OOP PROJECT

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NCR: 14575

18/11/2023

SANGOLQUÍ, MAYO 2023 – AGOSTO 2023

Index

1. Introduction

1.1 Purpose

The Ice Cream Management System aims to offer a comprehensive solution for efficient inventory management, ensuring real-time tracking of merchandise and facilitating the recording of sales transactions. This system is designed specifically for the "Glacial Branch 3" ice cream distributor, managed by owner William Granda and all employees.

1.2 Scope

The system, named "Ice Cream Management System," will optimize administrative management and generate detailed reports on ice cream distribution. Key objectives include: Efficient Tracking: Real-time tracking of all incoming and outgoing merchandise transactions. Real-Time Inventory Update: Accurate reflection of available stock through real-time inventory updates.

Detailed Sales Transaction Record: Generation of detailed records for both wholesale and retail sales.

Sales Notes: Creation of precise and detailed sales notes for comprehensive reporting on capital and inventory status.

Management of Wholesale and Retail Sales: Efficient differentiation and management of both sale types.

Simplification of Administrative Management: Automation of processes to minimize errors and simplify decision-making.

Generation of Detailed Reports: Provision of detailed reports on sales transactions, profits, and inventory status.

1.3 Definitions, Acronyms, and Abbreviations

Sales Invoice: A commercial document used in the buying and selling process.

Sales Transaction: An agreement between a buyer and a seller.

Retail Sale: Direct sale to end consumers.

Wholesale Sale: Sale directed towards other businesses, such as wholesalers or corporate clients.

1.4 Reference

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1.5 Document Overview

The Software Requirements Specification (SRS) is tailored to address the specific needs of the "Glacial Branch 3" ice cream distributor. It provides detailed guidance on designing, developing, and implementing an IT system for inventory and sales management.

Main Contents:

- **Project Context:** Understanding of daily processes, supplier relationships, and product distribution.
- **System Requirements:** Detailed requirements from inventory management to sales notes and transaction records.
- **Price and Cost Tables:** Detailed tables of factory prices, customer prices, and product costs.
- **Link between Purchase Notes and Inventory:** Explanation of the relationship for real-

time monitoring.

- **Profit Margin Optimization:** Consideration of net profit margin calculation and optimization.

2. General Description

2.1. Product Perspective

The "Ice Cream Management System" is designed as a comprehensive management tool for the "Sucursal Glacial 3" ice cream distributor. It focuses on achieving operational efficiency and smoother management.

2.2. Product Features

The system performs key functions covering the operational process of the "Sucursal Glacial 3" distributor, including:

1. **Inventory Management:**

- Detailed tracking of merchandise receipts and exits.
- Real-time inventory update.
- Categorization and efficient organization of products.

2. **Purchase Processes:**

- Integration with product purchasing processes.
- Record of purchase transactions and corresponding inventory update.

3. **Wholesale and Retail Sales:**

- Automation of the issuance of sales notes.
- Detailed record of wholesale and retail transactions.

4. **Automatic Calculation of Profit Margins:**

- Automatic determination of profit margins by product.
- Detailed analysis of costs associated with sales.

5. **Effective Link between Sale Notes and Stock**

- Direct relationship between issued sales notes and current inventory.

- Ensure consistency between sales information and available stock.

   6. **Intuitive User Interface:**

- Friendly design for various roles within the organization.

   7. **Generation of Financial Reports:**

- Detailed reports on income, expenses, and profit margins.

- Financial analysis supporting decision-making.

   8. **Adaptability to Operational Changes:**

- Integration with the existing structure of the distributor.

- Flexibility to adapt to possible changes in business processes.

2.3. User Characteristics

Users of the "Ice Cream Management System" include:

1. Owner:

More knowledgeable in the sector with academic training in business administration.

Previous experience in business management and basic knowledge of management systems.

2. Sellers:

Secondary or higher education with a background in sales and customer service.

Skills in using computer systems.

2.4. Restrictions

Ice Cream Shop Software System Constraints:

- **Hardware Limitations:**

Compatibility with existing hardware infrastructure.

- **Operating System Compatibility:**

Compatibility with selected operating systems.

- **Network Requirements:**

Stable and secure network connection for real-time updates.

- **User Accessibility:**

Adherence to accessibility standards.

- **Scalability:**

Design for potential growth of the ice cream shop.

Data Backup and Recovery:

Implementation of robust data backup and recovery mechanisms.

2.5. Assumptions and Dependencies

1. **Key Dependencies:**

o Hardware Procurement and Installation:

o Acquisition and installation of compatible hardware components.

2. **Selection of Operating Systems:**

o Dependence on the choice of operating systems used in the ice cream shop.

o Network Infrastructure Setup:

2.6. Future Requirements

Potential Future Requirements:

- **Mobile Ordering and Payment:**

Anticipation of the growing demand for mobile solutions.

- **Online Presence and E-commerce Integration:**

Expansion to support online ordering and integration with e-commerce platforms.

- **Customer Loyalty Programs:**

Implementation of customer loyalty programs.

- **Advanced Analytics and Reporting:**

Enhancement of reporting capabilities for detailed analytics.

- **Inventory Forecasting and Management:**

Implementation of intelligent inventory management.

3. Specific Requirements

3.1. External Interfaces

External Interfaces for Ice Cream Shop Software System:

Inventory Suppliers:

Interface with external inventory management systems or suppliers.

3.2. Features

Functions for Ice Cream Shop Software System:

-   Inventory Management:

Recording and tracking inventory levels of ingredients, ice cream flavors, cones, etc.

Low inventory alerts to prevent product shortages.

-   Point of Sale (POS):

Processing ice cream and related product sales transactions.

Generation of receipts and invoices.

3.3. Performance Requirements

Key Performance Requirements:

-   **Response Time:**

System response within 2 seconds for user inputs.

-   **Transaction Throughput:**

Handling a minimum of 100 transactions per hour.

-   **Scalability:**

Scaling to support a 20% increase in transaction volume.

-   **Concurrent User Handling:**

Support for at least 50 concurrent users.

-   **Inventory Update Frequency:**

Real-time reflection of inventory updates.

3.4. Design Constraints

Location Requirement:

Adjustment based on whether sold to the north or south.

Software Updates:

Implementation without significant disruption.

3.5. System Attributes

- **Reliability:**

99% availability rate during standard operating hours.

- **Maintainability:**

Monthly scheduled software updates without interference.

- **Portability:**

Compatibility with Windows 7 and higher, Mac, and Linux.

- **Security:**

Authentication with username and password.

- **Access Control:**

Restricted access to the owner and seller.

3.6. Other Requirements

Cloud Backup:

- o   Option for automated backups to secure cloud storage.

Ability to Export Reports:

- o   System allows users to export financial reports to custom formats.

4. Appendices

Appendix A: Data Input/Output Formats

A.1 Sales Note Format:

Id

Client: (all data)

Date

List of products: (all data)

Total value

A.2 Client Format:

Id

Name

Email

CellphoneNumber

IsNorth

IsMajority

A.3 List of Products Format:

Id

Amount

Name

Cost

A.4 Invoice Format:

Id

Date

Value

Boxes: (List of product format)

A.5 Report Format:

Entry

Sale

Profit

Appendix B: Cost Analysis Results Format

B.1 Estimated Operating Costs:

Maintenance

Cloud Services

Monthly total

Appendix C: Programming Language Restrictions

C.1 Platform Restrictions:

o   Development using the Java programming language.

C.2 Compatibility with External Technologies:

o   Compatibility with accounting systems supporting data import/export in JSON format.