

**AN INTERNET BASED AUTOMATED PRODUCTION MANAGEMENT SYSTEM**

**BY**

**MD. ABU RAUSHON HELALY**

**ID: 121-25-236**

This Report Presented in Partial Fulfillment of the Requirements for the Degree of Masters of  
Science in Computer Science and Engineering

Supervised By

**Professor Dr. Md. Ismail Jabiullah**

Department of Computer Science and Engineering  
Daffodil International University



**DAFFODIL INTERNATIONAL UNIVERSITY**

**DHAKA, BANGLADESH**

**NOVEMBER 2018**

## **APPROVAL**

This Project titled “**An Internet Based Automated Production Management System**”, submitted by Md. Abu Raushon Helaly to the Department of CSE, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of M.Sc. in CSE and approved as to its style and contents. The presentation has been held on November 25, 2018.

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---

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**Internal Examiner**

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**Dr. Mohammad Shorif Uddin**  
**Professor**

Department of Computer Science and Engineering  
Jahangirnagar University

**External Examiner**

## DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Professor Dr. Md. Ismail Jabiullah** Department of Computer Science and Engineering, Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

**Supervised by:**

---

**Professor Dr. Md. Ismail Jabiullah**  
Department of Computer Science and Engineering  
Faculty of Science & Information Technology  
Daffodil International University

**Submitted by:**

---

**Md. Abu Raushon Helaly**  
Student ID: -112-25-202  
M.Sc. in CSE Program  
Department of Computer Science and Engineering  
Faculty of Science & Information Technology  
Daffodil International University

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## **ABSTRACT**

An internet based automated production management system based shopping system has been implemented that permits a customer to submit online orders for items and/or services from a store that serves both walk-in customers and online customers. The online shopping system presents an online display of an order cut off time and an associated delivery window for items selected by the customer. The system accepts the customer's submission of a purchase order for the item in response to a time of submission being before the order cut off time. The online shopping system does not settle with a credit supplier of the customer until the item selected by the customer is picked from inventory but before it is delivered. This project titled “An Internet Based Automated Production Management System” provides detailed information about various products in different categories and deals with the customer by making an agreement. This system is an automated web based application system that provides the advantages such as saving the time, facilitating to buy product at anytime from anywhere. The administrator can update their products through database and maintain relationship with customers by sending information about new products and different types of offers through email at any time.

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# Chapter 1 : Introduction

## 1.1 Introduction

The web technology is one of the most revolutionary technologies that changes the business environment and has a dramatic impact on the future of electronic commerce. The feature of “**An Internet Based Automated Production Management System**” will accelerate the shift of the power toward the users, which will lead to functional changes in the way companies relate to their clients and compete with one another. More and more companies set up their own corporate LANs by Intranet; apply Extranet and Internet to work collaboratively with their clients, Vendors, and partners.

**An Internet Based Automated Production Management System** is defined as Supplier’s Information, Client’s Information, SR Information, Products List (Raw and Produced), Purchase, return to, Consumption, Produce Products, Inventory (Raw and Produce), Damage Products, Order Received, Sales, return from, Payable/Receivable Due, Payment Made/Received, Bank Transaction and Expenditure. As the fastest growing manufacturing company Web Based Production Management System offers functionality and new ways of doing business that no company can afford to ignore. The benefits include cost saving, information consistency, better client and supplier relationship, competitive advantages, and convenience of doing business.

## 1.2 Objectives

Main objective for this project are as follows: -

- To learn and adapt the programming languages used in the development of this software.
- To provide support on this software so that other student programmers can learn, create and integrate modules to this software.
- To learn how to run and maintain a Web Based Production Management System so that we can perform in the job sector regarding these situations.

### 1.3 Features

Features of the project comparing with manual system:

<b>Features</b>	<b>Manual System</b>	<b>Computerized Automated System</b>
Suppliers Information	Manual, not organized	Organized Database
Clients Information	Manual, not organized	Organized Database
SR Information	Manual, not organized	Organized Database
Products List (Raw & Produce)	Scattered List	Stored in database
Purchase	Manual ledger	Structured Form based
Return To	Manual ledger	Organized Database
Consumption	Manual record, not organized	Stored in database
Produce	Manual record, not organized	Stored in database
Inventory (Raw & Produce)	Requires counting	Stored in database
Damage	No record	Stored in database
Order Received	Paper-based, not organized	Structured Form based
Sales	Manual ledger	Stored in database
Return From	No record	Stored in database
Payable Due	Manual ledger	Stored in database
Payment Made	Manual ledger	Stored in database
Receivable Due	Manual ledger	Stored in database
Payment Received	Manual ledger	Stored in database
Bank Transaction	Manual ledger	Stored in database
Expenditure	Manual ledger	Stored in database
User Authentication	Not available	ID, Password
Reports	Time consuming	Automated, retreat from database

## 1.4 Scope of the Work

The context diagram of the project works is depicted below:

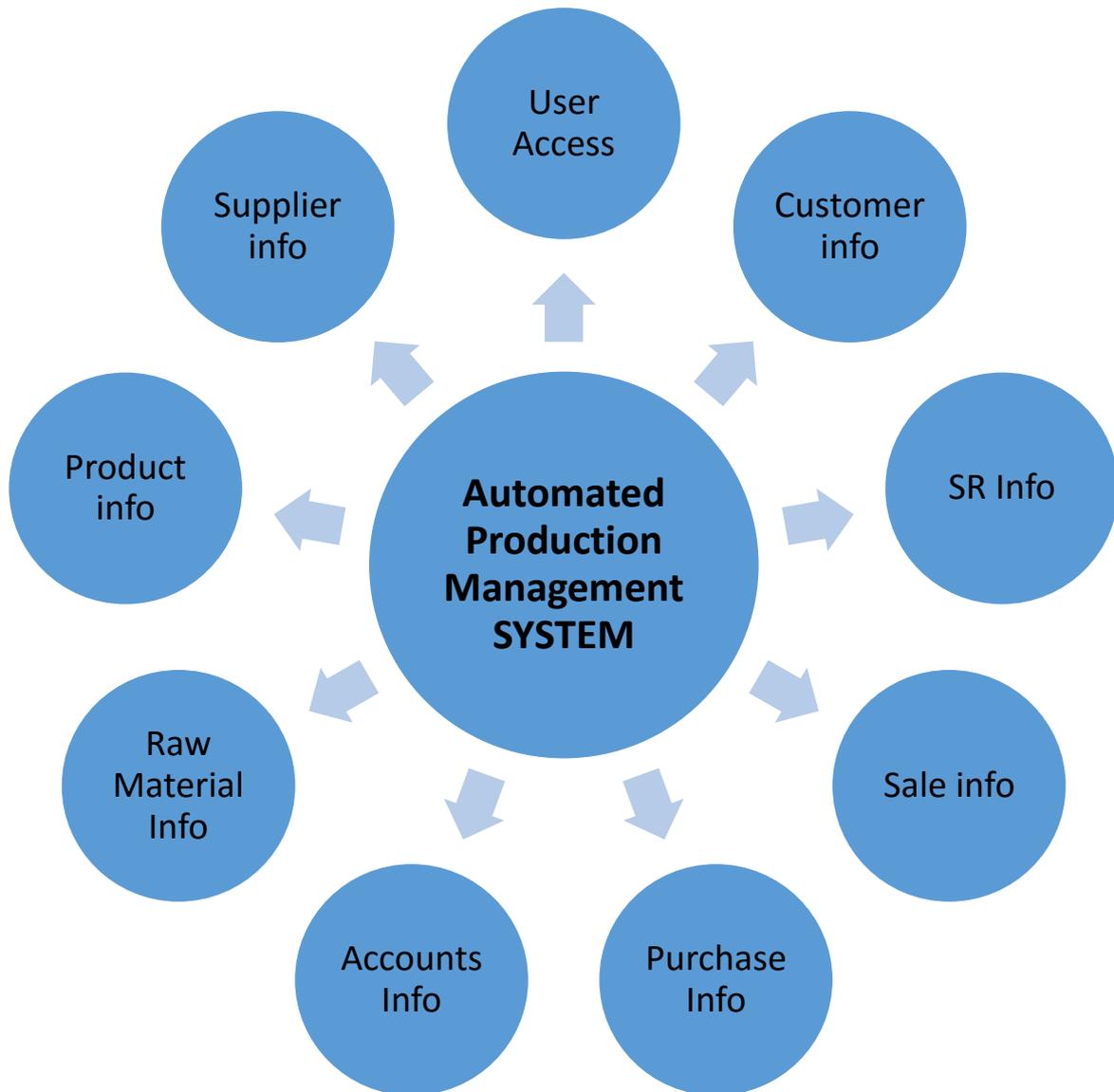


Figure 1.1: Context Diagram

## **1.5 Organization of the Project**

The Organization of this project is arranged in 10 chapters including Introduction and Conclusions. The Chapter 2 contains: Research and reviews of different relevant projects, overview of the project and summary includes the research and reviews (Case study) as well as the overview of this Project, while the Chapter 3 contains: introduction, architectural design, interface design, software process model, data flow diagram, database design, schema diagram, data dictionary and summary covers all the technical aspects of the development of a (Project Management System)PMS including – the System architecture, the Lifecycle Model, the Process Model, ERD, DFD, the Database design, Data Dictionary etc. Chapter 4 contains: development and implementation tools, analysis and summary deals with the Implementation and Analysis of the Project. Next, Chapter 5 contains: input (forms) and output (inserted data) and summary demonstrates the Inputs (Forms) and Outputs (Inserted Data) and the Chapter 6 contains: report format shows the Reporting formats. After that, the Chapter 7 contains: findings, comparative analysis and summary focuses on Findings and Comparative Analysis including some indication of Future development works. And finally the document ends with the Summary and Conclusion in Chapter 8 contains: conclusion and future work followed by the References in Chapter 9 contains: References.

## **1.6 Summary**

In this chapter the features of Automated Production Management System with internet based facilities containing objectives, features and scope of the works. have been identified and the scope of the Project has also been defined.

## Chapter 2 : Review Works

### 2.1 Introduction

In order to understand the scope and the opportunity of the project, several documents and systems have been studied and reviewed. Some of the important articles are cited and compared here with the proposed system.

### 2.2 Research and Reviews of Different Relevant Projects

#### Review 1: Development of inventory management system for a manufacturing Industry.

by *Sushil Kumar Choudhary, Niraj Gupta*

*IOSR Journal of Mechanical and Civil Engineering (IOSR-JMCE)* e-ISSN: 2278-1684, p-ISSN: 2320-334X, Volume 11, Issue 6 Ver. VI (Nov- Dec. 2014), PP 19-29  
[www.iosrjournals.org](http://www.iosrjournals.org)

Enterprise Resource Planning (ERP) is the last state of a system that has been released in 1960's, which have been called Material Requirements Planning (MRP). The main aim of MRP systems was calculating the material requirements according to time stamps with the help of computerized systems.

New generation systems have sought to address these short-comings in a variety of ways. Also, while early generation ERP systems were found mainly in large organizations, newer systems are now being targeted at small and medium enterprises as means of expanding the ERP market.

URL: [https://www.researchgate.net/profile/Sushil\\_Choudhary5/publication/299616851\\_Developed\\_the\\_Inventory\\_Management\\_System\\_for\\_ERP\\_Implementing\\_in\\_Manufacturing\\_Industry/links/5703396f08aea09bb1a30e26/Developed-the-Inventory-Management-System-for-ERP-Implementing-in-Manufacturing-Industry.pdf](https://www.researchgate.net/profile/Sushil_Choudhary5/publication/299616851_Developed_the_Inventory_Management_System_for_ERP_Implementing_in_Manufacturing_Industry/links/5703396f08aea09bb1a30e26/Developed-the-Inventory-Management-System-for-ERP-Implementing-in-Manufacturing-Industry.pdf)

## **Review 2: Computerized inventory management for a manufacturing industry: A case study in Nigeria**

By *Emmanuel SeyeOwoeye, Samuel BabatopeAdejuyigbe, BukolaOlalekan Bolaji1 and A.F. Adekoya*

*African Journal of Science, Technology, Innovation and Development*, 2014  
Vol. 6, No. 4, 275—279, <http://dx.doi.org/10.1080/20421338.2014.947195>  
© 2014 African Journal of Science, Technology, Innovation and Development

Over the years, inventory managers have been faced with the questions of how to monitor the inventory, how much should be ordered and when orders should be placed. This has led to the development of various models aimed at providing viable answers to the questions of inventory managers.

URL:

[https://www.researchgate.net/profile/Bo\\_Bolaji/publication/270759414\\_Computerised\\_Inventory\\_Management\\_for\\_a\\_Manufacturing\\_Industry\\_A\\_case\\_Study\\_in\\_Nigeria/links/54b401a50cf2318f0f96a9ae/Computerised-Inventory-Management-for-a-Manufacturing-Industry-A-case-Study-in-Nigeria.pdf](https://www.researchgate.net/profile/Bo_Bolaji/publication/270759414_Computerised_Inventory_Management_for_a_Manufacturing_Industry_A_case_Study_in_Nigeria/links/54b401a50cf2318f0f96a9ae/Computerised-Inventory-Management-for-a-Manufacturing-Industry-A-case-Study-in-Nigeria.pdf)

## **Review 3: A Case Study of Inventory Management in a Manufacturing Company in China**

*Hong Shen, Qiang Deng, Rebecca Lao, Simon Wu University of Macau, Macau*  
10.1515/nybj-2017-0003  
Published online: 26 April 2017  
© Nang Yan Business Journal 2017

Inventory management is the main factor in supply chain management. It involves a balance between customer service, or product availability, and the cost of inventory (Ballou, 1998). The concept that high inventories are wasteful has been widely accepted (Christopher, 2016), and firms now concentrate on improving inventory efficiency.

URL:

[https://www.researchgate.net/publication/318190332\\_A\\_Case\\_Study\\_of\\_Inventory\\_Management\\_in\\_a\\_Manufacturing\\_Company\\_in\\_China/fulltext/595c1d3baca272f3c0889773/318190332\\_A\\_Case\\_Study\\_of\\_Inventory\\_Management\\_in\\_a\\_Manufacturing\\_Company\\_in\\_China.pdf?origin=publication\\_detail](https://www.researchgate.net/publication/318190332_A_Case_Study_of_Inventory_Management_in_a_Manufacturing_Company_in_China/fulltext/595c1d3baca272f3c0889773/318190332_A_Case_Study_of_Inventory_Management_in_a_Manufacturing_Company_in_China.pdf?origin=publication_detail)

#### **Review 4: Inventory Management – Manufacturing/Services**

Downloaded on November 2018

*Women's Enterprise Centre On-Line Resource Library*

*www.womensenterprise.ca*

The primary concern of inventory management is to maintain raw material and finished goods inventories at levels that are not too low as to result in lost sales or costly production delays or too high as to tie up capital and space. Such a tie-up of capital can lead to excessive borrowing, unnecessary interest expense, and inability to purchase other more necessary items.

URL:

<https://www.womensenterprise.ca/wp-content/uploads/2017/04/Inventory20Management20-20Manufacturing.pdf>

#### **Review 5: The Impact of Inventory Management on Stock-Outs of Essential Drugs in Sub-Saharan Africa: Secondary Analysis of a Field Experiment in Zambia**

*By Ngai-Hang Z. Leung, Ana Chen, Prashant Yadav, Jérémie Gallien*

Citation: Leung N-HZ, Chen A, Yadav P, Gallien J (2016) The Impact of Inventory Management on Stock-Outs of Essential Drugs in Sub-Saharan Africa: Secondary Analysis of a Field Experiment in Zambia. *PLoS ONE* 11(5): e0156026. doi:10.1371/journal.pone.0156026 Editor: Joshua Yukich, Tulane University School of Public Health and Tropical Medicine, UNITED STATES Received: April 3, 2015 Accepted: May 9, 2016 Published: May 26, 2016 Copyright: © 2016 Leung et al. This is an open access article distributed under the terms of the Creative Commons Attribution License.

Stock-outs of essential medicines at the clinic level are an important and widely acknowledged public health problem in sub-Saharan Africa (SSA) with a recognized negative impact on morbidity, mortality and disease epidemiology. Many possible causes have been cited, including procurement financing and processes, supply capacity, communication and road infrastructure, distribution resources and planning methods, personnel staffing and training, coordination among stakeholders. Reported related interventions include technical or managerial training, visibility of stock levels with SMS messaging, re-organization of distribution activities, supply-chain structure, and others.

URL:

<https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0156026&type=printable>

The summary of the review works is identified and presented summarized in following table.

Document/Paper/Article	Security / Accessibility	Structure of Information	Time consumption	Paperwork	Consistency
Review 1:	✓	✓	✓	✗	✗
Review 2:	✓	✓	✗	✗	✓
Review 3:	✓	✗	✓	✓	✗
Review 4:	✓	✗	✓	✓	✓
Review 5:	✓	✓	✗	✓	✗
Automated PMS	✓	✓	✓	✓	✓

## 2.3 Overview of the Project

The basics of web programming, the standards of web development, the logical sequence and MVC (Model View and Controller) development tools using the diagrams along with their descriptions have been studied, realized and analyzed before their implementations in this work.

First of all, it is tried to find out the answers of the following identified questions to develop an automated production management system.

- How web developers work as a team?
- How to build an effective web based software?
- Which things are necessary to create a secure infrastructure of software?
- Which architectural design is suitable for our projects and why?
- Who will be benefited from our project?
- What will be the life cycle of our project?
- Will there any further development or future plan for our project?
- Will it help and guide students to learn something useful from our project?

To find out information about our topic and to learn the answers to our research questions, we read analyzed and justified various websites as well discuss our supervisor and other web developers to get a better overview and focus on the MVC design pattern.

Our supervisor provided guidelines and we collected copies of reference documents related to numerous projects available in our university library. We also browse the internet for additional information regarding design, development and programming. We have completed this research on this particular project on our own. Because our team consists of three members and we divided our works into three parts and these parts are:

- Design and Documenting
- Testing and Research
- Coding and Implementation

We have written brief paragraphs and captions to explain our charts and other information. A list of this sources we used during development is at the end of this documentation in “References” section.

## **2.4 Summary**

In this Chapter, several documents and systems of automated production management system have been studied and reviewed in order to understand the scope and the opportunity of the project. And some of the important articles are cited and compared here with the proposed system as well.

## Chapter 3 : Project Management System

### 3.1 Introduction

To design software and deal with the issues raised previously experienced and design methodologies, a designer must use a variety of techniques to achieve particular effects. These techniques relate to information-shaping skills to meet users' needs. Like many aspects of web development, design techniques, are an art in them, and having a good repertoire of these increase the value of a web designer.

### 3.2 Architectural Design

Software architecture is a description of the subsystems and component of a software system and the relationships between them.

Architectural Diagram of Web Based Production Management System.

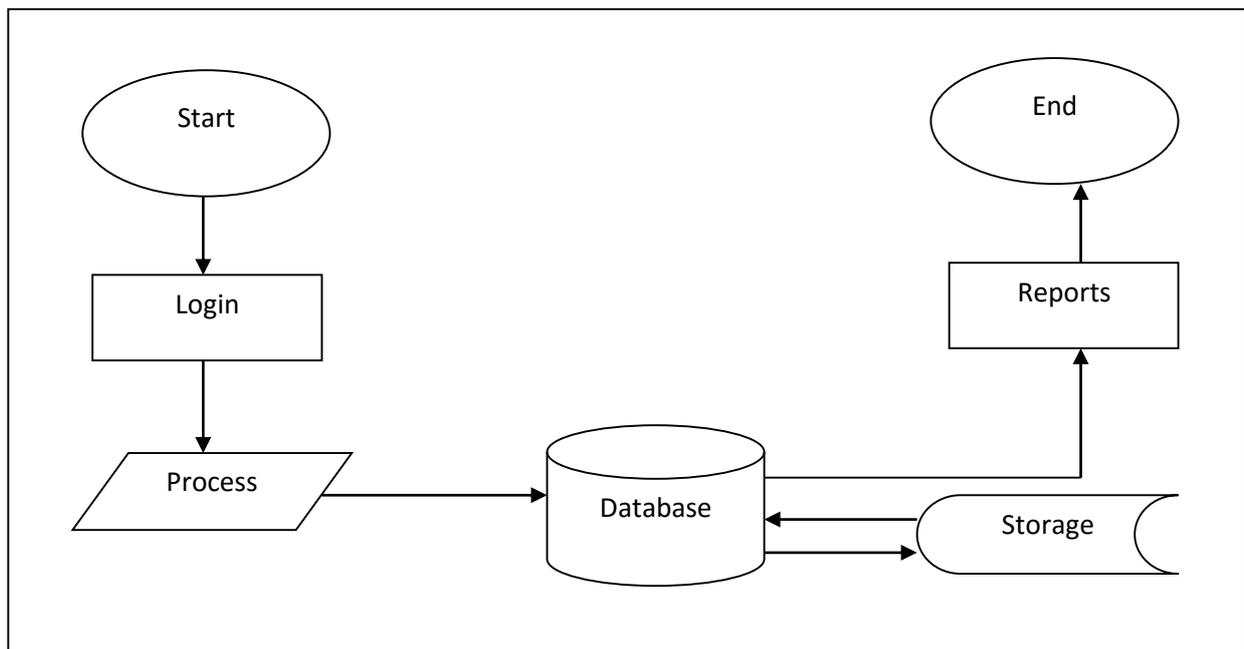


Figure 3.1: Architectural Diagram

User job is login this system, when user is valid then “Process” will be count and store the database.

### 3.3 Interface Design

#### **The Elements of Interface Design:**

Interface design encompasses three distinct, but related constructs – usability, visualization, and functionality (Vertelney, Arent, and Lieberman, 1990). Recently, a fourth component of interface design has emerged as critical factor-accessibility. Interface design is most often associated with the development of web pages, computer software, and multimedia, but is relevant to the creation of any instructional media or technical equipment.

#### **Usability:**

Refers to how intuitively or easily our media item is navigated and processed and they are flow, sequence, instructions, download time. Note, this construct is the most inclusive of the three and is influenced by both visualization and functionality.

- Planning your presentation (flow, navigation)
- Navigation samples
- About Scaffolding
- Heuristic Evaluation

#### **Visualization:**

Is creating visually interesting and aesthetically pleasing media items while avoiding potentially distracting or unnecessary “bell and whistles.”

- About visuals and icon
- About text
- Working with color
- Screen design and layout

#### **Functionality:**

Refers to the features of your media item and how useful they are for supporting a given task, e.g. interactive, drill and practice quizzes, site maps, frequently asked questions, search engines

- Type of tools

**Accessibility:**

Is an emerging web interface design topic; if not addressed, it will negatively influence web site usability for users with certain disabilities; tools that help users access your site in alternative formats e.g. text, aural, visual provide for increased functionality.

- Access VT- Accessible Web Design
- Assistive Technologies at Virginia Tech
- Web Accessibility

Interface of Web Based Production Management System.

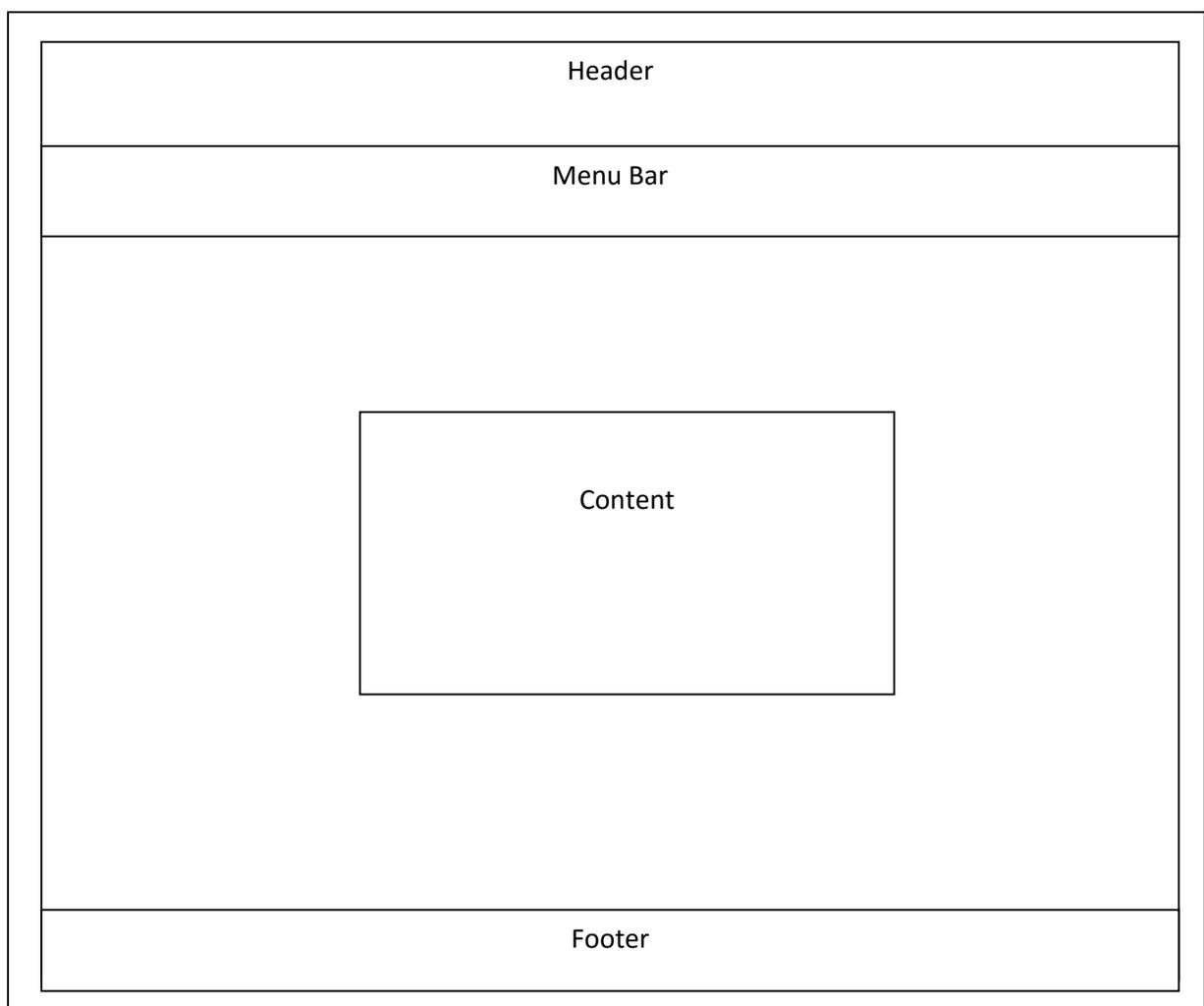


Figure 3.2: Interface of Web Based Production Management System

### 3.4 Software Process Model

Software process: organizing a structured set of activities to develop software systems. Many different software processes but all involve the following activities:

- **Specification**

Defining what the system should do;

- **Design and Implementation**

Defining the organization of the system and implementing the system;

- **Validation**

Checking that it does what the client wants;

- **Evolution**

Changing the system in response to changing client needs.

#### **Waterfall Model:**

There exist various software development approaches, aptly defined and designed, which are employed during the development process of software. These approaches are also referred to as “Software Development Process Model”. Each process model follows a particular life cycle in order to ensure success in the process of software development.

One such approach used in software development is “The Waterfall Model”. Waterfall approach was first a “Process Model” to be introduced and followed widely in software engineering to ensure success of the project. In the waterfall approach, the whole process of software development is divided into separate phase. These phases in the model are:

- Requirement Gathering and Analysis
- System Design
- Implementation
- Testing
- Deployment of System
- Maintenance

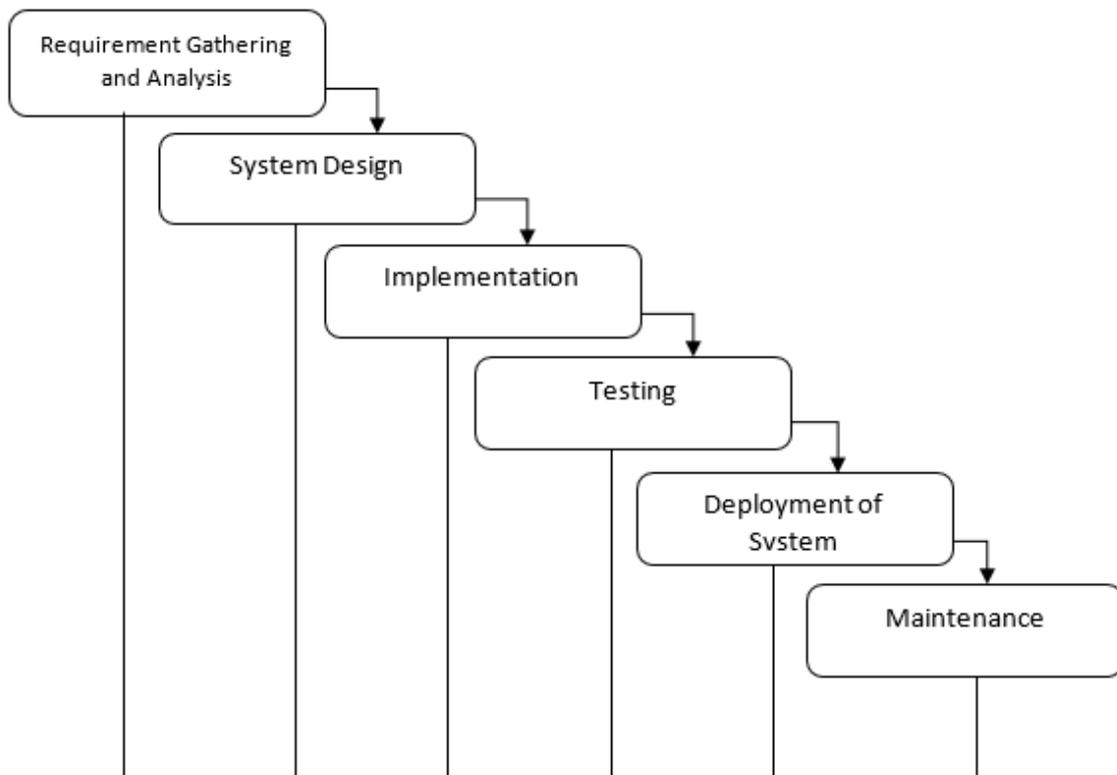


Figure 3.3: General Overview of Waterfall Model

### Stages of the Waterfall Model Explained

#### Requirement Analysis and Definition:

All possible requirements of the system to be developed are stated in this phase. Requirements are a set of functions and constraints that the end user expects from the system. The requirements are gathered from the end user, and are analyzed for their validity and the possibility of incorporating them. Finally, a requirement specification document is created which serves the purpose of a guideline for the next phase of the model.

#### System and Software Design:

Before starting the actual coding phase, it is highly important to understand the requirements of the end user and also have an idea of how the end product should look like. The requirement specifications from the first phase are studied here, and a system design is prepared. The design helps in specifying hardware and system requirements, and also helps in defining the overall system architecture. The system design specifications serve as an input for the next phase of the model.

**Implementation and Unit Testing:**

On receiving system design documents, the work is divided in modules/units and actual coding starts. The system is first elaborated into small programs called units, which are integrated in the next phase. Each unit is developed and tested for its functionality; this is referred to as unit testing. Unit testing mainly verifies if the modules/units meet their specifications.

**Integration and System Testing:**

The units are now integrated to form a complete system during the integration phase and tested to check if all modules/units coordinate with each other, and the system as a whole behaves as per the specifications. After successfully testing the software, it is delivered to the customer.

**Installation and Deployment:**

The software is now applied by the customer to his/her own system(s). What the passenger needs to take care of is his own system complying with the minimum system requirements of the software. He also needs to take care of any system configurations and reconfigurations on his side of the deal. Once the software is properly installed, he will begin communication with the dealers on a need-to-know basis, and help report any bugs that occur.

**Operations & Maintenance:**

This phase of the model is virtually never-ending. Generally, problems with the system which are not found during the development cycle come up after its practical use starts, so the issues related to the system are solved after its deployment. Not all the problems come into picture directly, but they arise from time to time and need to be solved; hence this process is referred to as maintenance, even though it's still pretty much in the testing phase.

**Advantages of waterfall model:**

- Simple and easy to understand and use.
- Easy to manage due to the rigidity of the model – each phase has specific deliverables and a review process.
- Phases are processed and completed one at a time.
- Works well for smaller projects where requirements are very well understood.

### Disadvantages of waterfall model:

- Once an application is in the testing stage, it is very difficult to go back and change something that was not well-thought out in the concept stage.
- No working software is produced until late during the life cycle.
- High amounts of risk and uncertainty.
- Not a good model for complex and object-oriented projects.
- Poor model for long and ongoing projects.
- Not suitable for the projects where requirements are at a moderate to high risk of changing.

### Entity of Web Based Production Management System

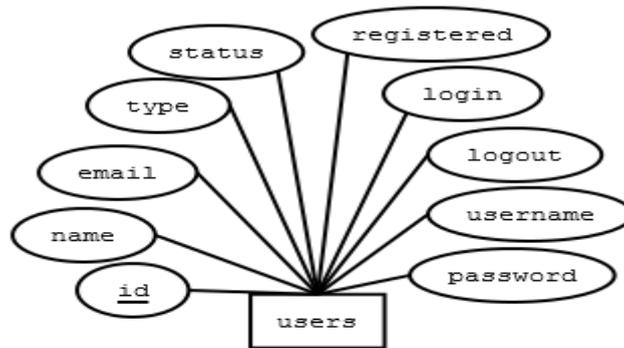


Figure 3.4: Attributes of users

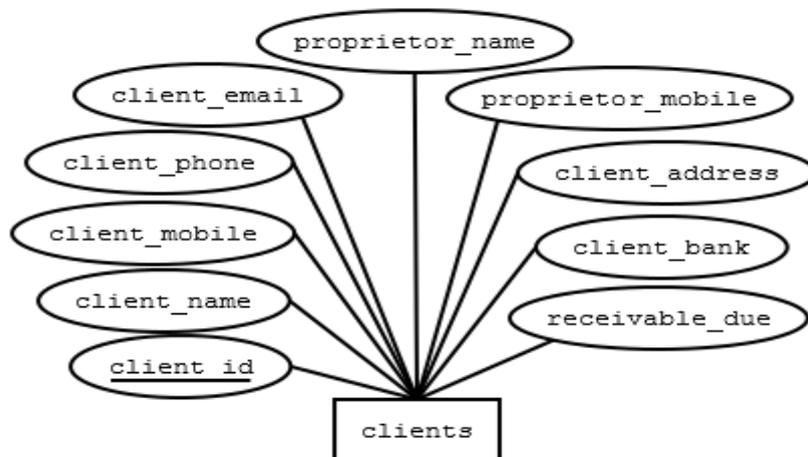


Figure 3.5: Attributes of clients

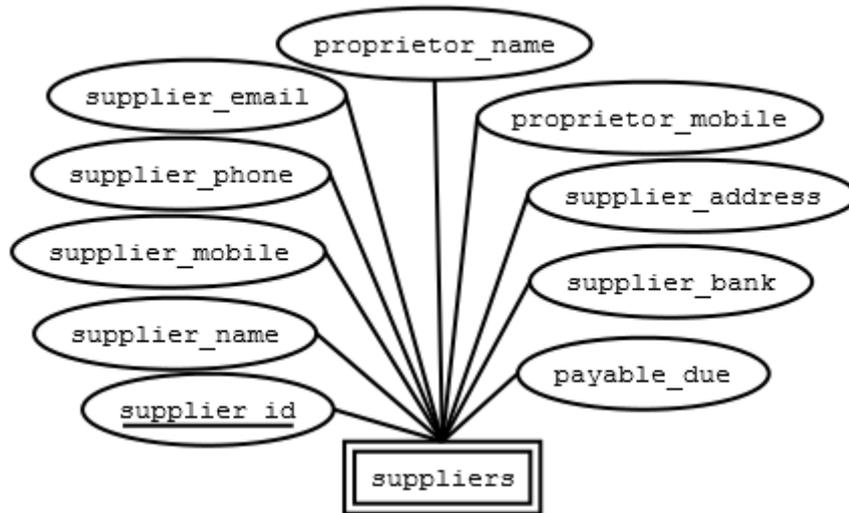


Figure 3.6: Attributes of suppliers

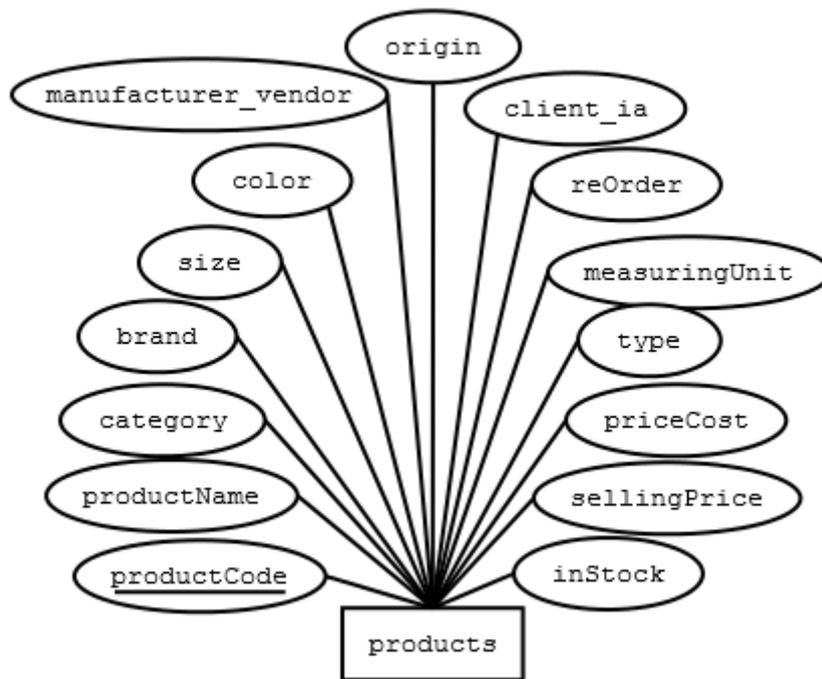


Figure 3.7: Attributes of Products

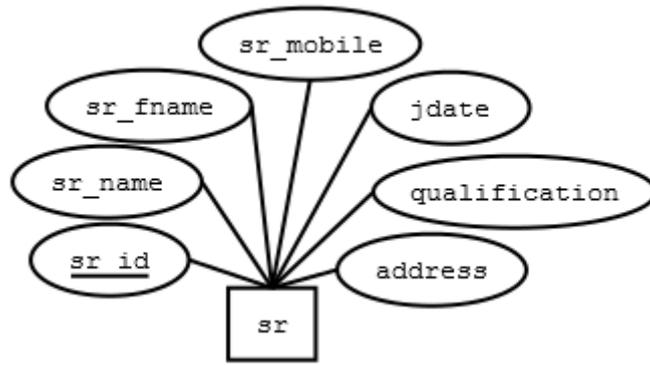


Figure 3.8: Attributes of Sales Representative (SR)

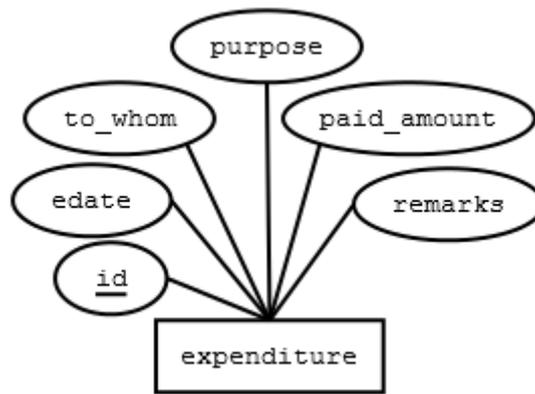


Figure 3.9: Attributes of Expenditure

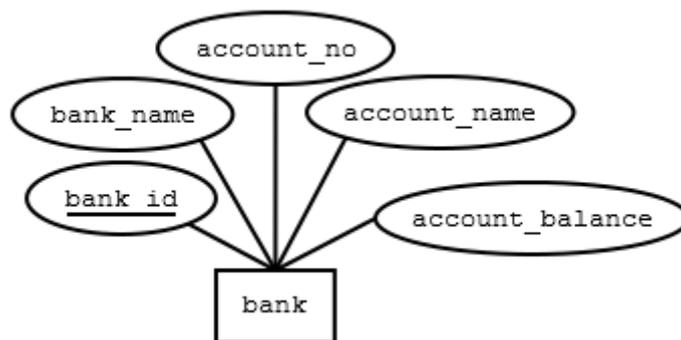


Figure 3.10: Attributes of bank

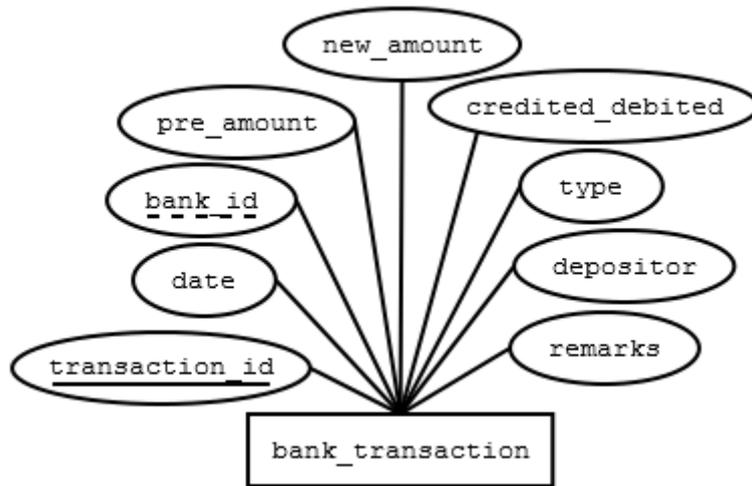


Figure 3.11: Attributes of bank transaction

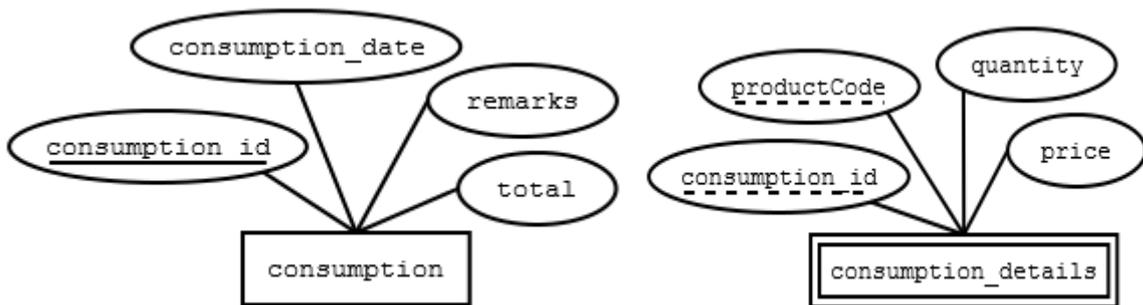


Figure 3.12: Attributes of consumption

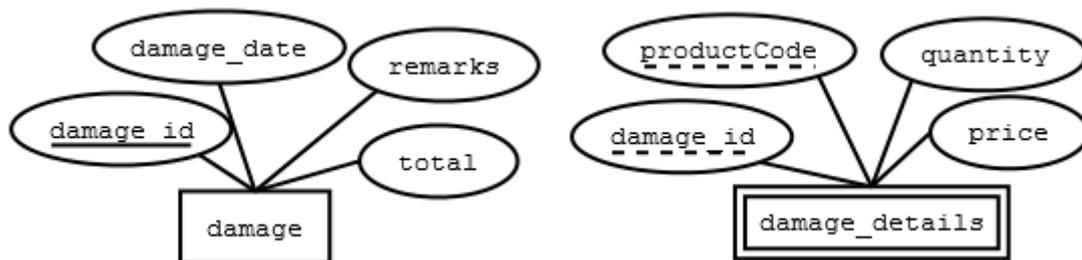


Figure 3.13: Attributes of damage

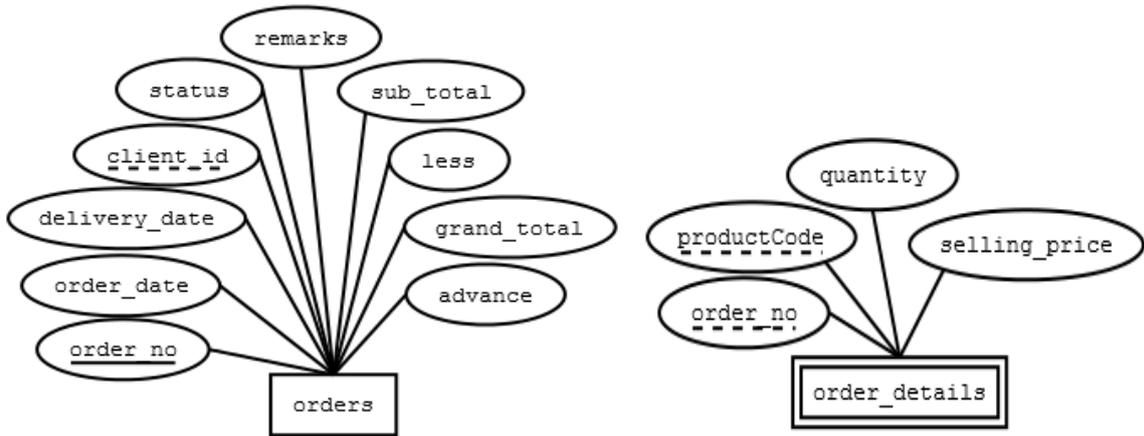


Figure 3.14: Attributes of orders

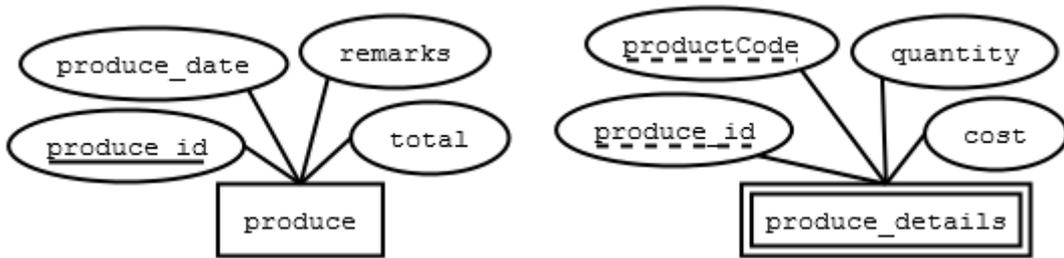


Figure 3.15: Attributes of produce

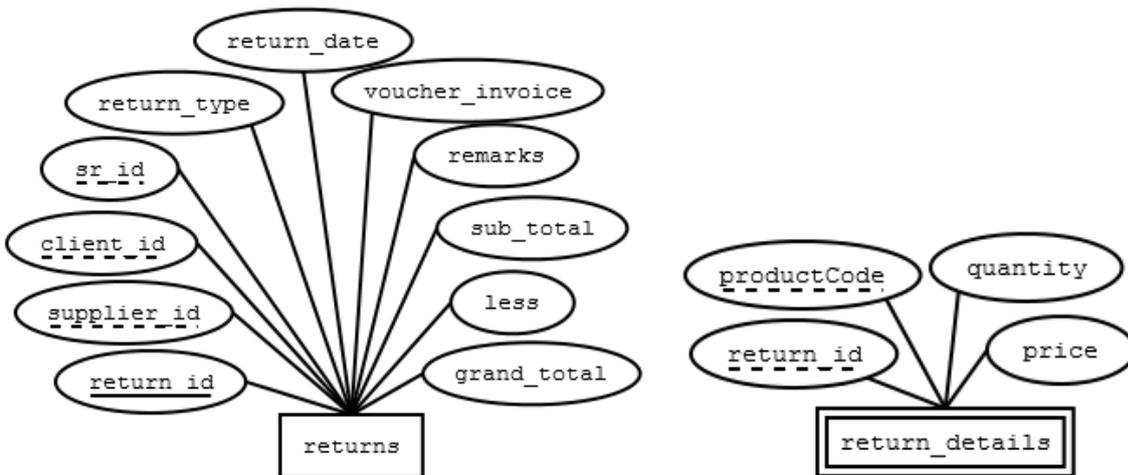


Figure 3.16: Attributes of returns

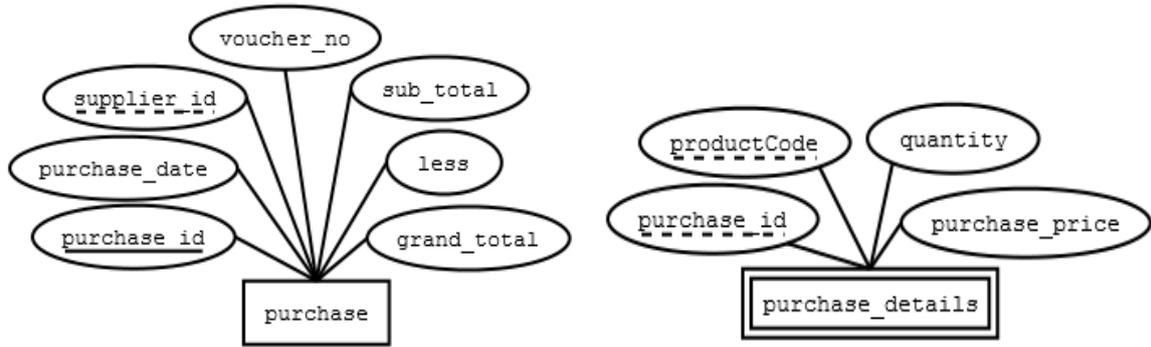


Figure 3.17: Attributes of purchase

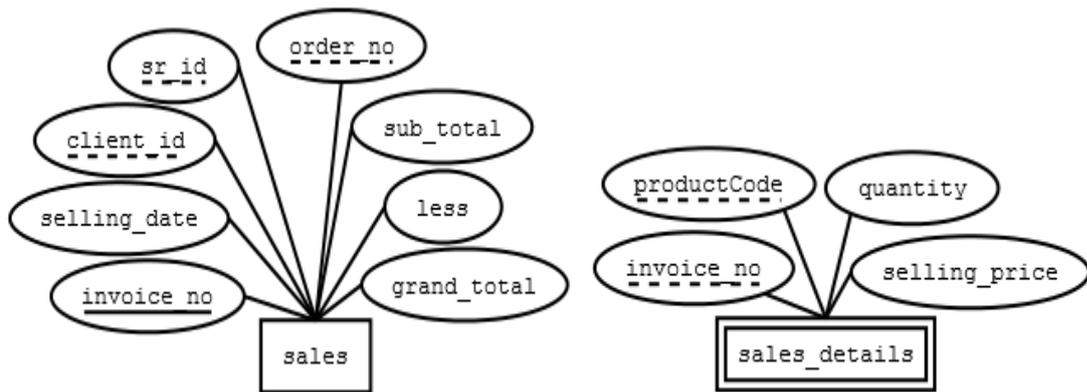


Figure 3.18: Attributes of sales

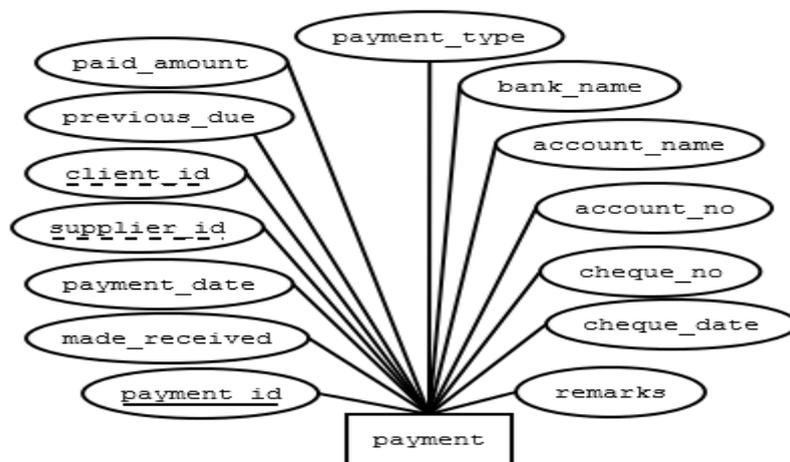


Figure 3.19: Attributes of payment

## Entity Relationship Diagram

The entity relationship diagram of the proposed system has been designed, developed and presented below.

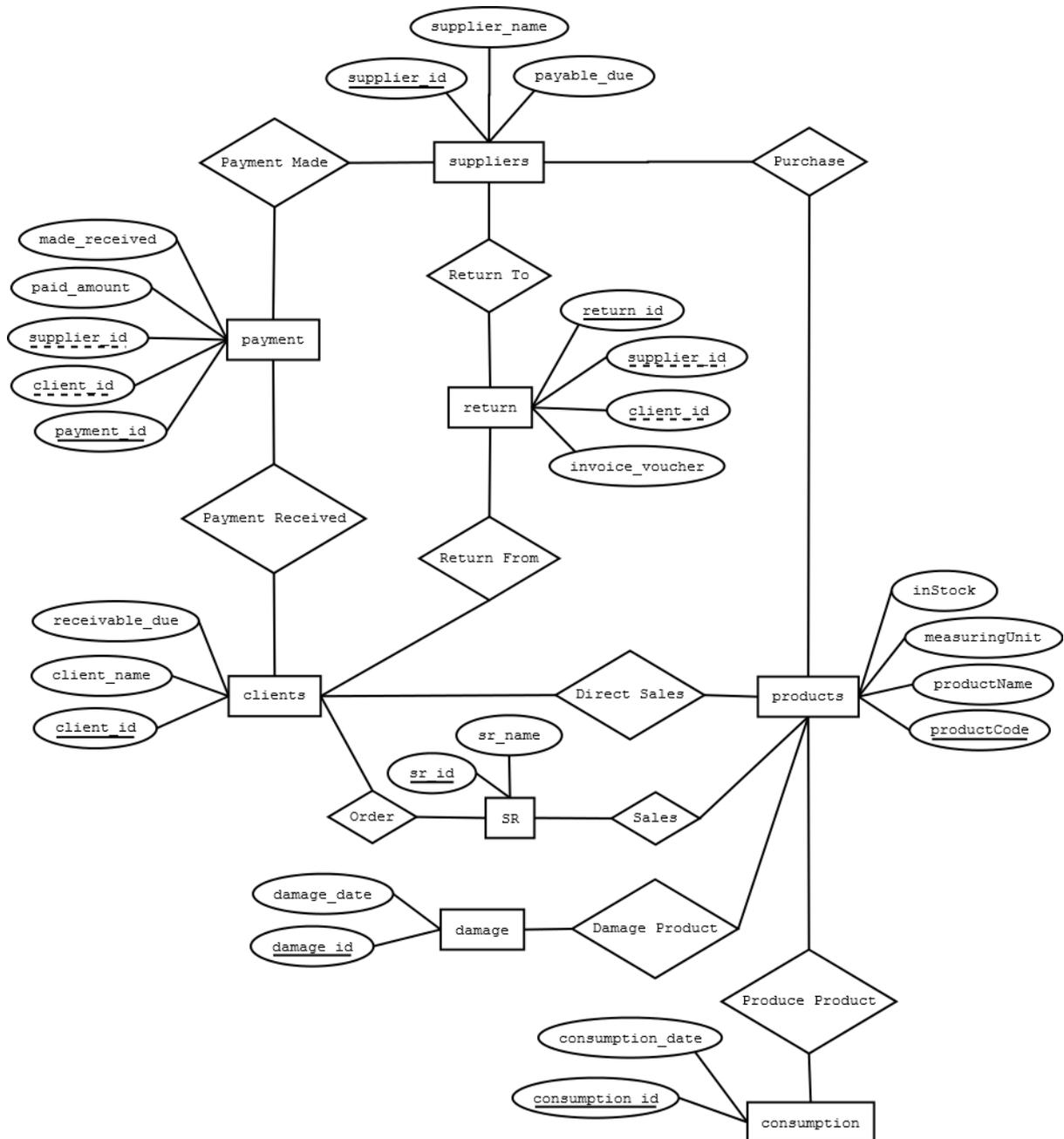


Figure 3.20: ER-Diagram of PMS

### 3.5 Data Flow Diagram

A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system, modeling its process aspects. A DFD is often used as a preliminary step to create an overview of the system, which can later be elaborated. DFDs can also be used for the visualization of data processing (structured design).

A DFD shows what kind of information will be input to and output from the system, where the data will come from and go to, and where the data will be stored. It does not show information about the timing of process or information about whether processes will operate in sequence or in parallel (which is shown on a flowchart).

The following symbols are used in a data flow diagram:

Symbol	Meaning
	An entity. A source of data or a destination for data.
	A process or task that is performed by the system.
	A data store, a place where data is held between processes.
	A data flow.

Figure 3.21: symbols of data flow diagram

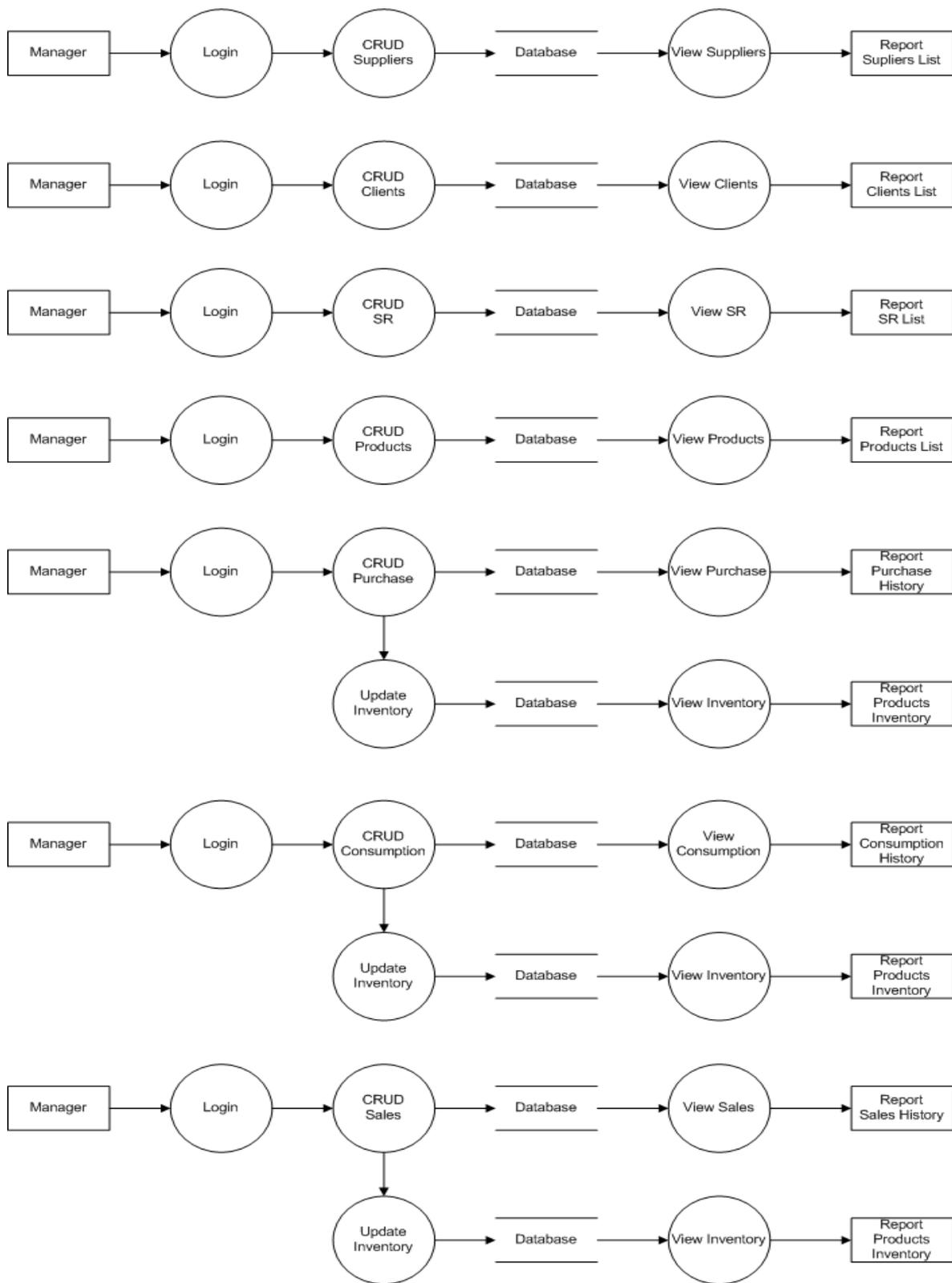


Figure 3.22: Data Flow Diagram for Manager

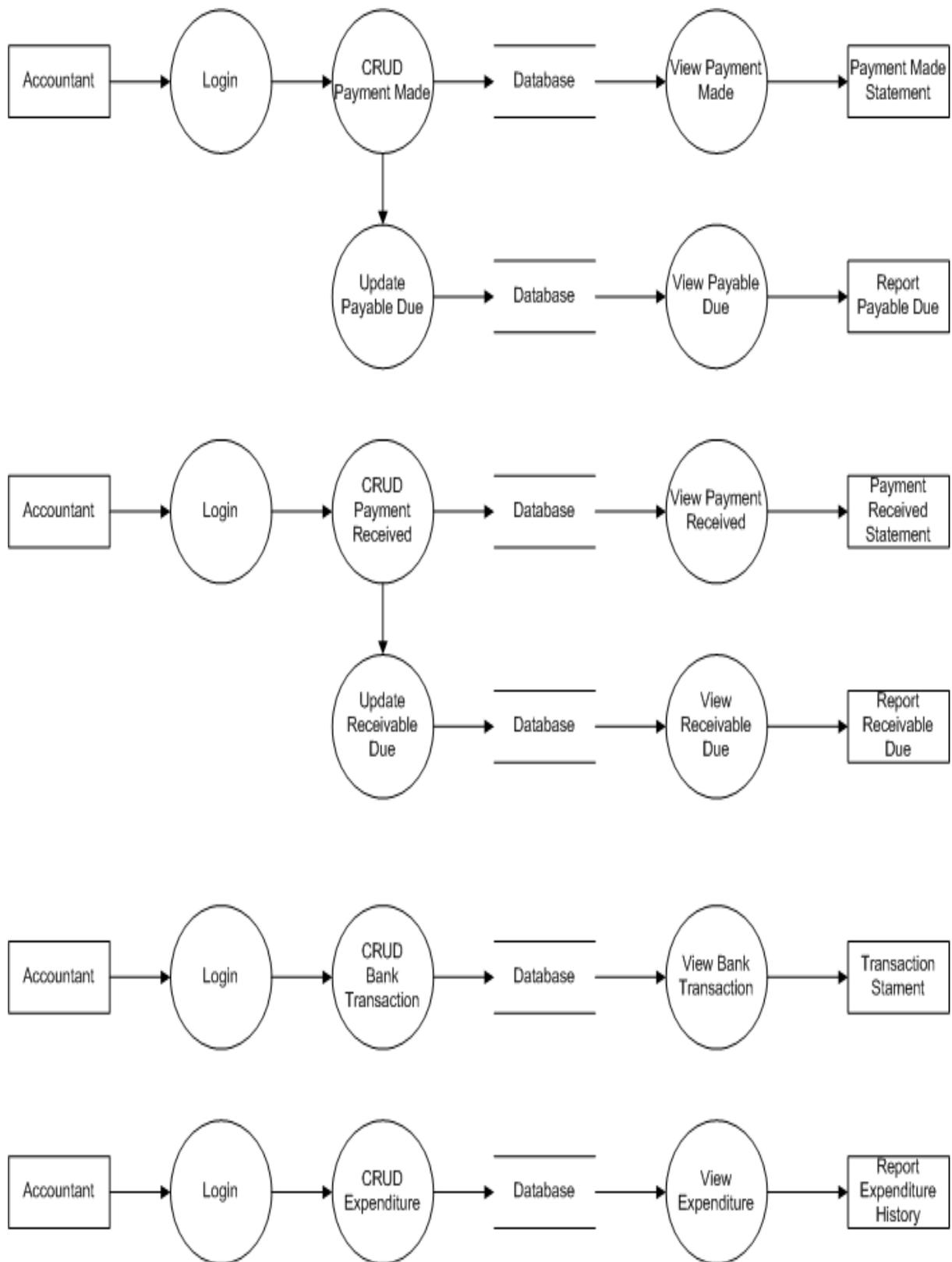


Figure 3.23: Data Flow Diagram for Accountant

## 3.6 Database Design

A properly designed database provides you with access to up-to-date, accurate information. Because a correct design is essential to achieving your goals in working with a database, investing the time required to learn the principles of good design makes sense. In the end, you are much more likely to end up with a database that meets your needs and can easily accommodate change.

This article provides guidelines for planning a database. You will learn how to decide what information you need, how to divide that information into the appropriate tables and columns, and how those tables relate to each other. You should read this article before you create your first database.

A good database design is, therefore, one that:

- Divides your information into subject-based tables to reduce redundant data.
- Provides Access with the information it requires to join the information in the tables together as needed.
- Helps support and ensure the accuracy and integrity of your information.
- Accommodates your data processing and reporting needs.

### The design process:

The design process consists of the following steps

- **Determine the purpose of your database**  
This helps prepare you for the remaining steps.
- **Find and organize the information required**  
Gather all of the types of information you might want to record in the database, such as product name and order number.
- **Divide the information into tables**  
Divide your information items into major entities or subjects, such as Products or Orders. Each subject then becomes a table.
- **Turn information items into columns**  
Decide what information you want to store in each table. Each item becomes a field, and is displayed as a column in the table. For example, an Employees table might include fields such as Last Name and Hire Date.

- **Specify primary keys**

Choose each table's primary key. The primary key is a column that is used to uniquely identify each row. An example might be Product ID or Order ID.

- **Set up the table relationships**

Look at each table and decide how the data in one table is related to the data in other tables. Add fields to tables or create new tables to clarify the relationships, as necessary.

- **Refine your design**

Analyze your design for errors. Create the tables and add a few records of sample data. See if you can get the results you want from your tables. Make adjustments to the design, as needed.

- **Apply the normalization rules**

Apply the data normalization rules to see if your tables are structured correctly. Make adjustments to the tables, as needed.

### **Determining the purpose of the database:**

It is a good idea to write down the purpose of the database on paper its purpose, how you expect to use it, and who will use it. For a small database for a home based business, for example, you might write something simple like "The customer database keeps a list of customer information for the purpose of producing mailings and reports." If the database is more complex or is used by many people, as often occurs in a corporate setting, the purpose could easily be a paragraph or more and should include when and how each person will use the database. The idea is to have a well-developed mission statement that can be referred to throughout the design process. Having such a statement helps you focus on your goals when you make decisions.

## Database Structure on “phpMyAdmin”:

Database design is the process of producing a detailed data model of database. This logical data model contains all the needed logical and physical design choices and physical storage parameters needed to generate a design in a Data Definition Language (DDL), which can then be used to create a database. A fully attributed data model contains detailed attributes for each entity.

### Database

Table	Action	Rows	Type	Collation	Size	Overhead
bank	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	16 KiB	-
bank_transaction	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	16 KiB	-
clients	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	32 KiB	-
consumption	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	16 KiB	-
consumption_details	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	48 KiB	-
damage	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	16 KiB	-
damage_details	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	48 KiB	-
expenditure	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	16 KiB	-
orders	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	32 KiB	-
order_details	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	48 KiB	-
payment	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	48 KiB	-
produce	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	16 KiB	-
produce_details	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	48 KiB	-
products	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	16 KiB	-
purchase	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	32 KiB	-
purchase_details	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	48 KiB	-
returns	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	64 KiB	-
return_details	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	48 KiB	-
sales	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	64 KiB	-
sales_details	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	48 KiB	-
sr	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	16 KiB	-
suppliers	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	32 KiB	-
users	Browse  Structure  Search  Insert  Empty  Drop	~0	InnoDB	utf8_general_ci	32 KiB	-
<b>23 tables</b>	<b>Sum</b>	<b>0</b>	<b>InnoDB</b>	<b>utf8_general_ci</b>	<b>800 KiB</b>	<b>0 B</b>

### Table Name: suppliers

#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	supplier_id	int(5)			No	None	AUTO_INCREMENT	Change  Drop  Primary  Unique  More
2	supplier_name	varchar(255)	utf8_general_ci		No	None		Change  Drop  Primary  Unique  More
3	supplier_mobile	varchar(255)	utf8_general_ci		No	None		Change  Drop  Primary  Unique  Index  More
4	supplier_phone	varchar(255)	utf8_general_ci		No	None		Change  Drop  Primary  Unique  Index  More
5	supplier_email	varchar(255)	utf8_general_ci		No	None		Change  Drop  Primary  Unique  Index  More
6	proprietor_name	varchar(255)	utf8_general_ci		No	None		Change  Drop  Primary  Unique  Index  More
7	proprietor_mobile	varchar(255)	utf8_general_ci		No	None		Change  Drop  Primary  Unique  Index  More
8	supplier_address	varchar(255)	utf8_general_ci		No	None		Change  Drop  Primary  Unique  Index  More
9	supplier_bank	varchar(255)	utf8_general_ci		No	None		Change  Drop  Primary  Unique  Index  More
10	payable_due	decimal(10,2)			No	None		Change  Drop  Primary  Unique  Index  More

## Table Name: clients

#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	<u>client_id</u>	int(5)			No	None	AUTO_INCREMENT	
2	<u>client_name</u>	varchar(255)	utf8_general_ci		No	None		
3	<u>client_mobile</u>	varchar(255)	utf8_general_ci		No	None		
4	<u>client_phone</u>	varchar(255)	utf8_general_ci		No	None		
5	<u>client_email</u>	varchar(255)	utf8_general_ci		No	None		
6	<u>proprietor_name</u>	varchar(255)	utf8_general_ci		No	None		
7	<u>proprietor_mobile</u>	varchar(255)	utf8_general_ci		No	None		
8	<u>client_address</u>	varchar(255)	utf8_general_ci		No	None		
9	<u>client_bank</u>	varchar(255)	utf8_general_ci		No	None		
10	<u>receivable_due</u>	decimal(10,2)			No	None		

## Table Name: Sales Representative (SR)

#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	<u>sr_id</u>	varchar(10)	utf8_general_ci		No	None		
2	<u>sr_name</u>	varchar(255)	utf8_general_ci		No	None		
3	<u>sr_fname</u>	varchar(255)	utf8_general_ci		No	None		
4	<u>sr_mobile</u>	varchar(255)	utf8_general_ci		No	None		
5	<u>jdate</u>	date			No	None		
6	<u>qualification</u>	varchar(255)	utf8_general_ci		No	None		
7	<u>address</u>	varchar(255)	utf8_general_ci		No	None		

## Table Name: products

#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	<u>productCode</u>	varchar(10)	utf8_general_ci		No	None		
2	<u>productName</u>	varchar(255)	utf8_general_ci		No	None		
3	<u>category</u>	varchar(255)	utf8_general_ci		No	None		
4	<u>brand</u>	varchar(255)	utf8_general_ci		No	None		
5	<u>size</u>	varchar(255)	utf8_general_ci		No	None		
6	<u>color</u>	varchar(255)	utf8_general_ci		No	None		
7	<u>manufacturer_vendor</u>	varchar(255)	utf8_general_ci		No	None		
8	<u>origin</u>	varchar(255)	utf8_general_ci		No	None		
9	<u>client_ia</u>	varchar(255)	utf8_general_ci		No	None		
10	<u>reOrder</u>	int(5)			No	None		
11	<u>measuringUnit</u>	varchar(255)	utf8_general_ci		No	None		
12	<u>type</u>	varchar(255)	utf8_general_ci		No	None		
13	<u>priceCost</u>	decimal(10,2)			No	None		
14	<u>sellingPrice</u>	decimal(10,2)			No	None		
15	<u>inStock</u>	int(5)			No	None		

## Table Name: purchase\_details

#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	<u>purchase_id</u>	int(11)			No	None		
2	<u>productCode</u>	varchar(10)	utf8_general_ci		No	None		
3	<u>quantity</u>	int(5)			No	None		
4	<u>purchase_price</u>	decimal(10,2)			No	None		

### Table Name: consumption\_details

#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	<u>consumption_id</u>	int(11)			No	None		Change  Drop  Primary  Unique  Index  Spatial  More
2	<u>productCode</u>	varchar(10)	utf8_general_ci		No	None		Change  Drop  Primary  Unique  Index  Spatial  More
3	<u>quantity</u>	int(5)			No	None		Change  Drop  Primary  Unique  Index  Spatial  More
4	<u>price</u>	decimal(10,2)			No	None		Change  Drop  Primary  Unique  Index  Spatial  More

### Table Name: produce\_details

#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	<u>produce_id</u>	int(11)			No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
2	<u>productCode</u>	varchar(10)	utf8_general_ci		No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
3	<u>quantity</u>	int(5)			No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
4	<u>cost</u>	decimal(10,2)			No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More

### Table Name: damage\_details

#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	<u>damage_id</u>	int(11)			No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
2	<u>productCode</u>	varchar(10)	utf8_general_ci		No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
3	<u>quantity</u>	int(5)			No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
4	<u>price</u>	decimal(10,2)			No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More

### Table Name: return\_details

#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	<u>return_id</u>	int(11)			No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
2	<u>productCode</u>	varchar(10)	utf8_general_ci		No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
3	<u>quantity</u>	int(5)			No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
4	<u>price</u>	decimal(10,2)			No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More

### Table Name: order\_details

#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	<u>order_no</u>	int(11)			No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
2	<u>productCode</u>	varchar(10)	utf8_general_ci		No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
3	<u>quantity</u>	int(5)			No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
4	<u>selling_price</u>	decimal(10,2)			No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More

### Table Name: sales\_details

#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	<u>invoice_no</u>	int(11)			No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
2	<u>productCode</u>	varchar(10)	utf8_general_ci		No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
3	<u>quantity</u>	int(5)			No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More
4	<u>selling_price</u>	decimal(10,2)			No	None		Change  Drop  Primary  Unique  Index  Spatial  Fulltext  More

## Table Name: payment

#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	<u>payment_id</u>	int(11)			No	None	AUTO_INCREMENT	
2	<u>made_received</u>	varchar(255)	utf8_general_ci		No	None		
3	<u>payment_date</u>	date			No	None		
4	<u>supplier_id</u>	int(5)			No	None		
5	<u>client_id</u>	int(5)			No	None		
6	<u>previous_due</u>	decimal(10,2)			No	None		
7	<u>paid_amount</u>	decimal(10,2)			No	None		
8	<u>payment_type</u>	varchar(255)	utf8_general_ci		No	None		
9	<u>bank_name</u>	varchar(255)	utf8_general_ci		No	None		
10	<u>account_name</u>	varchar(255)	utf8_general_ci		No	None		
11	<u>account_no</u>	varchar(255)	utf8_general_ci		No	None		
12	<u>cheque_no</u>	varchar(255)	utf8_general_ci		No	None		
13	<u>cheque_date</u>	date			No	None		
14	<u>remarks</u>	varchar(255)	utf8_general_ci		No	None		

## Table Name: bank\_transaction

#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	<u>transaction_id</u>	int(11)			No	None	AUTO_INCREMENT	
2	<u>date</u>	date			No	None		
3	<u>bank_id</u>	int(5)			No	None		
4	<u>pre_amount</u>	decimal(20,2)			No	None		
5	<u>new_amount</u>	decimal(10,2)			No	None		
6	<u>credited_debited</u>	varchar(255)	utf8_general_ci		No	None		
7	<u>type</u>	varchar(255)	utf8_general_ci		No	None		
8	<u>depositor</u>	varchar(255)	utf8_general_ci		No	None		
9	<u>remarks</u>	varchar(255)	utf8_general_ci		No	None		

## Table Name: expenditure

#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	<u>id</u>	int(11)			No	None	AUTO_INCREMENT	
2	<u>edate</u>	date			No	None		
3	<u>to_whom</u>	varchar(255)	utf8_general_ci		No	None		
4	<u>purpose</u>	varchar(255)	utf8_general_ci		No	None		
5	<u>paid_amount</u>	decimal(10,2)			No	None		
6	<u>remarks</u>	varchar(255)	utf8_general_ci		No	None		

## Table Name: users

#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	<u>id</u>	int(5)			No	None	AUTO_INCREMENT	
2	<u>name</u>	varchar(255)	utf8_general_ci		No	None		
3	<u>email</u>	varchar(255)	utf8_general_ci		No	None		
4	<u>type</u>	varchar(255)	utf8_general_ci		No	None		
5	<u>status</u>	tinyint(1)			No	None		
6	<u>registered</u>	datetime			No	None		
7	<u>login</u>	datetime			No	None		
8	<u>logout</u>	datetime			No	None		
9	<u>username</u>	varchar(255)	utf8_general_ci		No	None		
10	<u>password</u>	varchar(255)	utf8_general_ci		No	None		

### 3.7 Schema Diagram

The Diagram provided is only reference material for database administrators and applications developers. At no time should any of the data in the ArcSDE or geo-database system tables be manipulated directly, for example with SQL, ArcSDE and ArcInfo manage and populate these tables.

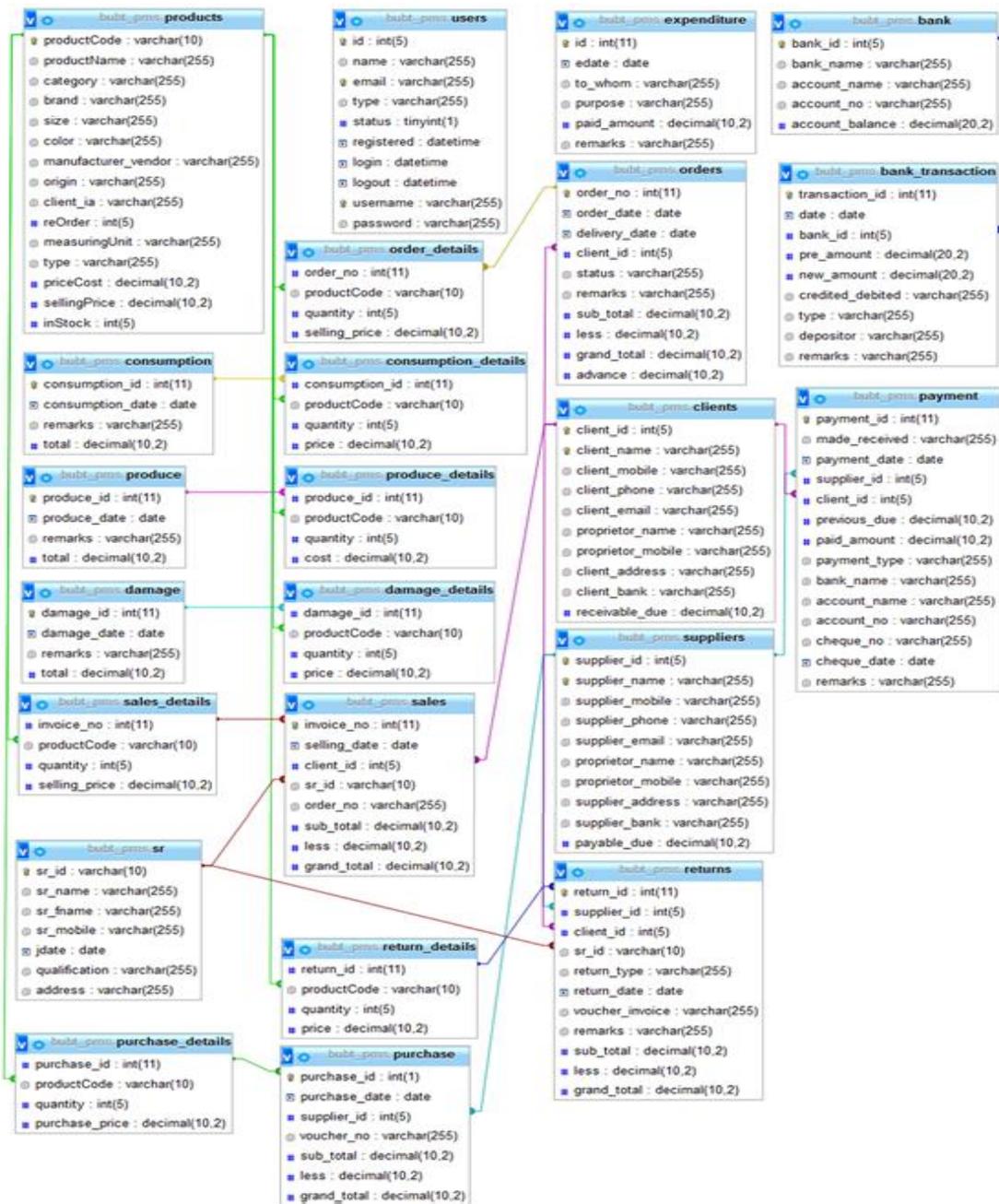


Figure 3.24: Schema Diagram of Production Management System

### 3.8 Data Dictionary

A data dictionary is a collection of descriptions of the data objects or items in a data model for the benefit of programmers and others who need to refer to them. A first step in analyzing a system of object with which users interact is to identify each object and its relationship to other objects. This process is called data modeling and results in a picture of object relationships. After each data object or item is given a descriptive name, its relationship is described (or it becomes part of some structure that implicitly describes relationship), the type of data (such as text or image or binary value) is described, possible predefined values are listed, and a brief textual description is provided. This collection can be organized for reference into a book called a data dictionary.

The necessary conditions for using the data dictionary are given below.

- In order to manage the details in large-scale systems.
- Most systems are ongoing and dynamic and management of all the descriptive details is difficult, therefore an accurate and consistent recording technique is essential.
- To communicate a common meaning for all of the elements in the system.
- Simply making sure that for all elements, the meaning will remain consistent.
- To document features of the system.
- It is essential to document the circumstances under which data items occur. For example, what is the frequency of this process? Who has access to this data store? Documenting these features will passenger a more complete and better understanding of the system for the analyst.
- To locate errors and omissions in the system.
- The data dictionary may reveal information that is incomplete and/or inaccurate. It may show stores that are never accessed and/or processes that should be sub-divided, etc.

Table comments: suppliers

Column	Type	Null	Default	Comments
supplier_id	int(5)	No		PK
supplier_name	varchar(255)	No		Unique
supplier_mobile	varchar(255)	No		
supplier_phone	varchar(255)	No		
supplier_email	varchar(255)	No		
proprietor_name	varchar(255)	No		
proprietor_mobile	varchar(255)	No		
supplier_address	varchar(255)	No		
supplier_bank	varchar(255)	No		
payable_due	decimal(10,2)	No		

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	supplier_id	0	A	No	
supplier_name	BTREE	Yes	No	supplier_name	0	A	No	

Table comments: clients

Column	Type	Null	Default	Comments
client_id	int(5)	No		PK
client_name	varchar(255)	No		Unique
client_mobile	varchar(255)	No		
client_phone	varchar(255)	No		
client_email	varchar(255)	No		
proprietor_name	varchar(255)	No		
proprietor_mobile	varchar(255)	No		
client_address	varchar(255)	No		
client_bank	varchar(255)	No		
receivable_due	decimal(10,2)	No		

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	client_id	0	A	No	
client_name	BTREE	Yes	No	client_name	0	A	No	

Table comments: sr

Column	Type	Null	Default	Comments
sr_id	varchar(10)	No		PK
sr_name	varchar(255)	No		
sr_fname	varchar(255)	No		
sr_mobile	varchar(255)	No		
jdate	date	No		
qualification	varchar(255)	No		
address	varchar(255)	No		

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	sr_id	0	A	No	

Table comments: products

Column	Type	Null	Default	Comments
productCode	varchar(10)	No		PK
productName	varchar(255)	No		
category	varchar(255)	No		
brand	varchar(255)	No		
size	varchar(255)	No		
color	varchar(255)	No		
manufacturer_vendor	varchar(255)	No		
origin	varchar(255)	No		
client_ia	varchar(255)	No		
reOrder	int(5)	No		
measuringUnit	varchar(255)	No		
type	varchar(255)	No		
priceCost	decimal(10,2)	No		
sellingPrice	decimal(10,2)	No		
inStock	int(5)	No		

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	productCode	0	A	No	

Table comments: purchase\_details

Column	Type	Null	Default	Comments
purchase_id	int(11)	No		FK, Index
productCode	varchar(10)	No		FK, Index
quantity	int(5)	No		
purchase_price	decimal(10,2)	No		

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
purchase_id	BTREE	No	No	purchase_id	0	A	No	
productCode	BTREE	No	No	productCode	0	A	No	

Table comments: consumption\_details

Column	Type	Null	Default	Comments
consumption_id	int(11)	No		FK, Index
productCode	varchar(10)	No		FK, Index
quantity	int(5)	No		
price	decimal(10,2)	No		

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
productCode	BTREE	No	No	productCode	0	A	No	
consumption_id	BTREE	No	No	consumption_id	0	A	No	

Table comments: produce\_details

Column	Type	Null	Default	Comments
produce_id	int(11)	No		FK, Index
productCode	varchar(10)	No		FK, Index
quantity	int(5)	No		
cost	decimal(10,2)	No		

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
productCode	BTREE	No	No	productCode	0	A	No	
produce_id	BTREE	No	No	produce_id	0	A	No	

Table comments: damage\_details

Column	Type	Null	Default	Comments
damage_id	int(11)	No		FK, Index
productCode	varchar(10)	No		FK, Index
quantity	int(5)	No		
price	decimal(10,2)	No		

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
productCode	BTREE	No	No	productCode	0	A	No	
damage_id	BTREE	No	No	damage_id	0	A	No	

Table comments: return\_details

Column	Type	Null	Default	Comments
return_id	int(11)	No		FK, Index
productCode	varchar(10)	No		FK, Index
quantity	int(5)	No		
price	decimal(10,2)	No		

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
productCode	BTREE	No	No	productCode	0	A	No	
return_id	BTREE	No	No	return_id	0	A	No	

Table comments: order\_details

Column	Type	Null	Default	Comments
order_no	int(11)	No		FK, Index
productCode	varchar(10)	No		FK, Index
quantity	int(5)	No		
selling_price	decimal(10,2)	No		

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
productCode	BTREE	No	No	productCode	0	A	No	
order_no	BTREE	No	No	order_no	0	A	No	

Table comments: sales\_details

Column	Type	Null	Default	Comments
invoice_no	int(11)	No		FK, Index
productCode	varchar(10)	No		FK, Index
quantity	int(5)	No		
selling_price	decimal(10,2)	No		

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
productCode	BTREE	No	No	productCode	0	A	No	
invoice_no	BTREE	No	No	invoice_no	0	A	No	

Table comments: payment

Column	Type	Null	Default	Comments
payment_id	int(11)	No		PK
made_received	varchar(255)	No		
payment_date	date	No		
supplier_id	int(5)	No		FK, Index
client_id	int(5)	No		FK, Index
previous_due	decimal(10,2)	No		
paid_amount	decimal(10,2)	No		
payment_type	varchar(255)	No		
bank_name	varchar(255)	No		
account_name	varchar(255)	No		
account_no	varchar(255)	No		
cheque_no	varchar(255)	No		
cheque_date	date	No		
remarks	varchar(255)	No		

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	payment_id	0	A	No	
supplier_id	BTREE	No	No	supplier_id	0	A	No	
client_id	BTREE	No	No	client_id	0	A	No	

Table comments: bank\_transaction

Column	Type	Null	Default	Comments
transaction_id	int(11)	No		PK
date	date	No		
bank_id	int(5)	No		FK, Index
pre_amount	decimal(20,2)	No		
new_amount	decimal(10,2)	No		
credited_debited	varchar(255)	No		
type	varchar(255)	No		
depositor	varchar(255)	No		
remarks	varchar(255)	No		

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	transaction_id	0	A	No	

Table comments: expenditure

Column	Type	Null	Default	Comments
id	int(11)	No		PK
edate	date	No		
to_whom	varchar(255)	No		
purpose	varchar(255)	No		
paid_amount	decimal(10,2)	No		
remarks	varchar(255)	No		

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	id	0	A	No	

Table comments: users

Column	Type	Null	Default	Comments
id	int(5)	No		
name	varchar(255)	No		
email	varchar(255)	No		Unique
type	varchar(255)	No		
status	tinyint(1)	No		
registered	datetime	No		
login	datetime	No		
logout	datetime	No		
username	varchar(255)	No		Unique
password	varchar(255)	No		

### Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	id	0	A	No	
email	BTREE	Yes	No	email	0	A	No	
				username	0	A	No	

## 3.9 Summary

In this Chapter, all the technical aspects of the development of an Internet Based Automated Production Management System have been defined, including – the System architecture, the Lifecycle Model, the Process Model, ERD, DFD, the Database design, Data Dictionary etc.

## **Chapter 4 : Implementation and Analysis**

### **4.1 Introduction**

This Chapter will cover the description of all the development tools and the implementation process required as well as the Analysis of the Internet Based Automated Production Management System.

### **4.2 Development and Implementation Tools**

As our system is web based, so we have used web technologies for the development of both front end and back end.

The front end comprised with: -

- HTML
- CSS
- JavaScript
- jQuery
- Bootstrap

On the other hand, in the back end we have a server which is designed and manipulated by: -

- Code igniter
- PHP
- MySQL
- Adobe Dreamweaver
- XAMPP

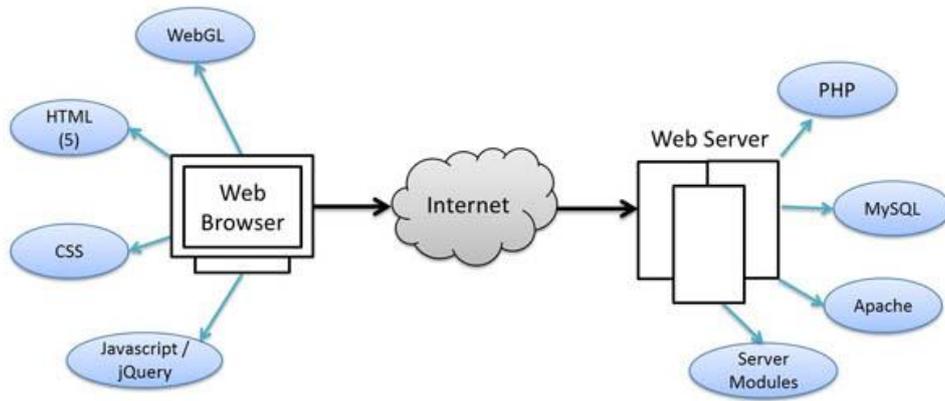


Figure 4.1: Web Page Application Architecture

## HTML:

HTML or Hyper Text Markup Language is the standard markup language used to create web pages. HTML is the set of markup symbols or codes inserted in a file intended for display on a World Wide Web browser page. The markup tells the Web browser how to display a Web page's words and images for the user. Each individual markup code is referred to as an element (but many people also refer to it as a tag). Some elements come in pairs that indicate when some display effect is to begin and when it is to end. The extension of a HTML file must be .html.

The basic form of a HTML page is like following: -

```

<!DOCTYPE html>
<html>
<!-- created 2010-01-01 -->
<head>
  <title>sample</title>
</head>
<body>
  <p>Voluptatem accusantium
  totam rem aperiam.</p>
</body>
</html>

```

HTML

## **CSS:**

CSS stand for Cascading Style Sheet. Web Designers that don't use CSS for their design and development of Web sites are rapidly becoming a thing of the past. And it is arguably as important to understand CSS as it is to know HTML - and some would say it was more important to know CSS style sheet refers to the document itself. Style sheets have been used for document design for years. They are the technical specifications for a layout, whether print or online. Print designers use style sheets to insure that their designs are printed exactly to specifications. A style sheet for a Web page serves the same purpose, but with the added functionality of also telling the viewing engine (the Web browser) how to render the document being viewed.

## **JavaScript:**

**JavaScript** (often shortened to **JS**) is a lightweight, interpreted, object-oriented language with first-class functions, and is best known as the scripting language for Web pages, but it's used in many non-browser environments as well. It is a prototype-based, multi-paradigm scripting language that is dynamic, and supports object-oriented, imperative, and functional programming styles.

JavaScript's dynamic capabilities include runtime object construction, variable parameter lists, function variables, dynamic script creation, object introspection, and source code recovery (JavaScript programs can decompile function bodies back into their source text).

## **jQuery:**

jQuery stands from JavaScript Query which is a powerful framework of JavaScript. The purpose of J query is to make it much easier to use JavaScript on website. J query is a lightweight, "write less, do more", and JavaScript library. The purpose of J query is to make it much easier to use java s website. J query takes a lot of common tasks that require many lines of JavaScript code to accomplish, and wraps them into methods that you can call with a single line of code. J query also simplifies a lot of the complicated things from JavaScript, like AJAX calls and DOM manipulation.

The j query library contains the following features: -

- HTML/DOM manipulation
- CSS manipulation
- HTML event methods
- Effects and animations
- Utilities

### **Bootstrap:**

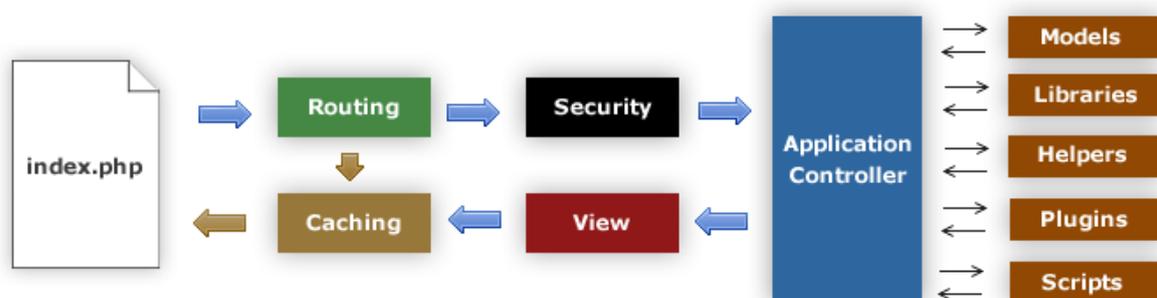
Bootstrap is a free and open-source collection of tools for creating websites and web applications. It contains HTML- and CSS-based design templates for typography, forms, buttons, navigation and other interface components, as well as optional JavaScript extensions. It aims to ease the development of dynamic websites and web applications.

### **Code igniter:**

Code igniter is an open source rapid development web application framework, for use in building dynamic web sites with PHP Code igniter is loosely based on the popular Model-View-Controller development pattern. While controller classes are a necessary part of development under Code igniter, models and views are optional.

### **Application Flow Chart:**

The following graphic illustrates how data flows throughout the system:



- The `index.php` serves as the front controller, initializing the base resources needed to run Code igniter.
- The Router examines the HTTP request to determine what should be done with it.
- If a cache file exists, it is sent directly to the browser, bypassing the normal system execution.
- Security. Before the application controller is loaded, the HTTP request and any user submitted data is filtered for security.
- The Controller loads the model, core libraries, helpers, and any other resources needed to process the specific request.
- The finalized View is rendered then sent to the web browser to be seen. If caching is enabled, the view is cached first so that on subsequent requests it can be served.

## **PHP:**

PHP stands for Pre Hypertext Processor which is a server side scripting language mainly used for communicating with server. It is also widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML.

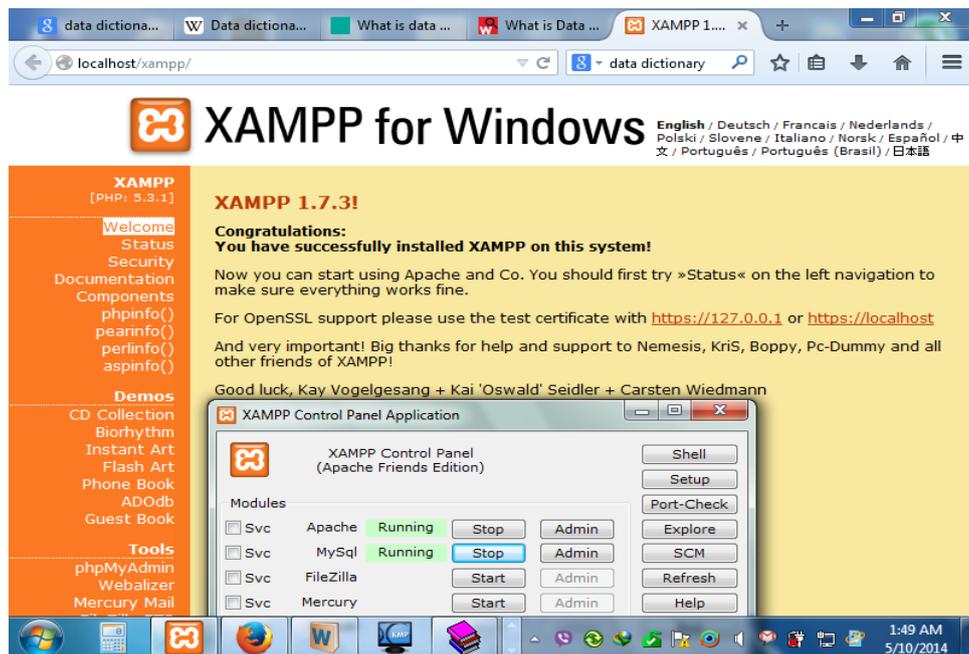
PHP code is interpreted by a web server with a PHP processor module, which generates the resulting web page: PHP commands can be embedded directly into an HTML source document rather than calling an external file to process data. It has also evolved to include a command-line interface capability and can be used in one graphical application.

## **MySQL:**

MySQL is most commonly used for Web applications and for embedded applications and has become a popular alternative to proprietary database systems because of its speed and reliability. MySQL can run on UNIX, Windows and Mac OS.

## XAMPP:

XAMPP stands for “X (as in “cross-platform”), Apache, MySQL, PHP, Perl” and is a “solution stack package” that installs each of those items (don’t you just love techno-jargon?). Similarly, there exists a WAMP, MAMP, and LAMP, standing for Windows, Mac, and Linux, respectively. I believe they condense the “P” to PHP/Perl/Python because Python is additionally included in the stack, whereas it’s not in XAMPP.

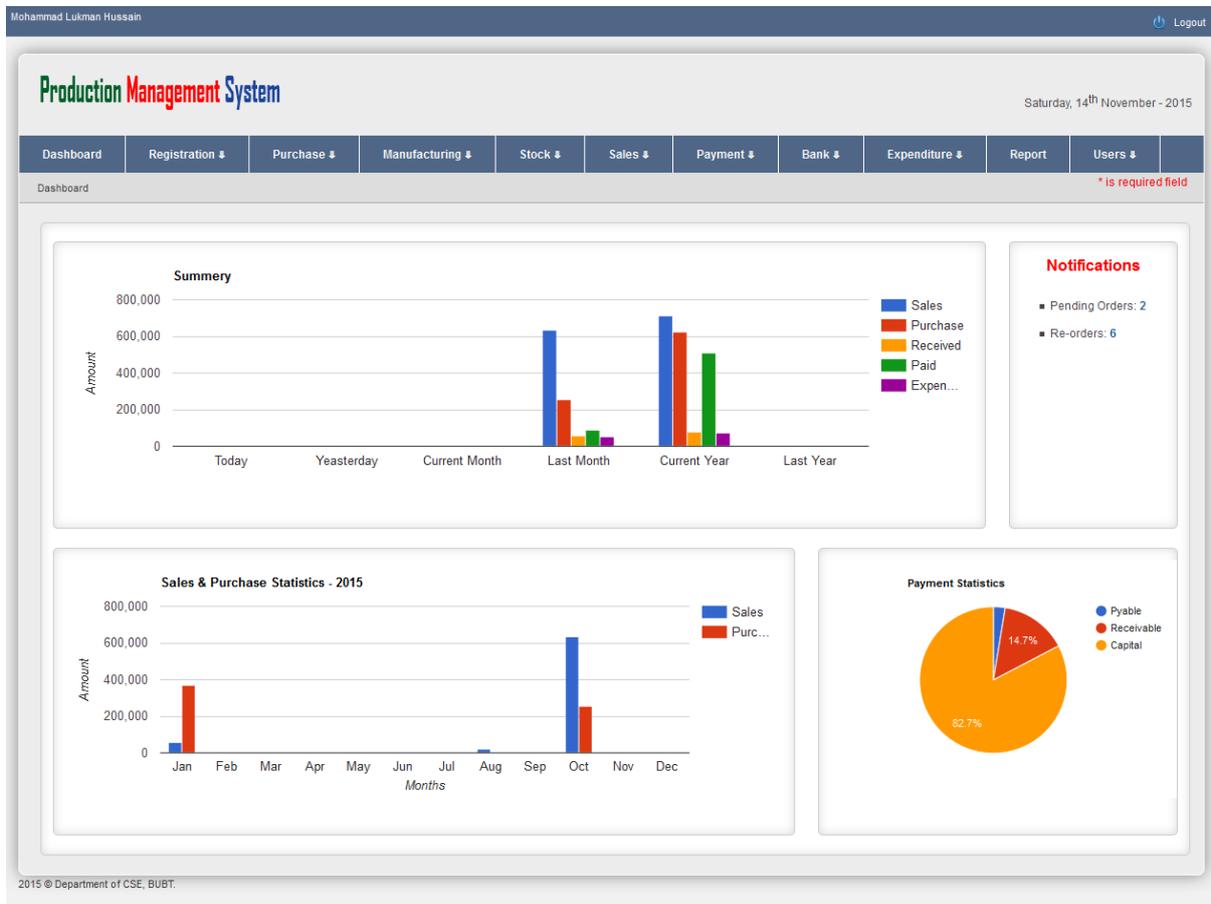


## Why Use XAMPP?

In general, XAMPP is used for web development on your local machine, as opposed to directly on your web space. It allows you to tinker and test out changes on your personal computer before making those changes publicly online. The XAMPP package is simply an easy way to install all the vital web server parts all at once, though it’s just as possible to install them all individually and by hand instead. Some people prefer to do that for a better understanding of the individual setup for each piece of software. If you prefer to focus on web development, though, XAMPP should be perfectly acceptable.

## 4.3 Analysis

### Dashboard



## 4.4 Summary

This Chapter has covered the description of all the development tools and the implementation process required as well as the Analysis of the Internet Based Automated Production Management System.

## Chapter 5 : Inputs and Outputs

### 5.1 Introduction

It is very important to design and develop the Inputs and Outputs formats of a computer-based system, in order to ensure the data flow and to determine the data structure as well. Therefore, this chapter demonstrates the Inputs (Forms) and Outputs (Inserted Data).

### 5.2 Input (Forms) and Output (inserted data)

The login page of browser is given below.

#### Login



The image shows a login page for a 'Production Management System'. The title is displayed in a stylized font at the top. Below the title, there are two input fields: one for 'Username ...' and one for 'Password'. A 'Login' button is located at the bottom right of the form area.

# Add/Edit Supplier

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard | Registration | Purchase | Manufacturing | Stock | Sales | Payment | Bank | Expenditure | Report | Users

Add New Supplier \* is required field

**Suppliers Information**

Name	<input type="text"/>
Mobile No	<input type="text"/>
Phone No	<input type="text"/>
E-mail	<input type="text"/>
Proprietor Name	<input type="text"/>
Proprietor Mobile No	<input type="text"/>
Address	<input type="text"/>
Bank Account	<input type="text"/>

# Add/Edit Client

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard | Registration | Purchase | Manufacturing | Stock | Sales | Payment | Bank | Expenditure | Report | Users

Add New Client \* is required field

**Clients Information**

Name	<input type="text"/>
Mobile No	<input type="text"/>
Phone No	<input type="text"/>
E-mail	<input type="text"/>
Proprietor Name	<input type="text"/>
Proprietor Mobile No	<input type="text"/>
Address	<input type="text"/>
Bank Account	<input type="text"/>

## Add/Edit Sales Representative (SR)

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard | Registration | Purchase | Manufacturing | Stock | Sales | Payment | Bank | Expenditure | Report | Users

Add New SR \* is required field

**SR Information**

SR ID	<input type="text"/>
Name	<input type="text"/>
Father's Name	<input type="text"/>
Mobile No	<input type="text"/>
Joining Date	<input type="text" value="11/14/2015"/>
Educational Qualification	<input type="text"/>
Address	<input type="text"/>

## Add/Edit Product

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard | Registration | Purchase | Manufacturing | Stock | Sales | Payment | Bank | Expenditure | Report | Users

Add New Product \* is required field

**Products Information**

Product Code	<input type="text"/>
Product Name	<input type="text"/>
Category	<input type="text"/>
Brand	<input type="text"/>
Size	<input type="text"/>
Color	<input type="text"/>
Manufacturer/Vendor	<input type="text"/>
Origin	<input type="text"/>
Client (IA)	<input type="text"/>
Re Order Level	<input type="text"/>
Measuring Unit	<input type="text" value="Piece"/>
Product Type	<input type="text" value="Raw"/>

## Purchase History

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard | Registration ↓ | Purchase ↓ | Manufacturing ↓ | Stock ↓ | Sales ↓ | Payment ↓ | Bank ↓ | Expenditure ↓ | Report | Users ↓

Purchase History \* is required field

Show 10 entries Search:

#	Date	Supplier Name	Voucher No	Sub Total	Less	Grand Total	Action
1	04-10-2015	M/S. Satata Rubber		168000.00 Tk	0.00 Tk	168000.00 Tk	✖ 🔄
2	26-10-2015	Mr. Nazimuddin		15000.00 Tk	0.00 Tk	15000.00 Tk	✖ 🔄
3	03-01-2015	Raisa Rubber & Chemical		106500.00 Tk	0.00 Tk	106500.00 Tk	✖ 🔄
4	26-10-2015	M/S. Hoaasin Rubber		33000.00 Tk	0.00 Tk	33000.00 Tk	✖ 🔄
5	26-10-2015	Mr. Nazimuddin		10500.00 Tk	0.00 Tk	10500.00 Tk	✖ 🔄
6	01-01-2015	Raisa Rubber & Chemical	RRC-20151010	93800.00 Tk	0.00 Tk	93800.00 Tk	✖ 🔄
7	01-01-2015	Raisa Rubber & Chemical		60600.00 Tk	0.00 Tk	60600.00 Tk	✖ 🔄
8	26-10-2015	Raisa Rubber & Chemical		25800.00 Tk	0.00 Tk	25800.00 Tk	✖ 🔄
9	01-01-2015	RH Rubber, Chittagong		110000.00 Tk	0.00 Tk	110000.00 Tk	✖ 🔄

Showing 1 to 9 of 9 entries First Previous 1 Next Last

## Return to History

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard | Registration ↓ | Purchase ↓ | Manufacturing ↓ | Stock ↓ | Sales ↓ | Payment ↓ | Bank ↓ | Expenditure ↓ | Report | Users ↓

Return To History \* is required field

Show 10 entries Search:

#	Date	Supplier Name	Voucher No	Sub Total	Less	Grand Total	Remarks	Action
1	31-10-2015	M/S. Hoaasin Rubber	2134123	430.00 Tk	0.00 Tk	430.00 Tk		✖ 🔄

Showing 1 to 1 of 1 entries First Previous 1 Next Last

## Consumption History

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard | Registration ↓ | Purchase ↓ | Manufacturing ↓ | Stock ↓ | Sales ↓ | Payment ↓ | Bank ↓ | Expenditure ↓ | Report | Users ↓

Consumption History \* is required field

Show 10 entries Search:

#	Date	Grand Total	Remarks	Action
1	26-10-2015	3845.00 Tk		✖ 🔄

Showing 1 to 1 of 1 entries First Previous 1 Next Last

## Produce Products History

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard | Registration | Purchase | Manufacturing | Stock | Sales | Payment | Bank | Expenditure | Report | Users | \* is required field

Produce Products History

Show 10 entries Search:

#	Date	Grand Total	Remarks	Action
1	27-10-2015	168000.00 Tk		<a href="#">✖</a> <a href="#">↺</a>
2	02-10-2015	100000.00 Tk		<a href="#">✖</a> <a href="#">↺</a>
3	01-10-2015	1628000.00 Tk		<a href="#">✖</a> <a href="#">↺</a>
4	12-09-2015	230000.00 Tk		<a href="#">✖</a> <a href="#">↺</a>
5	27-10-2015	1800.00 Tk		<a href="#">✖</a> <a href="#">↺</a>
6	20-09-2015	25500.00 Tk		<a href="#">✖</a> <a href="#">↺</a>
7	27-09-2015	93998.00 Tk		<a href="#">✖</a> <a href="#">↺</a>
8	27-08-2015	43725.00 Tk		<a href="#">✖</a> <a href="#">↺</a>
9	20-04-2015	63420.00 Tk		<a href="#">✖</a> <a href="#">↺</a>
10	25-05-2015	399300.00 Tk		<a href="#">✖</a> <a href="#">↺</a>

Showing 1 to 10 of 16 entries First Previous 1 2 Next Last

## Products Inventory (Raw)

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard | Registration | Purchase | Manufacturing | Stock | Sales | Payment | Bank | Expenditure | Report | Users | \* is required field

Products Inventory (Raw)

Show 10 entries Search:

Code	ProductName	Category	Brand	Size	Color	Manufacturer/Vendor	Origin	Client(A)	PurchasePrice	InStock	Unit
1001	Silicon-40								430.00Tk	59	KG
1002	Silicon-50								435.00Tk	79	KG
1003	Silicon-80								430.00Tk	60	KG
1004	35L Rubber								280.00Tk	300	KG
1005	35L Rubber with Carbon Mix								550.00Tk	195	KG
1006	RSS Rubber (G-1)								180.00Tk	100	KG
1007	RSS Rubber (G-2)								150.00Tk	100	KG
1008	Zinc								230.00Tk	20	KG
1009	Istiyaric								120.00Tk	25	KG
1010	MBT								200.00Tk	11	KG

Showing 1 to 10 of 33 entries First Previous 1 2 3 4 Next Last

## Products Inventory (Produce)

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard | Registration | Purchase | Manufacturing | Stock | Sales | Payment | Bank | Expenditure | Report | Users | \* is required field

Products Inventory (Produced)

Show 10 entries Search:

Code	ProductName	Category	Brand	Size	Color	Manufacturer/Vendor	Origin	Client(A)	Cost	SellingPrice	InStock	Unit
1110	Cleaner Knife (Rubberizing)								180.00Tk	300.00Tk	1	Piece
1111	Cleaner Knife-28 (60mm)								220.00Tk	350.00Tk	90	Piece
1112	Cleaner Knife-36 (60mm)								240.00Tk	350.00Tk	100	Piece
1113	Cleaner Knife-44 (60mm)								280.00Tk	400.00Tk	100	Piece
1114	Cleaner Knife-28 (67mm)								320.00Tk	400.00Tk	90	Piece
1115	Cleaner Knife-36 (67mm)								350.00Tk	550.00Tk	90	Piece
1116	Cleaner Knife-44 (67mm)								410.00Tk	600.00Tk	100	Piece
1117	Runner Wheel (60mm)								90.00Tk	200.00Tk	80	Piece
1118	Runner Wheel (50mm)								60.00Tk	120.00Tk	100	Piece
1119	Runner Wheel (45mm)								45.00Tk	80.00Tk	100	Piece

Showing 1 to 10 of 73 entries First Previous 1 2 3 4 5 Next Last

## Re-order Level

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard | Registration | Purchase | Manufacturing | Stock | Sales | Payment | Bank | Expenditure | Report | Users | \* is required field

Re-order Level

Show 10 entries Search:

Code	ProductName	Category	Brand	Size	Color	Manufacturer/Vendor	Origin	Client(IA)	Type	Re-order	InStock	Unit
1020	Yellow Color								Raw	500	0	Gram
1025	Tockosil								Raw	2	0	KG
1027	Acid								Raw	1	0	Pound
1028	Patrol								Raw	1	0	Liter
1029	Dise Motor								Raw	1	0	Piece
1155	Rubber Bucket Seal								Produced	6	0	Piece

Showing 1 to 6 of 6 entries First Previous 1 Next Last

## Damage History

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard | Registration | Purchase | Manufacturing | Stock | Sales | Payment | Bank | Expenditure | Report | Users | \* is required field

Damage History

Show 10 entries Search:

#	Date	Grand Total	Remarks	Action
1	31-10-2015	435.00 Tk		<a href="#">✖</a> <a href="#">🖨</a>

Showing 1 to 1 of 1 entries First Previous 1 Next Last

## Orders History

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard | Registration | Purchase | Manufacturing | Stock | Sales | Payment | Bank | Expenditure | Report | Users | \* is required field

Orders History

Show 10 entries Search:

#	Order No	Order Date	Delivery Date	Status	Remarks	Client Name	Sub Total	Less	Grand Total	Action
1	151024#7	24-10-2015	28-10-2015	Pending		Akj Cement Company Ltd.	58000.00 Tk	0.00 Tk	58000.00 Tk	<a href="#">✖</a> <a href="#">🖨</a>
2	151024#6	24-10-2015	29-10-2015	Pending		Akj Printing & Packaging Ltd.	12000.00 Tk	0.00 Tk	12000.00 Tk	<a href="#">✖</a> <a href="#">🖨</a>
3	150802#5	02-08-2015	03-08-2015	Delivered		Khaza Engineering	3600.00 Tk	0.00 Tk	3600.00 Tk	<a href="#">✖</a> <a href="#">🖨</a>
4	150102#4	02-01-2015	05-01-2015	Delivered		Nice Denim Mills Ltd.	2160.00 Tk	0.00 Tk	2160.00 Tk	<a href="#">✖</a> <a href="#">🖨</a>
5	150101#3	01-01-2015	04-01-2015	Delivered		Akj Food & Beverage Ltd.	38400.00 Tk	0.00 Tk	38400.00 Tk	<a href="#">✖</a> <a href="#">🖨</a>
6	150101#2	01-01-2015	03-01-2015	Delivered		Akj Bidi Factory Ltd.	14400.00 Tk	0.00 Tk	14400.00 Tk	<a href="#">✖</a> <a href="#">🖨</a>
7	150101#1	01-01-2015	03-01-2015	Delivered		Abed Textile Processing Mills Ltd.	15720.00 Tk	220.00 Tk	15500.00 Tk	<a href="#">✖</a> <a href="#">🖨</a>

Showing 1 to 7 of 7 entries First Previous 1 Next Last

## Sales History

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard Registration Purchase Manufacturing Stock Sales Payment Bank Expenditure Report Users \* is required field

Sales History

Show 10 entries Search:

#	Invoice No	Date	Client Name	SR Name	Order No	Sub Total	Less	Grand Total	Action
1	151026#16	26-10-2015	Evergreen Textile Ltd.			11700.00 Tk	1700.00 Tk	10000.00 Tk	✖ 🗑
2	151027#15	27-10-2015	Graphics Engineering (Shempur)			15000.00 Tk	0.00 Tk	15000.00 Tk	✖ 🗑
3	151004#14	04-10-2015	Akij Cement Company Ltd.			30000.00 Tk	0.00 Tk	30000.00 Tk	✖ 🗑
4	151004#13	04-10-2015	Zaber & Zubair Fabrics Ltd.			502000.00 Tk	0.00 Tk	502000.00 Tk	✖ 🗑
5	151004#12	04-10-2015	Vibjor Color Dyeing			7200.00 Tk	0.00 Tk	7200.00 Tk	✖ 🗑
6	151002#11	02-10-2015	Nodi Bangla Textile Ltd.			18000.00 Tk	0.00 Tk	18000.00 Tk	✖ 🗑
7	151002#10	02-10-2015	Abed Textile Processing Mills Ltd.			12000.00 Tk	0.00 Tk	12000.00 Tk	✖ 🗑
8	151001#9	01-10-2015	Akij Bidi Factory Ltd.			20000.00 Tk	0.00 Tk	20000.00 Tk	✖ 🗑
9	151001#8	01-10-2015	Graphics Engineering (Khairul)			4500.00 Tk	0.00 Tk	4500.00 Tk	✖ 🗑
10	151001#7	01-10-2015	Ammex Knitting	Md. Abadul Islam		15600.00 Tk	1600.00 Tk	14000.00 Tk	✖ 🗑

Showing 1 to 10 of 16 entries First Previous 1 2 Next Last

## Return from History

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard Registration Purchase Manufacturing Stock Sales Payment Bank Expenditure Report Users \* is required field

Return From History

Show 10 entries Search:

#	Date	Client Name	SR Name	Invoice No	Sub Total	Less	Grand Total	Remarks	Action
1	31-10-2015	Abed Textile Processing Mills Ltd.			300.00 Tk	0.00 Tk	300.00 Tk		✖ 🗑

Showing 1 to 1 of 1 entries First Previous 1 Next Last

## Payable Due

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard Registration Purchase Manufacturing Stock Sales Payment Bank Expenditure Report Users \* is required field

Payable Due

Show 10 entries Search:

#	Name	MobileNo	PhoneNo	ProprietorName	ProprietorMobile	Address	BankAccount	PayableDue
1	M/S. Hoaasin Rubber		027166180	Mr. Hossain		BCC Road, Wari Dhaka-1203		2570.00 Tk
2	M/S. Satata Rubber	01835032146		Mr. Abdul Khalek		Taherbag Lane, Wari Dhaka-1203		111435.00 Tk
3	Mr. Nazimuddin	01714872751				Narshigdi		500.00 Tk
4	Raisa Rubber & Chemical		029591209	Mr. Ekhlis		Joginagar Lane, Wari Dhaka-1203		-63300.00 Tk
5	RH Rubber, Chittagong							60000.00 Tk

Showing 1 to 5 of 5 entries First Previous 1 Next Last

## Payment Made History

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard Registration Purchase Manufacturing Stock Sales Payment Bank Expenditure Report Users \* is required field

Payment Made History

Show 10 entries Search:

#	Date	SupplierName	PaidAmount	Type	BankName	AccountName	AccountNo	ChequeNo	ChequeDate	Remarks	Action
1	29-10-2015	M/S. Satata Rubber	56565.00 Tk	Cash							✖
2	10-04-2015	RH Rubber, Chittagong	50000.00 Tk	Cheque							✖
3	26-05-2015	Mr. Nazimuddin	25000.00 Tk	Cash							✖
4	10-03-2015	Raisa Rubber & Chemical	150000.00 Tk	Cash							✖
5	26-02-2015	Raisa Rubber & Chemical	100000.00 Tk	Cheque							✖
6	12-01-2015	Raisa Rubber & Chemical	100000.00 Tk	Cheque							✖
7	26-10-2015	M/S. Hoaasin Rubber	30000.00 Tk	Cash							✖

Showing 1 to 7 of 7 entries First Previous 1 Next Last

## Receivable Due

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard Registration Purchase Manufacturing Stock Sales Payment Bank Expenditure Report Users \* is required field

Receivable Due

Show 10 entries Search:

#	Name	MobileNo	PhoneNo	ProprietorName	ProprietorMobile	Address	BankAccount	ReceivableDue
1	Abed Textile Processing Mills Ltd.							11700.00 Tk
2	Akij Bidi Factory Ltd.							20000.00 Tk
3	Akij Cement Company Ltd.							30000.00 Tk
4	Ammex Knitting							14000.00 Tk
5	Evergreen Textile Ltd.							10000.00 Tk
6	Graphics Engineering (Khairul)							4500.00 Tk
7	Graphics Engineering (Shempur)							15000.00 Tk
8	Nice Denim Mills Ltd.							480.00 Tk
9	Nodi Bangla Textile Ltd.							18000.00 Tk
10	Vibjor Color Dyeing							7200.00 Tk

Showing 1 to 10 of 11 entries First Previous 1 2 Next Last

## Payment Received History

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard Registration Purchase Manufacturing Stock Sales Payment Bank Expenditure Report Users \* is required field

Payment Received History

Show 10 entries Search:

#	Date	ClientName	PaidAmount	Type	BankName	AccountName	AccountNo	ChequeNo	ChequeDate	Remarks	Action
1	05-08-2015	Abed Textile Processing Mills Ltd.	15000.00 Tk	Cash							✖
2	03-08-2015	Khaza Engineering	3600.00 Tk	Cash							✖
3	27-10-2015	Akij Food & Beverage Ltd.	38000.00 Tk	Cheque							✖
4	26-10-2015	Abed Textile Processing Mills Ltd.	21000.00 Tk	Cash							✖

Showing 1 to 4 of 4 entries First Previous 1 Next Last

## Bank Information

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard | Registration # | Purchase # | Manufacturing # | Stock # | Sales # | Payment # | Bank # | Expenditure # | Report | Users #

Bank Information \* is required field

Show 10 entries Search:

#	Bank Name	Account Name	Account No	Account Balance	Action
1	Brac Bank Ltd.	Desh Bangla Rubber & Plastic	1502200769023001	0.00 Tk	<a href="#">✖</a> <a href="#">✎</a>
2	DBBL	Desh Bangla Rubber & Plastic	224110577	0.00 Tk	<a href="#">✖</a> <a href="#">✎</a>
3	Dutch Bangla Bank Ltd.	Mohammad Lukman Hussain	187.101.81889	25000.00 Tk	<a href="#">✖</a> <a href="#">✎</a>
4	Islami Bank Bangladesh Ltd.	Desh Bangla Rubber & Plastic	5714	0.00 Tk	<a href="#">✖</a> <a href="#">✎</a>

Showing 1 to 4 of 4 entries First Previous 1 Next Last

## Transaction History

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard | Registration # | Purchase # | Manufacturing # | Stock # | Sales # | Payment # | Bank # | Expenditure # | Report | Users #

Transaction History \* is required field

Show 10 entries Search:

#	Date	Bank Name	Account No	Amount	Credited/Debited	Type	Depositor	Remarks	Action
1	14-11-2015	Dutch Bangla Bank Ltd.	187.101.81889	10000.00 Tk	Debited	Credit Card	Self		<a href="#">✖</a>

Showing 1 to 1 of 1 entries First Previous 1 Next Last

## Expenditure History

Mohammad Lukman Hussain Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard | Registration # | Purchase # | Manufacturing # | Stock # | Sales # | Payment # | Bank # | Expenditure # | Report | Users #

Expenditure History \* is required field

Show 10 entries Search:

#	Date	To Whom	Purpose	Paid Amount	Remarks	Action
1	05-09-2015	Test	Salary	25000.00 Tk	Sep-2015	<a href="#">✖</a> <a href="#">✎</a>

Showing 1 to 1 of 1 entries First Previous 1 Next Last

# Reports

Mohammad Lukman Hussein Logout

**Production Management System** Saturday, 14<sup>th</sup> November - 2015

Dashboard Registration **Purchase** Manufacturing Stock Sales Payment Bank Expenditure Report Users

Reports \* is required field

**Purchase**

Supplier ...

From  To

**Sales**

Client ...

From  To

**Payment Made**

Supplier ...

From  To

**Payment Received**

Client ...

From  To

**Bank Transaction**

Bank ...

From  To

**Expenditure**

From  To

## 5.3 Summary

In order to ensure the data flow and to determine the data structure as well, it is very important to design and develop the Inputs and Outputs formats of a computer-based system, Therefore, this chapter demonstrated the Inputs (Forms) and Outputs (Inserted Data).

## Chapter 6 : Report Generation

### 6.1 Report Formats

The sample reports of the developed system are given below:

#### Purchase Report:



দেশ বাংলা রাবার এন্ড প্লাস্টিক  
DESH BANGLA RUBBER & PLASTIC

Manufacturer : All Kinds of Best Quality Rubber & Plastic Spare Parts

Show Room : 58 B.C.C Road (Wari) Dhaka-1203, Phone: 02-9591209, Cell : 01713-272842, 01611-577195

#### Purchase Details

Purchase Date : 11-11-2018

Supplier Name : RH Rubber, Chittagong

Voucher No :

Mobile No : 0123456789

#	Code	Product Name	Brand	Size	Color	Price	Quantity	Unit	Total
1	1004	Reclam Compound				250.00	1	Piece	250.00

Sub Total : 250.00 Tk

Less : 0.00 Tk

Grand Total : 250.00 Tk

In Words : Two Hundred Fifty Taka Only.

#### Return to Report:



দেশ বাংলা রাবার এন্ড প্লাস্টিক  
DESH BANGLA RUBBER & PLASTIC

Manufacturer : All Kinds of Best Quality Rubber & Plastic Spare Parts

Show Room : 58 B.C.C Road (Wari) Dhaka-1203, Phone: 02-9591209, Cell : 01713-272842, 01611-577195

#### Return To Details

Return Date : 08-01-2016

Supplier Name : RH Rubber, Chittagong

Voucher No : 123

Mobile No : 0123456789

#	Code	Product Name	Brand	Size	Color	Price	Quantity	Unit	Total
1	1001	Silicon-40				100.00	5	KG	500.00

Sub Total : 500.00 Tk

Less : 0.00 Tk

Grand Total : 500.00 Tk

In Words : Five Hundred Taka Only.

## Consumption Report:



# দেশ বাংলা রাবার এন্ড প্লাস্টিক

## DESH BANGLA RUBBER & PLASTIC

Manufacturer : All Kinds of Best Quality Rubber & Plastic Spare Parts

Show Room : 58 B.C.C Road (Wari) Dhaka-1203, Phone: 02-9591209, Cell : 01713-272842, 01611-577195

### Consumption Details

Consumption Date : 10-11-2018

Remarks : Test

#	Code	Product Name	Brand	Size	Color	Price	Quantity	Unit	Total
1	1001	Silicon-40				100.00	10	KG	1000.00
<b>Grand Total :</b>									1000.00 Tk

In Words : One Thousand Taka Only.

## Produce Products report:



# দেশ বাংলা রাবার এন্ড প্লাস্টিক

## DESH BANGLA RUBBER & PLASTIC

Manufacturer : All Kinds of Best Quality Rubber & Plastic Spare Parts

Show Room : 58 B.C.C Road (Wari) Dhaka-1203, Phone: 02-9591209, Cell : 01713-272842, 01611-577195

### Produce Products Details

Produce Date : 11-11-2018

Remarks :

#	Code	Product Name	Brand	Size	Color	Cost	Quantity	Unit	Total
1	2003	Tyre Coupling				300.00	1	Piece	300.00
<b>Grand Total :</b>									300.00 Tk

In Words : Three Hundred Taka Only.

## Damage report:



# দেশ বাংলা রাবার এন্ড প্লাস্টিক

## DESH BANGLA RUBBER & PLASTIC

Manufacturer : All Kinds of Best Quality Rubber & Plastic Spare Parts

Show Room : 58 B.C.C Road (Wari) Dhaka-1203, Phone: 02-9591209, Cell : 01713-272842, 01611-577195

### Damage Details

Damage Date : 08-01-2016

Remarks :

#	Code	Product Name	Brand	Size	Color	Type	Price	Quantity	Unit	Total
1	1007	Acid (H2SO4)				Raw	400.00	20	Pound	8000.00

Grand Total : 8000.00 Tk

In Words : Eight Thousand Taka Only.

## Order report:



# দেশ বাংলা রাবার এন্ড প্লাস্টিক

## DESH BANGLA RUBBER & PLASTIC

Manufacturer : All Kinds of Best Quality Rubber & Plastic Spare Parts

Show Room : 58 B.C.C Road (Wari) Dhaka-1203, Phone: 02-9591209, Cell : 01713-272842, 01611-577195

### Orders Details

Order Date : 08-01-2016

Client Name : Akij Ceramic Ltd.

Delivery Date : 10-01-2016

Mobile No :

Order No : 160108#1

Remarks :

#	Code	Product Name	Brand	Size	Color	Price	Quantity	Unit	Total
1	2001	Rubber Coupling				150.00	1	Piece	150.00
2	2002	Cleaner Knife (Rubberizing)				300.00	1	Piece	300.00

Sub Total : 450.00 Tk

Less : 0.00 Tk

Grand Total : 450.00 Tk

Advance : 0.00 Tk

Due : 450.00 Tk

In Words : Four Hundred Fifty Taka Only.

## Sales report:



# দেশ বাংলা রাবার এন্ড প্লাস্টিক

## DESH BANGLA RUBBER & PLASTIC

Manufacturer : All Kinds of Best Quality Rubber & Plastic Spare Parts

Show Room : 58 B.C.C Road (Wari) Dhaka-1203, Phone: 02-9591209, Cell : 01713-272842, 01611-577195

Invoice No : 181110#2

Selling Date : 10-11-2018

Client Name : Akij Ceramic Ltd.

Order No :

Mobile No :

#	Code	Product Name	Brand	Size	Color	Price	Quantity	Unit	Total
1	2001	Rubber Coupling				150.00	3	Piece	450.00
2	2002	Cleaner Knife (Rubberizing)				300.00	5	Piece	1500.00

Sub Total : 1950.00 Tk

Less : 0.00 Tk

Grand Total : 1950.00 Tk

In Words : One Thousand Nine Hundred Fifty Taka Only.

## Return from report:



# দেশ বাংলা রাবার এন্ড প্লাস্টিক

## DESH BANGLA RUBBER & PLASTIC

Manufacturer : All Kinds of Best Quality Rubber & Plastic Spare Parts

Show Room : 58 B.C.C Road (Wari) Dhaka-1203, Phone: 02-9591209, Cell : 01713-272842, 01611-577195

Return From Details

Return Date : 09-01-2016

Client Name : Akij Ceramic Ltd.

Invoice No :

Mobile No :

#	Code	Product Name	Brand	Size	Color	Price	Quantity	Unit	Total
1	2002	Cleaner Knife (Rubberizing)				300.00	1	Piece	300.00

Sub Total : 300.00 Tk

Less : 0.00 Tk

Grand Total : 300.00 Tk

In Words : Three Hundred Taka Only.

## **Chapter 7 : Findings and Comparative Analysis**

### **7.1 Findings**

The Production Management is very much dependent on the inventory of raw material as well as the produced goods, and the inventory is dependent on the purchase and sales information as well as damage and return information. Hence, all the Production Management System keeps a good track of the inventory, whether it is a computerized automated system or a simple paper based manual system.

After analyzing and comparing the Internet based Automated Production Management System with the manual operations of the Production Management, it is found that the automated PMS is more secure, time saving which in turn saves money, it also maintains the consistency of data with structured database which makes the record keeping and Report generation very simple and easy. On the other hand, the conventional manual system is mostly based on paper based day-to-day record keeping which require lots of man-hour to calculate and count the inventory, not to mention the effort and the man-hour required for any report generation.

However, even the automated system is also dependent on manual inputs; therefore, it is very important to carefully enter the data into the system in order to maintain the accuracy as well as the consistency of the reports and information.

## 7.2 Comparative Analysis

The comparative analysis of the manual system and the internet based automated PMS is given below with the features.

<b>Features</b>	<b>Manual System</b>	<b>Automated PMS</b>
Security / Accessibility	Not secured, anyone can access.	Secured with user ID and Password.
Structure of Information	Not structured, scattered information	Structured databased oriented information
Time consumption	More time consuming than computerized system	Time consumption is significantly less than manual system
Paperwork	Lots of paperwork which require additional storage	No paperwork for information storing and processing
Consistency	Data is not always consistent in manual system	Data is always consistent once it is entered
Record Keeping	Record keeping is always hectic and there is no error detection in manual system	Record keeping is very simple in form based user interface with autofill options
Report Generation	Report generation is very time consuming and require lots of resources	Report generating is very easy with just few clicks

## 7.3 Summary

This Chapter had focused Findings and Comparative Analysis including some indication of Future development works.

## **Chapter 8 : Summary and Conclusions**

### **8.1 Summary**

Several tools have been used in the proposed system to make it efficient one. The developed system is very user friendly and tidy with proper information with various distributors. Many problems have been faced during implementing this project, those problems are overcome using help from different books and tutorial based websites. It could not be completed some sectors of the site because of shortage of times, it has helped to present a project through DFD, Activity, E-R Diagram, and Schema Diagram graphically in front of the users. It works perfectly and also very interesting and exciting experience for developing this project.

### **8.2 Conclusion**

Several automated production management systems for shopping are studied and analyzed and a comparison chart with the manual system is printed. All the features of the production management system are identified, that helps to understand a clear concept about the working process of the manual and automated production managed system. Based on all the features, a new production management system has been designed, developed and implemented on a real life example that is on the “Desh Bangla Rubber and Plastic” which is worked on the internet based environment. So that one can easily works on the system from anywhere and anytime to perform all sorts of actions related to production management. To test the working process of the product system, sample data are inputted are processed them and finally several outputs are found those are produced here. The developed this system is an automated web based application system that provides the advantages such as saving the time, facilitating to buy product. The administrator can update their products through database and maintain relationship with customers by sending information about new products and different types of offers through email at any time.

### **8.3 Future Work**

The software is designed and developed to meet the client's immediate requirements, but still there are lots of features that can be added in the future. For example:

- Barcode reading facility
- Warehouse/storage facility
- Automatic SMS/mail notification
- More detailed reports
- Add more dynamic characteristics

## References

### Books:

1. Database System Concept – by Silberschatz, Korth and Sudarshan
2. Systems Analysis and Design – by K. Kendall & J. Kendall
3. Software Engineering – by Roger S. Pressman
4. Internet & World Wide Web How to Program - by P.J. Deitel & H.M. Deitel
5. Code igniter for Rapid PHP Application Development – by Davit Upton

### Websites

1. <https://www.wikipedia.org>
2. <http://www.w3schools.com>
3. <http://stackoverflow.com>
4. <http://www.php.net>
5. <http://www.mysql.com>
6. <http://www.jqueryscript.net>
7. <http://api.jquery.com>
8. <http://www.jeasyui.com>
9. <http://www.mpdf1.com>
10. [https://www.researchgate.net/profile/Sushil\\_Choudhary5/publication/299616851\\_Developed\\_the\\_Inventory\\_Management\\_System\\_for\\_ERP\\_Implementing\\_in\\_Manufacturing\\_Industry/links/5703396f08aea09bb1a30e26/Developed-the-Inventory-Management-System-for-ERP-Implementing-in-Manufacturing-Industry.pdf](https://www.researchgate.net/profile/Sushil_Choudhary5/publication/299616851_Developed_the_Inventory_Management_System_for_ERP_Implementing_in_Manufacturing_Industry/links/5703396f08aea09bb1a30e26/Developed-the-Inventory-Management-System-for-ERP-Implementing-in-Manufacturing-Industry.pdf)
11. [https://www.researchgate.net/profile/Bo\\_Bolaji/publication/270759414\\_Computerised\\_Inventory\\_Management\\_for\\_a\\_Manufacturing\\_Industry\\_A\\_case\\_Study\\_in\\_Nigeria/links/54b401a50cf2318f0f96a9ae/Computerised-Inventory-Management-for-a-Manufacturing-Industry-A-case-Study-in-Nigeria.pdf](https://www.researchgate.net/profile/Bo_Bolaji/publication/270759414_Computerised_Inventory_Management_for_a_Manufacturing_Industry_A_case_Study_in_Nigeria/links/54b401a50cf2318f0f96a9ae/Computerised-Inventory-Management-for-a-Manufacturing-Industry-A-case-Study-in-Nigeria.pdf)
12. [https://www.researchgate.net/publication/318190332\\_A\\_Case\\_Study\\_of\\_Inventory\\_Management\\_in\\_a\\_Manufacturing\\_Company\\_in\\_China/fulltext/595c1d3baca272f3c0889773/318190332\\_A\\_Case\\_Study\\_of\\_Inventory\\_Management\\_in\\_a\\_Manufacturing\\_Company\\_in\\_China.pdf?origin=publication\\_detail](https://www.researchgate.net/publication/318190332_A_Case_Study_of_Inventory_Management_in_a_Manufacturing_Company_in_China/fulltext/595c1d3baca272f3c0889773/318190332_A_Case_Study_of_Inventory_Management_in_a_Manufacturing_Company_in_China.pdf?origin=publication_detail)
13. <https://pdfs.semanticscholar.org/9797/5b04b2c308d272a617e4f676a3fdd90b3d50.pdf>

14. <https://www.womensenterprise.ca/wp-content/uploads/2017/04/Inventory20Management20-20Manufacturing.pdf>
15. <https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0156026&type=printable>
16. [https://www.researchgate.net/profile/Edward\\_Silver3/publication/228866828\\_Inventory\\_Management\\_An\\_Overview\\_Canadian\\_Publications\\_Practical\\_Applications\\_and\\_Suggestions\\_for\\_Future\\_Research/links/00b7d53272c49cec6b000000/Inventory-Management-An-Overview-Canadian-Publications-Practical-Applications-and-Suggestions-for-Future-Research.pdf?origin=publication\\_detail](https://www.researchgate.net/profile/Edward_Silver3/publication/228866828_Inventory_Management_An_Overview_Canadian_Publications_Practical_Applications_and_Suggestions_for_Future_Research/links/00b7d53272c49cec6b000000/Inventory-Management-An-Overview-Canadian-Publications-Practical-Applications-and-Suggestions-for-Future-Research.pdf?origin=publication_detail)
17. <http://article.sciencepublishinggroup.com/pdf/10.11648.j.ijefm.20150305.18.pdf>
18. <https://www.irjet.net/archives/V5/i4/IRJET-V5I448.pdf>
19. [https://www.researchgate.net/profile/Dirk\\_Pons/publication/220572881\\_System\\_model\\_of\\_production\\_inventory\\_control/links/0f317530d35086822f000000/System-model-of-production-inventory-control.pdf](https://www.researchgate.net/profile/Dirk_Pons/publication/220572881_System_model_of_production_inventory_control/links/0f317530d35086822f000000/System-model-of-production-inventory-control.pdf)
20. [https://www.researchgate.net/profile/Sharfuddin\\_Khan/publication/264971775\\_Implementation\\_of\\_Inventory\\_Management\\_System\\_in\\_a\\_Furniture\\_Company\\_A\\_Real\\_Case\\_study/links/53f7bc140cf2823e5bdbd529/Implementation-of-Inventory-Management-System-in-a-Furniture-Company-A-Real-Case-study.pdf](https://www.researchgate.net/profile/Sharfuddin_Khan/publication/264971775_Implementation_of_Inventory_Management_System_in_a_Furniture_Company_A_Real_Case_study/links/53f7bc140cf2823e5bdbd529/Implementation-of-Inventory-Management-System-in-a-Furniture-Company-A-Real-Case-study.pdf)