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Sales and Stock Management System

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SALES AND STOCK MANAGEMENT SYSTEM

A Project

Presented to the

Faculty of

California State University,

San Bernardino

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

in

Computer Science

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by

Rashmika Gaddam

August 2023

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Approved by:

Dr. Quingquan Sun, Advisor, Computer Science and Engineering

Dr. Khalil Dajani, Committee Member

Dr.Ronald Sollum, Committee Member

ABSTRACT

Many stores uses Excel sheets to monitor sales and inventory by keeping separate distinct sheets for sales and inventory data within the cost. This project is helpful in accounting and analysis, which can determine the fluctuations in sales and stock levels .However, we face many issues while using excel to record the sales and stock levels. For example, If more than one person works on the Excel sheets, then it may lead to many inaccuracies, inconsistencies and loss of data. Also, if number of stocks and sales increases then it is really hard to maintain large amounts of data which is also hard to retrieve when needed. Furthermore, excel does not offer real-time updates or integration with other systems, such as point-of-sale (POS) systems, which can lead to inaccuracies and inefficiencies in the sales and stock management process. These limitations highlight the need for a more robust and integrated solution for sales and stock management in a grocery store.

ACKNOWLEDGEMENT

My heartfelt thanks go to my excellent Advisor, Dr. Quingquan Sun, for his crucial assistance, patience, time, and advice in seeing this project through to completion. My thanks also go to my department leader, Dr. Khalil Dajani, who patiently guided me through the completion of this project.

I would like to express my gratitude and appreciation to my committee members, Dr. Ronald Salloum and Dr. Khalil Dajani, for their invaluable assistance and advise.

Finally, I'd want to express my gratitude to the school of computer science at California State University, San Bernardino, for developing the best curriculum that has helped me improve my abilities and achieve my future goals.

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CHAPTER ONE

INTRODUCTION

Background

Grocery stores used to do their inventory manually before the new dawn of technology to mankind, large stores found it hard to maintain their operations efficiently and effectively. Sales and stock management systems were developed to carry out the daily activities whether in grocery stores or companies. With a proper and timely determination of the system, the strategy allows for freeing a significant number of stocks increasing resource efficiency. Excel spreadsheets are used for data entry manually which can lead to great inaccuracies in the information processed.

Significance

Using Excel sheets for maintaining sales and stock in a store may result in lot of challenges. Some of them are getting errors while entering the data manually, as the data increases scalability decreases and difficult to interact with other systems like point -of-sales system. Due to all these reasons, it is really difficult to decide about sales and stocks based on real -time details. Hence we need to have an integrated system for all kinds of store in order to monitor sales and stock.

Purpose

The key goals of this initiative are as follows:

1. Automate the sales and stock management processes, reducing manual errors and increasing efficiency.
2. Provide real-time visibility into sales and stock data, enabling informed decision-making.
3. Enhance the customer experience through improved checkout processes and customer management.
4. Streamline the inventory management process, including stock levels, reordering, and reporting.
5. Provide detailed sales and stock analytics, including graphs and charts, to help the retail store track its performance.

Motivation

In the world we belong to rightnow,every business tries to achieve a balance between what is required and what is desired, with reducing expenses as the primary objective. Goods and materials that are used in any business are controlled by sales and stock management tools. It examines the amount of supplies that is accessible and exactly where it is kept so that it is readily available to utilize whenever needed. For predicting the demand in future, the system deals with forecasting the demand,controlling assets items and supplies inventory with a cost,estimation,valuation of commodities and validation of products.

CHAPTER TWO
LITERATURE REVIEW

Challenges

There are numerous sales and stock systems used in almost every business enterprise for managing their inventory and sales, although inaccurate records od stock is universal among the systems. The proposed system will develop a method for delivering real-time insights into the activities carried along the grocery store. Existing systems are using the same type of database technology for data visualization, the study of presented abstract information in certain schematic forms. The data visualization goal is to relay information graphically using shapes, arts, or charts with percentages

Database is a group of connected files that are structured to be accessible to end users simultaneously.It gathers and organizes data so that it can be displayed in a single location. They are created and carried by a software known as Database Management System, which deals with the way of information maintained,structured and accessed. Structured Query Language is implemented by other applications for processing data in a relational database management systems.MY SQL and PHP are used in this system for remote server services.

CHAPTER THREE

SYSTEM REQUIREMENTS

Hardware Requirements

Display: 1920x1080 resolution Monitor.

Processor: Intel Core i5 or higher.

Network: Internet connectivity or Wi-Fi.

Storage: At least 256GB SSD.

RAM: 8GB or higher.

Software Requirements

Visual Studio Code.

Xampp.

CHAPTER FOUR

TOOLS AND TECHNOLOGIES

Graphical User Interface will be the preferred front-end interface to information display, since easy to use even for inexperienced users, it is attractive, provide shortcuts, and allows room for multitasking.

HTML

Hyper Text Markup Language is used for developing front-end Graphical user interface.It is standard language used for web pages.

CSS

Cascading style sheets are a style sheet language used to show a document or content written in markup language.

BOOTSTRAP

Bootstrap is used for front end framework which enable global options like gradients and shadows and writes own CSS with our variables, maps, functions.

PHP

The system was created with the Laravel PHP framework.The software will be developed using PHP one of the most widely used and reliable technologies for developing custom software solutions.

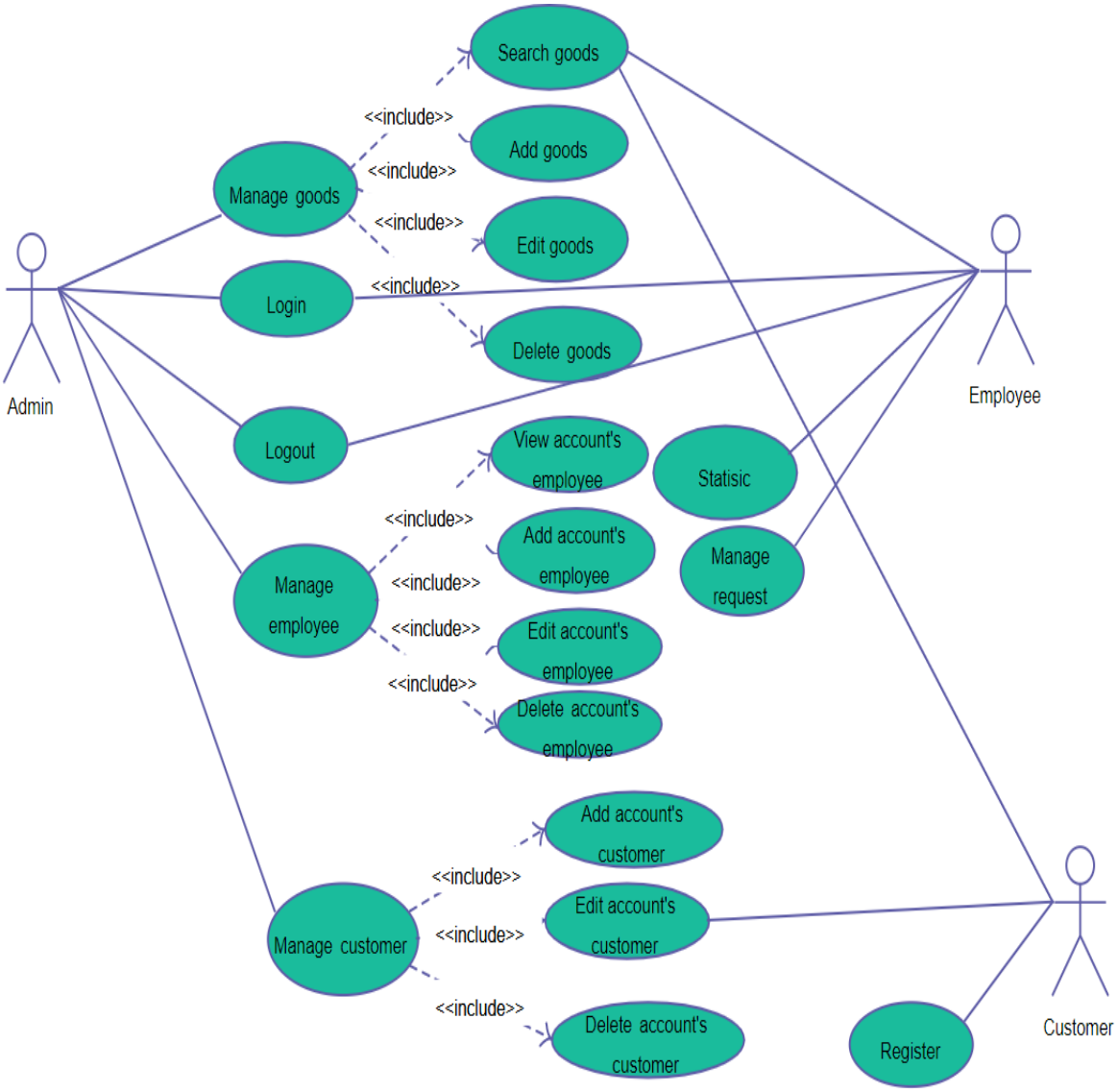
MYSQL

For database MYSQL is used.This technology will ensure that the software is scalable, reliable, and secure.

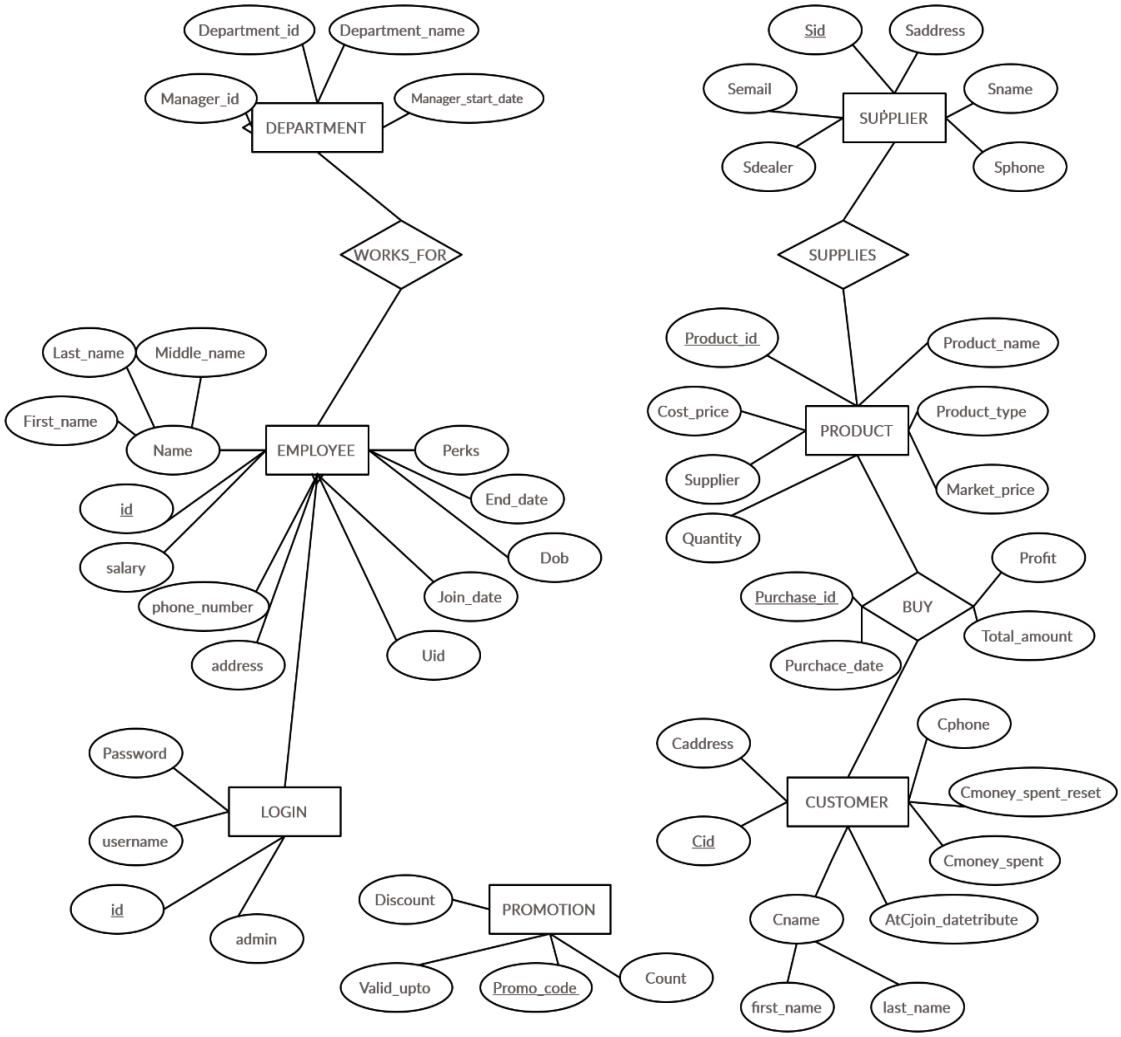
CHAPTER FIVE

SYSTEM DESIGN

Use Case Diagram



ER Diagram


Department_id
Department_name
Manager_id
DEPARTMENT
Manager_start_date
WORKS_FOR
Last_name
Middle_name
First_name
Name
EMPLOYEE
Perks
End_date
id
Dob
salary
Join_date
phone_number
Uid
address
Password
LOGIN
username
id
admin
Discount
PROMOTION
Valid_upto
Promo_code
Count
Sid
Saddress
Semail
SUPPLIER
Sname
Sdealer
Sphone
SUPPLIES
Product_id
Product_name
Cost_price
PRODUCT
Product_type
Supplier
Market_price
Quantity
Profit
Purchase_id
BUY
Total_amount
Purchace_date
Cphone
Caddress
CUSTOMER
Cmoney_spent_reset
Cid
Cmoney_spent
Cname
AtCjoin_datetribute
first_name
last_name

CHAPTER SIX

SYSTEM ANALYSIS

Proposed System

The Primary components of this system are as follows:

1. Point of Sale (POS): A simple-to-use interface that permits sales operations like management of clients, handling payments, and the scanning of barcodes efficiently and effectively.
2. Inventory Management: This application can help us in determining the current stock and handles the stock, reports and reordering.
3. Customer Management: This system will maintain and arrange data regarding the customers, which includes their contact details, purchase history and reward points.
4. Sales and Profit Analytics: This platform can display graphical and visual representations of both revenue and sales, which helps in assisting the store to make prudent decisions.
5. Reports: This application will create statistics regarding transactions, materials, consumers, and other aspects that can assist the business to maintain records of the manner in which it is accomplished.

Web Application

The main purpose of this application is to supervise the inventory management process of the business. When all the operations are automated, they can be carried out accurately and the business will acquire the edge over competitors.

The following details are added to the business requirements discussed in the Scope section:

1.Aids in the search for a specific product and its remaining supply.

2.Information regarding product sales and purchases.

3.Brief information on the organization's current news status.

4. Display inventory as of the date entered.

5.It aids in determining the total presented inventory in the organization.

6.To determine the amount and specifics of sales distributed on a certain day.

7.Inventory transactions are properly managed.

8.Each transaction has a unique entry date, as well as a quantity and rate.

9.Only the administrator has access to the page.

User Prerequisites

The user type determines the user requirements.

Admin

1.Ability to build new stores with dates.

2.Ability to alter the entry according to the entry.

3.Ability to add, change, and delete stock entries.

Inventory Control

1.Ability to verify stock availability.

2. Capable of checking the balance payment.

3.Ability to view the remaining sales inventory.

CHAPTER SEVEN

IMPLEMENTATION

Primary Implementation

Admin: The administrator is responsible for handling the system. This involves setting up and dealing with the user accounts, operating the database and maintaining how efficiently the system performs.

Store Manager: The store manager will be responsible for running the store daily.He is also responsible for maintaining the data on sales and inventory, making reports. Implementing decisions on sales and inventory information.

Inventory Manager: The inventory manager will be responsible for dealing with stock data, which involves incorporating new goods, keeping stock levels up to date and keeping record of expenses.

Reports User: The reports user will be responsible for creating reports, examining sales and stock data, and coming up with alternatives based on what they discover through the data.

Each customer will be given individual login information and access.Thus confidential data will remain encrypted and every individual will be allowed to access the details they require to carry out the job.The PHP and MYSQL based inventory and sales management system will make it simpler and precise count of sales and stock data.

Exploring Database

Implementation of the PHP and MySQL-based Sales and Stock Management System for a small retail has the following steps:

- Hosting: A cloud-based hosting platform should be selected. This hosting site should have enough storage space, bandwidth to deal with large volumes of data is required.
- Database Design: For storing data regarding transactions and supplies.It is necessary to develop well organized database.The database must contain fields for transactions, products and inventory and the fields need to be interconnected in a proper way.
- User Interface Design: The entire system should have a user -friendly dashboard which allows customers to enter and display both sales and inventory data.The interface should be customizable and function properly on a number of platforms likes laptops and mobile phones.
- PHP Programming: PHP scripts need to be developed to provide the system all the features like entering information, searching the data and generating reports.The code should be developed to be secure as well as expanding and must deal with error management and store them appropriately.
- Integration with Point-of-Sale (POS) Systems: PHP and My-SQL systems should be interconnected inorder to get real-time data.
- Testing and Deployment: The system needs to be tested properly inorder to ensure that it functions as planned also ensuring that the date precise

and secured.When the testing is completed the system can be uploaded on the hosting site and made accessible to all the clients.

- Maintenance and Upgrades: Regular maintenance and upgrades must be performed on the system to ensure that it continues to function effectively and provide the necessary. level of service. This may involve fixing bugs, adding new features, and upgrading the underlying software and hardware components.

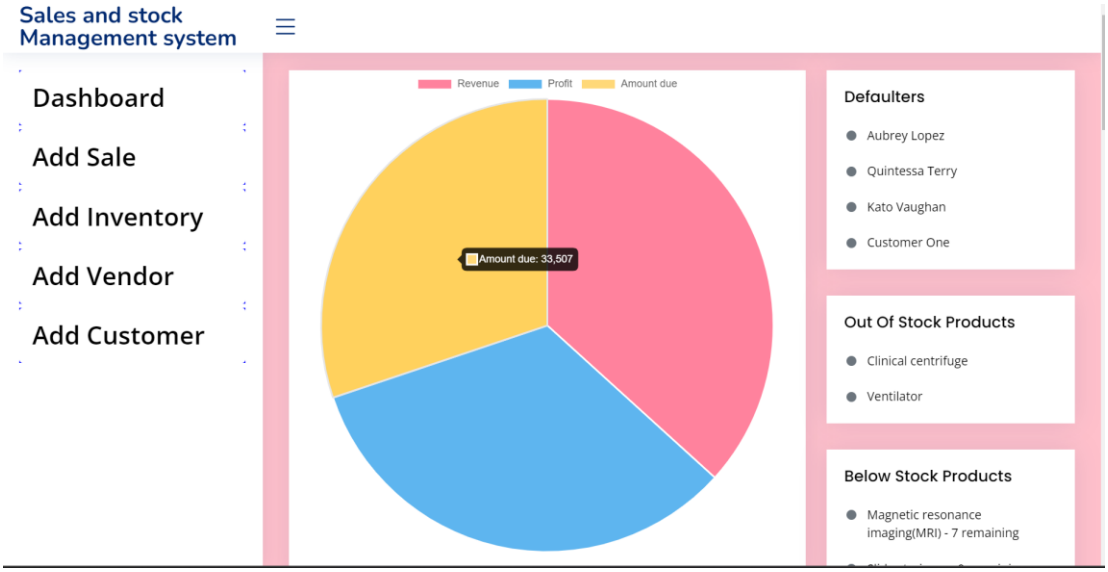


Figure 1: Dashboard

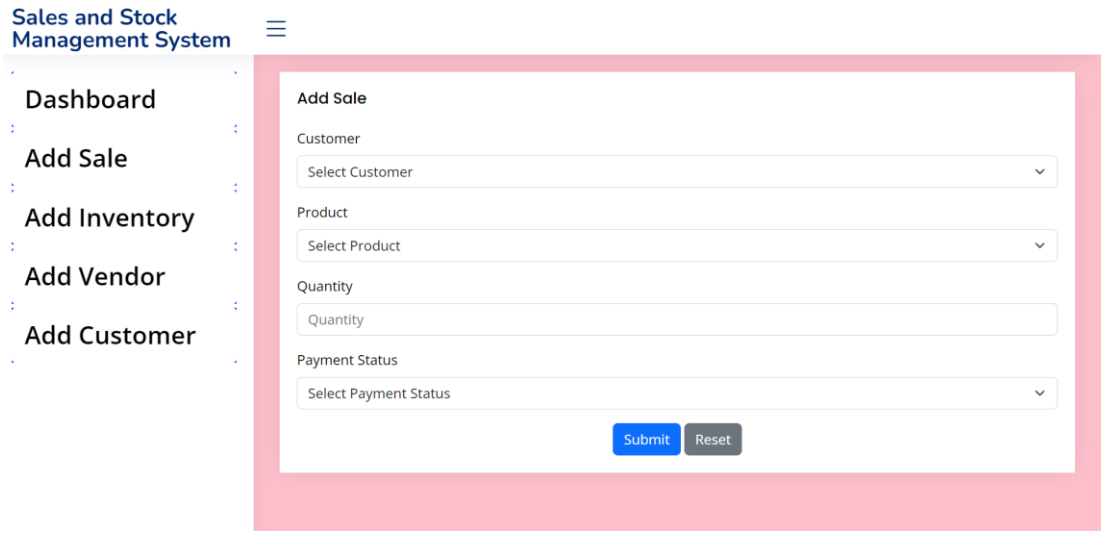


Figure 2: Add Sale

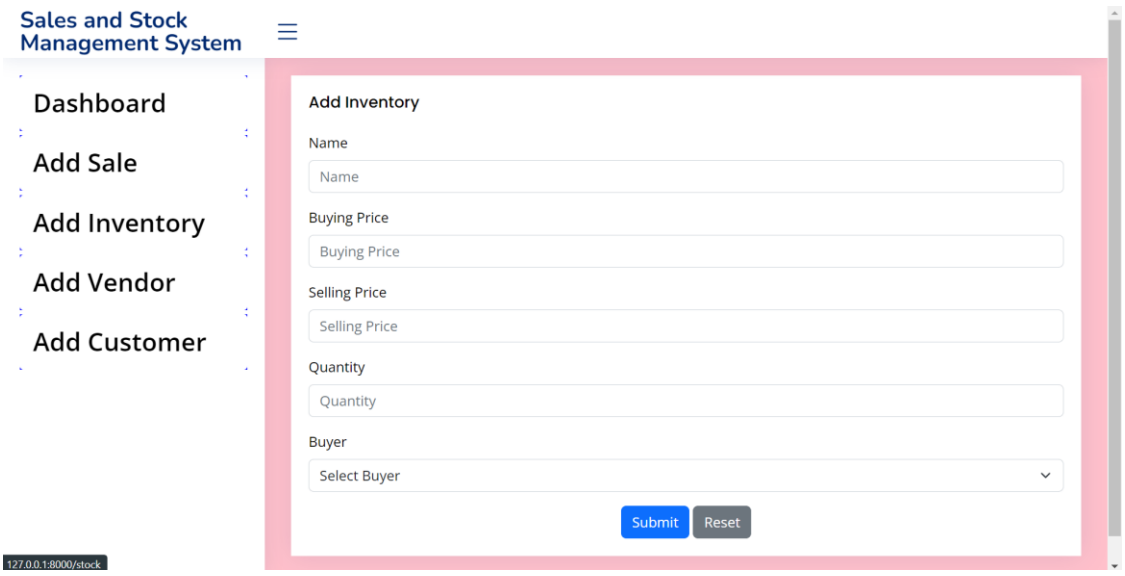


Figure 3: Add Inventory

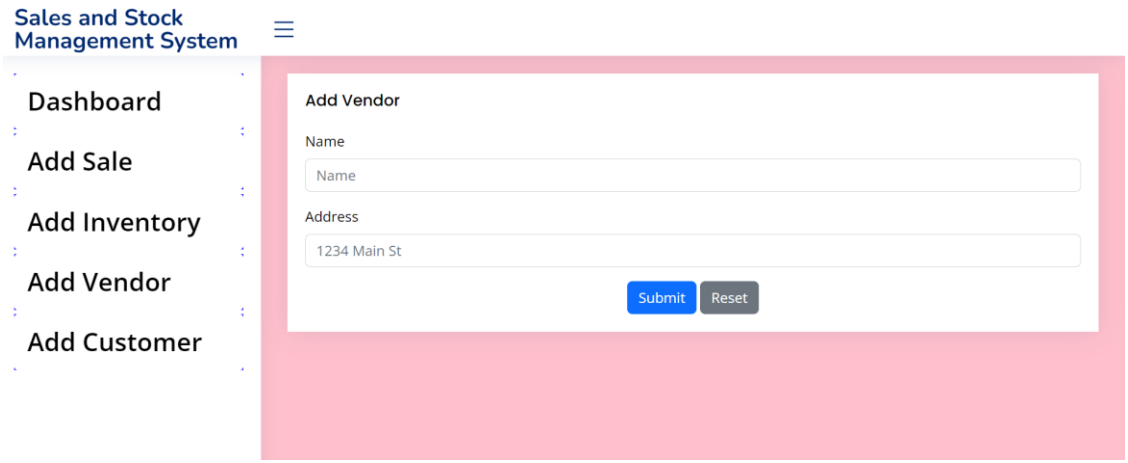


Figure 4: Add Vendor

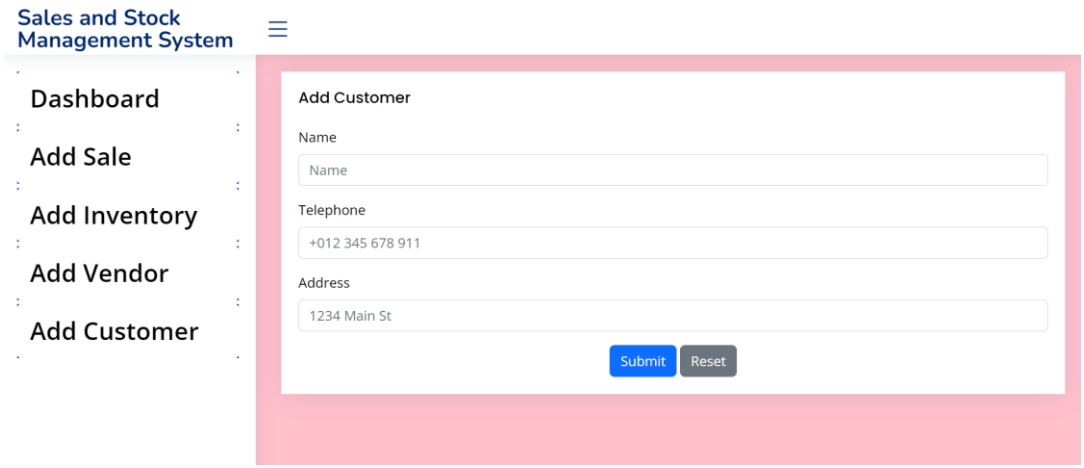


Figure 5: Add Customer

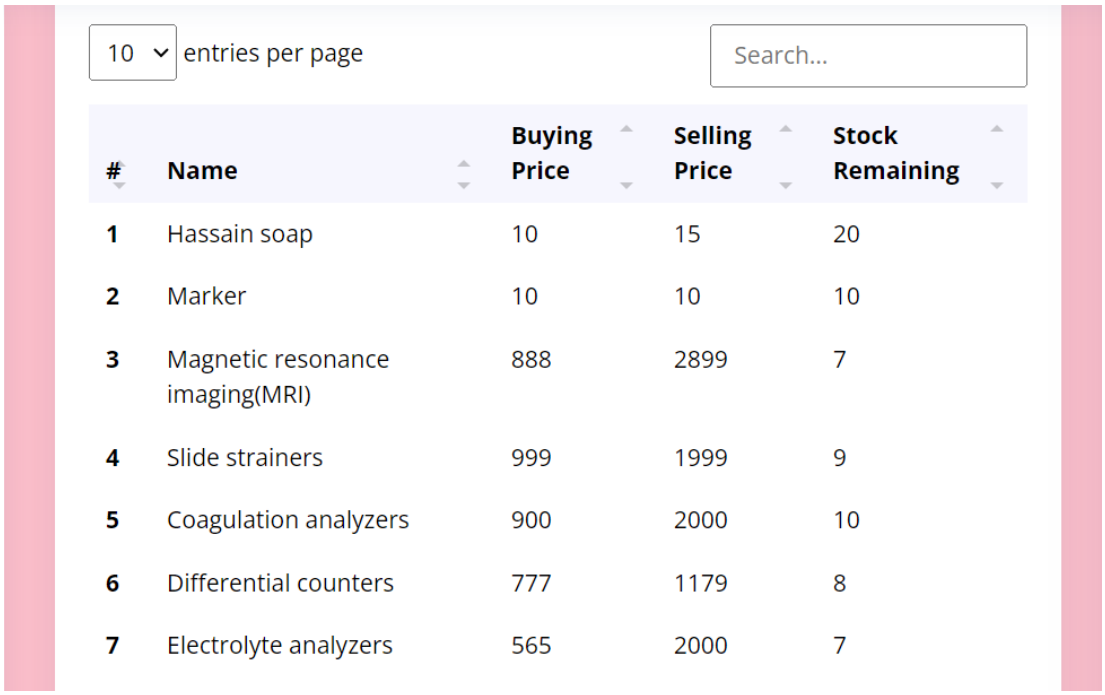


Figure 6: List Inventory

Figure 7: List of Vendors

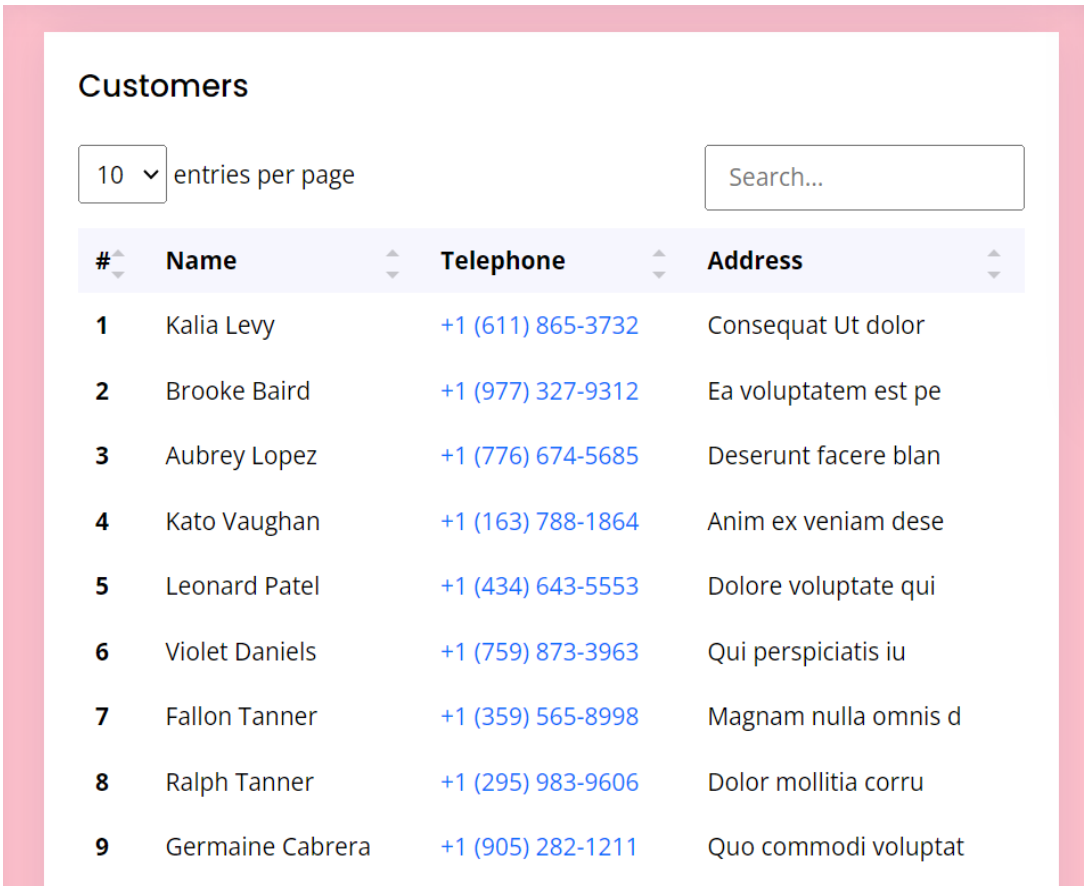


Figure 8: List of Customers

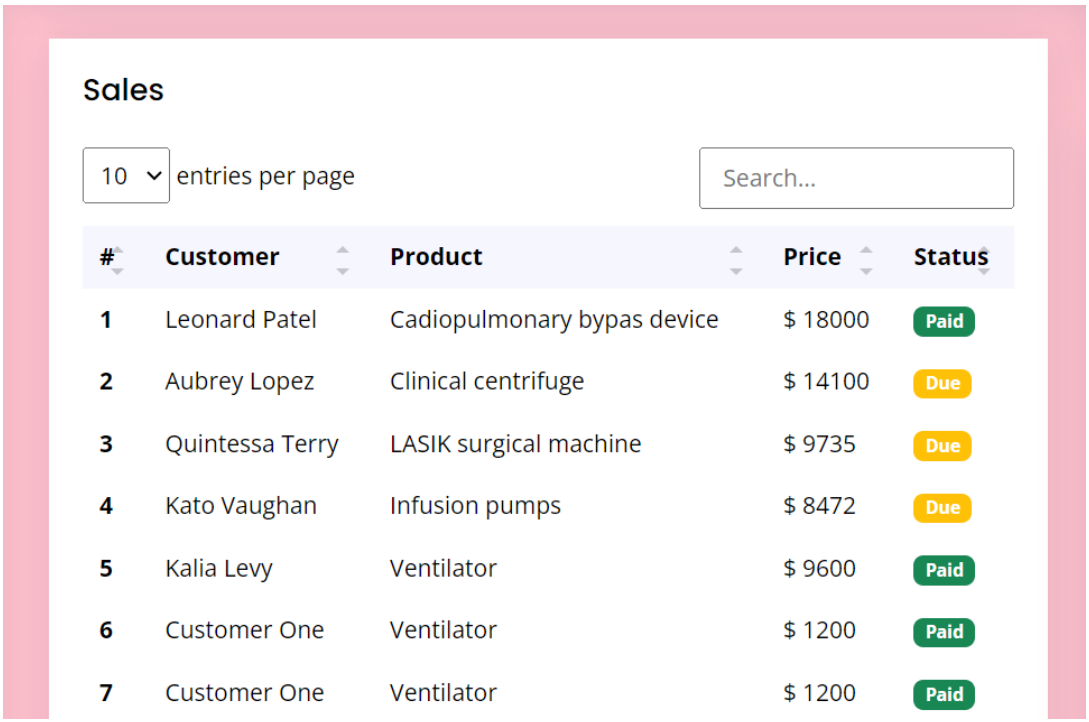


Figure 9: List of Sales

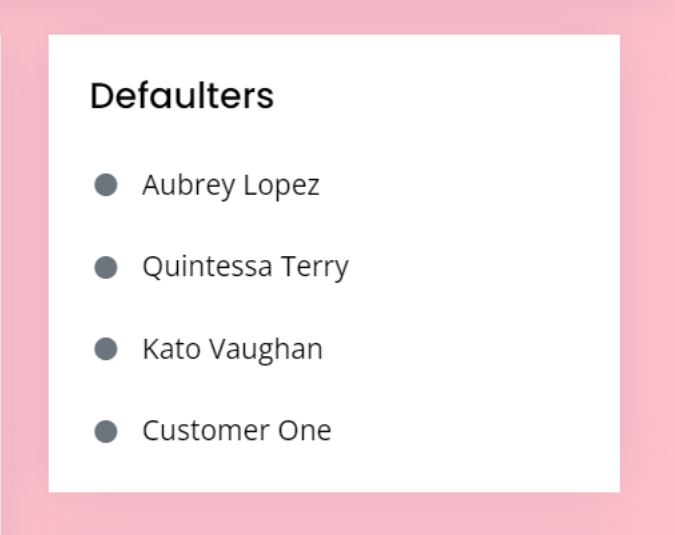


Figure 10 : Defaulters

Figure 11: Out of Stock Products

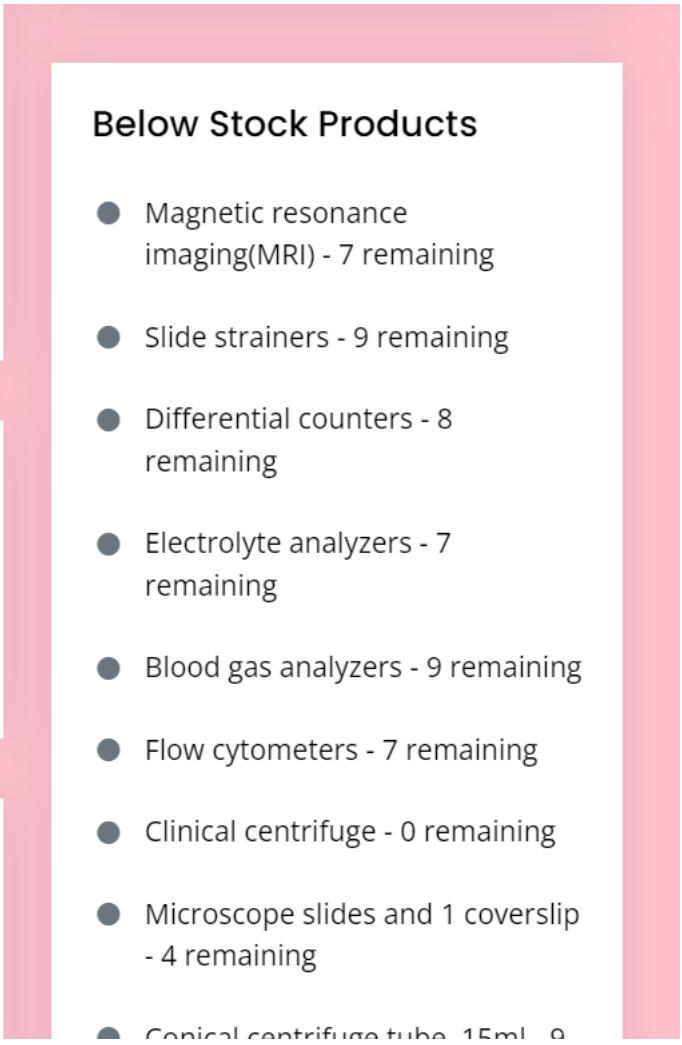


Figure 12: Products in Stock

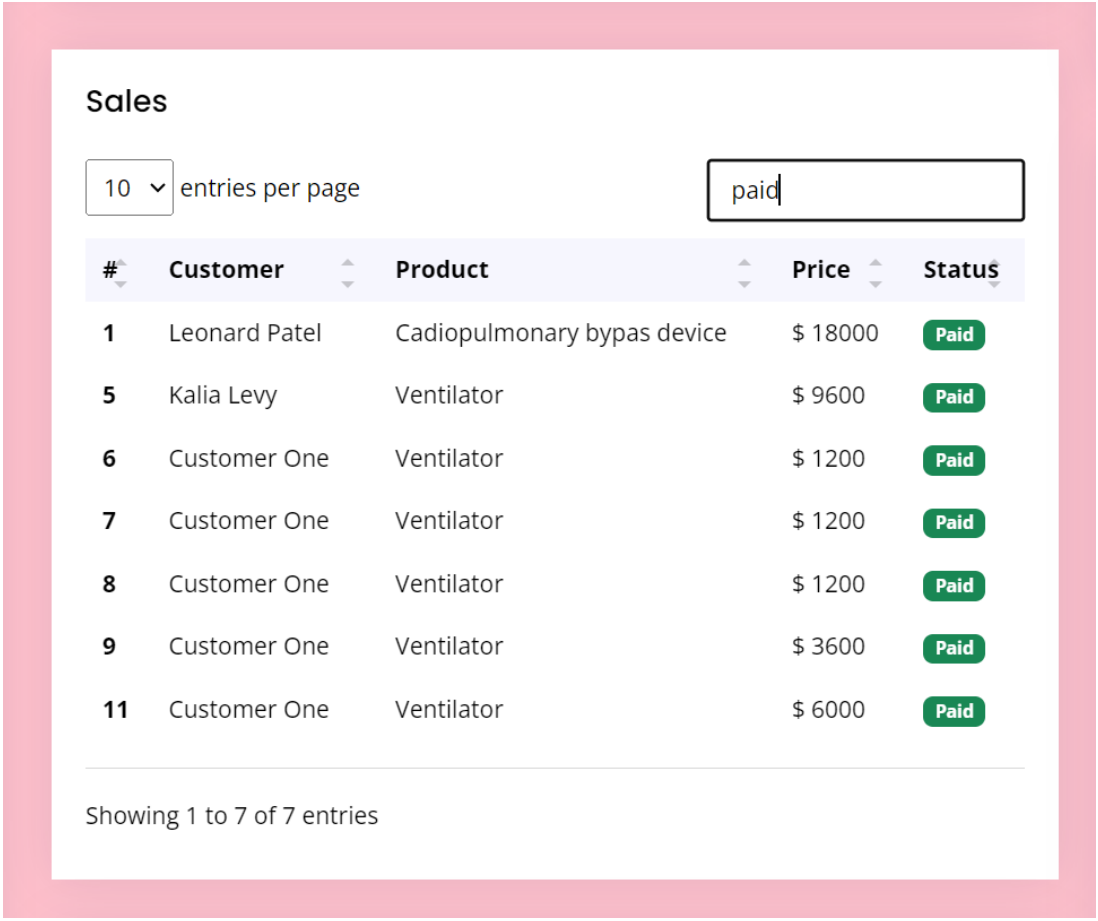


Figure 13: List of Payments

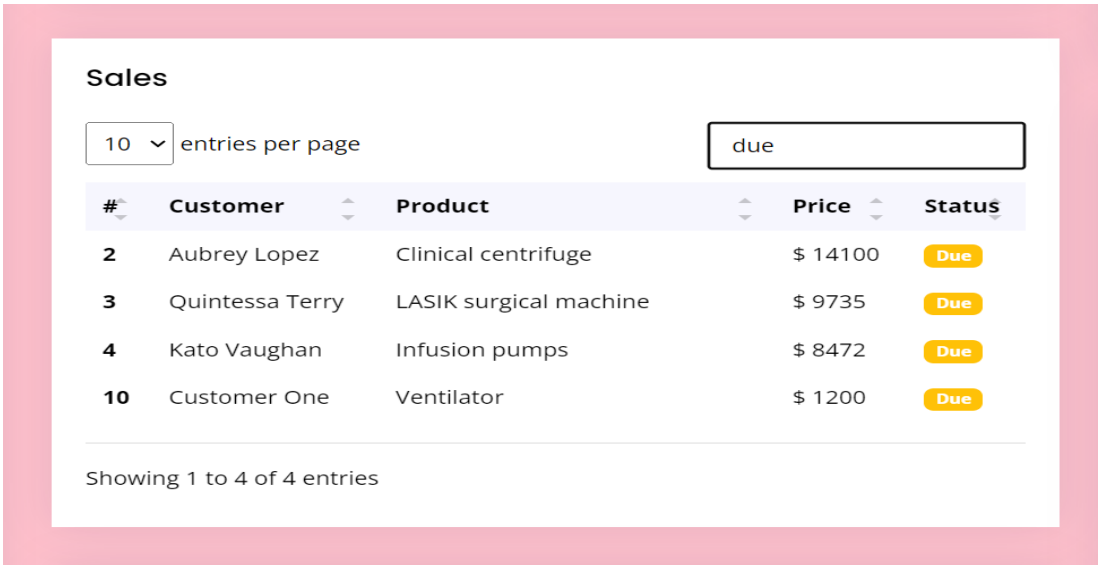


Figure 14: Pending Payments

CHAPTER EIGHT

TESTING

Introduction

The goal of software testing is to evaluate software program capabilities or attributes to ensure that it meets the application standards.Testing does not guarantee quality, and its objective is not to detect bugs.Testing might consist of verification and validation as well as dependability estimation.

The fundamental goal of testing is to find errors in application.The most crucial function of testing is to provide information.Check ensure that the program is functioning properly while creating, updating, and deleting product entries.

Unit Testing

Individual software components are tested in this manner. It is usually done by the programmer rather than the testers.This demands detailed information and expertise of the internal program design and code.We performed numerous testing tasks during unit testing, such as the reflection of the unit data on the database and its interface. Several sorts of bugs linked with the component were discovered and resolved. To test our software, we use a variety of functional keys.Our software unit testing is concerned with stock units, opening stock units, and product unit validation.

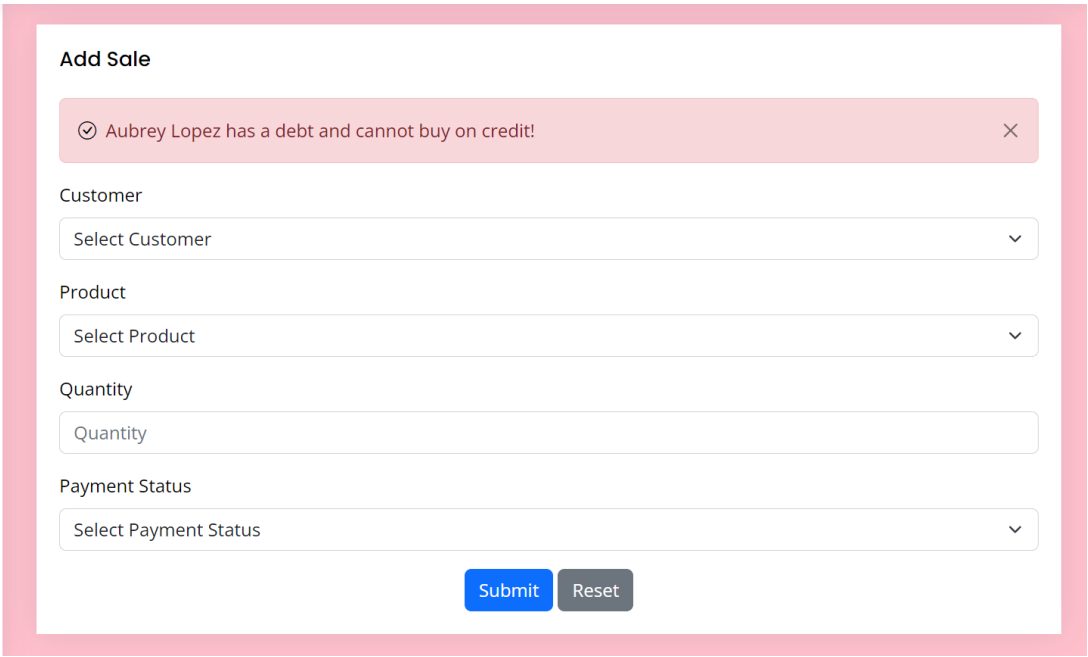


Figure 15: Warning if Quantity Cannot be Sold to a Customer.

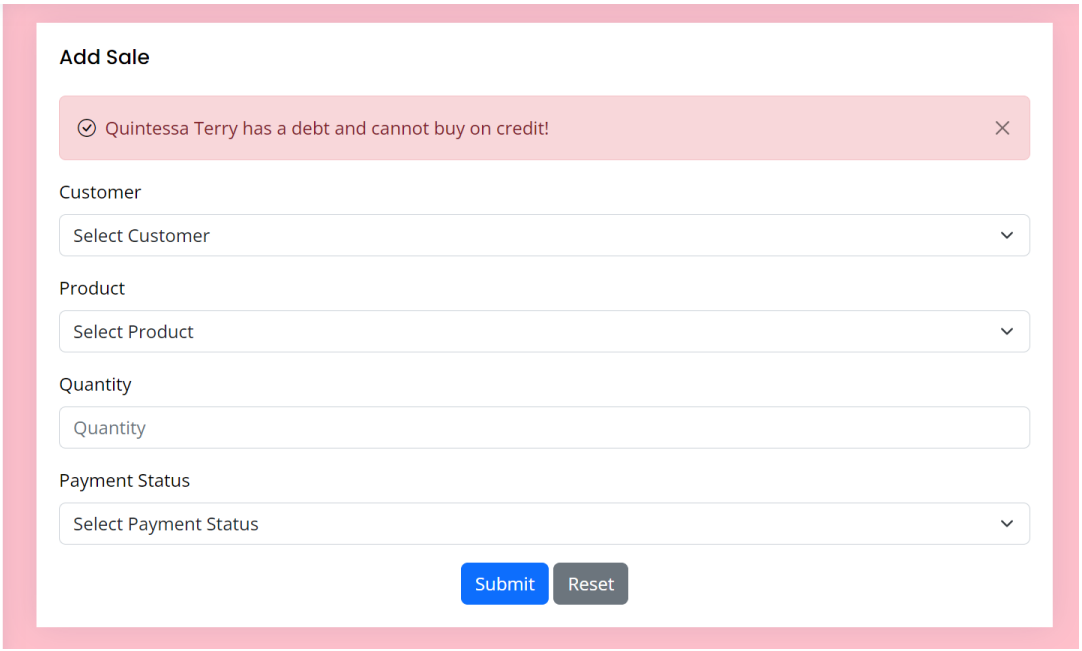


Figure 16: When Customer Has Not Paid Pending Amount

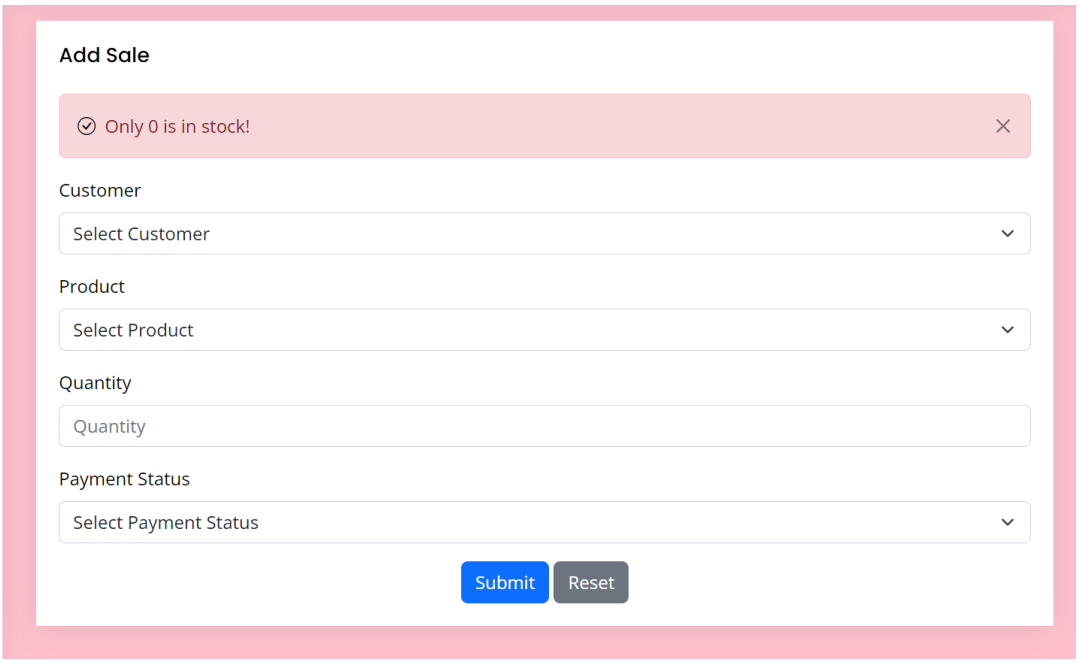


Figure 17: When Quantity of Item Goes Below Certain Quantity.

The project took some time, and I learnt a lot, including how the parent and child models are associated in relational databases. I found that reducing the stock quantity after a sale will result in an inaccurate profit report; instead, create a new record for the transaction and display the profit in the view. I discovered that if the validation guidelines are not followed, the buyer cannot buy the product. The project was enjoyable even though it was challenging to construct the database relationships.

CHAPTER NINE

CONCLUSION

The implementation of a PHP and MySQL-based sales and stock management system for a small retail store can provide significant benefits over the traditional method of using Excel spreadsheets. By having real-time data and capacity to work with POS systems, recommended system(this project) will give us more accurate record of sales and stock easily. Increasing demands of the many stores can be satisfied by this system as it is versatile and reliable.This system can be turned into a well-defined process by building a database, developing a user interface, developing PHP code, merging with POS system, regular testing, proper deployments and carrying out regular upgrades and maintenance.Replacement of automated and interconnected solution by manual processes the retail store can make superior decisions based on real time time.Thus making the store more productive and successful.

Project Limitation

In this project there are certain limitations. We were unable to meet all of our goals due to a lack of understanding in specific disciplines and a lack of time when the project began. We hope these constraints are significant. Some of the project's constraints are as follows:

1.This application is not appropriate for organizations with a high volume.

2.Products and various warehouse levels.

3.This software application can only generate rudimentary reports.

4.It only has a single admin panel.

5.It is not ideal for huge organizations.

CHAPTER TEN

FUTURE ENHANCEMENTS

Because we began this project with little knowledge of the inventory management system, we learned about enhancement capacity while creating it. Some of the areas we can expand for betterment and effectiveness are given below:

1.Design of an interactive user interface.

2.Manage Inventory by stores

3. Oracle is used as the database.

4. An online payment mechanism can be included.

5. The system should be adaptable to any situation.

6.For product returns sales and purchase system should be added.

7.Lost and broken items.

APPENDIX A

CODE

```
CREATE TABLE `customers` (
  `id` bigint(20) UNSIGNED NOT NULL,
  `name` varchar(255) COLLATE utf8mb4_unicode_ci NOT NULL,
  `telephone` varchar(255) COLLATE utf8mb4_unicode_ci NOT NULL,
  `address` varchar(255) COLLATE utf8mb4_unicode_ci NOT NULL,
  `created_at` timestamp NULL DEFAULT NULL,
  `updated_at` timestamp NULL DEFAULT NULL
```

```
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4
COLLATE=utf8mb4_unicode_ci;

--

-- Dumping data for table `customers`

INSERT INTO `customers` (`id`, `name`, `telephone`, `address`, `created at`,
`updated at`) VALUES

(1, 'Customer One', '123456789101', 'New York 001', '2022-11-21 14:09:02',
'2022-11-21 14:09:02'),

(2, 'Zelenia Barton', '11237625971', 'Repellents Rerum i', '2022-11-21 18:19:52',
'2022-11-21 18:19:52'),

(3, 'Kyle Marsh', '+1 (371) 318-6403', 'Sunt dolor Quis pers', '2022-11-21
18:20:35', '2022-11-21 18:20:35'),

(4, 'Natalie Ellison', '+1 (262) 637-1224', 'Aut et hic est et co', '2022-11-21
18:20:39', '2022-11-21 18:20:39'),

(5, 'Amy Craig', '+1 (617) 876-8058', 'Veritatis et animi', '2022-11-21 18:20:42',
'2022-11-21 18:20:42'),

(6, 'Odessa Higgins', '+1 (837) 663-8249', 'Dolor eiusmod aut re', '2022-11-21
18:20:45', '2022-11-21 18:20:45'),

(7, 'Tiger Osborne', '+1 (205) 182-6075', 'Et est ipsa est dol', '2022-11-21
18:20:47', '2022-11-21 18:20:47'),
```

(8, 'Leonard Hodges', '+1 (939) 982-5623', 'Dolorem excepteur au', '2022-11-21 18:20:50', '2022-11-21 18:20:50'),

(9, 'Hadassah Wolf', '+1 (991) 167-7137', 'Quis quae voluptatem', '2022-11-21 18:20:52', '2022-11-21 18:20:52'),

(10, 'Aiko Burks', '+1 (124) 601-2458', 'Irure voluptatem har', '2022-11-21 18:20:55', '2022-11-21 18:20:55'),

(11, 'Charde Workman', '+1 (233) 808-3068', 'Deleniti dolorem arc', '2022-11-21 18:21:01', '2022-11-21 18:21:01'),

(12, 'Whoopi Rodriquez', '+1 (108) 444-7755', 'Debitis quidem persp', '2022-11-21 18:21:03', '2022-11-21 18:21:03'),

(13, 'Lamar Golden', '+1 (915) 673-3816', 'Aperiam eveniet qui', '2022-11-21 18:21:06', '2022-11-21 18:21:06'),

(14, 'Calvin Burnett', '+1 (393) 394-4923', 'Repudiandae eu eveni', '2022-11-21 18:21:09', '2022-11-21 18:21:09'),

(15, 'Justina Townsend', '+1 (895) 787-4702', 'Quia laboriosam qui', '2022-11-21 18:21:11', '2022-11-21 18:21:11'),

(16, 'Shaine Gardner', '+1 (282) 662-7428', 'Ipsa ut aperiam qui', '2022-11-21 18:21:14', '2022-11-21 18:21:14'),

(17, 'Flynn Emerson', '+1 (912) 592-8395', 'Nam repellendus Aut', '2022-11-21 18:21:17', '2022-11-21 18:21:17'),

(18, 'Quintessa Terry', '+1 (285) 814-8427', 'Possimus deleniti e', '2022-11-21 18:21:21', '2022-11-21 18:21:21'),

(19, 'Keefe Curry', '+1 (677) 984-2181', 'Mollitia voluptatibu', '2022-11-21 18:21:24', '2022-11-21 18:21:24'),

(20, 'Arthur Ellison', '+1 (657) 312-7287', 'Ut vero quas explica', '2022-11-21 18:21:26', '2022-11-21 18:21:26'),

(21, 'Colton Mcbride', '+1 (869) 713-3881', 'Voluptatem veritati', '2022-11-21 18:21:31', '2022-11-21 18:21:31'),

(22, 'Jaden Garza', '+1 (281) 623-1939', 'Lorem consequatur e', '2022-11-21 18:21:34', '2022-11-21 18:21:34'),

(23, 'Germaine Cabrera', '+1 (905) 282-1211', 'Quo commodi voluptat', '2022-11-21 18:21:40', '2022-11-21 18:21:40'),

(24, 'Ralph Tanner', '+1 (295) 983-9606', 'Dolor mollitia corru', '2022-11-21 18:21:43', '2022-11-21 18:21:43'),

(25, 'Fallon Tanner', '+1 (359) 565-8998', 'Magnam nulla omnis d', '2022-11-21 18:21:46', '2022-11-21 18:21:46'),

(26, 'Violet Daniels', '+1 (759) 873-3963', 'Qui perspiciatis iu', '2022-11-21 18:21:49', '2022-11-21 18:21:49'),

(27, 'Leonard Patel', '+1 (434) 643-5553', 'Dolore voluptate qui', '2022-11-21 18:21:52', '2022-11-21 18:21:52'),

(28, 'Kato Vaughan', '+1 (163) 788-1864', 'Anim ex veniam dese', '2022-11-21 18:21:55', '2022-11-21 18:21:55'),

(29, 'Aubrey Lopez', '+1 (776) 674-5685', 'Deserunt facere blan', '2022-11-21 18:22:02', '2022-11-21 18:22:02'),

(30, 'Brooke Baird', '+1 (977) 327-9312', 'Ea voluptatem est pe', '2022-11-21 18:22:05', '2022-11-21 18:22:05'),

(31, 'Kalia Levy', '+1 (611) 865-3732', 'Consequat Ut dolor', '2022-11-21 18:22:08', '2022-11-21 18:22:08');

-- --

INSERT INTO `migrations` (`id`, `migration`, `batch`) VALUES

(1, '2014_10_12_000000_create_users_table', 1),

(2, '2019_12_14_000001_create_personal_access_tokens_table', 1),

(3, '2022_11_20_191406_create_suppliers_table', 1),

(4, '2022_11_20_191456_create_stocks_table', 1),

(5, '2022_11_20_191522_create_customers_table', 1),

(6, '2022_11_20_191546_create_orders_table', 1);

-- --

--

-- Table structure for table `orders`

CREATE TABLE `orders` (

```
  `id` bigint(20) UNSIGNED NOT NULL,
  `stock_id` bigint(20) UNSIGNED NOT NULL,
  `customer_id` bigint(20) UNSIGNED NOT NULL,
  `quantity` int(11) NOT NULL,
  `paid` tinyint(1) NOT NULL,
  `created_at` timestamp NULL DEFAULT NULL,
  `updated_at` timestamp NULL DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4
COLLATE=utf8mb4_unicode_ci;
--
-- Dumping data for table `orders`
--
INSERT INTO `orders` (`id`, `stock_id`, `customer_id`, `quantity`, `paid`,
`created_at`, `updated_at`) VALUES
(1, 1, 1, 5, 1, '2022-11-21 16:54:09', '2022-11-21 16:54:09'),
(2, 1, 1, 1, 0, '2022-11-21 16:54:58', '2022-11-21 16:54:58'),
(3, 1, 1, 3, 1, '2022-11-21 16:57:54', '2022-11-21 16:57:54'),
(4, 1, 1, 1, 1, '2022-11-21 17:24:36', '2022-11-21 17:24:36'),
(5, 1, 1, 1, 1, '2022-11-21 17:25:38', '2022-11-21 17:25:38'),
```

```
(6, 1, 1, 1, 1, '2022-11-21 17:36:22', '2022-11-21 17:36:22'),

(7, 1, 31, 8, 1, '2022-11-21 18:53:55', '2022-11-21 18:53:55'),

(8, 22, 28, 2, 0, '2022-11-21 19:27:36', '2022-11-21 19:27:36'),

(9, 23, 18, 3, 0, '2022-11-21 19:27:49', '2022-11-21 19:27:49'),

(10, 31, 29, 2, 0, '2022-11-21 19:28:43', '2022-11-21 19:28:43'),

(11, 2, 27, 10, 1, '2022-11-21 19:29:02', '2022-11-21 19:29:02');

-- Table structure for table `personal_access_tokens`

--

CREATE TABLE `personal_access_tokens` (

  `id` bigint(20) UNSIGNED NOT NULL,

  `tokenable_type` varchar(255) COLLATE utf8mb4_unicode_ci NOT NULL,

  `tokenable_id` bigint(20) UNSIGNED NOT NULL,

  `name` varchar(255) COLLATE utf8mb4_unicode_ci NOT NULL,

  `token` varchar(64) COLLATE utf8mb4_unicode_ci NOT NULL,

  `abilities` text COLLATE utf8mb4_unicode_ci DEFAULT NULL,

  `last_used_at` timestamp NULL DEFAULT NULL,

  `expires_at` timestamp NULL DEFAULT NULL,

  `created_at` timestamp NULL DEFAULT NULL,

  `updated_at` timestamp NULL DEFAULT NULL
```

```
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4
COLLATE=utf8mb4_unicode_ci;

-- --------------------------------------------------------

--
-- Table structure for table `stocks`
--

CREATE TABLE `stocks` (
  `id` bigint(20) UNSIGNED NOT NULL,
  `name` varchar(255) COLLATE utf8mb4_unicode_ci NOT NULL,
  `buying_price` double NOT NULL,
  `selling_price` double NOT NULL,
  `quantity` int(11) NOT NULL,
  `supplier_id` bigint(20) UNSIGNED NOT NULL,
  `created_at` timestamp NULL DEFAULT NULL,
  `updated_at` timestamp NULL DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4
COLLATE=utf8mb4_unicode_ci;

--
-- Dumping data for table `stocks`
```

--

INSERT INTO `stocks` (`id`, `name`, `buying_price`, `selling_price`, `quantity`, `supplier_id`, `created_at`, `updated_at`) VALUES

(1, 'Ventilator', 500, 1200, 20, 2, '2022-11-21 14:42:26', '2022-11-21 16:57:54'),

(2, 'Cadiopulmonary bypas device', 1000, 1800, 20, 12, '2022-11-21 18:25:13', '2022-11-21 18:25:13'),

(21, 'Dialysis machine', 2000, 3200, 23, 16, NULL, NULL),

(22, 'Infusion pumps', 3251, 4236, 40, 8, NULL, NULL),

(23, 'LASIK surgical machine', 1430, 3245, 25, 17, NULL, NULL),

(24, 'Medical lasers', 2000, 2200, 24, 8, NULL, NULL),

(25, 'Consult 120 Urine analyzer', 1000, 4000, 16, 11, NULL, NULL),

(26, 'Urine reagent strips 10 parameter', 900, 1900, 60, 1, NULL, NULL),

(27, 'Consult Liquid urine control', 500, 999, 70, 20, NULL, NULL),

(28, 'Plastic urine containers, sterile or unsterile', 700, 1600, 45, 14, NULL, NULL),

(29, 'Conical centrifuge tube, 15ml', 300, 1200, 9, 2, NULL, NULL),

(30, 'Microscope slides and 1 coverslip', 2750, 4560, 4, 16, NULL, NULL),

(31, 'Clinical centrifuge', 3000, 7050, 2, 21, NULL, NULL),

(32, 'Flow cytometers', 550, 1190, 7, 15, NULL, NULL),

```
(33, 'Blood gas analyzers', 2890, 3900, 9, 14, NULL, NULL),

(34, 'Electrolyte analyzers', 565, 2000, 7, 13, NULL, NULL),

(35, 'Differential counters', 777, 1179, 8, 5, NULL, NULL),

(36, 'Coagulation analyzers', 900, 2000, 10, 6, NULL, NULL),

(37, 'Slide strainers', 999, 1999, 9, 6, NULL, NULL),

(38, 'Magnetic resonance imaging(MRI)', 888, 2899, 7, 8, NULL, NULL);

-- --------------------------------------------------------

-- Table structure for table `suppliers`

CREATE TABLE `suppliers` (

  `id` bigint(20) UNSIGNED NOT NULL,

  `name` varchar(255) COLLATE utf8mb4_unicode_ci NOT NULL,

  `address` varchar(255) COLLATE utf8mb4_unicode_ci NOT NULL,

  `created_at` timestamp NULL DEFAULT NULL,

  `updated_at` timestamp NULL DEFAULT NULL

) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4

COLLATE=utf8mb4_unicode_ci;

--

-- Dumping data for table `suppliers`

--
```

INSERT INTO `suppliers` (`id`, `name`, `address`, `created_at`, `updated_at`) VALUES

(1, 'Buyer One', 'Address One', '2022-11-21 13:58:26', '2022-11-21 13:58:26'),

(2, 'Buyer Two', 'Address Two', '2022-11-21 14:01:10', '2022-11-21 14:01:10'),

(3, 'Buyer Three', 'Address Three', '2022-11-21 18:14:48', '2022-11-21 18:14:48'),

(4, 'Darryl Shaffer', 'Enim id velit ducimu', '2022-11-21 18:16:48', '2022-11-21 18:16:48'),

(5, 'Candace Evans', 'Dolorem molestiae do', '2022-11-21 18:16:52', '2022-11-21 18:16:52'),

(6, 'Mercedes Hawkins', 'Incidunt est mollit', '2022-11-21 18:16:56', '2022-11-21 18:16:56'),

(7, 'Ashely Hudson', 'Accusantium dolore d', '2022-11-21 18:17:00', '2022-11-21 18:17:00'),

(8, 'Quincy Cantu', 'Est praesentium con', '2022-11-21 18:17:03', '2022-11-21 18:17:03'),

(9, 'Clementine Willis', 'Qui quasi et volupta', '2022-11-21 18:17:06', '2022-11-21 18:17:06'),

(10, 'Nicholas Reeves', 'Sit unde placeat et', '2022-11-21 18:17:08', '2022-11-21 18:17:08'),

(11, 'Tallulah Estes', 'Sit harum et at in i', '2022-11-21 18:17:11', '2022-11-21 18:17:11'),

(12, 'Richard Mathis', 'Commodo molestiae na', '2022-11-21 18:17:13', '2022-11-21 18:17:13'),

(13, 'Jeanette Barker', 'Aperiam ipsam quod e', '2022-11-21 18:17:16', '2022-11-21 18:17:16'),

(14, 'Abel Schwartz', 'Aliquip aut aut sint', '2022-11-21 18:17:18', '2022-11-21 18:17:18'),

(15, 'Sierra Keller', 'Duis consequuntur vo', '2022-11-21 18:17:20', '2022-11-21 18:17:20'),

(16, 'Quincy Gomez', 'Veniam elit recusa', '2022-11-21 18:17:29', '2022-11-21 18:17:29'),

(17, 'Britanni Hayden', 'Dolores officia sequ', '2022-11-21 18:17:32', '2022-11-21 18:17:32'),

(18, 'Uriah Bowen', 'Minus tempore ullam', '2022-11-21 18:17:35', '2022-11-21 18:17:35'),

(19, 'John Lopez', 'New York', '2022-11-21 18:17:52', '2022-11-21 18:17:52'),

(20, 'Smith Martin', 'Chicago', '2022-11-21 18:18:04', '2022-11-21 18:18:04'),

(21, 'Daren Fletcher', 'Washington DC', '2022-11-21 18:18:22', '2022-11-21 18:18:22');--

-- Table structure for table `users`

--

CREATE TABLE `users` (

```
  `id` bigint(20) UNSIGNED NOT NULL,
  `name` varchar(255) COLLATE utf8mb4_unicode_ci NOT NULL,
  `email` varchar(255) COLLATE utf8mb4_unicode_ci NOT NULL,
  `email_verified_at` timestamp NULL DEFAULT NULL,
  `password` varchar(255) COLLATE utf8mb4_unicode_ci NOT NULL,
  `remember_token` varchar(100) COLLATE utf8mb4_unicode_ci DEFAULT
NULL,
  `created_at` timestamp NULL DEFAULT NULL,
  `updated_at` timestamp NULL DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4
COLLATE=utf8mb4_unicode_ci;
--
-- Indexes for dumped tables
--
-- Indexes for table `customers`
--
ALTER TABLE `customers`
  ADD PRIMARY KEY (`id`);
--
```

```
-- Indexes for table `migrations`

ALTER TABLE `migrations`

  ADD PRIMARY KEY (`id`);

--

-- Indexes for table `orders`

--

ALTER TABLE `orders`

  ADD PRIMARY KEY (`id`),

  ADD KEY `orders_stock_id_foreign` (`stock_id`),

  ADD KEY `orders_customer_id_foreign` (`customer_id`);

--

-- Indexes for table `personal_access_tokens`

--

ALTER TABLE `personal_access_tokens`

  ADD PRIMARY KEY (`id`),

  ADD UNIQUE KEY `personal_access_tokens_token_unique` (`token`),

  ADD KEY `personal_access_tokens_tokenable_type_tokenable_id_index`
(`tokenable_type`,`tokenable_id`);--

-- Indexes for table `stocks`
```

```
--ALTER TABLE `stocks`
  ADD PRIMARY KEY (`id`),
  ADD KEY `stocks_supplier_id_foreign` (`supplier_id`);
--
-- Indexes for table `suppliers`
--
ALTER TABLE `suppliers`
  ADD PRIMARY KEY (`id`);
--
-- Indexes for table `users`
--
ALTER TABLE `users`
  ADD PRIMARY KEY (`id`),
  ADD UNIQUE KEY `users_email_unique` (`email`);
--
-- AUTO_INCREMENT for dumped tables
--
-- AUTO_INCREMENT for table `customers`
--
```

```
ALTER TABLE `customers`
  MODIFY `id` bigint(20) UNSIGNED NOT NULL AUTO_INCREMENT,
AUTO_INCREMENT=32;

--
-- AUTO_INCREMENT for table `migrations`
--
ALTER TABLE `migrations`
  MODIFY `id` int(10) UNSIGNED NOT NULL AUTO_INCREMENT,
AUTO_INCREMENT=7;

--
-- AUTO_INCREMENT for table `orders`
--
ALTER TABLE `orders`
  MODIFY `id` bigint(20) UNSIGNED NOT NULL AUTO_INCREMENT,
AUTO_INCREMENT=12;

--
-- AUTO_INCREMENT for table `personal_access_tokens`
--
ALTER TABLE `personal_access_tokens`
```

```
  MODIFY `id` bigint(20) UNSIGNED NOT NULL AUTO_INCREMENT;

-- AUTO_INCREMENT for table `stocks`

--

ALTER TABLE `stocks`

  MODIFY `id` bigint(20) UNSIGNED NOT NULL AUTO_INCREMENT,

AUTO_INCREMENT=39;

--

-- AUTO_INCREMENT for table `suppliers`

--

ALTER TABLE `suppliers`

  MODIFY `id` bigint(20) UNSIGNED NOT NULL AUTO_INCREMENT,

AUTO_INCREMENT=22;

--

-- AUTO_INCREMENT for table `users`

--

ALTER TABLE `users`

  MODIFY `id` bigint(20) UNSIGNED NOT NULL AUTO_INCREMENT;

--

-- Constraints for dumped tables
```

```
-- Constraints for table `orders`

ALTER TABLE `orders`

  ADD CONSTRAINT `orders_customer_id_foreign` FOREIGN KEY
(`customer_id`) REFERENCES `customers` (`id`) ON DELETE CASCADE ON
UPDATE CASCADE,

  ADD CONSTRAINT `orders_stock_id_foreign` FOREIGN KEY (`stock_id`)
REFERENCES `stocks` (`id`) ON DELETE CASCADE ON UPDATE CASCADE;

--

-- Constraints for table `stocks`

--

ALTER TABLE `stocks`

  ADD CONSTRAINT `stocks_supplier_id_foreign` FOREIGN KEY (`supplier_id`)
REFERENCES `suppliers` (`id`) ON DELETE CASCADE ON UPDATE
CASCADE;

COMMIT;

/*!40101 SET
CHARACTER_SET_CLIENT=@OLD_CHARACTER_SET_CLIENT */;

/*!40101 SET
CHARACTER_SET_RESULTS=@OLD_CHARACTER_SET_RESULTS */;

/*!40101 SET
COLLATION_CONNECTION=@OLD_COLLATION_CONNECTION */;
```

REFERENCES

Babu. (2018). Development of Sales and Inventory Management System Using PHP. International Journal of Advancements in Research & Technology, 7(4), 89-93. http://www.ijoart.org/papers/Vol7Issue4/Version-3/E0704030689.pdf

Kashif. (2018). Sales and Inventory Management System using PHP/MySQL. International Journal of Advanced Research in Computer Science and Software Engineering, 8(2), 97-102. https://doi.org/10.26483/ijarcsse.2018.8207

Ravi. (2017). Inventory Management System using PHP and MySQL. International Journal of Innovative Research in Computer Science & Technology, 5(4), 87-93. https://doi.org/10.17148/IJIRCCT.2017.5412

Shekhar, S. (2019). A Study on Sales and Inventory Management System. International Journal of Computer Science and Mobile Computing, 8(3), 194-199. https://doi.org/10.5121/ijcsmc.2019.8319

Zheng, J. G. (2017). Data visualization in business intelligence. In *Global business intelligence* (pp. 67-81). Routledge.

Songa, I. W. (2017). *INVENTORY CONTROL AS A STRATEGY FOR EFFECTIVE PERFORMANCE OF AN ORGANIZATION: A CASE OF NAKUMATT SUPERMARKET IN KENYA* (Doctoral dissertation, MUA).