**SALES AND INVENTORY SYSTEM FOR KAPEÑA CAFE**

Technical Documentation

September 2025

**INTRODUCTION**

This technical documentation is made to give a clear and complete explanation of the development and implementation of Kapeña Café’s Sales and Inventory System. Users, developers, and future system maintainers can use this document as a guide. It includes important details about the system’s background, features, setup, database structure, installation process, and overall operation. It assists readers in understanding how the system's components cooperate to facilitate and simplify business tasks. For future system learning, troubleshooting, and improvement, this document is a useful resource.

This document provides an overview of how the system works, its installation process, configuration, database structure, and how to use it. In order help users and future developers in better understanding the system, it also provides maintenance instructions, testing results, and troubleshooting steps. Users can easily follow the setup and operation procedures with the help of this documentation. It also acts as a manual for future updates and system performance maintenance.

The scope of this technical documentation covers all parts of the Sales and Inventory System for Kapeña Café. It includes the system’s main features such as login, product management, sales recording, and report generation. The document also explains the setup process, database design, and system maintenance. This scope focuses only on the internal operations of the café and does not include online orders or delivery tracking. The goal is to guide users in using and maintaining the system effectively within the café’s daily business activities.

**SYSTEM OVERVIEW**

The Sales and Inventory System for Kapeña Café is a **desktop-based application** designed to help the café manage its daily sales and product inventory more efficiently. It was developed using **VB.NET 2010** for the interface and **SQL Server** for the database.

**System Architecture**

The system adopts a client-server architecture comprising:

* **Front-End (VB.NET):** Handles user interaction such as login, sales entry, product management, and report viewing.
* Back-End (SQL Server): Stores data about products, sales, users, and inventory records securely.

**High-Level Components**

* **User Interface:** The system’s main interface is simple and user-friendly. It includes menus, buttons, and forms that help users manage products, sales, and reports easily.
* **Database Server:** The database stores all important information such as product details, sales records, and user accounts. It ensures that all data is saved accurately and can be accessed when needed.

**Deployment Architecture**

The system is designed for **Kapeña Café** and is installed on a **single computer** where all data and operations are stored and managed. Since it does not require an internet connection, it is ideal for small businesses that need an easy, secure, and centralized way to handle daily sales and inventory tasks.

**INSTALLATION GUIDE**

**System Requirements**

**Hardware:** Minimum 4 GB RAM, Dual-core processor or higher, Monitor with at least 1366×768 resolution

**Software:** Windows 10, Microsoft Visual Studio 2010, Microsoft SQL Server Management Studio (SSMS)

**Dependencies:** VB.NET, SQL Server Database

**Step by Step Instructions for Installing the Software**

1. Install Visual Studio 2010 and SQL Server with SSMS on your computer.
2. Open **SSMS**
3. Open the project (.sln) in **Visual Studio 2010**.
4. Edit the App.config file and update the c**onnection string** with your server name.
5. Login with the default account (admin / admin123) and test the system features.

**Configuration Settings and Options**

* The database name and connection string can be changed in the **App.config** file.
* Admin users can add or update user accounts
* Reports can be modified or customized using Crystal Reports

**CONFIGURATION GUIDE**

**DETAILED INSTRUCTIONS FOR CONFIGURING THE SOFTWARE**

Database Configuration

* Ensure that it is placed in the same directory as the executable file
* If the database is moved, update the file path in the system’s configuration file.

User Account Configuration

* Log in using default admin credentials username and password

**Best Practices for Customization**

* Always create a backup of configuration files before modifying any settings.
* Avoid special characters or spaces in folder paths
* Restart the system and perform a test login or report generation to confirm proper setup.

**Database Documentation**

**Entity-relationship diagram**

|  |  |  |
| --- | --- | --- |
| Users | Sales | Products |
| username | date | product\_name |
| password | total\_amount | category\_id |
|  |  | price |
|  |  | quantity |

**Description of Database Tables**

Users

|  |  |  |
| --- | --- | --- |
| Field | Type | Description |
| username | VARCHAR (100) | User’s login name |
| password | VARCHAR (100) | Encrypted password |

Sales

|  |  |  |
| --- | --- | --- |
| Date | Date | Transaction date |
| total\_amount | DECIMAL (10,2) | Total sale amount |

Products

|  |  |  |
| --- | --- | --- |
| product\_name | VARCHAR (100) | Name of the product |
| category\_id | INT (FK) | Reference to category table |
| price | DECIMAL (10,2) | Price per item |
| quantity | INT (50) | Number of items in stock |

**Data migration and backup procedures.**

**Data Migration Procedures**

1. Preparation

* Analyze existing database and map tables and fields.

1. Migration Steps

* Export source data using SQL Server.
* Check that tables and data types match correctly.

1. Validation

* Randomly verify samples to ensure accuracy.
* Check record counts in each table.

**Data Backup Procedures**

1. Database Backup

* Open **SQL Server Management Studio**.
* Choose **Full Backup** and select the destination folder.

1. Backup Storage

* Store the backup file in a secure folder, USB drive, or external hard drive.
* Keep at least one copy of the backup outside the café premises for safety.

**User Manual**

Instructions for using the software.

This section provides a complete guide for end-users on how to operate the Sales and Inventory System for Kapeña Café. The system is designed to be easy and simple to use, needs little training for admin and café staff to handle daily sales and inventory.

**Logging In**

* Enter your username and password.
* Click Login to access the dashboard.
* If you entered incorrect username or password, an error message will appear.
* You will be transferred to the Dashboard after successfully logging in.

**User Roles**

Admin: Full access to all features (inventory, orders, sales, reports).

Staff:

**Dashboard**

The dashboard displays a summary of the total number of products, available stocks, and product categories, along with a section for low-stock alerts

**Sidebar Navigation Panel**

Located on the left side of the screen, this panel provides access to all

* User
* Product
* Inventory
* Sales
* Sales Report

**Navigation Tips**

Use the sidebar panel on the left to access the main modules (Product, Inventory, Sales, Sales Report).

Click the back button anytime to return to the main overview page.

**Common tasks and workflows.**

Adding a new product

1. Fill in the product name, category, quantity, and price.
2. Click the (+) button.
3. The newly added product is now displayed in the inventory.

**Updating product**

1. Go to inventory report.
2. Click any product.
3. Edit the product like product name, quantity etc.
4. After you edit click the update button.

**Viewing reports**

1. Go to sale reports
2. You will see the all sales.
3. You will see a filter by category at the top right.
4. Total of all sales.

**Troubleshooting Guide**

**Common issues and error messages**

* Invalid username or password.
* Changes not saving in Product or Inventory forms.
* Report not showing data.

**Troubleshooting steps and resolutions.**

**Login Issues**

* Double-check your username and password.
* If you forgot your password, use the “Forgot Password”.

**Changes Products**

* Database connection lost.
* Check if the Access file is open elsewhere. Close it, then reopen the system and retry.

**Report Data**

* Date filter incorrectly set or no sales recorded.
* Remove filters or verify the date range before generating the report.

**Restart the Application**

* Close the system and reopen it.

**Contact information for technical support**

Support Type Contact Details

Email Support:

Phone Support: 0908-927-9846

For urgent system issues, users are advised to notify the assigned café administrator or the project development team immediately.

**Code Documentation**

The Kapeña Café Sales and Inventory System is developed in VB.NET using a modular structure to ensure that each part of the system handles a specific function.  
The main modules include:

* **Login Form:** Handles authentication, user roles, and access control for Admin and Cashier.
* **Inventory Form:** Manages product listings, ingredients, cups, and straws, including stock monitoring and low-stock alerts.
* **Sales Form:** Records transactions, updates product and ingredient quantities, and calculates daily sales.
* **Reports Form:** Generates and prints sales and inventory summaries for management review.
* **Database Module:** Connects the system to the SQL Server database, handling all data retrieval and updates.

This function loads all available items into the DataGridView for display

Private Sub LoadItems()

Using con As New SqlConnection("Server=DESKTOP-060V3M5\SQLEXPRESS;Database=CoffeeShopDB;Trusted\_Connection=True;")

con.Open()

Dim sql As String = "SELECT \* FROM Inventory ORDER BY ItemID DESC"

Dim da As New SqlDataAdapter(sql, con)

Dim dt As New DataTable()

da.Fill(dt)

dgvItems.DataSource = dt

End Using

End Sub

**Coding Standards and Conventions**

* Naming Conventions:
  + Controls: prefixed with type identifiers (e.g., txtItemName, btnSave, lblTotal).
  + Variables: use descriptive names like totalPrice, stockQuantity, salesDate.
  + Functions/Subroutines: use PascalCase (e.g., LoadItems(), UpdateStock()).
* Formatting and Indentation:  
  Code is properly indented and spaced to enhance readability. Each block or procedure is clearly separated with blank lines.
* Error Handling:  
  All database operations use Try...Catch statements to handle runtime errors and provide clear user feedback.
* Documentation Comments:  
  Each module or procedure contains short descriptive comments outlining its purpose and output.
* Version Control:  
  Git is used to track revisions, bug fixes, and feature enhancements to maintain code history and collaboration efficiency.

**Testing Documentation**

The purpose of the Kapeña Café Sales and Inventory System testing phase was to confirm that all features and modules function as designed. To deployment, testing was done to make sure the system was accurate, dependable, and effective.

Objectives of Testing

* To ensure that all system modules perform their intended operations.
* To verify that data in the sales and inventory modules remain accurate after each transaction.
* To identify and correct software errors and logical issues.
* To confirm that the system meets user requirements and expectations.

Testing Strategies

* **Unit Testing** – Each form and module was tested individually to verify that all functions work properly.
* **System Testing** – Tested the complete system as a whole for functionality and stability.

**Maintenance Guide**

This section describes the procedures and guidelines for maintaining the Sales and Inventory System for Kapeña Café after its deployment. Regular maintenance ensures that the system remains functional, efficient, and secure as it continues to support the daily operations of the café.

Maintenance includes:

Database Maintenance: Review and remove old or useless records on regularly.

Software Maintenance: Test all forms after every update to confirm functionality.

User Account Maintenance: Regularly review user access.

Performance Monitoring: Observe system loading speed and responsiveness.

**Revision History**

This section records each change made during the system's and its documentation's development. To monitor improvements and changes, it provides the version, date, and overview of every update.

|  |  |  |  |
| --- | --- | --- | --- |
| Version | Date | Change Made | Author |
| 1.0 | October 10, 2025 | Initial revision of the system overview and documentation. | Developer |
| 1.1 | October 15, 2025 | Added code documentation and testing documentation sections. | Developer |
| 1.2 | October 20, 2025 | Added initial UI layouts for dashboard | Team Member |

**Appendix**

This section presents the screenshots of the developed system, showcasing its user interface and main functionalities. Each figure highlights the design and interaction flow of the Sales and Inventory System for Kapeña Café.

## Appendix A - Supporting Diagrams

**A.1 Entity Relationship Diagram (ERD)**

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*Figure A.1: Complete ERD of the database schema*

**A.2 Data Flow Diagram (DFD)**

**A diagram of a company

Description automatically generated**

*Figure A.2: Data Flow Diagram of the system*