UNIVERSITY OF ENERGY AND NATURAL RESOURCES, SUNYANI.

SCHOOL OF SCIENCES

DEPARTMENT OF INFORMATION TECHNOLOGY AND DECISION SCIENCES.

PROGRAMMING WITH VB.NET.

SEMESTER GROUP PROJECT WORK , SUBMITTED BY;

1.Abdul Mumuni Najat UA2410325

2.Christopher Piie-re UEB3286424

3.Sonkpi Evarastus UEB3287324

4.Justice Aniagyei UEB3297524

5.Ofori Antwi Clement UEB3259024

6.Mensah Iwin Tetteh UA2205779

7.Owusu Faustina Kyei UEB3261724

8.Frimpong Enoch UA241527

9.Antwi Kodom Kelvin UA2415667.

Sales Management System.

Table of Contents :

- Reporting & Analytics

- Order Processing

3. Problem Statement

- Current Challenges

- Poor Lead Management

- Lack of Real-Time Visibility

- Inefficient Follow-ups

- Data Inconsistencies

- Forecasting Difficulties

- Integration Issues

- Need for SMS

- Centralized Data Management

- Automated Workflows

- AI-Driven Insights

- Seamless Integrations

4. Software Methodology

- Recommended Approach: Agile (Scrum)

- Justification for Agile

- Benefits (Iterative Development, Flexibility, etc.)

- Agile Process Diagram

5. System Overview

- Purpose

- Scope

- User Authentication

- Sales Recording

- Product Management

- Reporting

- Objectives

6. System Requirements

6.1 Functional Requirements

- User Management

- Sales Management

- Reporting

- System Operations

6.2 Non-Functional Requirements

- Performance

- Security

- Usability

- Reliability

7. System Architecture & Design

7.1 Component Diagram

- UI Components (Login, Dashboard, Sales Entry, etc.)

- Business Logic (Authentication, Sales Processing)

- Data Access (Repositories)

7.2 Data Flow Diagram

7.3 Key Design Considerations

- Scalability

- Security

- Performance Optimization

8. Database Design

- Database Schema

  - Users Table

  - Products Table

  - Sales Table

  - SaleItems Table

- ER Diagram

9. User Roles & Permissions

- Sales User (Basic Access)

- Administrator (Full Access)

10. Use Case Diagram

- Actors & Interactions

11. Testing Strategy

- Unit Testing

- Integration Testing

- System Testing

- User Acceptance Testing (UAT)

- Test Environment Setup

12. Deployment & Maintenance Plan

- Initial Deployment Steps

- Update Deployment Process

- Maintenance Activities

  - Backups

Abstract.

A Sales Management System (SMS) is a digital solution designed to streamline and optimize sales processes, enhance customer relationship management, and improve overall business efficiency. Traditional sales methods relying on manual record-keeping, spreadsheets, and fragmented tools often lead to inefficiencies, lost opportunities, and poor decision-making due to a lack of real-time data.

This system integrates lead management, customer tracking, sales automation, reporting, and analytics into a unified platform. Key functionalities include:

a. Lead & Opportunity Tracking – Organizes potential customers through structured sales pipelines.

b. Customer Relationship Management (CRM) – Maintains a centralized database for customer interactions and history.

c. Sales Automation – Automates follow-ups, reminders, and repetitive tasks to improve efficiency.

d. Real-Time Analytics & Reporting – Provides dashboards and insights on sales performance, forecasts, and trends.

e. Order & Invoice Management – Simplifies order processing and billing workflows.

f. Integration Capabilities – Connects with marketing, inventory, and accounting systems for seamless operations.

Introduction.

A Sales Management System is a comprehensive software solution designed to streamline and optimize the entire sales process for businesses of all sizes. This technology platform helps

organizations manage their sales operations more efficiently, from lead generation to closing deals and maintaining customer relationships.

Key Features of a Sales Management System

1. Customer Relationship Management (CRM): Centralized database for storing and managing all customer interactions and information.

2. Lead Management: Tools to capture, track, and nurture potential customers through the sales pipeline.

3. Opportunity Tracking: Visual pipelines that show where each deal stands in the sales process.

4. Sales Forecasting: Predictive analytics to estimate future sales based on historical data and current opportunities.

5. Reporting and Analytics: Dashboards and reports that provide insights into sales performance and team productivity.

6. Order Processing: Automated workflows for handling quotes, orders, and invoices.

Benefits of Implementing a Sales Management System

a. Improved sales team efficiency and productivity

b. Better visibility into the sales pipeline

c. Enhanced customer relationship management

d. More accurate sales forecasting

e. Streamlined communication between sales and other departments

f. Data-driven decision making

g. Increased sales revenue and profitability

Modern sales management systems are often cloud-based, mobile-friendly, and integrate with other business systems like marketing automation, ERP, and customer support platforms. These systems have become essential tools for businesses looking to gain a competitive edge in today's fast-paced market environment.

Problem Statement.

Current Challenges in Sales Management

Many businesses, especially small and medium-sized enterprises (SMEs), struggle with

inefficient sales processes due to reliance on manual methods such as spreadsheets, paper records, and disjointed tools. This leads to several critical issues:

1. Poor Lead Management .Sales teams lose track of potential customers due to lack of a centralized system, resulting in missed opportunities.

2. Lack of Real-Time Visibility. Managers cannot accurately track sales performance, pipeline status, or team productivity, leading to uninformed decisions.

3. Inefficient Follow-ups. Without automated reminders, sales representatives fail to follow up with leads promptly, reducing conversion rates.

4. Data Inconsistencies. Manual data entry leads to errors, duplicates, and outdated customer information, affecting sales accuracy.

5. Difficulty in Forecasting. Without proper analytics, businesses struggle to predict sales trends, leading to poor inventory and resource planning.

6. Integration Issues. Disconnected systems (e.g., CRM, invoicing, inventory) create inefficiencies and delays in order processing.

Need for a Sales Management System

To overcome these challenges, businesses require an automated, integrated Sales Management System that:

a. Centralizes customer and sales data for easy access.

b. Tracks leads and opportunities through a structured pipeline.

c. Provides real-time dashboards and reports for performance analysis.

d. Automates follow-ups and task reminders for sales teams.

e. Ensures data accuracy and reduces manual errors.

f. Improves sales forecasting with AI-driven insights.

g. Integrates with other business tools (ERP, marketing, accounting).

1. Software Methodology.

Recommended Methodology: Agile (Scrum)

Justification:

The Sales Management System appears to be a moderately complex application with evolving

requirements. Agile methodology is most appropriate because:

a. It allows for iterative development with frequent deliverables

b. Enables continuous feedback and adaptation

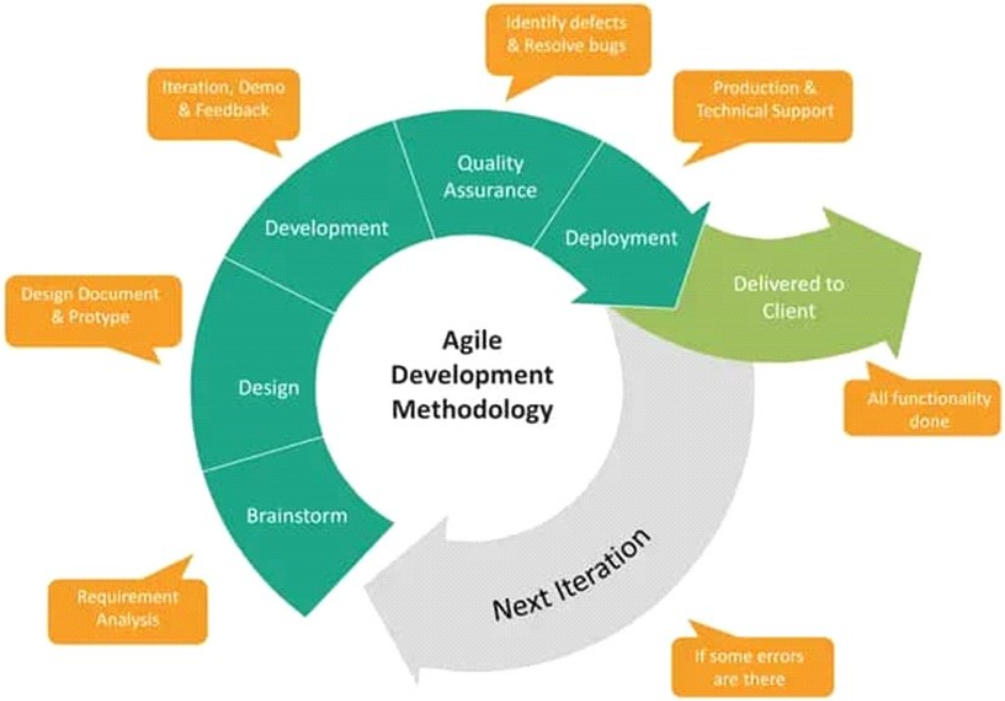
c. Supports incremental feature additions (like future reporting modules or inventory integration)

d. Works well for small-to-medium sized development teams

e. Accommodates changing business requirements that often occur in sales environments

management, customer tracking, or advanced analytics as business needs evolve.

Diagram Of Agile.



2. System Overview.

Purpose:

The Sales Management System is designed to streamline sales recording, tracking, and reporting processes for businesses, providing real-time insights into sales performance, profitability, and inventory movement.

Scope:

a. User authentication and authorization

b. Sales transaction recording

c. Product management (cost and selling price)

d. Sales reporting and summary dashboards

e. Basic profit/loss calculations

f. Date-based filtering of sales records

Objectives:

a. Provide a centralized platform for sales data management

b. Enable quick recording of sales transactions

c. Generate real-time sales summaries and profit calculations

d. Offer basic reporting capabilities by date ranges

e. Maintain historical sales data for analysis

f. Ensure data security through user authentication

3. Requirements

Functional Requirements:

1. User Management.

   a. System shall allow new user registration.

   b. System shall provide user login functionality.

   c. System shall store user details (name, email, password, gender, DOB)

2. Sales Management.

   a. System shall allow recording of sales transactions.

b. System shall store product details (name, cost price, selling price).

c. System shall calculate total amount for each sale.

e. System shall record date of each transaction.

3. Reporting.

a. System shall display sales summary (quantity, total sales, cost, profit).

b. System shall allow filtering sales by date.

c. System shall display sales in tabular format with all relevant details.

4. System Operations.

a. System shall provide exit functionality from all screens

Non-Functional Requirements.

1. Performance

a. System shall load dashboard within 2 seconds for up to 10,000 sales records.

b. System shall support at least 5 concurrent users.

2. Security

a. System shall encrypt user passwords.

b. System shall require authentication for all functions except login/registration.

3. Usability

a. System shall have intuitive navigation between functions.

b. System shall provide clear error messages for invalid inputs.

4. Reliability

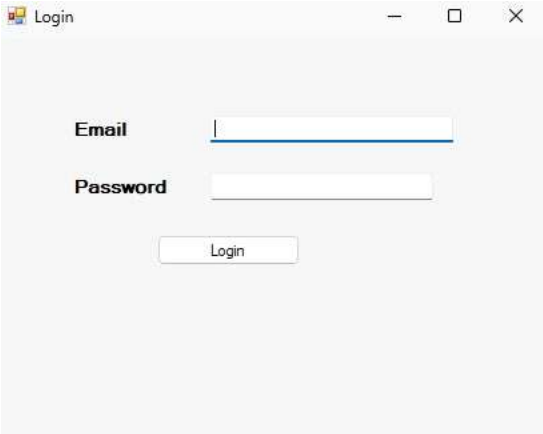
a. System shall maintain data integrity during power failures.

b. System shall automatically save transactions before processing.

Component :

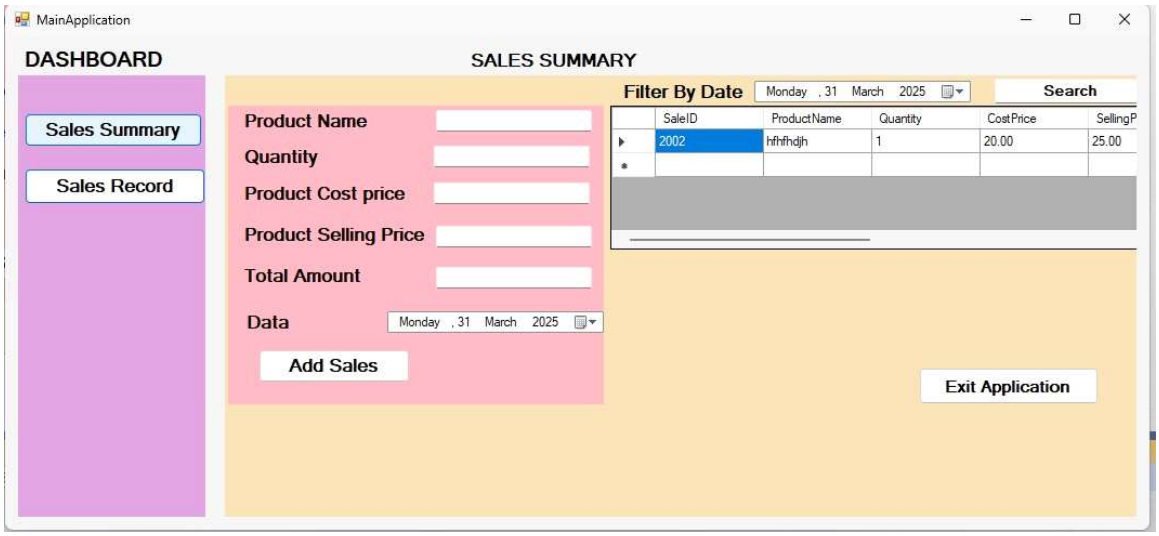
1. User Interface Components

a. Login



b. Registration Module

c. Dashboard Component



d. Sales Entry Form

e. Sales Summary Display

f. Sales Listing Table

2. Business Logic Components

a. Authentication Service

b. Sales Processing Service

c. Reporting Service

d. Calculation Engine (for profits)

3. Data Access Components

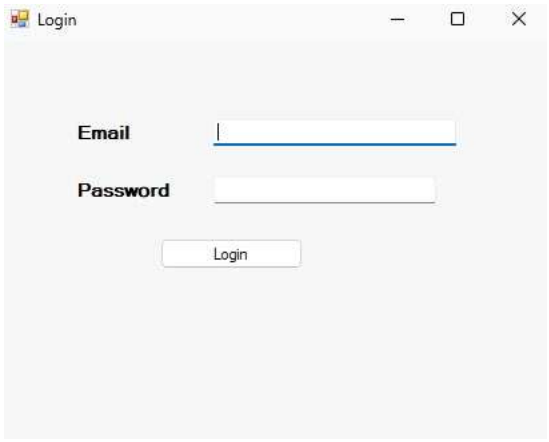
a. User Repository

b. Sales Repository

c. Product Repository

Flow:

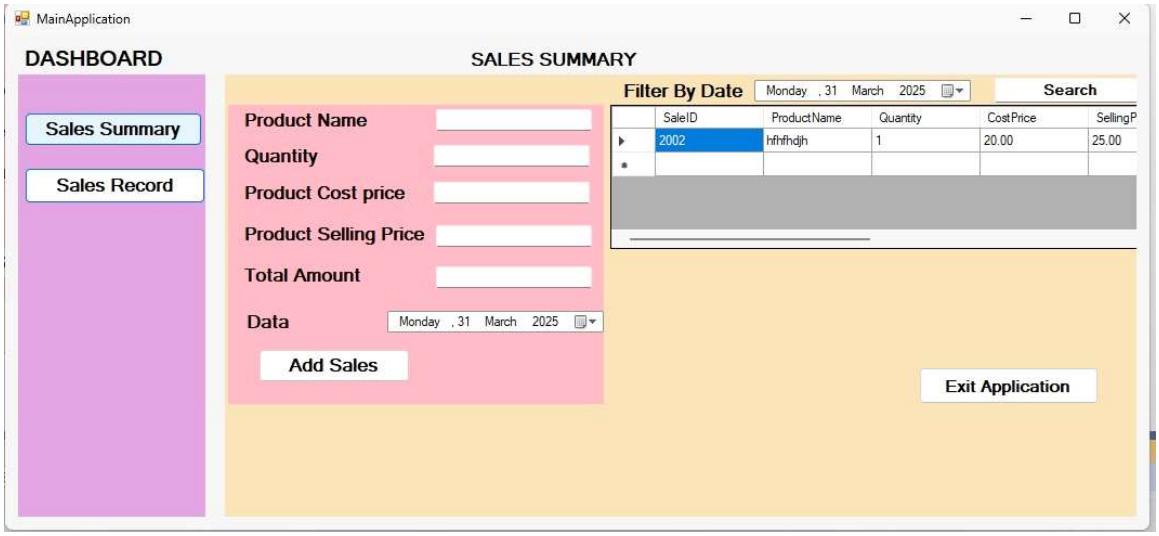
1. User authenticates via Login screen



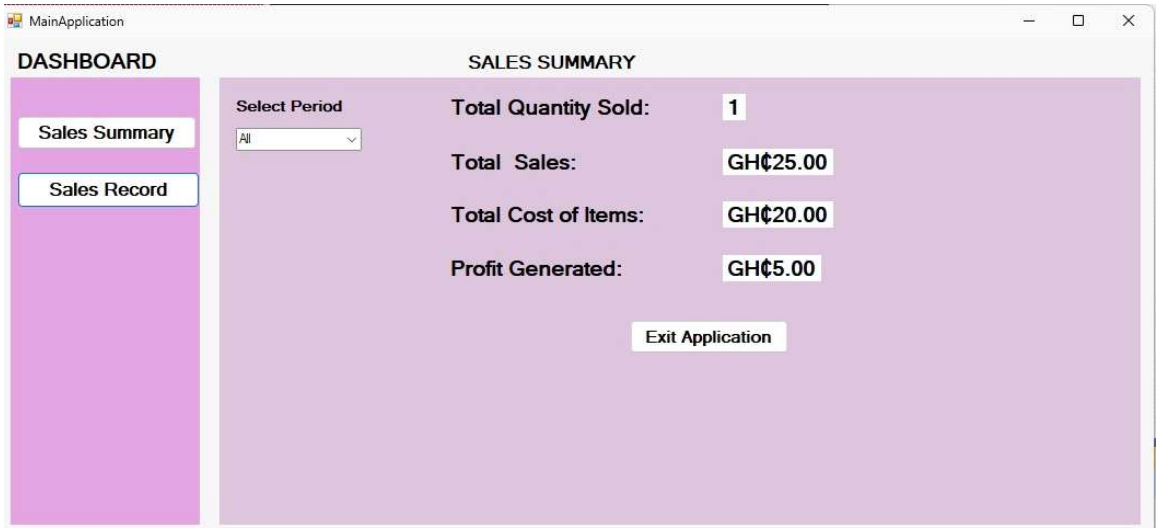
2. System presents Dashboard with summary

3. User can:

Add new sales.



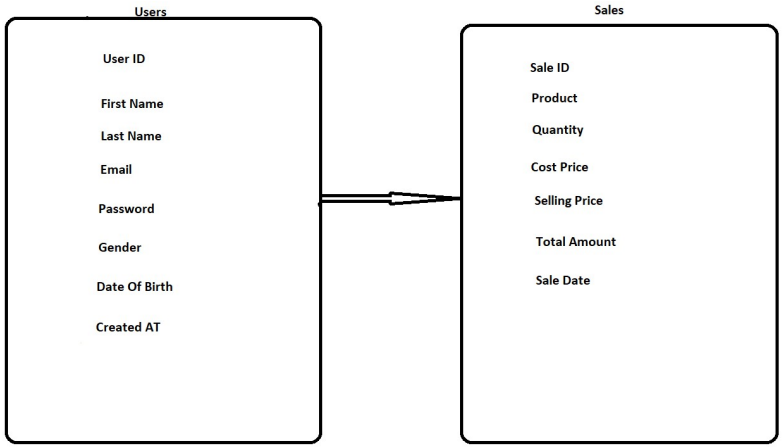
View sales summaries.



Filter existing sales by date.

4. System persists all changes to database.

5. Database Design.



6. Database Overview Schema

1. Users

a. UserID (PK)

b. FirstName

c. LastName

d. Email (Unique)

e. PasswordHash

f. Gender

g. DateOfBirth

h. CreatedDate

2. Products

a. ProductID (PK)

b. ProductName

c. CostPrice

d. SellingPrice

e. IsActive

3. Sales

a. SaleID (PK)

b. SaleDate

c. UserID (FK to Users)

d. TotalAmount

4. SaleItems

a. SaleItemID (PK)

b. SaleID (FK to Sales)

c. ProductID (FK to Products)

d. Quantity

e. UnitPrice (captured at time of sale)

6. User Roles & Permissions

1. Sales User (Basic Access)

- Permissions:

a. View sales dashboard

b. Record new sales

c. View personal sales history

d. View sales summaries

2. Administrator (Full Access)

- All Sales User permissions plus:

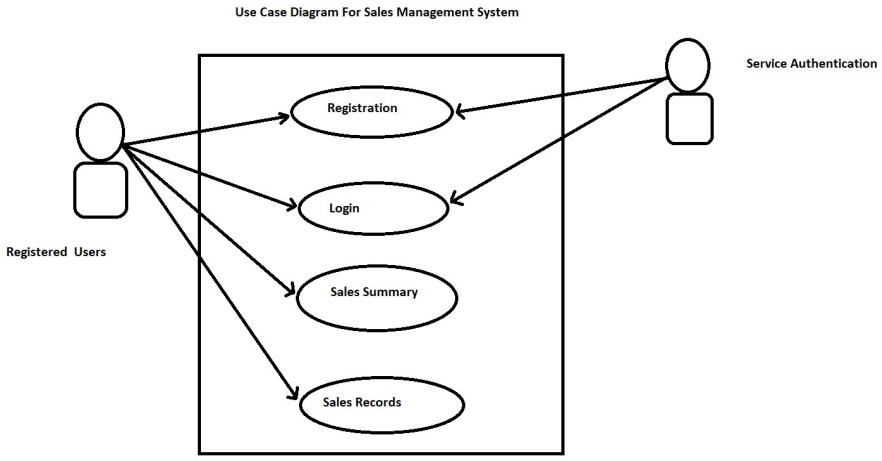
a. Manage user accounts

b. View all users' sales

c. Manage product catalog

d. Generate system-wide reports

7. Use Case Diagram.



8. Testing Strategy

1. Unit Testing

- Test individual components:

a. Authentication service

b. Sales calculations

c. Date filtering logic

d. Form validations

2. Integration Testing

- Test component interactions:

a. Login → Dashboard loading

b. Sales entry → Summary update

c. Date filter → Sales listing update

3. System Testing

- End-to-end testing of complete flows:

a. User registration → Login → Sales entry → Reporting

b. Performance testing with sample data

4. User Acceptance Testing

- Validate with business users:

a. Sales recording process

b. Summary displays

c. Navigation flows

Test Environment:

a. Separate development and testing environments

b. Sample dataset of 10,000 sales records for performance testing

9. Deployment & Maintenance Plan

Deployment:

1. Initial Deployment

   a. Set up production server (Windows/Linux)

   b. Install database (MySQL/SQL Server)

   c. Deploy application files

   d. Configure security settings

   e. Initialize admin user

2. Update Deployment

   a. Backup database

   b. Deploy updated application files

   c. Run database migration scripts if needed

   d. Verify functionality

Maintenance:

1. Regular Maintenance

   a. Weekly database backups

   b. Monthly log reviews

   c. Quarterly performance checks

2. Update Strategy

   a. Minor updates: Monthly as needed

   b. Major updates: Quarterly with user notification

   c. Emergency patches: As required for critical issues

3. Support Plan

   a. Helpdesk for user issues

b. Documentation updates with each release

c. User training sessions for major updates

Scaling Considerations:

a. Database optimization for increasing sales records

b. Possible future cloud migration for larger deployments

c. Additional reporting modules based on user growth

The system appears designed for small-to-medium businesses needing basic sales tracking with profit calculation capabilities. The Agile methodology recommendation allows for future expansion into areas like inventory management, customer tracking, or advanced analytics as business needs evolve.

Conclusion

The proposed Sales Management System (SMS) addresses critical inefficiencies in traditional sales processes by providing a centralized, automated, and data-driven solution for businesses of all sizes. By integrating lead management, CRM, sales automation, real-time analytics, and seamless third-party integrations, the system eliminates manual errors, improves decision-making, and enhances overall sales productivity.

Key Achievements

1. Streamlined Sales Operations

- Automated workflows reduce repetitive tasks, allowing sales teams to focus on revenue-generating activities.

- Structured pipelines ensure no lead is overlooked, improving conversion rates.

2. Data-Driven Decision Making

- Real-time dashboards and AI-powered forecasting enable proactive strategy adjustments.

- Historical sales analysis helps identify trends and optimize inventory/resource planning.

3. Enhanced Customer Relationships

- A unified CRM database ensures consistent, personalized interactions across all touchpoints.

- Automated follow-ups improve customer engagement and retention.

4. Scalability & Future-Readiness

- The Agile-based development approach allows for incremental enhancements (e.g., advanced analytics, inventory integration).

- Cloud-native architecture supports business growth without performance bottlenecks.

Business Impact

- For Sales Teams: 30–50% faster deal closures with automated reminders and pipeline tracking.

- For Managers: 360° visibility into team performance and accurate revenue forecasts.

- For Organizations: 20–35% higher operational efficiency through seamless ERP/accounting integrations.

Future Roadmap

-AI/ML Enhancements: Predictive lead scoring and dynamic pricing recommendations.

- Mobile Optimization: Offline capabilities for field sales representatives.

- Expanded Integrations: E-commerce platforms (Shopify, WooCommerce) and BI tools (Power BI, Tableau).

By adopting this Sales Management System, businesses can transform chaotic, manual processes into a scalable, insights-driven sales engine, driving sustainable revenue growth in competitive markets.

Faustina.Najat.Christopher.Evarastus.Justice.Iwin.Clement.Enoch.Kelvin.(2025)."Programming With Vb.net".Profmenz Media Printing

Press,Pg1-21,https://www.google.com