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# **SOFTWARE REQUIREMENTS SPECIFICATION**

for

## **SUPER MARKET AUTOMATION SOFTWARE**

**Version 1.0**

**Prepared by :**

**Yasaswani Rongali (21CS10082)**

**Shamitha Ambati (21CS30004)**

**Sree Harshitha Gaddam (21CS10024)**

**Submitted to : Sourangshu Bhattacharya &  
Abir Das**

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# 1 Introduction

## 1.1 Purpose

The purpose of this document is to specify the requirements for the development of a supermarket automation software. It contains both the functional and the non-functional requirements

## 1.2 Intended Audience and Reading Suggestions

This SRS document is intended to be read before using the software so that the user can take full advantage of this software . Prof Sourangshu Bhattacharya and Prof Abir Das are intended to check whether this software works correctly or not .

## 1.3 Project Scope

- The Supermarket Automation Software(SAS) is designed to support the requirements of the manager of a supermarket as given in his requirementstatement.
- The manager of the supermarket wants us to develop an automation soft- ware. The supermarket stocks a set of items. Customers pick up their desired items from the different counters in required quantities. The customers present these items to the sales clerk. The sales clerk registers the items using a bar code reader and an automatic weighing scale for weighing and the data pertaining to the item and its quantity get registered in SAS.
- SAS at the end of a sales transaction prints the bill containing the serial number of the sales transaction, the name of the item,

item ID, quantity, unit price, and item price. The bill should indicate the total amount payable.

- SAS should maintain the inventory of the various items of the supermarket. The manager upon query should be able to see the inventory details. In order to support inventory management, the inventory of an item should be decreased whenever an item is sold. SAS should also support an option by which an employee can update the inventory when new supply arrives.
- SAS should support printing the sales statistics for every item the super- market deals with for any particular day or any particular period. The sales statistics should indicate the quantity of an item sold, the price realized, net sales and the profit generated.
- The manager of the supermarket should be able to change the the price at which an item is sold.

## 2 Overall Description

### 2.1 Product Perspective

The supermarket automation software will serve as a tool for managing the inventory, sales and transaction details of the supermarket. The software will be designed to be user-friendly, allowing the users to interact with the system with ease. .

### 2.2 User Classes and Characteristics

The user classes are:

- Manager
- Inventory Management Staff
- Sales Clerk

The users are expected to have basic computer knowledge and experience in using similar software.

Manager: This user class would have full access to the software and would be responsible for managing the inventory, adding new products, and generating reports.

Inventory Management Staff: This user class would have access to the inventory management functionality of the software and would be responsible for updating inventory levels

Sales Clerk: This user class would have limited access to the software and would primarily use it for scanning products, generating receipts, and processing payments.

## 2.3 Product Functions

The software will perform the following functions:

- Generate receipts
- Keeps track of inventory levels(quantity of each item)
- Add new products to the inventory
- Displays Inventory
- Update inventory levels when products are sold
- Displays Sales statistics
- Allow authorized users to make changes to the system

## 2.4 Operating Environment

Seamless and fast internet is required to operate this software and the operating system should be capable of running Python and Flask web framework and should have the necessary software and hardware resources to support the expected traffic and load on the system

## 2.5 Design and Implementation constraints

The current constraints on the project are related to the provision of database resources. The more robust and fast the database the better the performance of the software. Internet is must for using this software.Also, if the internet speed is low there would be a delay in the generation of the bills. .

## 2.6 Assumptions and Dependencies

The successful implementation of the software is dependent on the availability of a reliable internet connection and functional computer hardware. It is assumed that the staff will be adequately trained on how to use the software. The sales clerks are provided with a Barcode reader and a printer

## **3 Specific Requirements**

### **3.1 Functional Requirements**

- **Transactions**

1. Inputs

Product ID from bar code reader and weight from the weighing machine

2. Processing

The SAS queries the database for the product information and calculates the total amount payable. A bill is then created which is printed.

3. Output

Output is a printed bill. Contains the total amount payable apart from the details of the products and also the sales clerk.

- **Viewing sales statistics**

1. Input

Product ID and the duration for which the statistics are to be viewed.

2. Processing

The SAS looks into the database, the cost and selling price of the particular product for every transaction during that period and generates the profit statistics.

3. Outputs

The profit statistics are displayed in the requested format for the manager.

- **Updating prices**

1. Input



Product ID and the new price of the product.

## 2. Processing

The SAS looks into the database, and displays the details of the particular product. It then updates the database with the new price.

## 3. Outputs

The SAS displays the details of the particular product with new price

### • **Updating inventory**

#### 1. Input

Product ID and the quantity arrived.

#### 2. Processing

The SAS looks into the database, if the product already exists in the inventory database, the quantity is updated otherwise new product information has to be added to the database.

#### 3. Outputs

A notification is displayed confirming the update regarding the product and Quantity.

## 3.2 External Interface Requirements

### **User Interface:**

#### • **Manager Interface:**

The SAS gives options to change the prices of the products, view the inventory details, view the sales statistics

#### • **Inventory Management Staff Interface:**

The SAS gives option to add new products to the inventory

- **Sales Clerk Interface:**

The SAS gives options to start a new transaction and print the bill after the transaction has been performed.

- **Hardware Interfaces**

The bar code reader scans the bar code from a packaged product and sends the product ID to the software and the weighing machine sends the weight of the product( if it is a loose product). A PC or a computer with good internet is required.

## **Software Interfaces:**

### **1. Inventory query**

- The manager queries the product whose details he/she wishes to view.
- The SAS displays information about the product.
- The manager changes the price of the product which is reflected in the database.

### **2. Add to inventory**

- The Inventory Management staff requests for the addition of the product and subsequently enters the details of the product. The product may be an existing product in the inventory whose new supply has arrived or a completely new product in itself.
- The SAS updates the product in its database.

### **3. New transaction**

- The sales clerk provides the details of the product ready for billing

- On pressing the print button, the details of the inventory are updated and a bill is produced and printed along with a confirmation message.

#### **Communication interface:**

Any change made to the inventory of the supermarket is automatically updated in the database which has been set up in a separate server.

## **4 Other Nonfunctional Requirements**

### **4.1 Performance Requirements**

High level of performance requires a good network and appropriate infrastructure for Storing large amount of data and handling multiple requests.

### **4.2 Security Requirements**

The users of the software are required to login via their unique login ID and password.

### **4.3 Database requirements**

All the data pertaining to employees, inventory and archive of sales information is stored in the database. For fast query this requires a robust database design.SQLite is required for maintaining the database.