Vidyavardhini's College of Engineering &Technology

Department of Computer Science & Engineering (Data Science)

Report On

Supermarket Billing System

Submitted in partial fulfilment of the requirements of the Course project inSemester III of Second Year Computer Science Engineering and Data Science.

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CERTIFICATE

This is to certify that the project entitled “Supermarket Billing System” is a bonafide work of "Ashwin Pawar, Arpan Mahadik, Mukta Zore, Mahek Shah” submitted to the University of Mumbai in partial fulfillment of the requirement for the Course project in semester III of Second Year Computer Science Engineering and Data Science

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Abstract

The Supermarket Billing System is a computerized solution designed to streamline and automate the billing and transaction processes within a supermarket or retail store. This system aims to enhance efficiency, accuracy, and customer satisfaction in managing purchases and payments.

In a traditional supermarket environment, manual billing and record-keeping can be time-consuming and error-prone, leading to discrepancies in inventory management and customer dissatisfaction. The Supermarket Billing System addresses these challenges by providing a comprehensive software platform that facilitates various essential functions.

Key features of the Supermarket Billing System include:

Product Database: The system maintains a centralized database of all available products, including product details, prices, and stock levels. This ensures that cashiers can access up-to-date information, reducing pricing errors and eliminating the need for manual price checking.

Barcode Scanning: Cashiers can quickly scan product barcodes using barcode scanners. This not only expedites the billing process but also minimizes human error in product selection and pricing.

Real-time Inventory Management: The system automatically updates the inventory levels as items are sold. This helps store owners maintain optimal stock levels, reorder products when necessary, and prevent stockouts.

User-Friendly Interface: The system features an intuitive and user-friendly interface for cashiers and customers, making the checkout process efficient and pleasant.

Security and Data Integrity: Robust security measures protect customer data and transaction information, ensuring the privacy and safety of sensitive details.

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INTRODUCTION

1.1 **Introduction**

In the ever-evolving world of retail, supermarkets play a pivotal role in providing essential goods to consumers. To meet the growing demand for efficiency and customer satisfaction, supermarkets have turned to technology to streamline their operations. One crucial aspect of this transformation is the implementation of a Supermarket Billing System, a computerized solution that enhances the billing and transaction processes in these retail establishments.

The Supermarket Billing System represents a fundamental shift from traditional manual billing and record-keeping methods to a highly automated, digital approach. This system leverages advanced technology to manage product inventory, calculate prices, process payments, and generate receipts, all with the aim of improving operational efficiency and customer experience.

Key components of the Supermarket Billing System include a centralized product database, barcode scanning technology, real-time inventory management, support for multiple payment options, discounts and promotions management, sales reports, and user-friendly interfaces for cashiers and customers. By integrating these features, the system addresses many of the challenges faced by traditional supermarkets, such as pricing errors, inventory discrepancies, and long checkout lines.

1.2 **Problem Statement**

In the context of modern retail operations, traditional supermarket billing processes present a series of challenges and inefficiencies that hinder the overall shopping experience for customers and create operational difficulties for store owners. The primary problems associated with the existing manual billing system in supermarkets include:

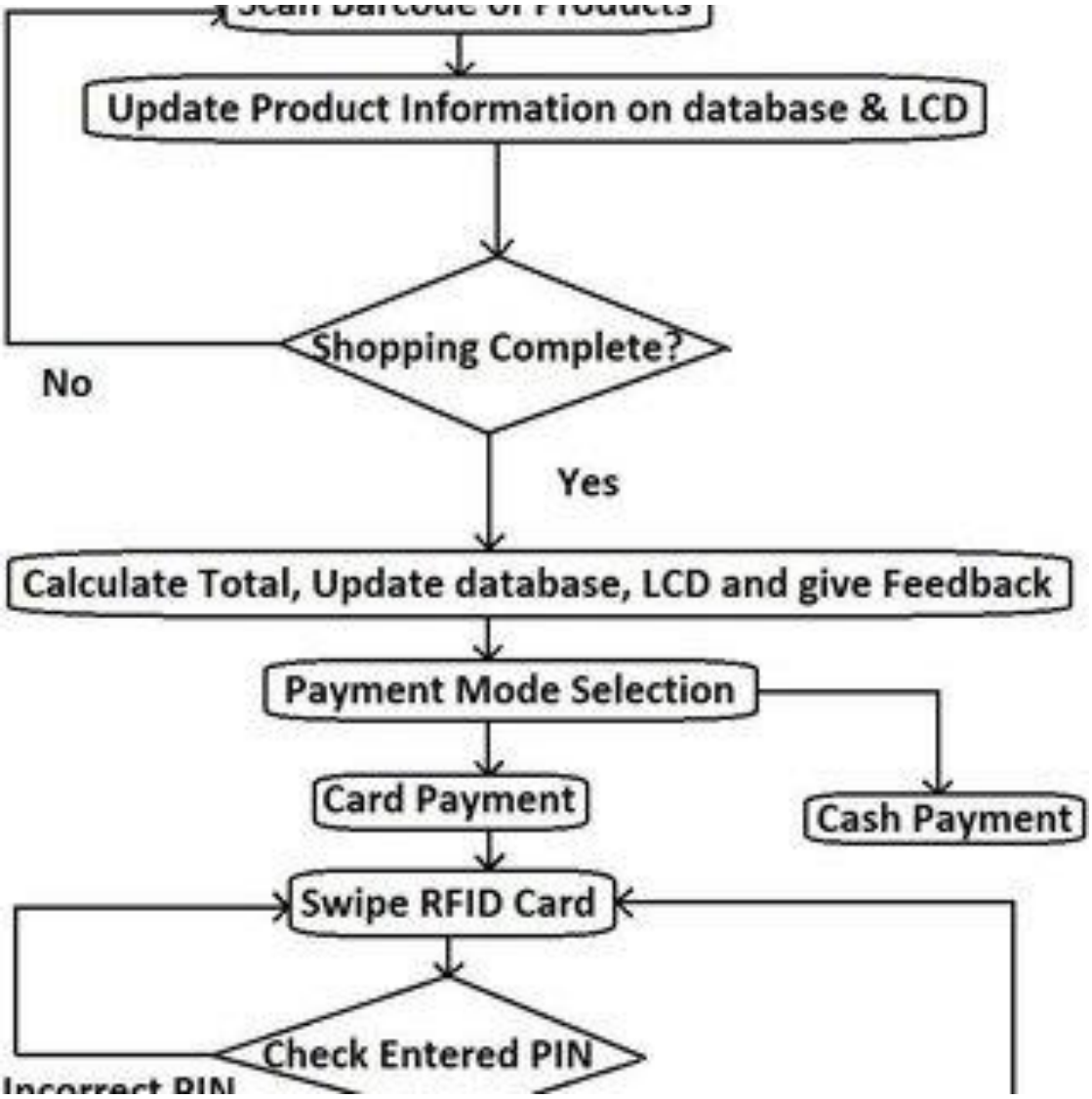
Pricing Errors: Manual entry of product prices and calculation of totals at the checkout counter can result in frequent pricing errors. This not only leads to customer dissatisfaction but also creates the need for time-consuming and error-prone price corrections.

Inventory Discrepancies: Tracking inventory levels manually is a cumbersome task and prone to inaccuracies. As a result, supermarkets often struggle to maintain optimal stock levels, leading to stockouts, overstocking, and inefficient inventory management.

PROPOSEDD SYSTEM

2.1 Block diagram , its description and working [ER diagram]

Block Dig:-



A Supermarket Billing System is a comprehensive software solution designed to automate and optimize the billing and transaction processes in a supermarket or retail store. This system encompasses various components and functions to enhance the overall shopping experience for customers while improving operational efficiency for store owners. Below is a description and overview of how a typical Supermarket Billing System works:

Product Database: The system starts with a product database that contains information about all available products in the store. This database includes details such as product names, prices, barcodes, and stock levels. It serves as the foundation for accurate billing and inventory management.

Barcode Scanning: To initiate a transaction, the cashier or salesperson scans the barcode of each product using a barcode scanner. The system retrieves product information from the database based on the barcode, ensuring accurate pricing and efficient product identification.

Real-time Inventory Management: As products are scanned and added to the customer's shopping cart, the system automatically updates the inventory levels in real-time. This functionality helps store owners keep track of stock levels and prevent product shortages or overstock situations.

Pricing and Discounts: The system calculates the total cost of the customer's purchase based on the scanned products and their prices. It also applies any discounts, promotions, or loyalty program benefits to ensure that customers receive accurate pricing.

2.2 **Module Description**

A Supermarket Billing System is typically divided into several modules or components, each responsible for specific tasks and functionalities within the system. Here's a module description for a typical Supermarket Billing System:

Product Database Module:

Description: This module manages the supermarket's product database, storing essential information about all available items, including product names, prices, barcodes, and stock levels.

Functionality: It allows for the addition, modification, and removal of product information. It also ensures data accuracy and consistency, serving as the foundation for the billing process.

Barcode Scanning Module:

Description: The barcode scanning module is responsible for identifying and retrieving product details based on scanned barcodes.

Functionality: It interfaces with barcode scanners to capture product information, ensuring that the correct item is added to the customer's cart and that the pricing is accurate.

Inventory Management Module:

Description: This module oversees real-time inventory management, tracking product stock levels as transactions occur.

Functionality: It updates stock counts with each sale, monitors product reordering points, and generates alerts for restocking when necessary. It helps store owners maintain optimal inventory levels.

2.3 Brief description of software & hardware used and its programming

1. Software Components:-

- Programming Language :- JAVA

- IDE:- Eclipse

2. Hardware Components:-

- Computer/Workstation:- Any computer capable of running Eclipse.

3. RESULTS AND CONCLUSION

Results:-

```
Administrator: C:\Windows\System32\cmd.exe

C:\Program Files\Java\jdk-18\bin>javac Microproject.java

C:\Program Files\Java\jdk-18\bin>java Microproject

********************* WELCOME TO SUPERMARKET BILLING SYSTEM *********************

Enter the following details:

Enter the name of Buyer:
Chintamani Chavan
Enter the number of total items purchased:
5
Enter the Name of 1 item:
RedBull
Enter the Name of 2 item:
ParleG
Enter the Name of 3 item:
Notebook
Enter the Name of 4 item:
Lays
Enter the Name of 5 item:
DairyMilk
```

```
Enter the Rate of "RedBull":
110
Enter the Rate of "ParleG":
20
Enter the Rate of "Notebook":
35
Enter the Rate of "Lays":
10
Enter the Rate of "DairyMilk":
100
Enter the Quantity of "RedBull":
1
Enter the Quantity of "ParleG":
2
Enter the Quantity of "Notebook":
3
Enter the Quantity of "Lays":
2
Enter the Quantity of "DairyMilk":
5
```

```
*******************************BILL*************************************

Sr.No.  ITEM            Price           Quantity        Amount
1       RedBull         110.0           1               110.0
2       ParleG          20.0            2               40.0
3       Notebook                35.0            3               105.0
4       Lays            10.0            2               20.0
5       DairyMilk               100.0           5               500.0


                                        1. Name of the Buyer: Chintamani Chavan
                                        2. Total: 775.0
                                        3. GST(18%): 139.5
                                        4. Total Amount: 914.5

C:\Program Files\Java\jdk-18\bin>
```

```
C:\Program Files\Java\jdk-18\bin>java Microproject

********************** WELCOME TO SUPERMARKET BILLING SYSTEM **********************

Enter the following details:

Enter the name of Buyer:
Chintamani Chavan
Enter the number of total items purchased:
-2
NegativeValueException: Value of total items purchased cannot be negative !

C:\Program Files\Java\jdk-18\bin>
```

Conclusion:-

In conclusion, Supermarket Management System has to do with making appropriate effort to stop the rising problem to all manual supermarket operation in order to enhance the operation of such supermarket. In this project, the software or system that can be used to aid all supermarkets that is still operating manually have been successfully developed.

4. References:

https://codewithcurious.com/projects/simple-supermarket-billing-system-using-java/

https://www.javatpoint.com/java-program-for-shopping-bill