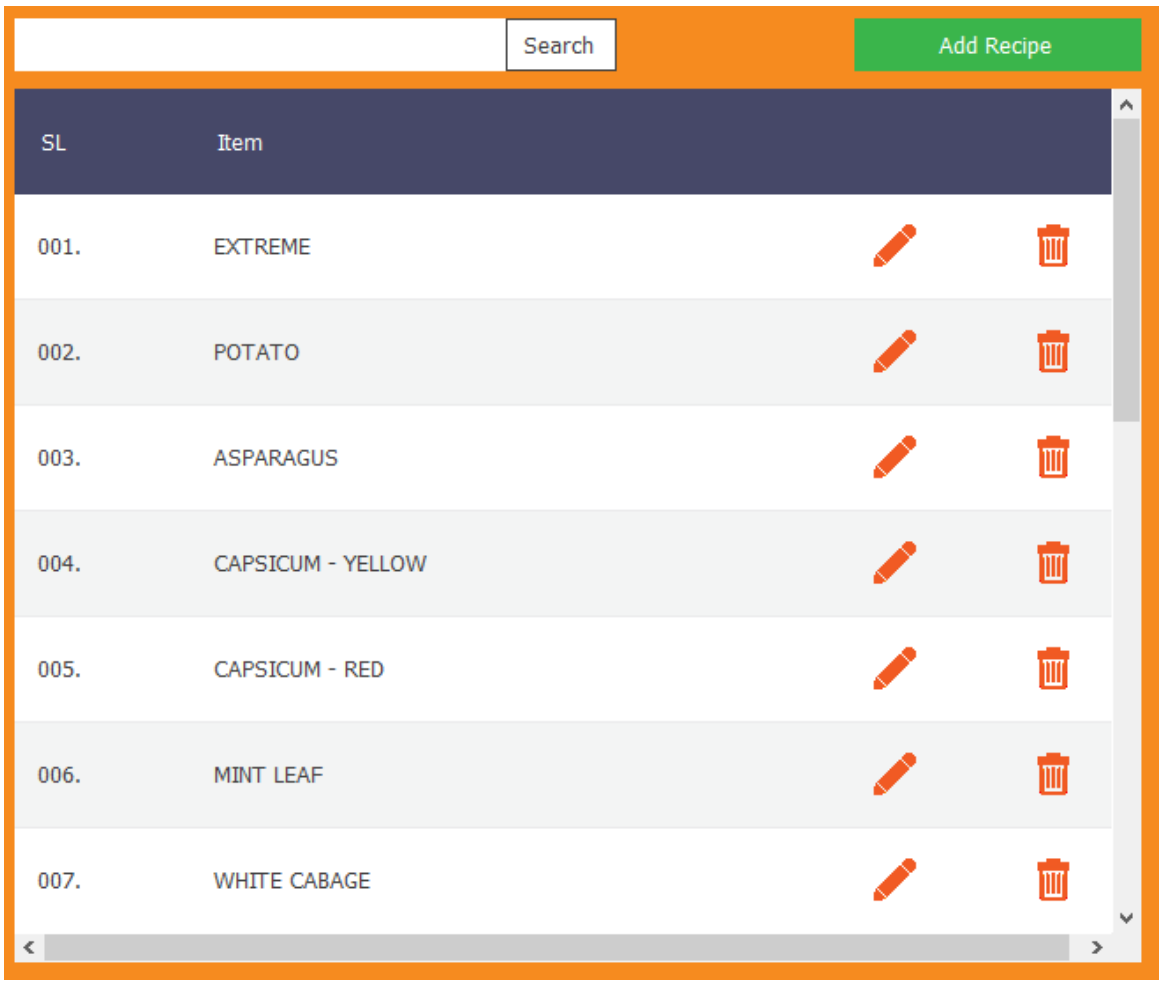

Figure 18: Recipe

3.3.1.5.1 Add Recipe

"Add Recipe" will provide drop down of finished Items that we want to produce with the help of this recipe, a table where we can add raw items and there quantity. Also there is a "Finish Item Quantity "field where we have to provide the output quantity of Finished Item that the raw items will create.

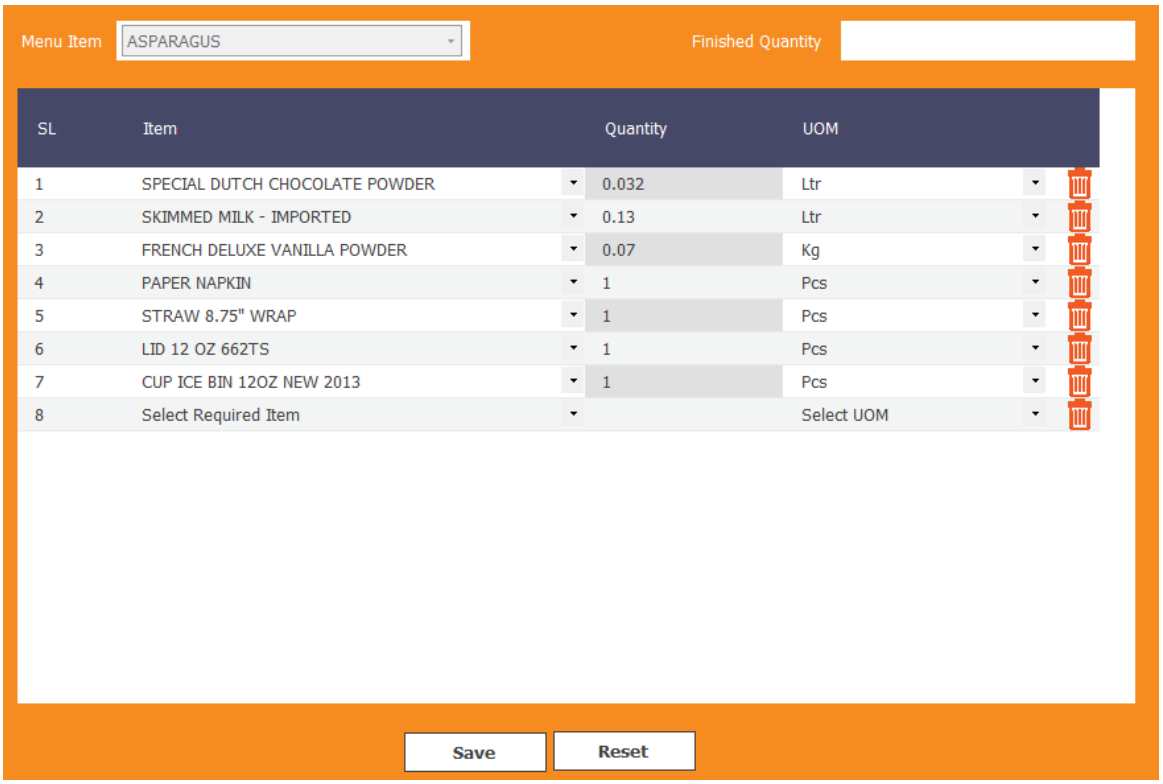

Figure 19: Add Recipe

3.3.1.6 Semi-Finished Product

It will produce a semi-finished item such as Sause, Salad etc. that will help to produce or serve other finished product. When we select a semi-finished product and provide the quantity that we want to produce we select the kitchen as well for which we are producing it. This will increase the item's stock quantity by the produced quantity against the branch in "items" table. While doing so with the help of the recipe it will pick the raw items and decrease the calculated quantity from "items" against that branch. Then it will insert all the details in "semi_finished_item_production_details" table. This will create a record in the table "inventory_history" with a transaction_type "semi_finished_item_production".

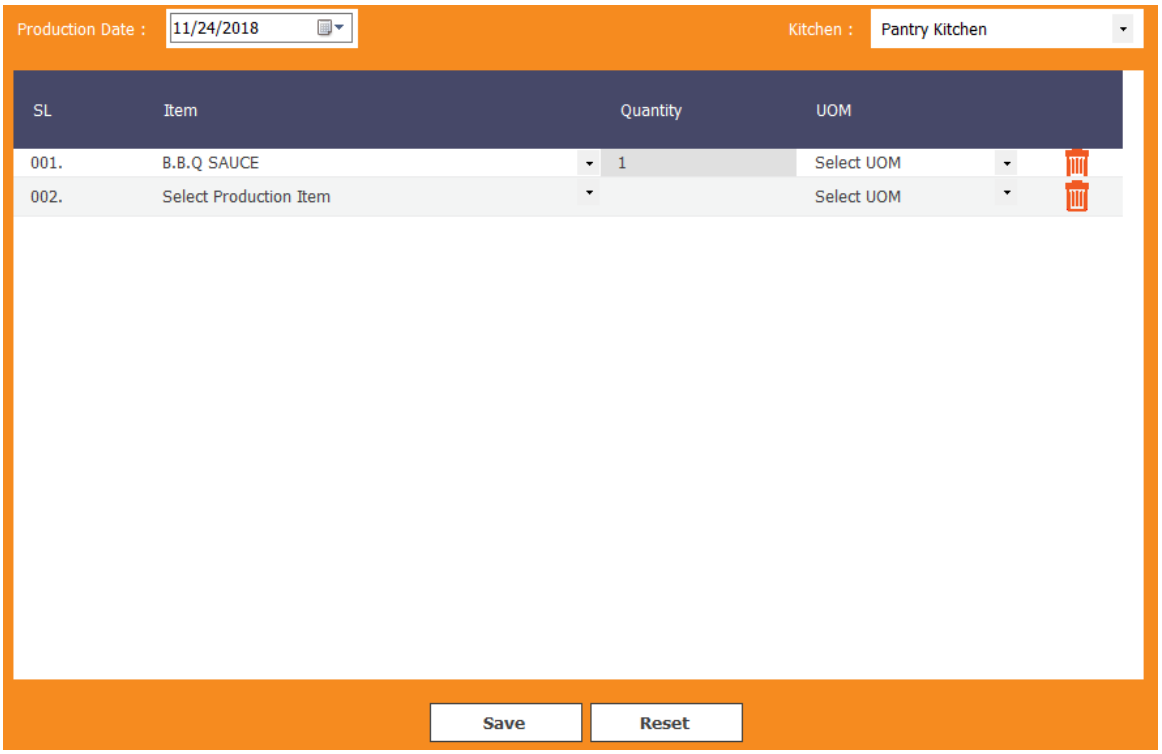

Figure 20: Semi-Finished Product

3.3.1.7 Sale Price

This is a Dashboard where we will set the Menu Item and Add-On Items price (Figure: 21). The table will populate from the table “sell_price”. Edit option will let us update the Quantity, UoM, Selling Price, VAT, SD, Start Date and End Date in “sell_price” table. Delete option will change the sell item status from 1 to 0.

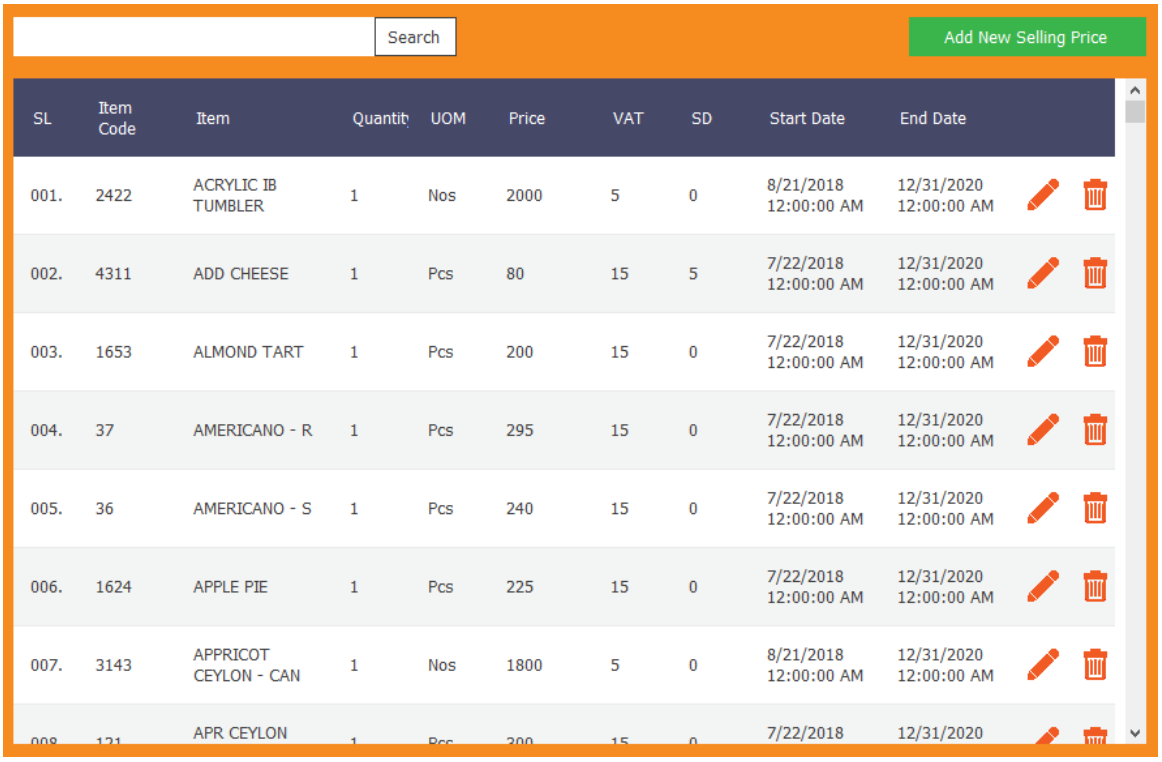

Figure 21: Sale Price

3.3.1.7.1 Add New Selling Price

"Add New Selling Price" will provide the bellow Figure: 16 form. All the fields in Figure: 16 is mandatory. It will save the price of the Item in "sell_price" table. Menu Item Drop down will populate those Items whose price is not yet been set.

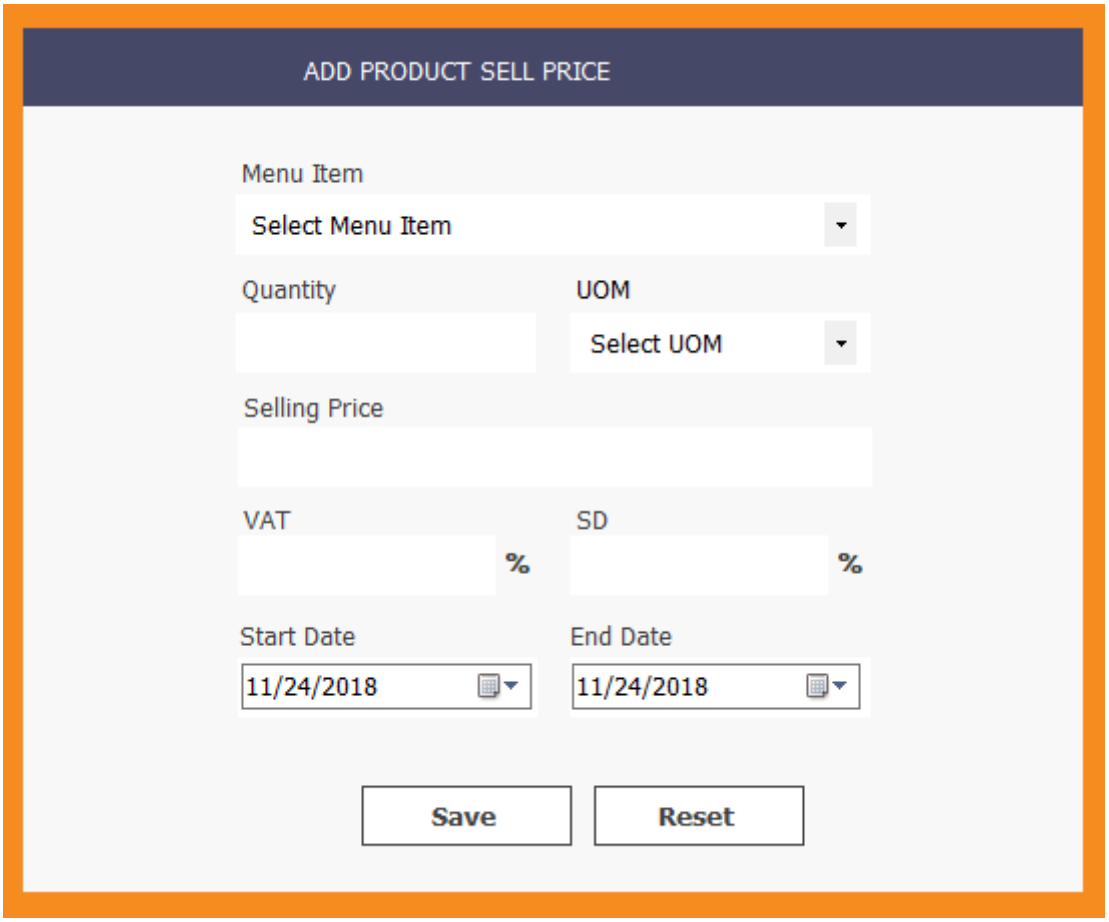

Figure 22: Add New Selling Price

3.3.1.8 Stock Transaction

Business has multiple branches. Sometimes all the branches don't have all the items stoked in their branch. They need to borrow some from other branches. If the any branch lend their stock to other branch then their stock calculation will mismatch. To solve this we have "Stock Transaction".

In Stock Transaction dashboard will appear with the previous transaction information from "transfer_info" table. The details button will show the items against the transaction from "transfer_items". Whereas Approve button will take all the items in the transaction list and will update the stock quantity of "items" table for the branch user has logged in. Then it will change the approval status in "transfer_info" table to true.

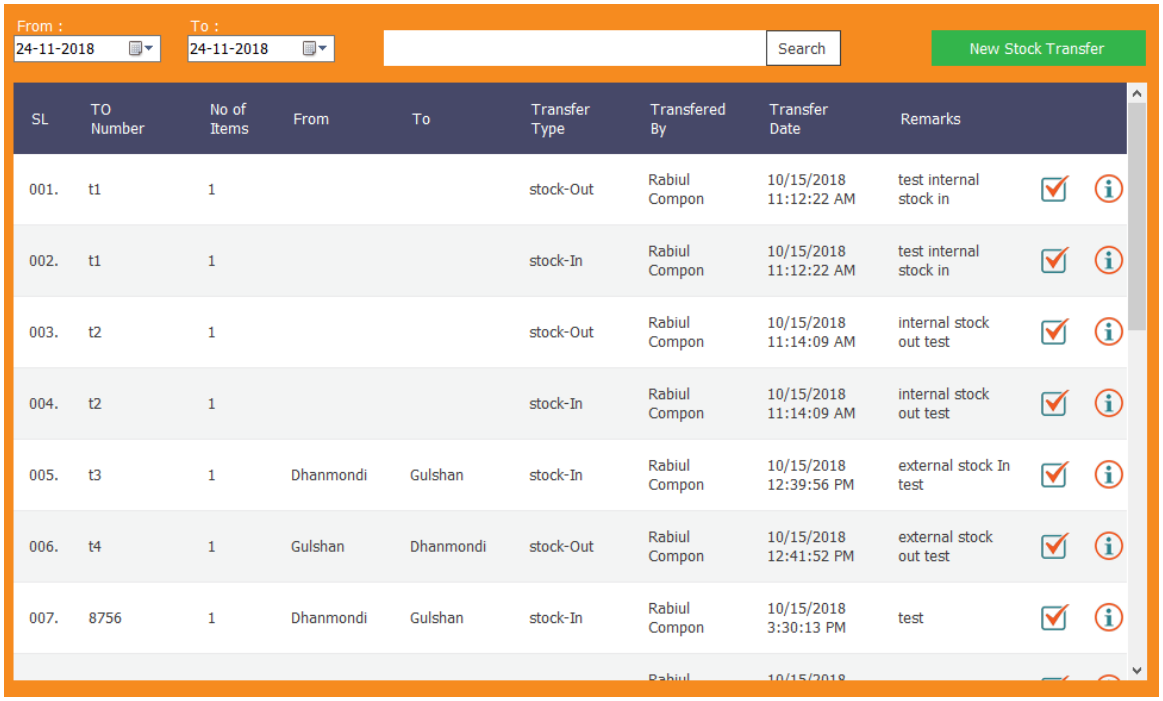

Figure 23: Stock Transaction

3.3.1.8.1 New Stock Transfer

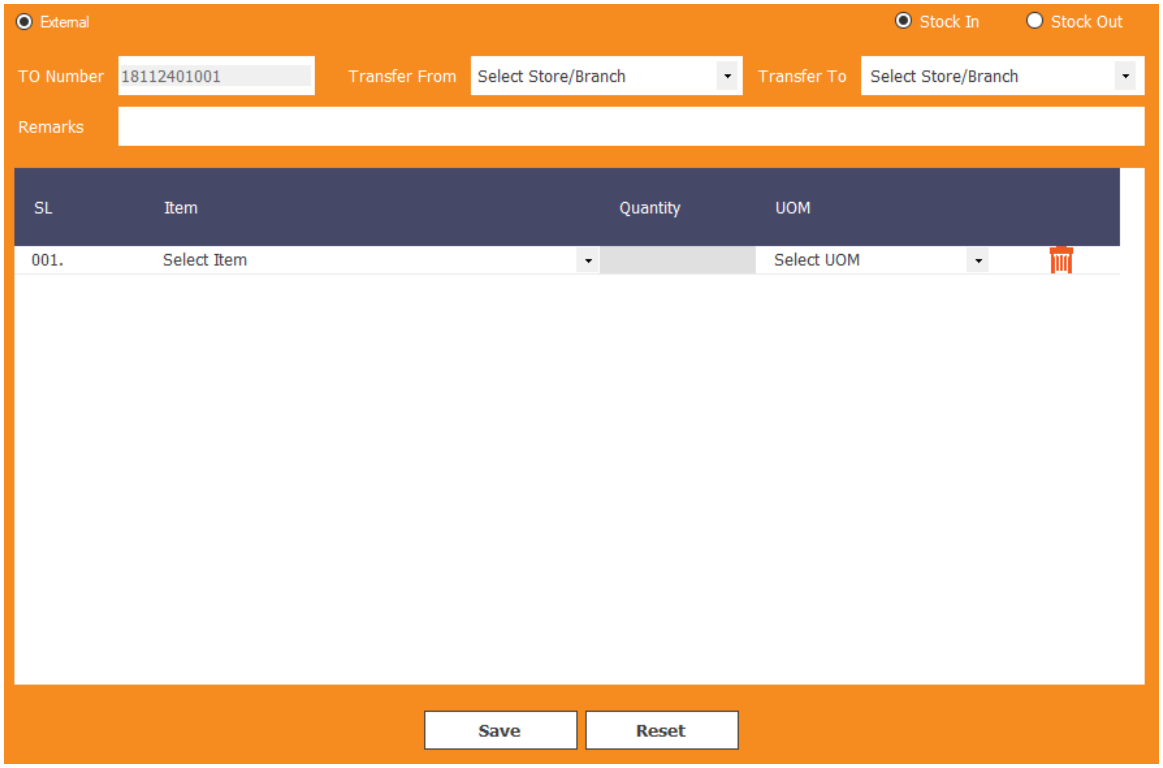

Figure 24: New Stock Transfer

Stock Transfer provide facility to transfer items from one branch to another. If user select stock in then transfer from drop down will populate the other branches except the branch user has logged in and transfer to drop down will populate only the current branch. These branch details is available in “stores” table. For stock out those dropdown will populate in other way round. The user will sect the items and quantity which will be transferred. After saving the transact tion it will insert the details in “transfer_info” and “transfer_items”. If the user has stocked in some Items then they should be stock out from the branch they were transfer from. The user has to do the opposite for stock out. Finally when the transaction is saved then a record will be created in “inventory_history” table with transaction_type “stock-in” or “stock-out”.

3.3.1.9 Wastage

When we use any item for production it is not obvious that all of it will be utilize. Due new business expand and customer demand we need to create new items. In those scenario we have some item wastage. To keep track of those wastages user use "Wastage" feature.

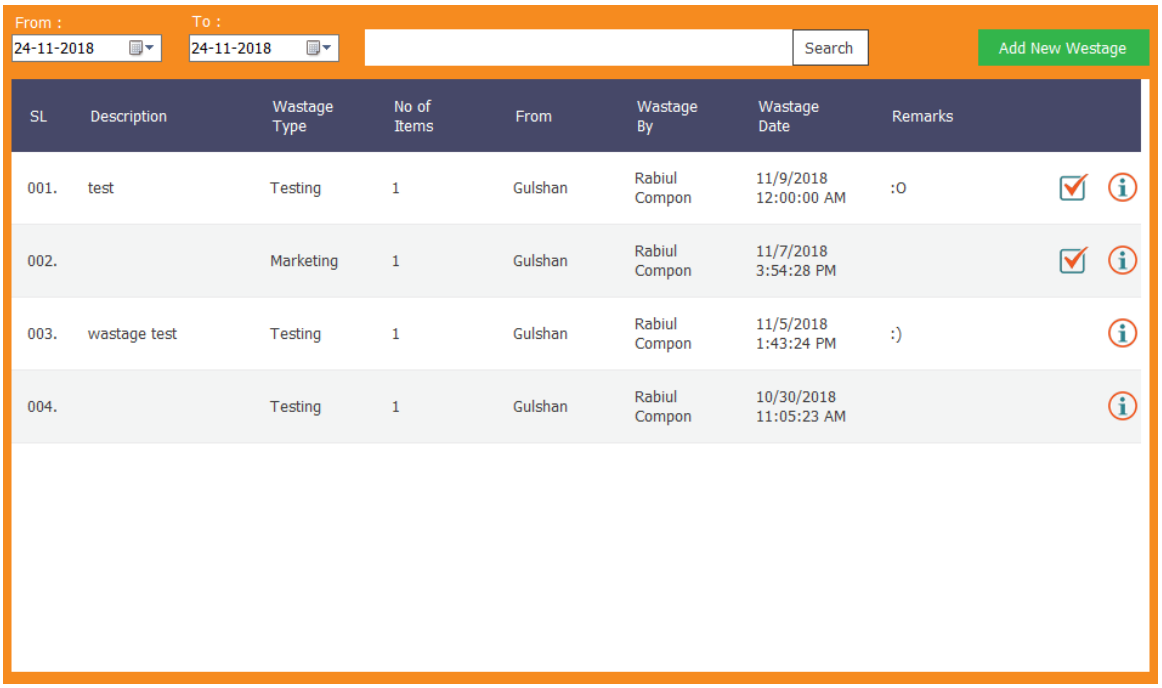

Figure 25: Wastage

Wastage table will populate from "wastage_info" table. The details will show the items against the wastage selected from "wastage_items" table. The Approve button will update the items' stock quantity in the "items" table as per the "wastage_items" table quantity of that wastage. Then it will add a record against the wastage in "inventory_history" with a transaction_type "wastage".

3.3.1.9.1 Add New Wastage

“Add New Wastage” has wastage type and wastage from drop down. Wastage type will populate from “wastage_type” table. User will select the items that he wastaded and provide the quantity. Saving the wastage will add the wastage in “wastage_info” and “wastage_items” tables. Here wastage type, wastage from and items are the mandatory fields.

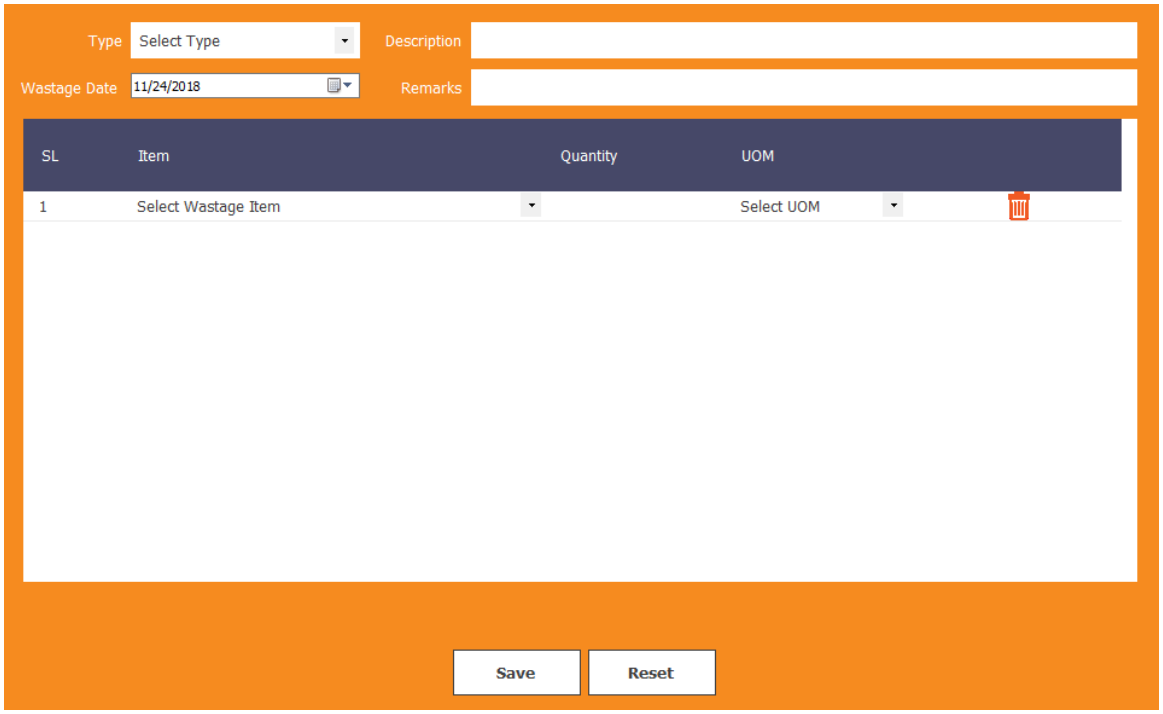

Figure 26: Add New Wastage

3.3.2 Store Management

User need “Store Management” to have a detail record of every branch under their business. These records of branches will help the system to manipulate the data and to generate report for the user.

“Store Management” will load a Dashboard of stores from the “stores” table (**Figure: 27**). This table provides user to edit each store and update the new information in stores table. There is a Delete option which will update the status of that store 0 in “stores” table.

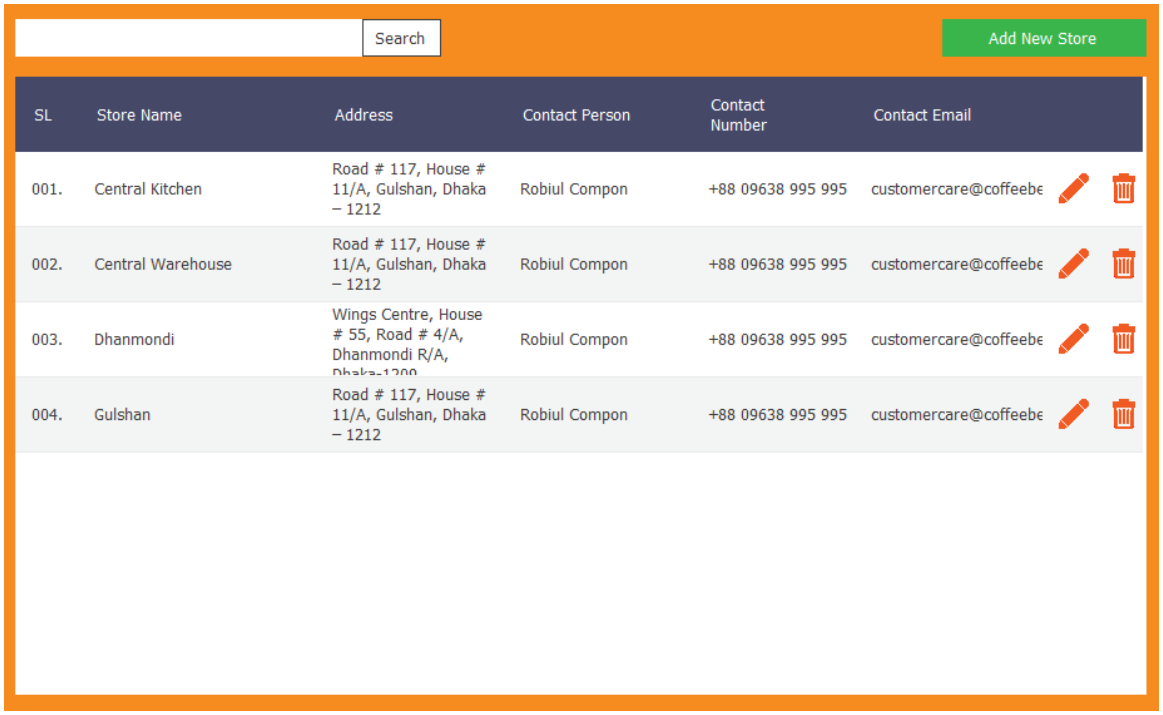

Figure 27: Store Management

3.3.2.1 Add New Store

"Add New Store" provide you the Figure: 22 form. All the field in Figure: 22 are mandatory. By clicking on the Save button user can save all the information in stores table.

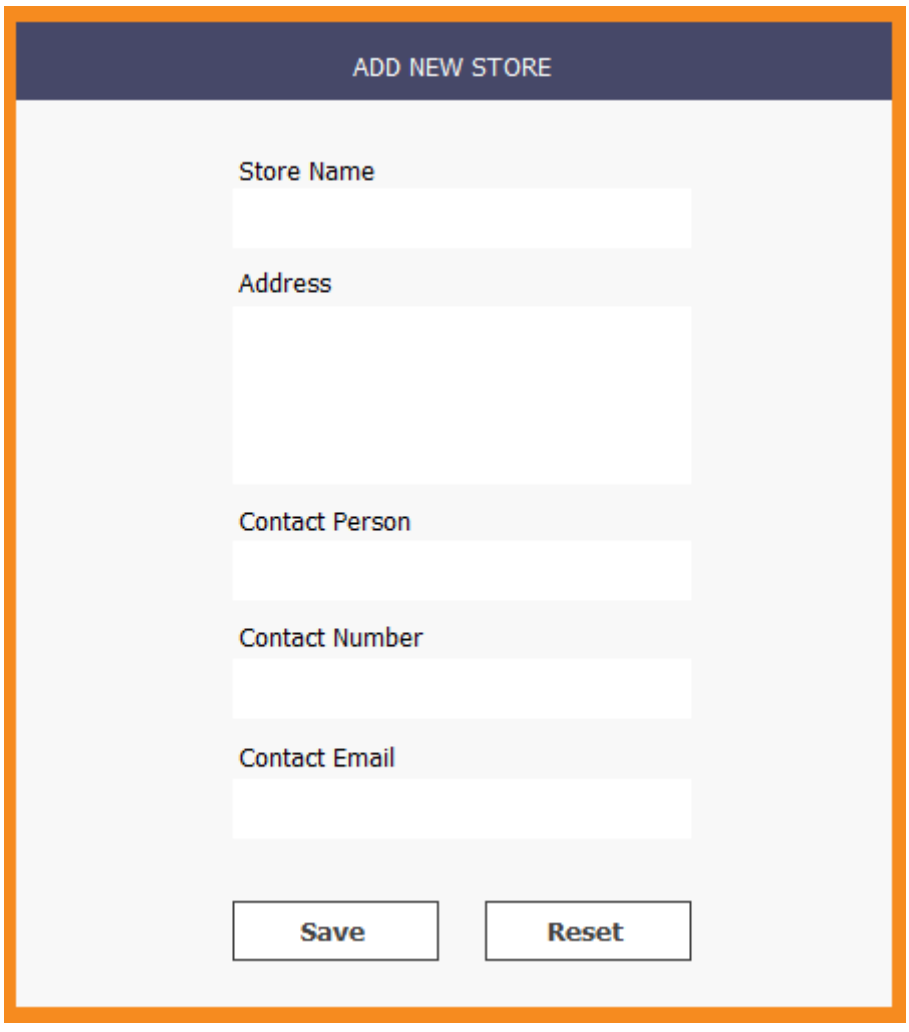

Figure 28: Add New Store

3.3.3 Stock Adjustment

Here all the Items of inventory will populate from “items” table. The stock is the calculated stock quantity of the system. It might be possible that the physical quantities of items are different from system quantity. In that case user provide the physical quantity left in the inventory for each item if it is different from the system quantity. It will first record the difference between system quantity and physical quantity in “inventory_adjustment” table. After that in “items” table Update the item’s stock quantity by adding the quantity variance to the system stock quantity. Then it will keep a record in “inventory_history” table with transaction type “inventory_adjustmant”. After adjusting the Item it will Update purchase_qty, transfer_in_qty, transfer_out_qty, sales_qty, wastage_qty in “stock_status” table accordingly from “purchases”,” “purchases_items”, “transfer_info”, “transfer_items”, “sales”, “sales_items”, “wastage_info”, “wastage_items” tables. And also Update the closing date by adjustment date and closing quantity by physical quantity provided by the user. In the End it will create another record for that item in “stock_status” table with purchase_qty, transfer_in_qty, transfer_out_qty, sales_qty, wastage_qty 0 and opening date with one day ahead of adjustment date. Also opening quantity with physical quantity.

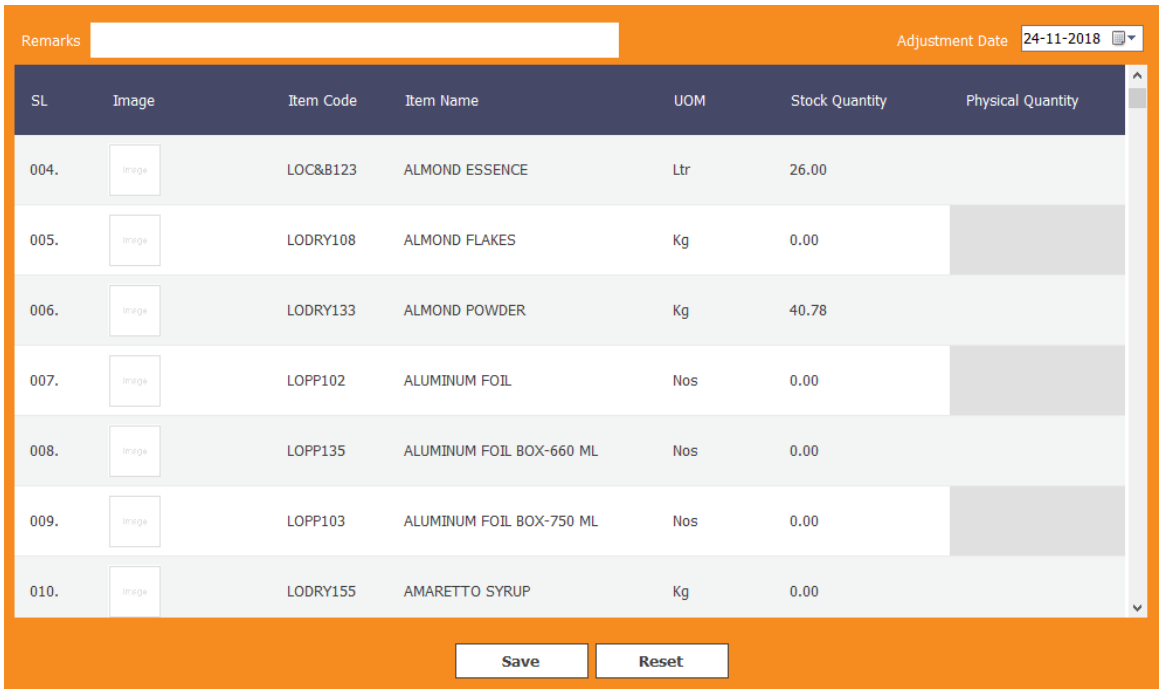

Figure 29: Stock Adjustment

3.4 Wifi – Users

Now a days every store around the world provide WiFi facilities for their customers. It is really tough for the stuffs to each and every customers the WiFi credentials. To make it easier we came up with an idea of printing it with each invoices. It makes life easier for both employees and customers.

Here all the WiFi user and password will generate from “wifi_user_credentials” table. This users are used for customers to connect WiFi.

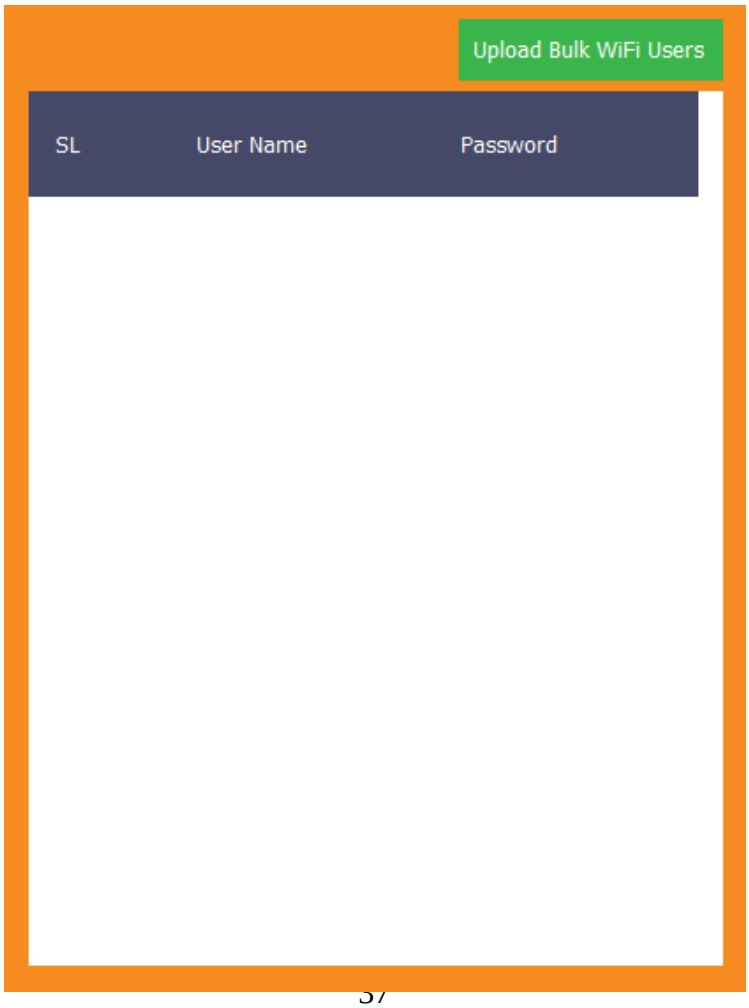

Figure 30: WiFi User

3.4.1 Upload Bulk WiFi Users

To print these WiFi credentials with invoice we need a lot of user and password. To make it ready for the customers it is almost impossible to save one by one credentials. To save time and effort this feature will upload a huge list of user at a time.

User can upload new excel files of WiFi user list from this window. It adds all the users in the “wifi_user_credentials” table.

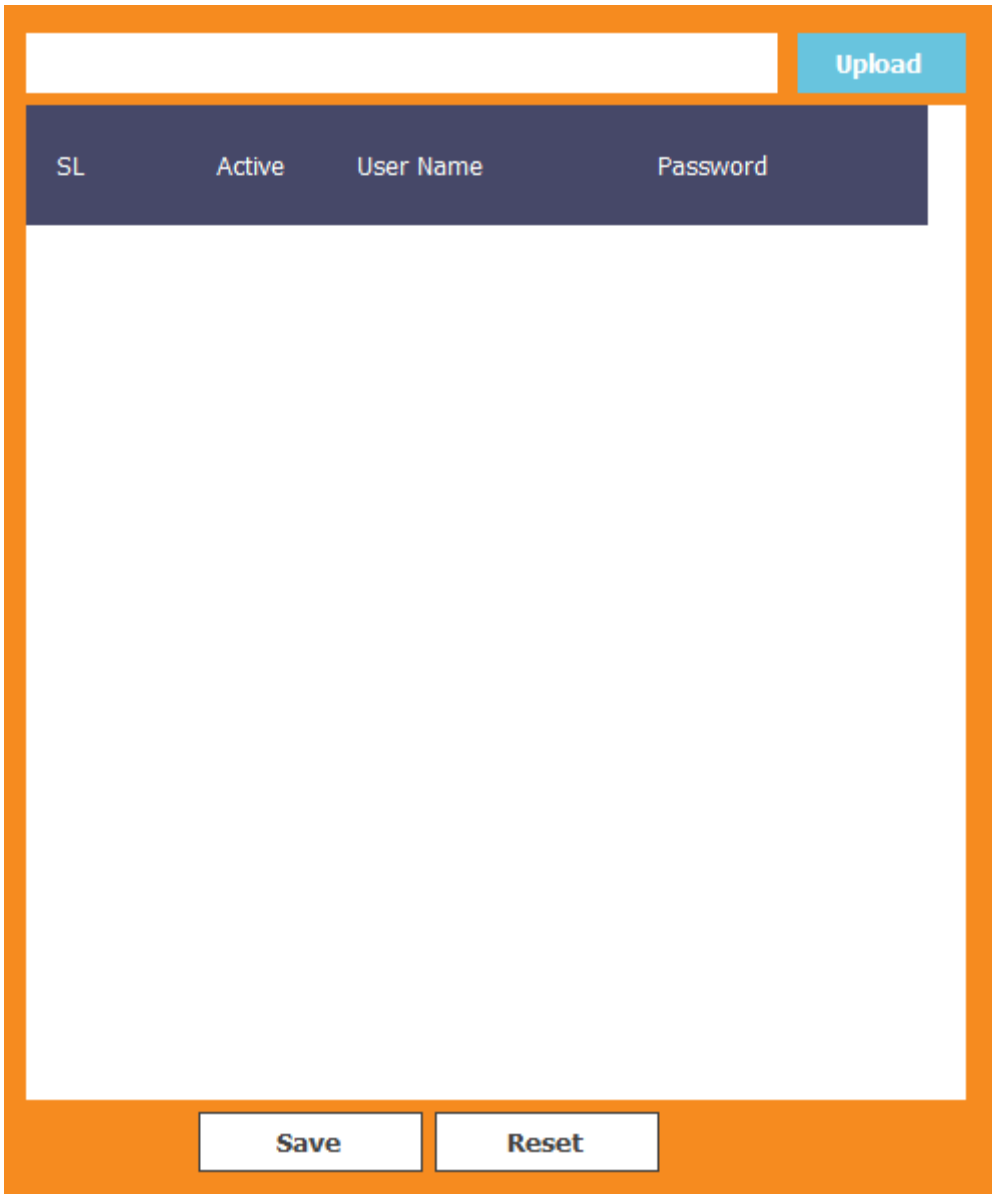

Figure 31: Upload Bulk WiFi Users

3.5 Promotion & Discount

During the sales we provide discounts and give different amounts as promotion. We need to adjust them while generating the orders. The system will do it for us if we set them through the below (**Figure 32**) features. We select them from the Point of Sales dashboard to provide them to the customers.

There are two sub features in this section.

- Promotions
- Discounts

Figure 32: Promotion & Discount

3.5.1 Promotion

In this dashboard all the existing promotions oh the branch will appear with the help of “promos” table. User can Edit and delete promotions. Editing the information will save the promotion in “promos” table. Delete option will update the status of that promotion in “promos” table to 0. User can Add new promotions by filling up the promotion message. These promotions will appear in the invoice.

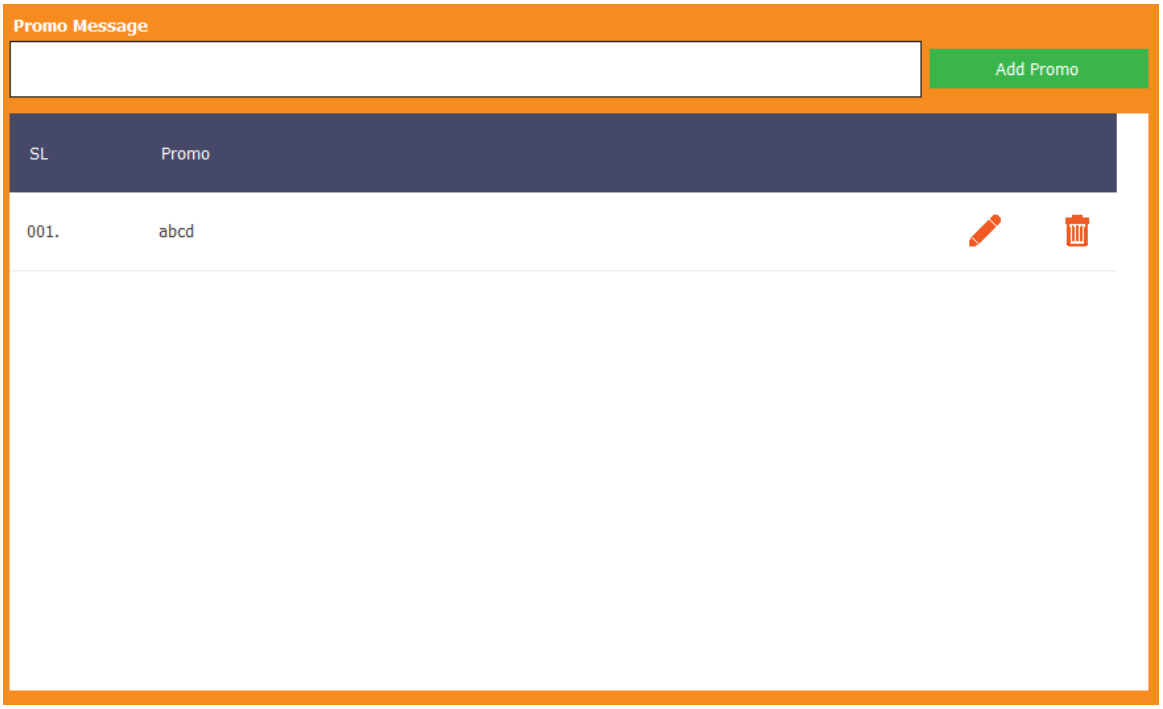

Figure 33: Promotion

3.5.2 Discount

It will populate the list of discount from banks of the branch user has logged in.. “promotional_activity” table will generate the dashboard. User can edit and delete discounts listed in the dashboard. Edit will change the information in the “promotional_activity” table and Delete action will set the status of the discount to 0. Add Discount will save the new record in “promotional_activity” table. In that case All the fields in Figure 34 are mandatory.

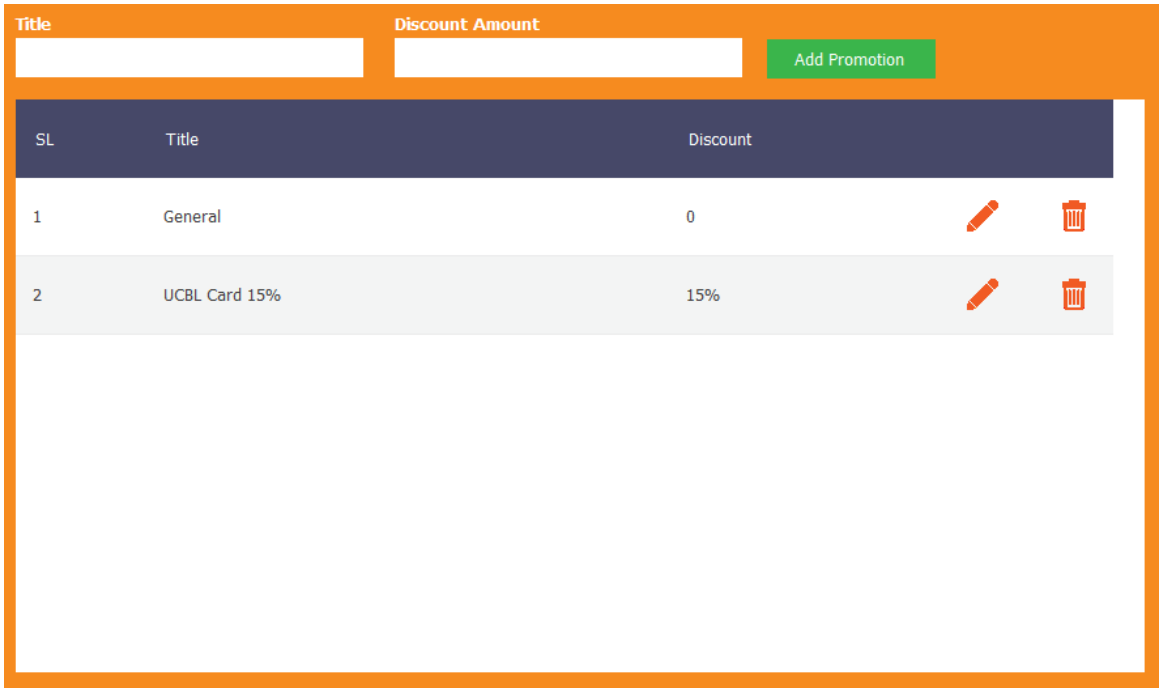

Figure 34: Discount

3.6 Point of Sale

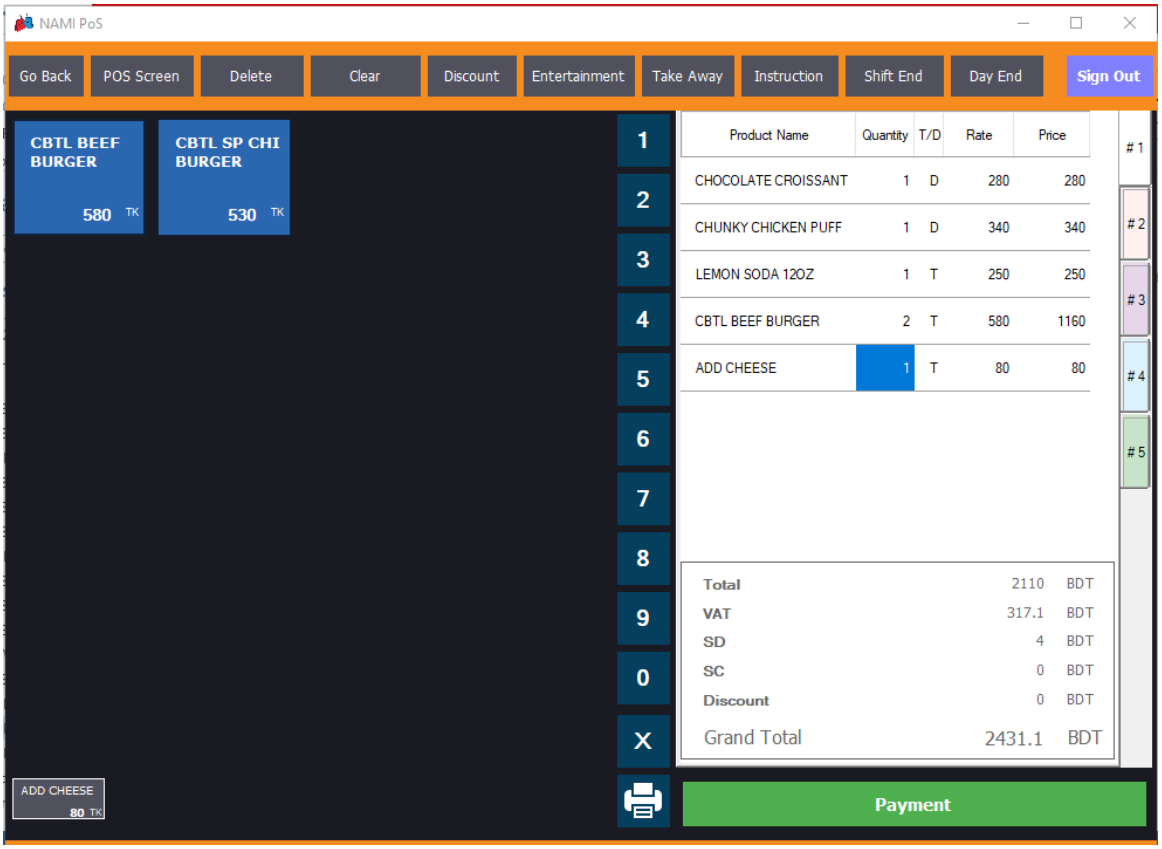

Figure 35: Point of Sale

This is the feature by which we serve the customers. At First it will populate the category list from the "categories" table. If that category has a sub-category then on selecting any category will populate the sub-categories of that category from "sub_categories" table. Same as categories on selecting sub-categories all the product under that sub-categories will populate. This product list come from "items" table.

There are five tabs to serve five customers at a time. If user selects any product then it will add in the selected tab and if there is any Add-on for that item then it will appear

below. While adding items if user select dine or take away from above button it will show T/D against that item. Selecting add on Item will also add it in the item list for the customer.

To add a discount hit Discount button from above. A Window will appear as Figure: 36. If user select General and give Discount amount without % then it will directly deduct from total amount. Or the user can select other discount that were added previously in 3.5.2. It will set the discount amount automatically from "promotional_activity" table. If discount amount has % then it will calculate the percentage of the Total and then deduct it.

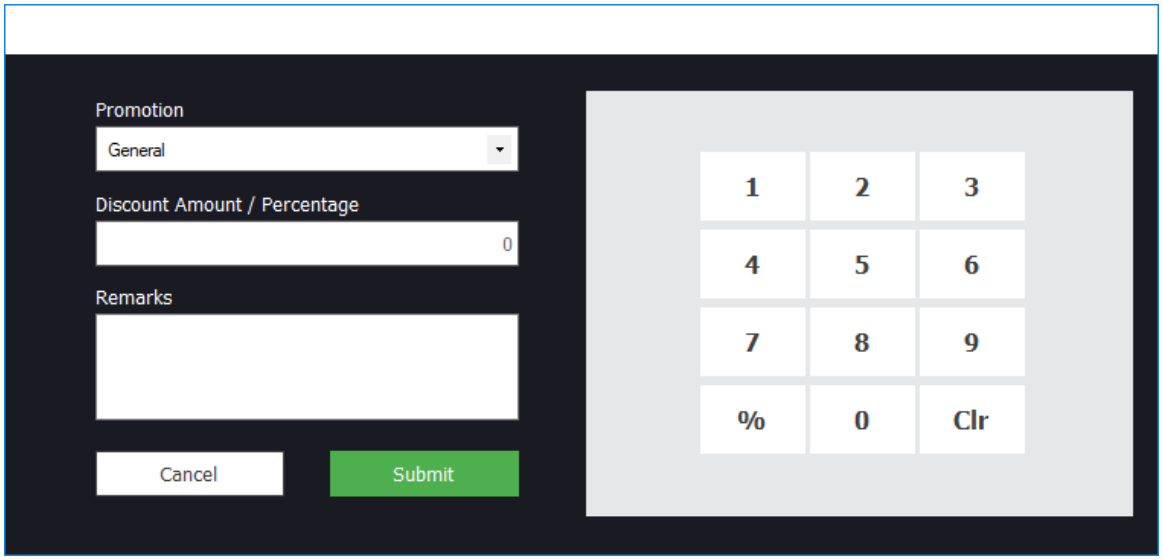

Figure 36: Discount Form

Customer has special instructions for their items. By hitting on the Instruction button above user can add instruction for any order.

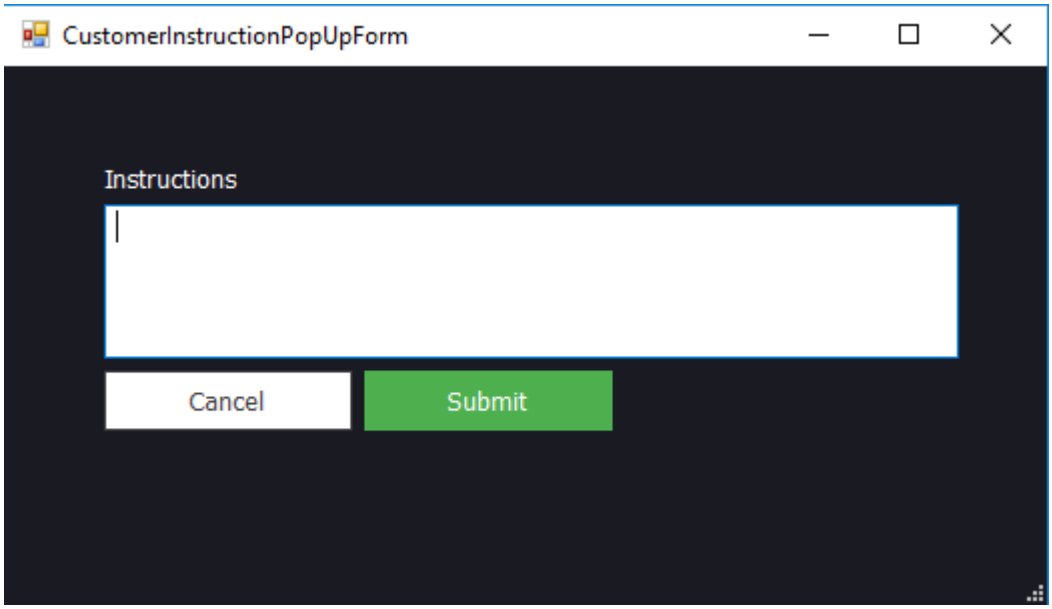

Figure 37: Instruction Form

Each time we add anything in the order it will calculate the total amount with VAT, SD, SC. Every tab will have separate calculation considering each as separate order. User has to select a tab that has complete order and hit "payment" button to generate invoice (Figure: 38). This action will also copy and forward the items along with all the rest of the information to the Customer Payment window.

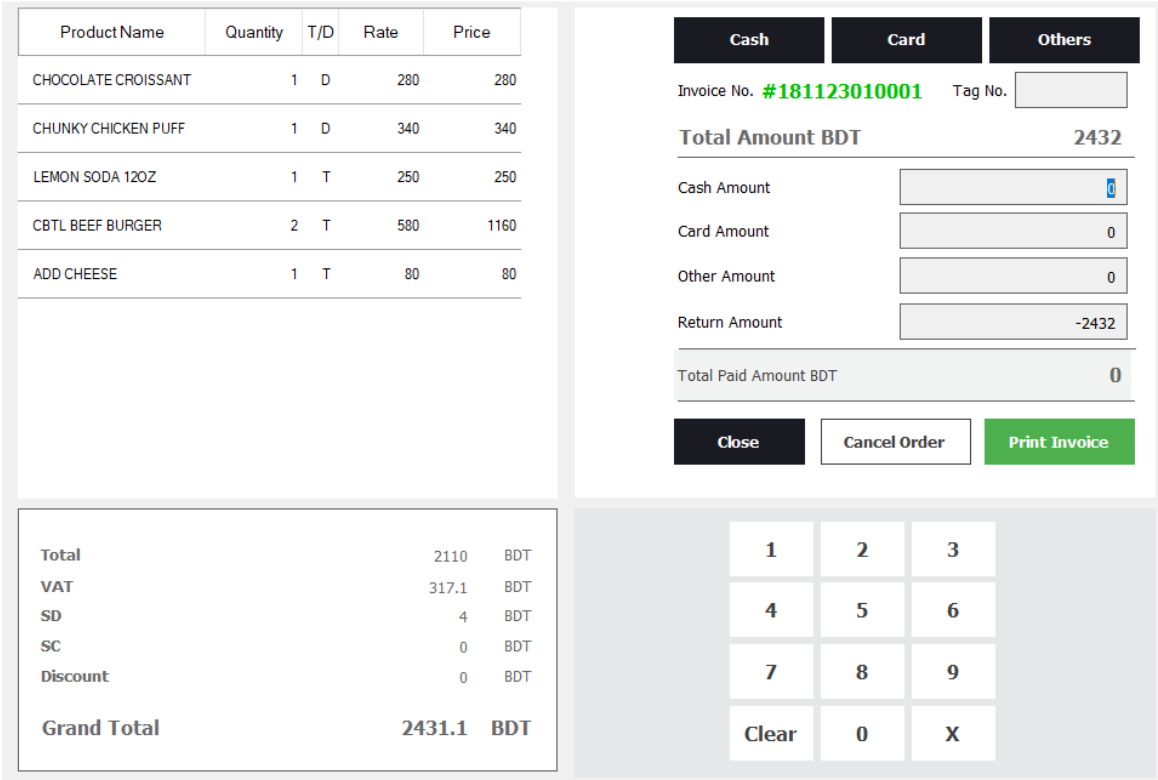

Figure 38: Customer Payment Form

Customer can do partial payment by cash and card. Cash amount can be provided directly by the user. To pay by card user hit the Card button and provide the information in Figure: 39 below.

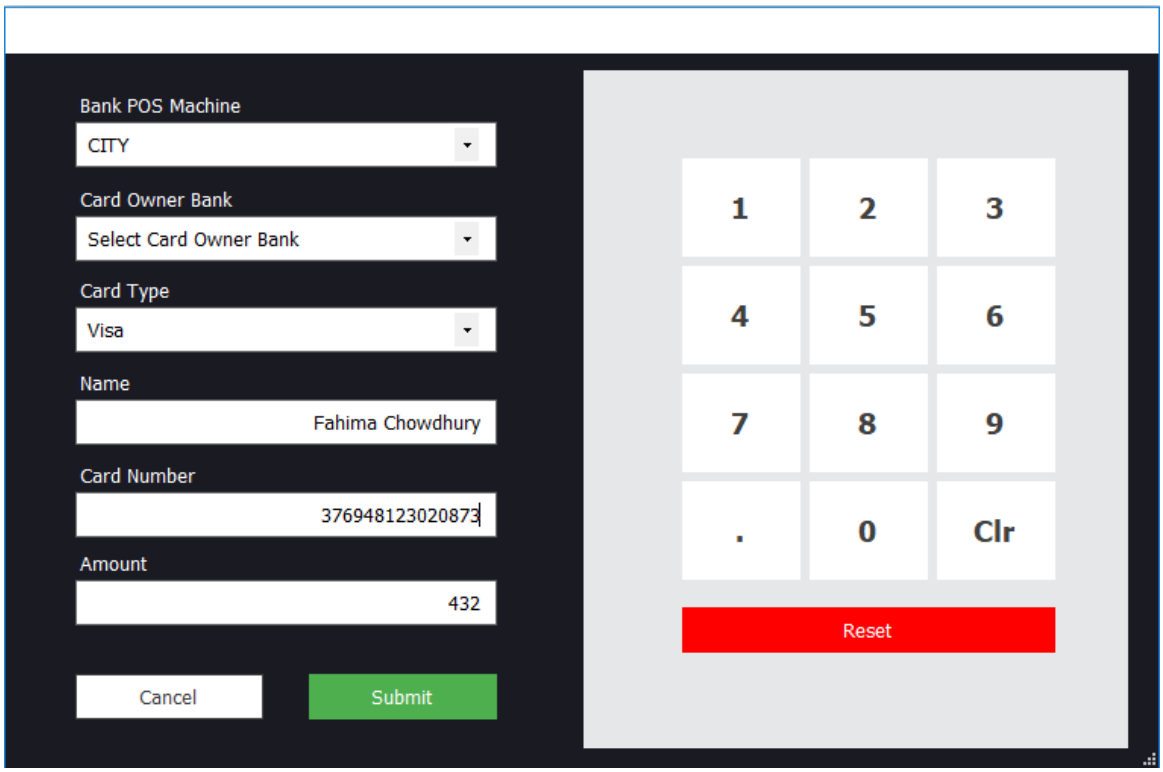

Figure 39: Card Payment Form

After all the payment user will click on the print button to save the invoice and other details. This will save the record in “sales”, “sales_items” and “inventory_history” table and Print. If Customer has paid by card and other payment system the infor mation will be recorded in “sales_payment_card_info” and “sales_other_payment_info” table accordingly.

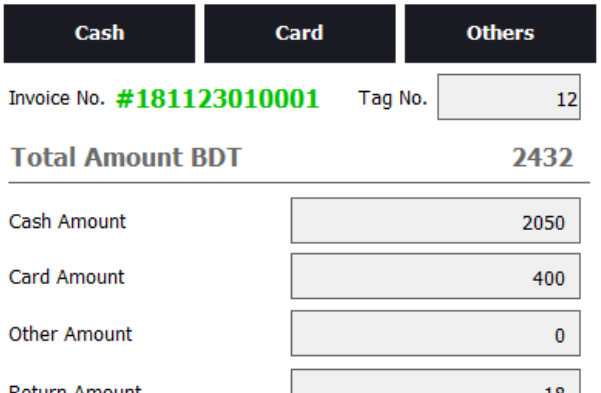

Figure 40: Customer Payment Form with all values

3.7 Kitchen

This Dashboard display Orders for kitchen stuffs to prepare orders. There are Different kitchen parts to prepare different items. These items in dashboard will appear according to the kitchen. So this makes it easier for the kitchen stuff to prepare the orders.

User has to click on START button to fetch all the items that are need to be processed. The items will populate from “sales_items” table for the kitchen user has logged in. Click the END button to stop the sync process. When all the items in an invoice are ready to serve the user has to hit the Done button below that invoice. This action will read the recipe of those items from “recipes” table. According to the recipe quantity the raw items’ stock quantity will be deducted in the “items” table of the branch. It will also keep a record in the “inventory_history” table with a transection type “kitchen”.

Figure 41: Kitchen

3.8 Void Invoice

We need these features to help the customers. Any customer emergency might need to cancel order. If no item in the order is served then a customer can cancel an order. This provide the business a happy customer.

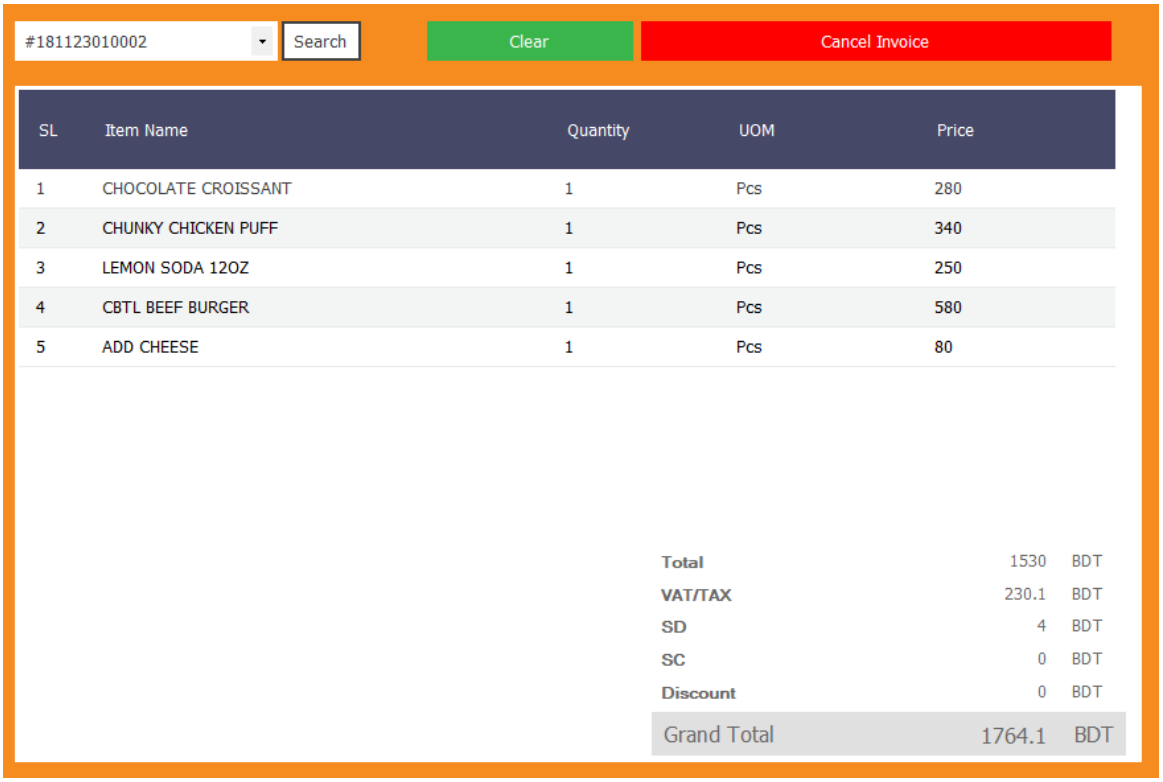

Figure 42: Cancel Invoice

In this window there is a dropdown that will populate the invoices of current date and those with items not yet served. User select the invoice that need to be canceled and search. This action will read the information from the “sales” and “sales_items” table and present it in the dashboard. When user click on the cancel button it will change the status of that sales in “sales” tables to 0.

3.9 Report

Report dashboard has four types of report. Those are as follows:

- Item Report
- Stock Report
- Purchase Report
- Sales Report

Each type has their own dashboard and own reports. User can print those reports from those dashboard.

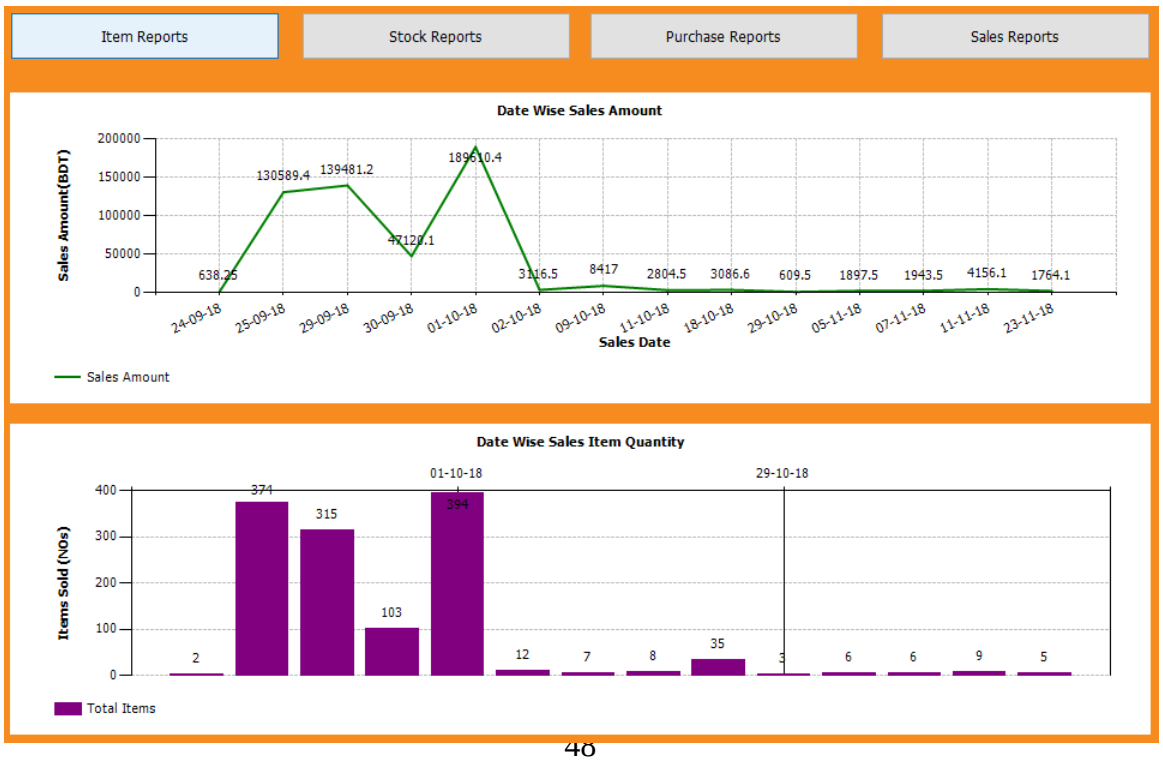

Figure 43: Report

Chapter 4

4 Solution

Solution need their own requirements, benefits and target as follows:

4.1 Solution Requirements

As Every Solution "**PoS and Inventory Solution for Restaurants**" also have some pre requirements to run it. The user need the followings:

- **Software requirements**
  - Windows 10 64/32 bit
  - Crystal report runtime 32 bit
  - POS Printer Driver

- **Hardware requirements**
  - Network/LAN Connection (if the database hosted in a server)
  - POS Printer

4.2 Benefits

Following are the benefits this solution will provide:

- Saves Time
- Saves Resource
- Data Accuracy
- Cost Saving

4.3 Target Customers

- Primarily for:
  - Restaurants
- Also Useful for:
  - Super Shops
  - Retail Stores

- Drug Stores

Chapter 5

Conclusion

"**PoS and Inventory Solution for Restaurants**" not only serves for restaurants but also can serve any super shops, drag stores etc. It can make any kind of combination of items and sell. Through this we cannot only sell but also produce new items from existing items. You can call it a semi ERP. Our main goal is to make business easier and employee productive.

We are planning to take this solution to another level by having sub-stores under branch. It brings a whole new concept to the Point of Sale and making solution more user friendly. It can be developed into a whole ERP system. The Purchase module serve the purpose partially. But we can develop it by adding Good receive and Good return feature. As this system has a shift open and close part, this will help us to add a HR module to it.

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[4] Tom Greenhaw Jr., https://www.cashierlive.com/, “Cashier Live: Retail point of Sale”, 2008.

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