Inventory Management System

For a Supermarket

- Inuri Limanthi De Soysa Gunathilaka

- AF/18/14575

- AR/96548

- Department of Information and Communication Technology

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-Introduction about Inventory Management System-

A company's inventory is one of its most valuable assets.In retail,manufacturing,food service and other inventory-intensive sectors,a company's inputs and finished products are the core of its business.Inventory Management System having the right inventory at the right time in the right place. Inventory is a detailed list of movable items which necessary to manufacture a product.Inventories consist of raw materials,component parts,supplies or finished product etc.

Inventory is an idle stock of physical goods that contain economic value and are held in various forms by an organization in its custody awaiting packing,processing,transformation,use or sale in a future point of time.

The project aims at providing an efficient interface to the supermarket for managing their grocery inventory based on each item sold.The basic idea involved here is that each product is linked to its categories which are stored in a database.At the end of each customer process,the system analyses the total amount of purchased products. The supermarket must function efficiently, the groceries must be tracked correctly,timely purchase must be sent out to the customers, and inventory must be maintained and updated at all times.

Importants of Inventory Management System:

- Reduce costs
- Focus optimizing the product range. A narrow inventory leads to improve stock management
- Provide better customer service
- Prevent loss from theft, spoilage
- The system will help predict demand based on inventory status, historical data and user inputs
- Customers should be able to acquire the right quantities ,at the right price and the right quality

Acronyms and Abbreviations

<u>The Admin</u>

The main user of the inventory control system would be the owner of the supermarket or the manager (admin).ADMIN can manage users in the system by adding a new user and updating or editing details of a user.

<u>The User</u>

The login form allow the ADMIN and the other USERS to login into the application HOME FORM. The user can change all the products, category and customer details by inserting,editing and deleting after confirmed the user's authentication details.User would be responsible for process the amount of customer purchased products and prints out the products purchased by customer.
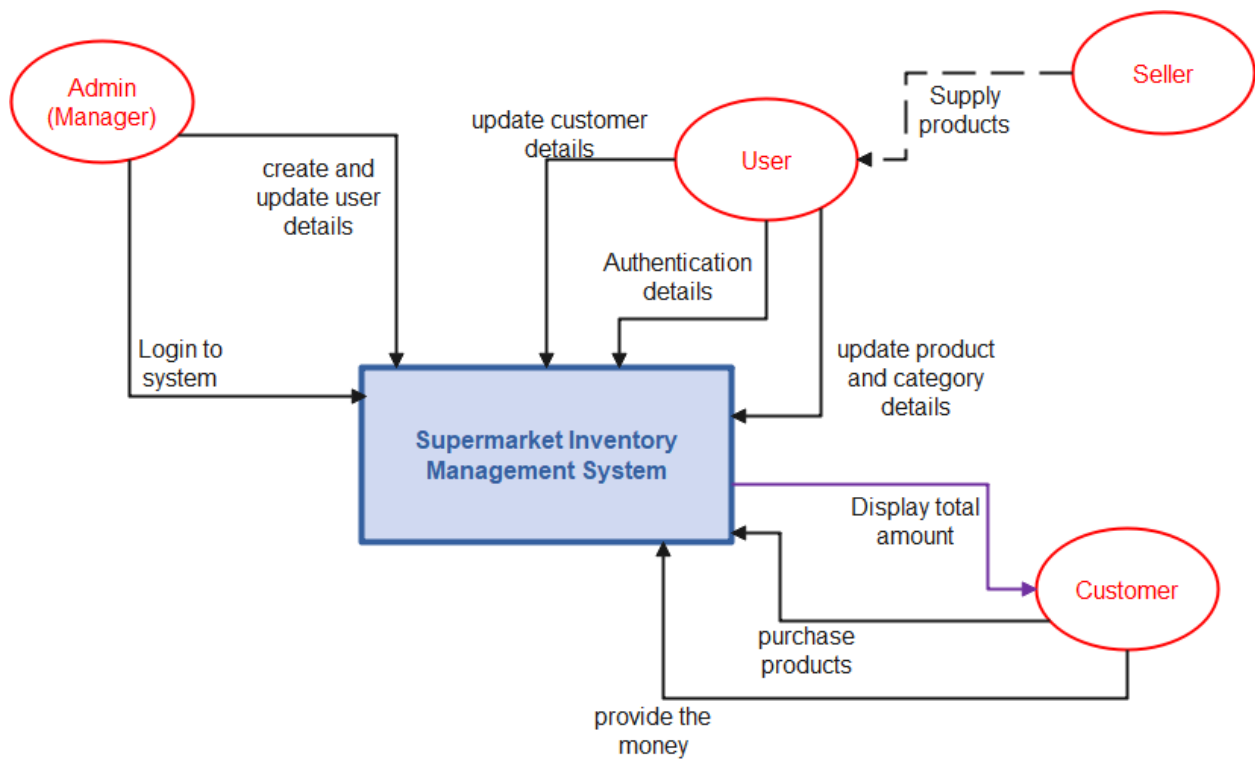
<u>The Customer</u>

The customer can buy products and provide the money to the system. Customers should be able to acquire the right quantities, at the right price and the right quality.
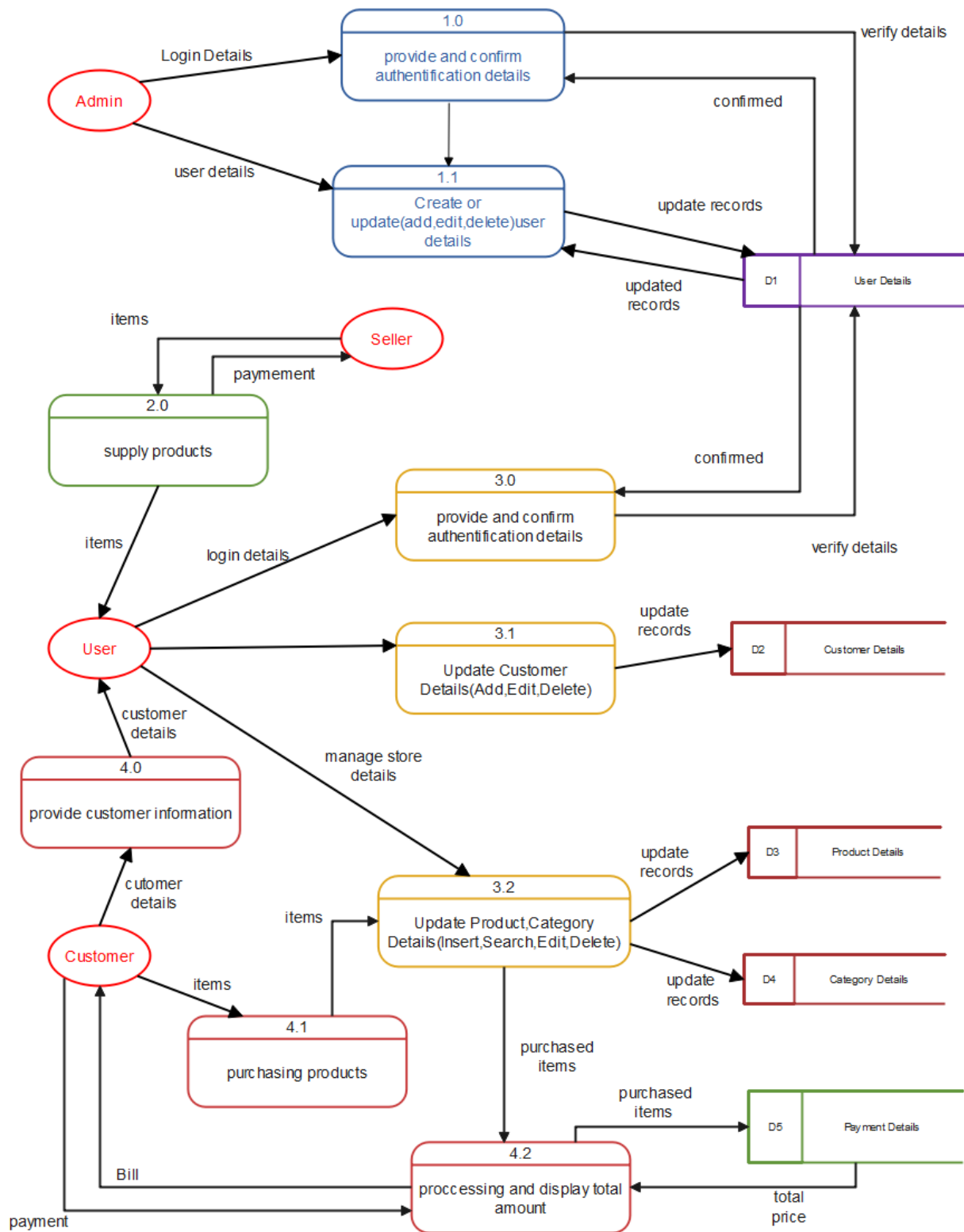
<u>The Seller</u>

The seller sells the sale Items (Products) to the supermarket and gets money.(This is not a necessary external entity for this required system).

Contex Diagram- Data Flow Diagram Level-0

Data Flow Diagram – Level 1

Admin → Login Details → **1.0** provide and confirm authentification details

1.0 → verify details

1.0 ← confirmed

Admin → user details → **1.1** Create or update(add,edit,delete)user details

1.0 → **1.1**

1.1 → update records → **D1** User Details

D1 User Details → updated records → **1.1**

D1 User Details → verify details → **3.0**

items → **Seller**

Seller → paymement → **2.0** supply products

2.0 supply products → items → **User**

User → login details → **3.0** provide and confirm authentification details

3.0 ← confirmed

User → **3.1** Update Customer Details(Add,Edit,Delete) → update records → **D2** Customer Details

User → manage store details → **3.2** Update Product,Category Details(Insert,Search,Edit,Delete)

3.2 → update records → **D3** Product Details

3.2 → update records → **D4** Category Details

4.0 provide customer information → customer details → **User**

Customer → cutomer details → **4.0**

Customer → items → **4.1** purchasing products

4.1 → items → **3.2**

3.2 → purchased items → **4.2** proccessing and display total amount

4.2 → purchased items → **D5** Payment Details

D5 Payment Details → total price → **4.2**

4.2 → Bill → **Customer**

Customer → payment → **4.2**

Functional and Non-Functional Requirements

Functional Requirements

Requirements describe how a product must behave, what its features and functions.

❖ The sales system should allow users to record customers details

The system should allow to input customer details and user (cashier) can get the selected customer data from the database. In this section user can gets customer's Id,first name,last name telephone no and email when insert a new customer and also user has able to update or edit furthermore delete the selected customer data when required.

❖ The system should allow update inventory

In supermarket inventory control system, this function updates the inventory whenever an item sold or purchased by a customer.

❖ The system should allow users to record Item details

In this section user has able to store the details of products and category details to the system. When user search product and category details from the system should display all the information about the product (name, quantity,price,description) and categories(ID, Name). User can insert, update, delete selected product and category .

❖ Perform Sales Transaction

Whenever any item is sold from the stock of the supermarket the data regarding the item type and the quantity get automatically registered then. During this sales transaction, the name of the product, category quantity, price are entered into the bill. The bill indicates the total amount payable.

❖ The Admin of the system (Manager) can manage the user details

ADMIN can manage users in the system by adding a new user and updating or editing details of a user.

❖ The system should able to printout the total price of the purchased products

The product information with price is created in a printable format for the customer after the whole transaction.On pressing the print button,the details of the inventory are updated and a bill is produced.

Non-Functional Requirements

Requirements describe the characteristics of a system. They are also known as quality attributes.

- ❖ Employees never allowed to update or change salary information. Such attempt should be reported to the security administrator.

- ❖ Ensure good user experience and ease of operating the software.

- ❖ Reliability

  The system should use a reliable database management system. All database updates must be dependable and the network connectivity in the supermarket should be proper for smooth flow of all operations and data.

  Reliability may decreases because of bugs in the code, hardware failures or problems with other system components. Count the percentage of operations that are completed correctly or average period of time the systems run before failing.

- ❖ User friendly

  The system should be familiar user interfaces such as that used to surf the internet.

- ❖ Performance

  High level of performance requires high speed network and high level of connectivity.

- ❖ Security

  Every user of the software is provided a unique login ID and a password which is stored in the database.

- ❖ Availability

  The software is available for use from the supermarket opening time to the closing time.

Validation Checks:

I have use following type of checks:

i) **data type**

ii) **length**

iii) **constraints(Key constraints)**

iv) **blank field**

v) **format**

I have use character type for character, number for numeric type and as same as length.Every and Each table has primary key. Primary key can be defined at the column or the table level. Foreign key is a column that creates a relationship between two tables. The purpose of the Foreign key is to maintain data integrity and allow navigation between two different instances of an entity. It acts as a cross-reference between two tables as it references the primary key of another table. Every relationship in the database should be supported by a foreign key. According Product_Detail and Category_Detail tables the Category_Detail table depends on the Product_Detail. Customer_Detail table depends on Product_detail table.

TESTING

INTERFACES OF THE SYSTEM
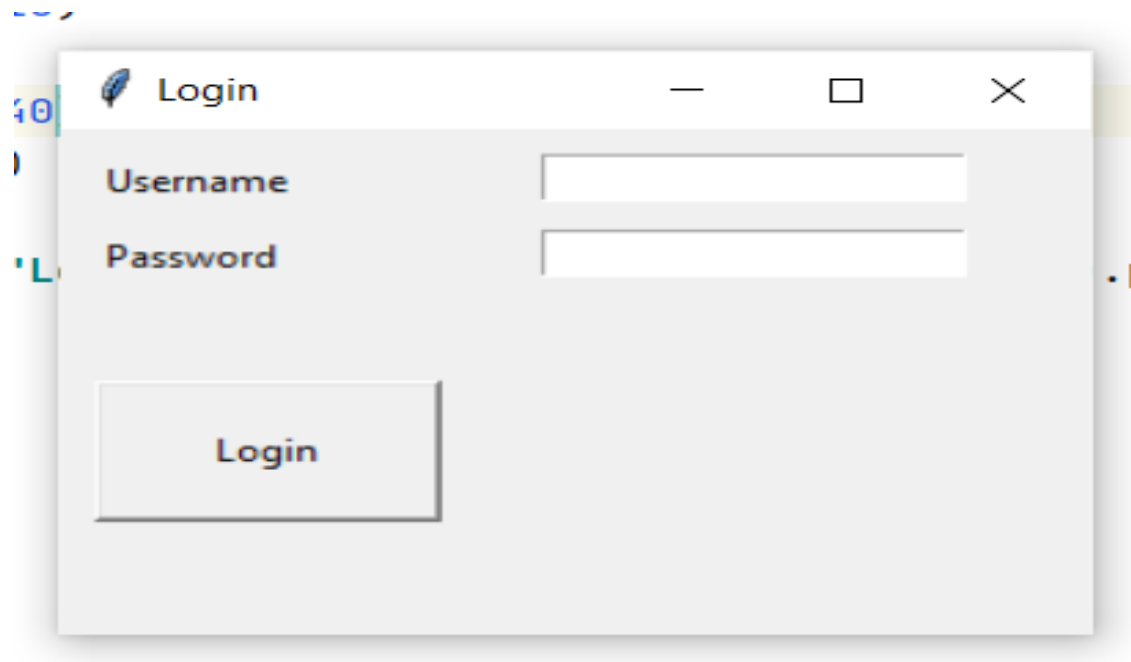

1.Login to the system

This tests the login interface of the system. The system will require an authenticated login and password for accessing the main interface and hence all the functions, this will prevent any unauthorized login into the system and hence make the system secure. The master login and password will also ensure that the user is enabled to connect to the database or not.
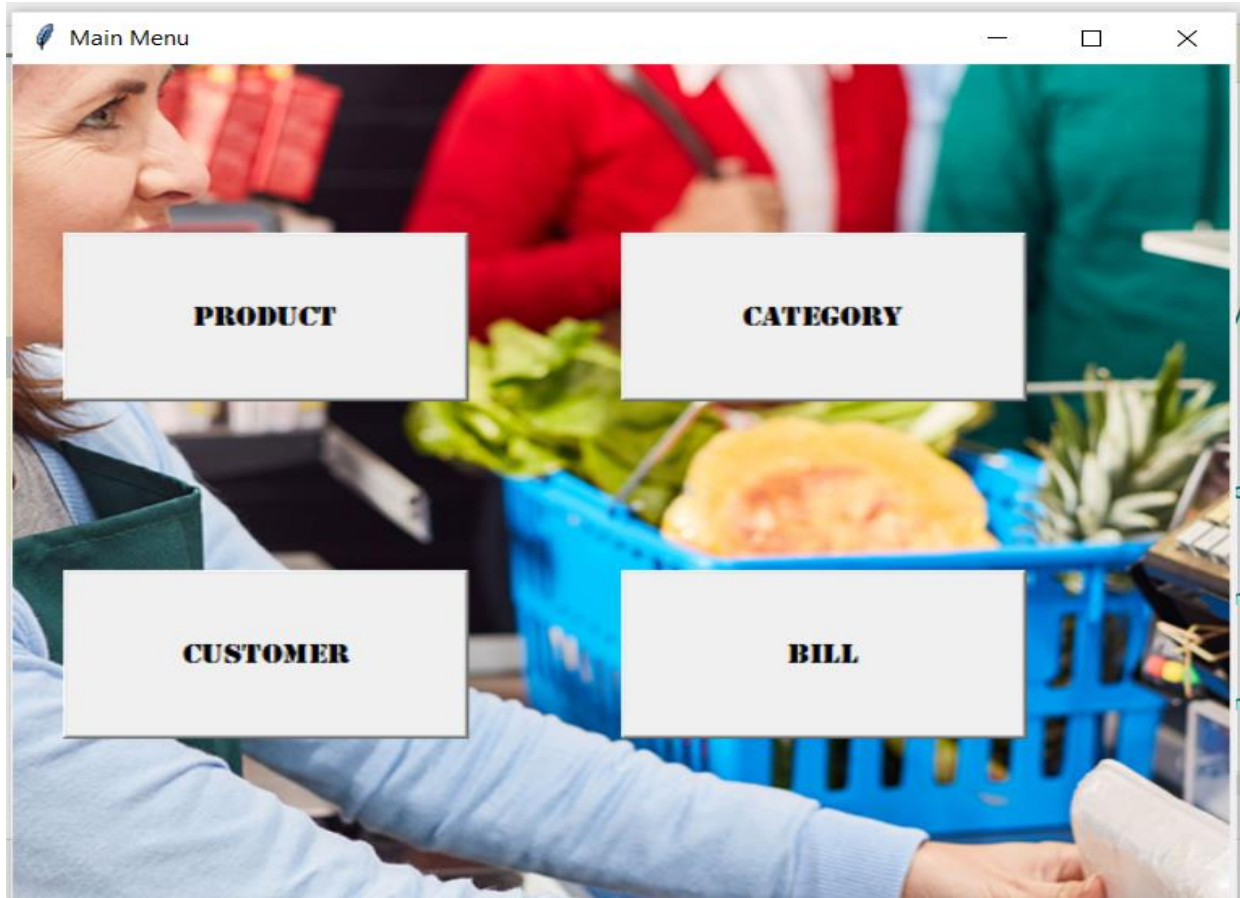
2.Main Menu

This is consist of four new selection items. Every and each sub items have a mass process inside the system.Main menu open after the user given the correct login information(Username,Password).Main menu Consist of four buttons,
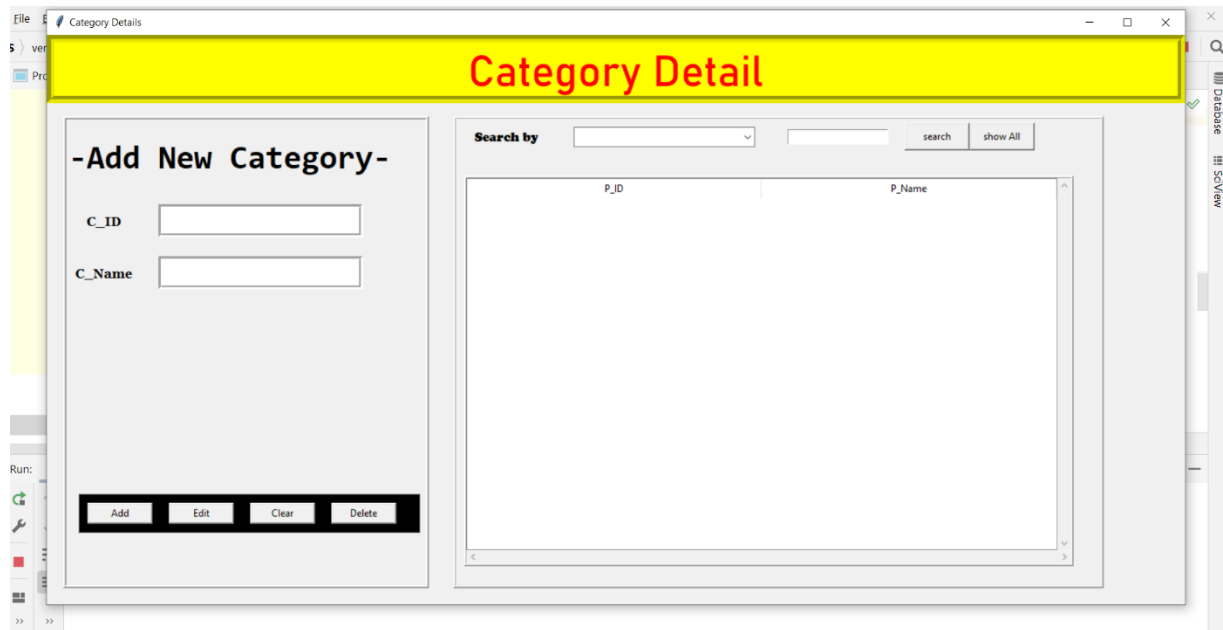
1. Product
2. Category
3. Customer
4. Bill
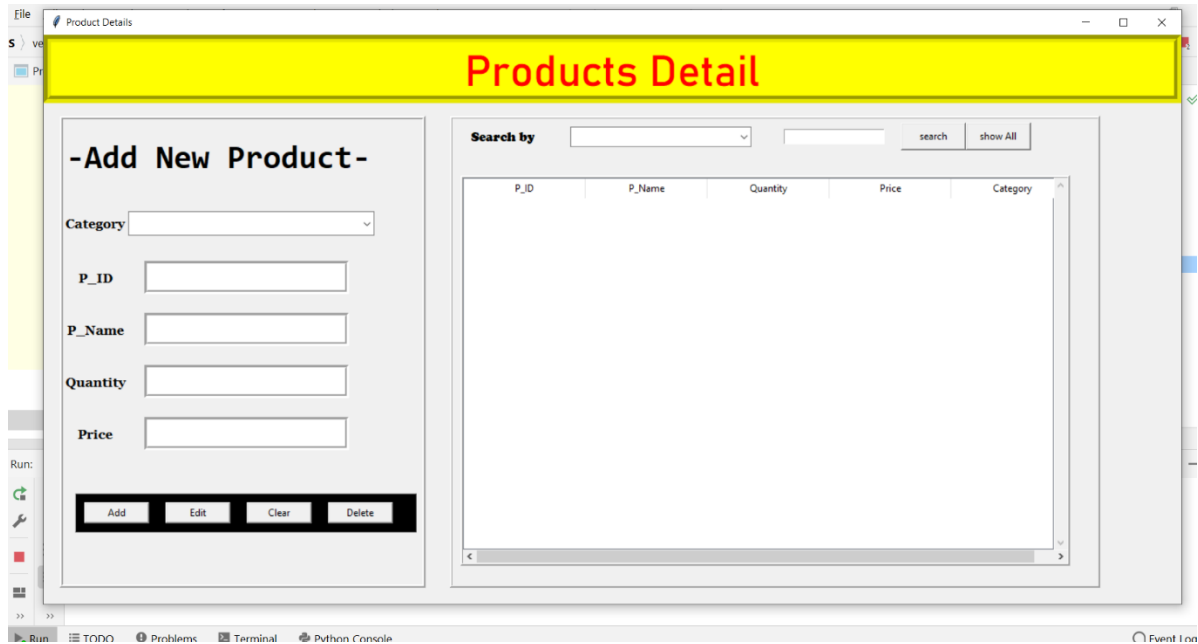
Product_Detail

In the Products Detail section user have able to,

Adding New Product details to the database and new data will disappear to the right hand of the table

view.That table fetching all the producucts, that should be easy to search,edit,clear and delete data

which relavant to the products.

Category_Detail

In the Category Detail section user have able to,

Add New Category details to the database and new data will disappear to the right hand of the table

view.That table fetching up all the Categories in the supermarket and that should be easy to

search,edit,clear and delete data which relavant to the Category.

Customer_Detail

In the Customer Detail section user have able to,

Add New Customer details in to the database and the customer data will disappear on the right hand of

the table view.That table fetching up all the Customer details and the system can search,edit,clear and

delete data which relavant to the Customer.
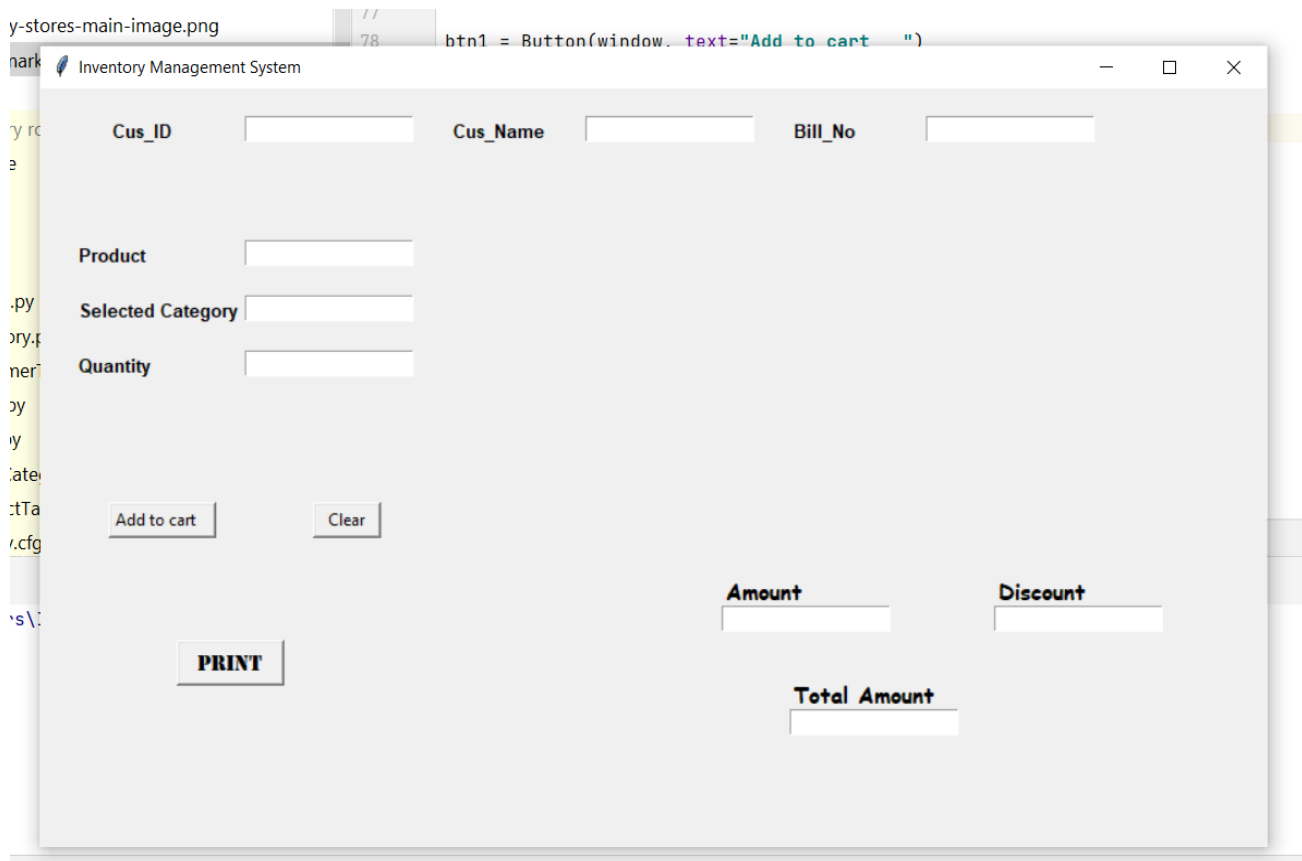
Billing Process

In the Billing process section user have able to,

This system is built for fast data processing and bill generation for supermarket customers. The billing system consists of an sql database. The billing database is a vast collection of product name, price and other product specific data. A product when billed is searched from the database and its price is added to the bill based upon the product quantity. The system also contains discounts on various products so that the product is offered at discounted price while billing. The supermarket billing system is built to help supermarkets calculate and display bills and serve the customer in a faster and efficient manner. This software project consists of an effective and easy Gui to help the employee in easy bill calculation and providing an efficient customer service.
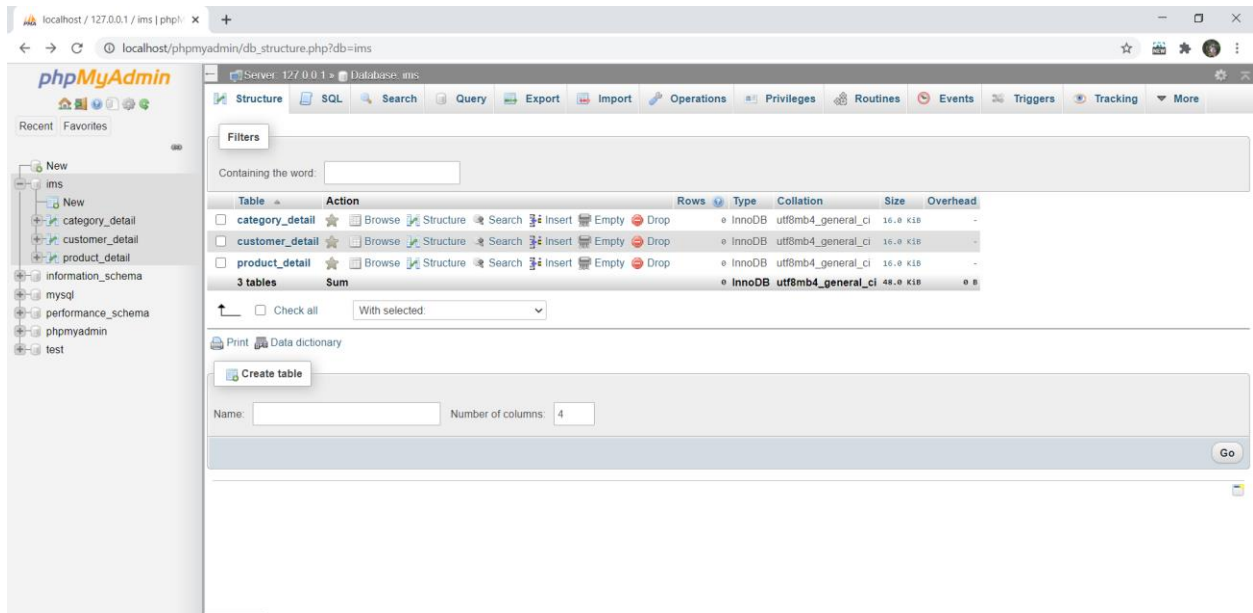
>>**CREATED DATABASE USING** *phpMyAdmin* …

- o Product_Detail Table
- o Category_Detail Table
- o Customer_Detail Table

ADVANTAGES AND DISADVANTAGES

Advantages

- The system reduces much of human efforts in calculating bill especially for huge products. That saves human efforts.
- Saves money and resources of organization and excludes of use of paper or sheets in making bill.
- Saves time.
- It provides accuracy and faultless in billing calculations.
- The system is designed having attractive GUI and with detailed description.
- It is flexible and user-friendly.

Disadvantages

- Requires large database
- The system wants qualified users to handle the system without any bugs
- the accuracy of prediction can be determined unless matched with a real-time data.
- The prediction of ingredient usage for different occasions set by the user and hence are not completely verifiable and thus skipped in this test.
- Predicting requirements in general or can be alerting the user of predicted low inventory level for a specific day

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