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Textile Management System

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ABSTRACT: The Textile Management System is a comprehensive solution designed to streamline operations within a textile industry setting, utilizing PHP and MySQL technologies. The system comprises three core modules: Admin, Worker, and Supplier, each catering to specific functionalities. The Admin module serves as the backbone of the system, providing secure login authentication. Administrators have the authority to manage workers, including adding new entries and overseeing attendance records. Additionally, they can efficiently handle product management tasks such as adding, updating, and monitoring inventory levels. The system empowers administrators to generate invoices, manage bills, and maintain financial records seamlessly. Enhanced security features enable password updates for heightened data protection. The Worker module offers a user-friendly interface for employees to access the system using credentials provided by the Admin. Workers can conveniently record their attendance and view historical attendance data, facilitating efficient workforce management. The Supplier module allows suppliers to register and login securely. Suppliers can effortlessly add new products to the system, ensuring a streamlined process for updating inventory. They can also view existing product listings, fostering transparency and collaboration within the supply chain. Overall, the Textile Management System optimizes workflow efficiency, enhances data accuracy, and promotes collaboration among stakeholders, ultimately contributing to the overall success of textile industry operations.

I. INTRODUCTION

A Textile Management System, built with PHP and MySQL, streamlines textile industry operations through three modules for administrators, workers, and suppliers. The Admin module enables secure login, worker and inventory management, attendance tracking, and invoice generation. Workers use their portal for attendance management, while suppliers manage product supply via their module. This system enhances efficiency, transparency, and collaboration, offering a user-friendly interface to optimize operations and improve productivity in the textile business.

1.1 PROBLEM DESCRIPTION:

The Textile Management System addresses significant challenges faced by the textile industry due to manual and inefficient processes. These challenges include time-consuming and error-prone manual management of worker attendance, inventory, and invoices, resulting in operational inefficiencies. Additionally, the lack of transparency and clear visibility over various aspects of operations leads to miscommunications and delays. Poor coordination between administrators, workers, and suppliers further hampers productivity. Moreover, inadequate security measures for handling sensitive data, such as worker details and financial transactions, pose significant risks. The Textile Management System aims to overcome these issues by providing an integrated digital platform that automates and streamlines operations, enhances transparency, and fosters effective collaboration, thereby improving overall efficiency and productivity.

1.2 GOAL:

The Textile Management System aims to automate and streamline operations, enhancing transparency and reducing errors. It fosters better collaboration among administrators, workers, and suppliers while boosting overall efficiency and productivity. Ensuring robust data security, the system provides a user-friendly interface for easy adoption. Scalability is a key goal, allowing the system to grow with the business and meet future needs.

II. PROPOSED SYSTEM

The proposed Textile Management System integrates three segments: Administration, Staff, and Vendor, streamlining operations for textile businesses. The Administration segment serves as the backbone, offering secure login, employee management, attendance monitoring, product handling, invoicing, bill viewing, and password security. The Staff segment enables operational personnel to manage attendance efficiently, ensuring transparency and accountability.

2.1 ADVANTAGES OF PROPOSED SYSTEMS:

- **Efficiency:** Integration of key modules streamlines operations, reducing manual effort and boosting productivity.
- **Comprehensive Control:** The Admin module offers a wide array of functionalities, empowering administrators with complete oversight.
- **Transparency:** The Worker module facilitates efficient attendance management, promoting transparency and accountability within the workforce.
- **User-Friendly:** Intuitive interfaces and easy navigation ensure the system is accessible and minimizes training requirements for all users.

III. MODULES

1. Home Page
2. About us
3. Contact us
4. Supplier Login
5. Supplier Signup
6. Admin Login
 - Dashboard
 - Add workers
 - View Worker
 - Attendance
 - Add products
 - Manage products
 - Invoice
 - Bills
 - Update password
 - Logout
7. Worker Login

III. MODULES DESCRIPTION

Admin Module:

- **Login:** This module allows the administrator to log in to the system securely using their username and password.
- **Manage Workers:** Admin can add new workers, view existing workers, update worker details, and delete workers if necessary.
- **View Workers Attendance:** Admin can view the attendance records of all workers to track their punctuality and presence.
- **Manage Products:** Admin can add new products to the system, update existing product details, and delete products if necessary.
- **Make Invoice:** This feature enables the admin to generate invoices for products sold or services rendered to clients.
- **View Bills:** Admin can view the bills generated for products purchased or services availed from suppliers.
- **Update Password:** Admin can update their login password for security purposes.
- **Worker Module:**
 - **Login:** Workers can log in to the system using the credentials provided by the admin.
 - **Add & View Attendance:** Workers can mark their attendance by logging into the system. They can also view their own attendance records.
 - **Update password:** Workers can update their password.

- Supplier Module:
- Register: Suppliers can register themselves in the system by providing necessary details like company name, contact information, etc.
- Login: Registered suppliers can log in to the system using their credentials.
- Add & View Products: Suppliers can add new products they offer to the system, along with details like product name, description, price, etc. They can also view the products they have added.

IV. SOFTWARE ENVIRONMENT

PHP:

PHP stands for Preprocessor Hypertext. PHP programs are executed by Microsoft IIS or the Apache server. The Apache server and PHP are free. PHP coding is quite simple. The most popular server-side programming language is PHP. Scripts for PHP and HTML are contained in PHP files. The extensions "php", "php3", "php4", or "phtml" are used for PHP files.

USING PHP:

- Produce dynamic web sites. PHP has the ability to show different material to various users or at various points of the day.
- Handle the HTML forms' contents. The information provided in an HTML form can be retrieved and responded to using PHP.
- Has the ability to make database-driven WebPages. From a database like MySQL, a PHP program can add fresh information or retrieve already-existing data.

WORKING OF PHP:

A standard HTML page with extra functionality included is called a PHP file. PHP includes HTML tags that a web browser can parse and display, just like any other regular HTML file. PHP can be used for anything that is typically placed in an HTML file, such as server side scripts, Java applications, blinking text, and so on. Nonetheless, PHP is distinct due to three key characteristics.

- PHP comes with a number of built-in objects and server side scripts.

HTML:

The Standard for Generic Markup Language (SGML), which was accepted as a global standard in 1986, is used in HTML applications. Hyper documents can be interchanged by encoding them using SGML. Document markup systems can also be properly described using SGML, another meta language. In actuality, HTML defines a language that characterizes the interconnectedness and structure of a WWW hyper page using SGML.

DATABASE:

Like a phone book, a database is basically a collection of frequently accessed data. The MySQL database contains a variety of objects, including forms, tables, and queries.

TABLES:

Similar data sets are gathered and stored in MySQL tables. Although each table may have a distinct layout and primarily different content, they must all be contained in a single database file. We might have an information file named "video store," for example, holding member-named tables, tapes, reservations, and other items. Since these tables are frequently combined to generate reports that aid in filling out on-screen forms, they are kept in a single database file.

RELATIONAL DATABASE:

A relational database is MySQL. There are three key ways that relational database systems, such as Access, can assist us in managing information.

- Minimize redundancy
- Promote information exchange
- Maintain data accuracy.

FIELDS:

A table's fields are locations where we store discrete pieces of data.

DESIGN AND DEVELOPMENT:

A new system is created using a "how to" method known as system design. System design is divided into two stages. They are - Design logic - Design physics

- Reviewing the current physical system, logical design creates input and output requirements, modifies security and control standards, and more.
- The physical system's components, plans, implementation, test, and implementation strategy are all mapped out in the physical design.

DESIGN PROCESS:

1. Requirement Gathering: Understanding the specific needs and challenges faced by textile businesses, including inventory management, worker attendance tracking, and supplier interactions.
2. System Architecture: Designing a modular system architecture with distinct modules for Admin, Worker, and Supplier, ensuring flexibility and scalability.
3. User Interface Design: Creating user-friendly interfaces for each module, focusing on intuitive navigation and ease of use to enhance user adoption.
4. Database Design: Developing a robust database schema using MySQL to store and manage data efficiently, considering factors such as data integrity and scalability.
5. Functionality Development: Implementing core functionalities for each module, such as secure login, attendance tracking, inventory management, and invoicing, ensuring comprehensive coverage of business requirements.
6. Deployment and Training: Deploying the system in the textile business environment and providing training to users to ensure smooth adoption and utilization.

DATA FLOW DIAGRAM (DFD):

The first step is to create a data flow diagram (DFD). The DFD was initially developed by Larry Constantine as a graphical tool for conveying system requirements. A DFD, also called a "bubble chart," is used to identify major changes that will be included into system design programs and to clarify system requirements. It is, therefore, the moment at which the needs specifications are functionally broken down to the most basic level throughout the design phase. A DFD is made up of several bubbles connected by the system's data flows.

Data flow diagrams are meant to act as a conceptual bridge between system engineers and users. The diagrams are:

- Logical representations, modeling
- Graphical, reducing hundreds of words
- Instead of using physical models to demonstrate HOW a system operates, this approach
- Hierarchical, allowing systems to be viewed at any degree of detail
- Jargon-free, facilitating user comprehension and evaluation.

To have a model of a system that is widely understood is the aim of data flow diagramming. The foundation of organized systems analysis is the diagrams. Other structured systems analysis tools, such as data structure diagrams, dictionaries for data, and procedure-representing techniques like choice tables, choice trees, and structured English, assist data flow diagrams.

OUTPUT DESIGN:

The system output is available as printed copies or on a screen. The intention of output design is to convey the information that users have processed. The reports are produced according to user requirements. The reports must be produced at the proper levels. The outputs of our project are produced as HTML pages using ASP. Because of how user-friendly the website's output is constructed, this will typically be through a screen.

CODE DESIGN:

The primary goal of code architecture is to obtain greater performance and error-free quality while making the coding simpler. The script is set up so that each column's validation manager is visible and the internal processes have greater importance. The variables are coded such that anyone who isn't the package developer may comprehend why they are there.

The project is built so that the majority of field validation is done client side, which is going to be more efficient and reduce server burden.

DATABASE DESIGN:

The construction of tables which are saved as files in a physical database is part of the database design process. They exist independently. Every table is made up of rows and columns, where each row may be seen as a record containing related data and each column can be seen as a field containing the same sort of data. Additionally, some positions in the table are structured to allow for null values.

The project's database is constructed with values maintained in a normalized fashion and without redundancy.

DEVELOPMENT APPROACH:

TOP DOWN APPROACH:

The new system is significant since it has an improved user interface and is easy to use for users. Both the security issue and the issues with the manual system might be resolved by it.

The incremental technique to building the program structure is known as the top-down approach in software development. Starting with the primary control module, components are integrated by progressing via the control hierarchy. The structure incorporates subordinate control modules into the primary control modules either in a depth-first or breadth-first fashion.

There are five major steps involved in implementing the top-down method.

1. There are five modules that make up the main software module, all of which are managed by the primary control module.
2. Predicted on the top-down approach real components are added to the designated subordinate stubs one at a time.
3. When each component is merged, tests are carried out.

TESTING AND IMPLEMENTATION

SYSTEM TESTING

It is the act of testing software with the goal of identifying and, eventually, fixing bugs. Because web-based systems and applications are network-based and compatible with a wide range of operating system browsers, hardware platforms, and communication protocols, this basic idea does not alter for web apps. Therefore, one of the biggest challenges for web apps is error searching.

TESTING ISSUES:

1. Client GUI should be considered.
2. Target environment and platform considerations
3. Distributed database considerations
4. Distributed processing consideration

TESTING AND METHODOLOGIES

System evaluation is the stage of implementation that aims to make sure, prior to the start of live operation, that the system functions precisely and effectively as expected. It attests to the cohesiveness of the entire set of programs. A test plan comprising multiple essential tasks and procedures for conducting program, string, system, and user acceptability testing is necessary for system testing. The successful adoption of a new system depends on the newly designed package being implemented.

An essential step in the creation of software is testing. When a system test is implemented, it should serve as both an opportunity to verify that everything is accurate and to demonstrate to the customers that the system functions as intended. In While creating software, it makes up the most portion of the technical effort.

The step of development known as testing verifies the code in comparison to the functional requirements. In order to accomplish the system's objectives, testing is essential. Finding mistakes is the aim of testing. A number of test steps, including unit, integration, validation, and system tests, were prepared and carried out in order to achieve this goal.

Testing units

Because of the specific testing of each software, any errors are identified and fixed. For the purpose of unit testing, sample data are provided. The outcomes of the unit tests are documented for future use. Unit testing involves testing the program's functions, constraints, and unit validation.

Unit testing is the process of verifying that modifications made to an existing or fresh initiative are functioning. It is done during programming to ensure that every module is operational in a satisfactory manner. For instance, we click the submit icon on the registration form once we have filled in every field. All of the form's data are evaluated when the submit button is clicked. Entries to the database won't be added until after validation.

The series of tests carried out by a single person before a unit is integrated into a larger system is known as unit testing. Here is an illustration of the situation:

Unit testing, integration testing, debugging, and coding

The four types of tests that a developer will usually run on a unit of code

1. A functional examination
2. Evaluation of performance
3. Stress Exam
4. Examination of structure

In a functional test, the code is run with nominal input values, boundary values, and special values when the expected outcomes are known.

Testing uses put and response times as well as the program's use of the device to determine how much time is spent executing each section of the unit program.

Sensitivity testing is a type of stress testing where, under the same circumstances, an extremely narrow range of information contained in a limit of valid data may result in severe, even incorrect, processing or significant performance deterioration.

The goal of structured testing is to exercise a program's internal logic and navigate pathways. "Black box" testing refers to functional testing, stress testing, performance testing, and "white box" testing refers to structure testing.

TESTING RESULTS:

Every test ought to be able to be linked to the needs of the client. Testing will gradually go from focusing on programs to Complete testing is not feasible. Testing that has a chance of discovering faults should be conducted for greater effectiveness.

The characteristics of an effective test are as follows:

1. There is a chance that an accurate test will identify errors.
2. "Best of breeds" should be a decent test to use.
3. A decent test that is neither very easy nor difficult

QUALITY ASSURANCE:

The management tasks of reporting and auditing make up quality assurance. Giving management the data entries they need to know about the good's quality in order to acquire understanding and assurance that the production quality is fulfilling expectations is the aim of quality assurance.

Quality assurance is necessary as organizations place a greater emphasis on quality. To play a crucial role in the creation of the information system. Checks must be made at various stages of the development process to guarantee that the finished product satisfies the initial user requirements.

As a result, quality control becomes crucial to the development process. The manufacturing standard (IEEE 1993) has it. By validation and verification carried out at key points in the development process, the quality control process is incorporated into the traditional development cycle procedures for system development. Establishing and overseeing a system for quality control inside the development process is one of the management's objectives.

1. System validation against requirements is one of the things that quality assurance causes.
2. Verification of design documentation and the system itself for flaws.
3. Usability quality assurance.

QUALITY ASSURANCE GOALS:

- Correctness: The degree to which the application satisfies user goals and system requirements
- Reliability: The extent to which the framework consistently carries out its intended tasks
- Efficiency: The quantity of computer power needed for a program to carry out a task.
- Usability: The work involved in becoming familiar with and using a system
- Maintainability: The ability to identify and fix program errors
- Testability: In order to make sure a software is operating correctly, testing was necessary.
- Portability: The ease with which a program can be moved across different hardware configurations.
- Precision: The necessary place in input, editing, computation, and output.

SECURITY TECHNOLOGIES AND POLICIES:

The Textile Management System incorporates various security technologies and policies to safeguard sensitive data and mitigate security risks. Encryption protocols such as SSL/TLS ensure secure data transmission, while access control mechanisms like role-based access control (RBAC) restrict access based on user roles. Strong authentication methods, including multi-factor authentication (MFA), verify user identities. Regular data backup procedures and disaster recovery plans are in place to mitigate data loss risks, and security auditing and monitoring tools detect and respond to security incidents. Clear security policies govern system use, while training and awareness programs educate users about security best practices. Through these measures, the system maintains confidentiality, integrity, and availability, ensuring robust security for textile business operations.

SYSTEM IMPLEMENTATION:

The project's implementation phase is when the conceptual framework is transformed into a functional system. The most important phase is implementing the new system successfully and instilling trust in the user that it will function properly throughout the implementation phase. This step consists of:

- Using sample data to test a developed program error detection and rectification; determining if the system satisfies user requirements.
- Adapting as needed to user preferences.
- Personal training for users.

IMPLEMENTATION PROCEDURES:

Compared to system design, the execution phase is less imaginative. It is possible to abandon a system design at any point before implementation, however doing so gets harder once it enters the design stage. Procedural flowcharts, data layouts, and a feasible plan for converting the proposed design into an operational design are included in the implementation phase's final report.

USER CHARACTERISTICS

It is considered that the user do have the basic knowledge of operating the internet and to have access to it. The administrator is expected to be familiar with the interface of the tech support system.

ASSUMPTION AND DEPENDENCIES

This software highly depends on type and version of browser being installed in the system i.e. browser version should be used which have HTML5 support.

DOMAIN REQUIREMENT

Domain requirement is the Requirement that comes from the application domain of the system that reflects the characteristics of that domain. Therefore, as our System is an inventory System, the domain requirement of this system should concern about the requirements that reflect characteristic of Inventory System.

OPERATIONAL DEMONSTRATION:

Documentation is a communication tool that sets the project's performance and design standards. Descriptive information that illustrates how to use and/or operate a system is called documentation. To participate in the auction, the user must input their password and user name, if they have one. If not, the user must register if they are a new one. Documentation is a communication tool that sets design and performance standards for project phases. Descriptive information that illustrates how the system is used and/or operates is called documentation.

1) Tools for documentation:

Tools for desktop publishing and document creation assist almost all facets of software development. The majority of software development companies invest a significant amount of time in creating documentation, and the process is frequently quite wasteful. It's not utilize unconventional for a documentation-focused software development project. Because of this, documentation tools offer a significant chance to boost output.

2) Reorganizing the document:

The procedure of crafting a document consumes far too much time. We will manage with what we have if the system functions adequately. Occasionally, this is the optimal course of action. Documents for hundreds of software applications cannot be replicated. We need to revise the documentation, but our resources are limited. It might not be necessary to overhaul an application entirely. Instead, the extensively documented portions of the system are the ones that are presently changing. Given the system's significance to the business, all documentation must be updated. Minimizing documentation to the essential minimum is a prudent move even in this scenario.

SYSTEM MAINTENANCE:

As crucial as it is for programmers and analysts to carry out or identify with the maintenance, maintenance is essentially the execution of the review plan. This is due to a combination of professional and psychological factors. Maintaining programs takes up a lot more time for analysts and programmers than actually building them. Fifty to eighty percent of the development of a system is maintenance. It costs a lot to maintain. Audits of software modifications and maintenance management are two strategies to lower maintenance expenses. The first type of maintenance is perfective maintenance.

Corrective maintenance: Modifications made to the structure in order to enhance functionality or boost efficiency.

Preventive maintenance refers to system modifications done in order to avert future issues. Future adjustments are possible, so our project can change.

V. RESULTS

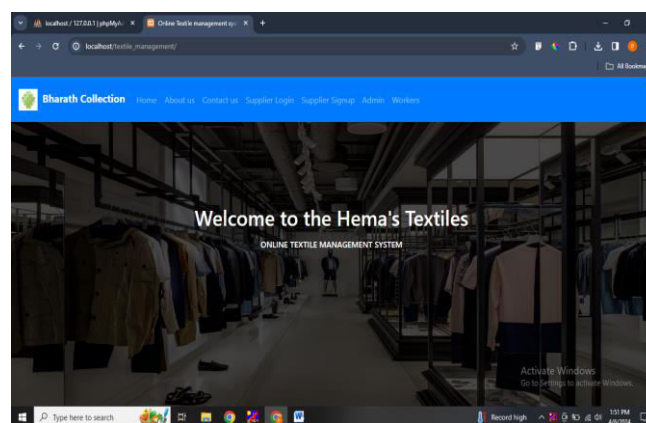


Figure 1.1 Home page

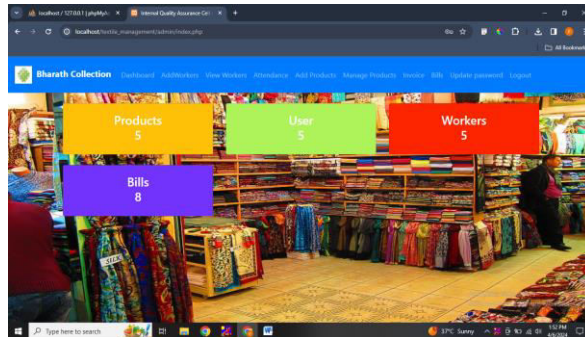


Figure 1.2 Dashboard

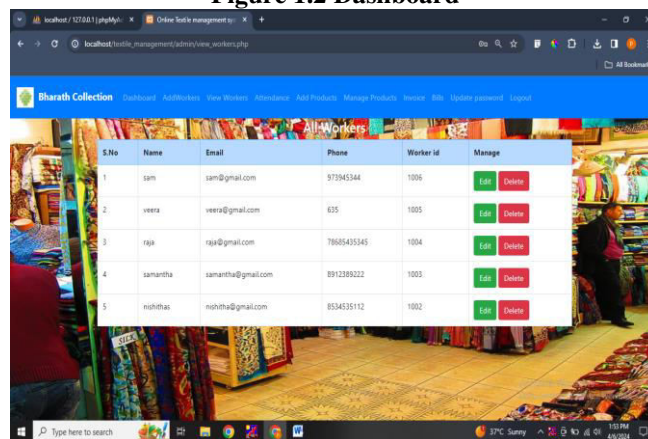


Figure 1.3 Manage products

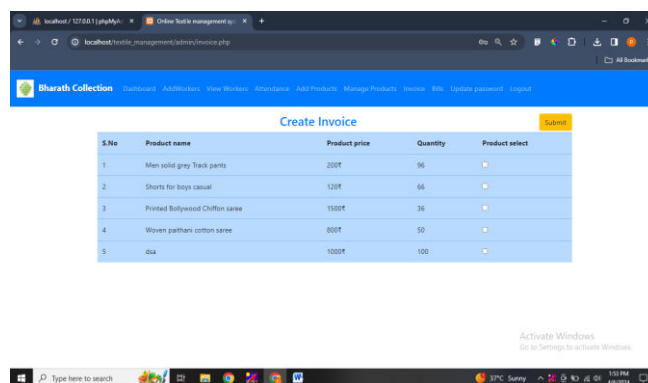


Figure 1.4 Create invoice

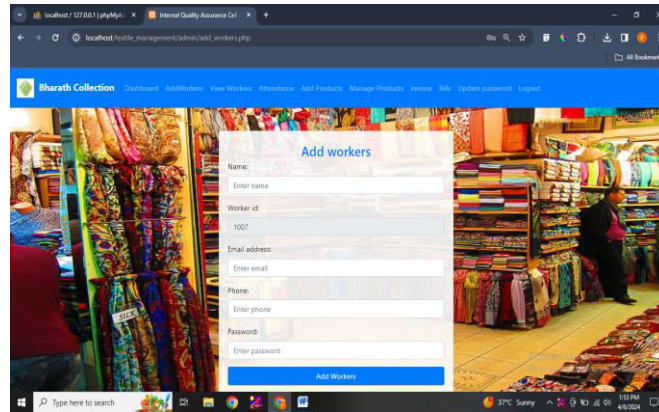


Figure 1.5 Add worker

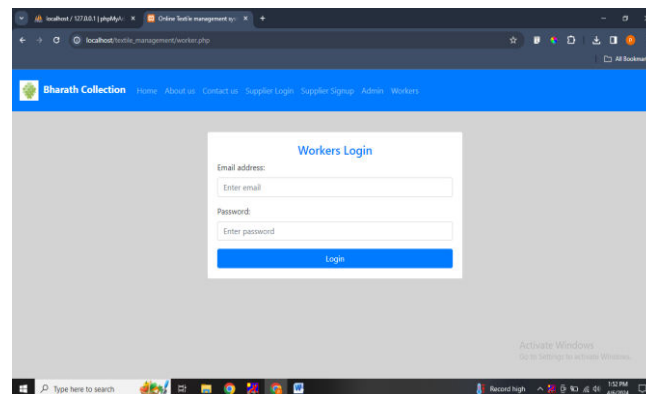


Figure 1.6 Worker Login

VI. CONCLUSION

In conclusion, the Textile Management System streamlines operations within the textile industry by providing an integrated platform for Admins, Workers, and Suppliers to collaborate effectively. Through its user-friendly interface and comprehensive features, it enhances efficiency in worker management, product tracking, and invoicing processes. By leveraging PHP and MySQL technologies, the system ensures reliability, scalability, and security, making it a valuable asset for textile businesses striving for operational excellence.

VII. FUTURE WORK

- **Integration of RFID Technology:** Integrate RFID tags into the products to streamline inventory management. This would allow for real-time tracking of products throughout the supply chain, reducing errors and improving accuracy in stock management.
- **Advanced Analytics and Reporting:** Implement advanced analytics tools to provide insights into sales trends, demand forecasting, and inventory optimization. This would help in making data-driven decisions and improving overall operational efficiency.
- **Customer Relationship Management (CRM):** Implement a CRM module to manage customer interactions, track sales leads, and improve customer satisfaction. This would enable better communication with customers and enhance overall service quality.

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