

# **WEB BASED ERP SYSTEM FOR OPERATIONAL MANAGEMENT**

*A project report submitted in partial fulfilment of the requirements for the  
award of the Degree of*

**BACHELOR OF TECHNOLOGY**

**In**

**COMPUTER SCIENCE AND ENGINEERING**

*Presented By*

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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**IDEAL INSTITUTE OF TECHNOLOGY**

Approved by AICTE, Accredited by NAAC with A+, Affiliated to JNTUK, Kakinada  
Vidyut Nagar, Kakinada-533003, Kakinada Dist., Andhra Pradesh.

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### CERTIFICATE

This is to certify that the project work entitled, **“WEB BASED ERP SYSTEM FOR OPERATIONAL MANAGEMENT”** is a Bonafide work **D. SIVA SOWMYA (216K1A0521)** submitted to the department of **Computer Science and Engineering**, in partial fulfilment of the requirements for the award of the degree of **BACHELOR OF TECHNOLOGY** in **COMPUTER SCIENCE AND ENGINEERING** from **IDEAL INSTITUTE OF TECHNOLOGY**, Kakinada.

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We hereby declare that the project report entitled, “**WEB BASED ERP SYSTEM FOR OPERATIONAL MANAGEMENT**” has been carried out and contents have been submitted in partial fulfillment of the requirements for the award of the degree of **BACHELOR OF TECHNOLOGY** in **COMPUTER SCIENCE AND ENGINEERING, IDEAL INSTITUTE OF TECHNOLOGY**, Affiliated to JNTUK, Kakinada. We assure that this project report has not been submitted to any other University or College.

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<b>PO3</b>	Design/development of solutions:	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
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### Program Specific Outcomes (PSOs)

**PSO1:** The ability to comprehend, analyze, design and incorporate application-based solutions.

**PSO2:** To facilitate oneself with the capability to solve complex projects using updated tools and technologies.



## INDEX

TOPIC	PAGENO
Abstract	i
List of Figures	ii
List of Tables	iii
List of Abbreviations	iv
<b>1. INTRODUCTION</b>	<b>[01-03]</b>
1.1 About the Project	02
1.2 Modules of the Project	03
<b>2. LITERATURE REVIEW</b>	<b>[04-10]</b>
2.1 Reviews	04
2.1.1 Review-1	05
2.1.2 Review-2	06
2.1.3 Review-3	07
2.1.4 Review-4	08
<b>3. SYSTEM REQUIREMENTS SPECIFICATIONS</b>	<b>[10-17]</b>
3.1 Existing System	11
3.2 Proposed System	12
3.3 System Requirements Specification	13
3.3.1 User Requirements	13
3.3.2 Hardware Requirements	13
3.3.3 Software Requirements	14
3.3.4 Tools and Techniques	14
3.4 Feasibility Study	16
3.4.1 Technical Feasibility	16
3.4.2 Operational Feasibility	16
3.4.3 Economical Feasibility	17
<b>4. SYSTEM DESIGN</b>	<b>[18-26]</b>
4.1 System Architecture	19-22
4.2 UML Diagrams	23-26
4.2.1 Use case Diagram	24
4.2.2 Activity Diagram	25
4.2.3 Sequence Diagram	26
<b>5. SAMPLE CODE</b>	<b>[27-30]</b>

<b>6.IMPLEMENTATION OF THE PROJECT</b>	<b>[31-34]</b>
6.1 Installing XAMPP	32
6.2 Testing your XAMPP Installation	33
6.3 Implementation of phpMyAdmin	33
6.4 Module Wise Implementation	35
<b>7.TESTING</b>	<b>[38-45]</b>
7.1 About Testing	39
7.2 Types of Software Testing	39
7.3 Testing used in Enterprise Management System	40
7.3.1 Test Case 1	41
7.3.2 Test Case 2	41
7.3.3 Test Case 3	41
7.3.4 Test Case 4	42
7.3.5 Test Case 5	42
7.3.6 Test Case 6	42
7.3.7 Test Case 7	43
7.3.8 Test Case 8	43
7.3.9 Test Case 9	43
7.3.10 Test Case 10	44
7.3.11 Test Case 11	44
7.3.12 Test Case 12	44
7.3.13 Test Case 13	45
7.3.14 Test Case 14	45
<b>8.RESULTS AND DISCUSSION</b>	<b>[46-52]</b>
8.1 Results	46
Screenshots	47-52
<b>9.CONCLUSIONS AND FUTURE SCOPE</b>	<b>[53-55]</b>
9.1 Conclusion	54
9.2 Future Scope	55
<b>10. BIBLIOGRAPHY</b>	<b>[56-57]</b>

## **ABSTRACT**

The Digital ERP System for Printing Press is designed to revolutionize the management of printing businesses by digitizing and automating key operational processes. Traditionally, printing presses rely on manual record-keeping, which is time-consuming, prone to errors, and inefficient. This ERP system centralizes all business functions vendor management, customer records, inventory tracking, and sales management into a single, user-friendly platform. By implementing role-based access, it ensures that each user, including Admin, Super Admin, Accountant, and Receptionist, can efficiently perform their tasks with ease and security.

The Admin oversees daily operations, including adding vendors, customers, and managing inventory and sales charges. The Super Admin has the highest authority, responsible for user management and defining inventory categories. The Receptionist will handle customer inquiries and appointments, while the Accountant will manage financial records and transactions.

With this ERP system, all data is stored in a centralized, searchable format, reducing redundancy and eliminating manual errors. Inventory records are properly categorized, preventing stock mismanagement and improving business efficiency. Sales pricing is set dynamically based on purchase costs and profit margins, ensuring profitability and consistency. Additionally, the system enforces strict security measures by allowing only authorized personnel to access sensitive business data.

This system offers multiple advantages, including time savings, improved accuracy, and seamless data accessibility. By eliminating paperwork, employees can focus on strategic business activities rather than administrative tasks. The system also prevents duplicate entries and miscalculations, ensuring financial transparency and operational efficiency.

### **FEATURES:**

- Maintains accurate records and prevents duplicate entries.
- Tracks stock levels, categorizes products, and ensures easy accessibility.
- Different user levels ensure structured workflow management.
- Reduces paperwork, improves workflow, and enhances productivity.

## LIST OF FIGURES

Figure Number	Figure Name	Page Number
1	Super Admin Role	20
2	Admin Role	20
3	Reception Role	20
4	CTP User Role	21
5	Multicolour User Role	21
6	Digital User Role	21
7	Delivery User Role	22
8	Accountant Role	22
9	Distpatch User Role	22
10	Use Case Diagram	24
11	Activity Diagram	25
12	Sequence Diagram	26
13	Implementation of phpMyAdmin	34
14	Super Admin Management	48
15	Admin Management	48
16	Reception Management	49
17	CTP Management	49
18	Multicolour Management	50
19	Digital User Management	50
20	Delivery Management	51
21	Accounts Management	51
22	Distpatch Management	52

## LIST OF TABLES

Table	Table Name	Page Number
1	Hardware Requirements	13
2	Software Requirements	14
7.3.1	Test Case 1	41
7.3.2	Test Case 2	41
7.3.3	Test Case 3	41
7.3.4	Test Case 4	42
7.3.5	Test Case 5	42
7.3.6	Test Case 6	42
7.3.7	Test Case 7	43
7.3.8	Test Case 8	43
7.3.9	Test Case 9	43
7.3.10	Test Case 10	44
7.3.11	Test Case 11	44
7.3.12	Test Case 12	44
7.3.13	Test Case 13	45
7.3.14	Test Case 14	45

## **List of Abbreviations**

JS	:	Java Script
XAMPP	:	X-Operating System, Apache, MySQL, PHP, Perl SQL
SQL	:	Structured Query language
HTML	:	Hypertext Markup Language
CSS	:	Cascading Style Sheet
PHP	:	Hypertext Pre-Processor
GUI	:	Graphical User Interface
CTP	:	Computer to plate

# **Chapter-1**

# **INTRODUCTION**

# **1. INTRODUCTION**

## **1.1 About the project**

The Digital ERP System for Printing Press is developed to streamline and automate the operations of a printing business. Traditionally, the system rely on manual processes for managing vendors, customers, inventory, and sales, which can be time-consuming and prone to errors. This system is designed to eliminate paperwork and provide a structured and efficient way of handling all business operations through a centralized digital platform.

The system introduces role-based access, allowing different users to perform their tasks efficiently. There are four types of users in the system including the admin, super admin, accountant, and receptionist. Each user has a customized dashboard that provides access to relevant functionalities, ensuring smooth workflow and data security. The admin is responsible for handling vendors, customers, inventory, and sales charges while the super admin has additional privileges such as managing users and defining inventory categories. The receptionist and accountant roles will be integrated in future updates to handle customer inquiries and financial transactions respectively.

With this ERP system, businesses can store vendor details, track supplies, manage customer records, and maintain an organized inventory system. The sales section allows for setting prices based on costs and profit margins, ensuring profitability and transparency. Additionally, the system prevents duplicate customer or vendor entries, ensuring data accuracy.

By implementing this digital ERP system, the printing press can significantly improve efficiency, reduce manual errors, and ensure that all business records are well-organized. The system enables real-time tracking of inventory and sales, making it easier for management to make informed decisions. With a focus on automation and security, this system transforms the way printing businesses operate by providing a reliable and structured approach to managing daily operations. Future enhancements will further expand the capabilities of the system, ensuring its adaptability to evolving business needs.



## **1.2 Modules of the project**

- ❖ Admin
  - Manage vendors, customers, and inventory.
  - Set sales prices and maintain transaction records.
- ❖ Super Admin
  - Add and manage user accounts.
  - Manage or set inventory for the Admin.
- ❖ Receptionist
  - Collect requirements from customers.
  - Make new orders in the job sheet.
  - View and track orders in the job sheet.
- ❖ CTP (Computer-to-Plate)
  - View documents uploaded by the Receptionist.
  - Process documents and upload the completed version to the Multicolor department.
- ❖ Multicolour
  - Will check the documents uploaded by ctp user and updates the completed documents to delivery user.
  - user will maintain the machines of colouring.
- ❖ Digital
  - Fixes the prices for digital plates.
  - Completes the order and uploads the documents which are sent to delivery followed by accountant.
- ❖ Delivery
  - Access completed documents from the Digital, Multicolor departments.
  - Deliver the final order to customers.
- ❖ Accountant
  - Check the payment status (full or partial).
  - Process and collect payments from customers.
- ❖ Dispatch
  - Confirms the dispatch slip.
  - Prepares the items for delivery.

# **Chapter-2**

# **LITERATURE REVIEW**

## **2. LITERATURE REVIEW**

### **2.1 REVIEWS**

#### **2.1.1 Review-1**

##### **Digital Transformation in Printing Press Operations:**

Digital transformation has been a driving force in various industries, replacing traditional manual processes with automated systems. Enterprise Resource Planning (ERP) systems have gained prominence as a means to streamline operations, enhance efficiency, and improve decision-making. The Web-Based ERP System designed for a printing press aligns with this transformation by automating inventory tracking, customer management, and sales processing. Existing literature on digital transformation in small and medium-sized enterprises (SMEs) highlights the importance of adopting ERP solutions to optimize workflows and reduce operational redundancies.

Prior studies emphasize that ERP systems should offer secure, role-based access to maintain data integrity and prevent unauthorized modifications. The proposed system follows this model by implementing an authentication mechanism with multiple user roles such as Admin, Super Admin, Accountant, and Receptionist. Furthermore, the introduction of features like digital quotations and automated invoice generation significantly reduces human errors, a recurring challenge in manual record-keeping. This ERP system's design aligns with the best practices identified in the literature for increasing efficiency through automation, making it a viable tool for modernizing the printing press industry.

##### **Disadvantages:**

- High Initial Implementation Cost
- Complexity and Learning Curve
- Dependency on Internet Connectivity

### **2.1.2 Review - 2**

#### **The Role of ERP Systems in Enhancing Operational Efficiency in the Printing Industry:**

Enterprise Resource Planning (ERP) systems have become essential tools for modern businesses, offering integrated solutions to streamline operations and improve decision-making. The printing industry, which traditionally relies on manual processes for inventory management, customer tracking, and sales processing, has increasingly adopted ERP solutions to address inefficiencies. Research highlights that ERP implementation leads to enhanced workflow automation, reducing human errors and operational delays. Studies suggest that businesses using ERP systems experience improved coordination among departments, allowing for better resource utilization and faster service delivery. Inventory management is a critical component of printing press operations, as materials such as paper, ink, and printing plates must be carefully tracked to prevent shortages and overstocking. Literature on ERP-based inventory control emphasizes its ability to provide real-time updates, automate stock monitoring, and reduce waste. Automated inventory tracking minimizes errors associated with manual record-keeping, ensuring that resources are utilized efficiently. Research further supports that ERP-driven inventory management enables businesses to anticipate demand, leading to optimized supply chain operations and cost savings.

Another key function of ERP systems in the printing industry is customer and vendor management. Traditional methods of handling client records, order details, and supplier transactions often result in data inconsistencies and delays in processing. Studies indicate that ERP adoption improves customer relationship management by centralizing client data, enabling faster response times, and ensuring accurate order tracking.

Additionally, vendor management features in ERP systems streamline procurement processes, reducing delays and ensuring timely supply of essential materials. Sales processing is another area where ERP systems contribute to operational efficiency. Literature on ERP-driven sales

management highlights that automating invoice generation, pricing control, and order tracking leads to improved accuracy and faster transactions. Traditional sales management practices often suffer from discrepancies in pricing and delays in processing customer orders. Research supports that ERP systems help standardize pricing models, prevent miscalculations, and facilitate transparent financial transactions. The integration of digital quotations and invoicing within the ERP framework reduces manual intervention, leading to more efficient and error-free operations.

**Disadvantages**

- High Implementation and Maintenance Costs
- Resistance to Change Among Employees
- System Downtime and Technical Issues

**2.1.3 Review - 3****Impact of ERP Systems on Operational Efficiency:**

Enterprise Resource Planning (ERP) systems have been widely studied for their impact on organizational efficiency. Scholars have found that ERP adoption leads to improved resource management, better decision-making, and enhanced productivity. The Web-Based ERP System for printing press operations is designed to address inefficiencies in manual workflows, including vendor and customer management, inventory tracking, and pricing control. Research on ERP benefits highlights the importance of automating repetitive tasks, reducing operational delays, and minimizing errors.

The system in question enables the reception staff to convert customer inquiries into quotations or job sheets, ensuring a streamlined order processing mechanism. Additionally, inventory tracking features align with best practices in ERP implementations, allowing admins to categorize products and monitor stock levels in real-time. Studies suggest that digital invoicing, another core feature of this ERP, significantly reduces processing time and improves financial record-keeping. By integrating automation into key business processes, this system aligns with established research findings on how ERP enhances organizational efficiency.

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**Disadvantages:**

- High Training Requirements
- Customization Challenges
- Data Migration Issues

**2.1.4 Review – 4****Integration of ERP Systems in Printing Press Management :**

Enterprise Resource Planning (ERP) systems have transformed business operations by providing centralized solutions for managing inventory, customer relationships, sales, and financial transactions. Research indicates that ERP adoption enhances workflow efficiency by automating manual tasks and reducing human errors. The Web-Based ERP System for printing press management aligns with these findings by integrating various business functions into a unified platform.

One of the key benefits of ERP systems, as highlighted in the literature, is inventory management. Printing press businesses require precise tracking of materials such as paper, ink, and printing plates to avoid shortages and excess stock. Studies emphasize that ERP-driven inventory control minimizes wastage, improves stock visibility, and ensures timely replenishment. The system's inventory module allows administrators to categorize and track stock levels, which supports efficient supply chain operations.

Customer and vendor management is another crucial aspect of ERP integration. Traditional methods of handling client and supplier information often lead to inconsistencies and delays in order processing. Research suggests that ERP systems streamline these processes by centralizing data, ensuring quick access to customer details, purchase history, and supplier transactions. This improves overall communication and service delivery. The system under review incorporates features for tracking customer interactions and managing vendor relationships, ensuring better coordination and operational transparency.

Studies also emphasize the importance of automating sales and financial transactions in ERP systems. Manual invoicing and pricing adjustments often result in miscalculations and delays.

Literature suggests that ERP-driven invoicing enhances accuracy, speeds up transactions, and ensures compliance with standardized pricing models. This system includes a quotation and invoicing module that helps businesses maintain precise financial records and reduce processing time.

Security in ERP systems is a widely researched topic, with studies highlighting the necessity of Role-Based Access Control (RBAC). Limiting user access based on job roles helps prevent unauthorized changes and data breaches. Research indicates that well-defined access restrictions improve accountability and protect sensitive information. The ERP system follows this approach by assigning permissions to different user roles such as Admin, Super Admin, Accountant, Receptionist, and Delivery personnel.

The integration of ERP systems in printing press management aligns with research findings on automation, workflow optimization, and data security. By centralizing business operations, the system enhances efficiency, reduces errors, and ensures smooth communication across departments.

**Disadvantages:**

- High Implementation Costs
- Complexity in System Adoption
- Dependence on Internet Connectivity.

# **Chapter-3**

# **SYSTEM**

# **REQUIREMENTS**

# **SPECIFICATION**



### 3. SYSTEM REQUIREMENTS SPECIFICATION

#### 3.1 Existing System:

The current system used in printing press management relies heavily on manual processes, including maintaining physical records for customer orders, inventory, and financial transactions. These records are often documented in registers, spreadsheets, or standalone software, which lack proper integration. Communication between different departments such as reception, production, and delivery is inefficient, leading to delays and mismanagement.

Inventory tracking is another challenge, as stock levels are often monitored manually, increasing the risk of errors and miscalculations. Order processing depends on written or verbal instructions, making it difficult to track the status of jobs accurately. Additionally, customer payment records are not centrally managed, resulting in inconsistencies and difficulties in tracking full or partial payments.

Security is a major concern in the existing system, as unauthorized access to sensitive business data can lead to data breaches or loss of critical information. With no centralized digital system, retrieving past records is time-consuming and prone to errors. Moreover, since manual documentation requires significant human effort, businesses experience inefficiencies in their workflow. Overall, the traditional system lacks automation, real-time tracking, and centralized control, making business operations slow and prone to errors. As printing businesses grow, the limitations of the manual system become more evident, necessitating the need for an efficient, digital ERP solution

#### Disadvantages of the Existing System:

- Manual Errors and Inefficiency
- Lack of Real-time Tracking
- Security Risks and Data Loss
- Time-Consuming and Labor-Intensive

### **3.2 Proposed System:**

The proposed Digital ERP System for Printing Press addresses the inefficiencies of the existing system by introducing automation, real-time tracking, and centralized data management. Unlike the manual system, this ERP ensures seamless communication between different departments, allowing users to track order progress from reception to delivery with greater accuracy. The system enhances inventory management by maintaining an up-to-date stock database, reducing errors, and ensuring that required materials are always available. Additionally, customer records, job sheets, and financial transactions are securely stored in a centralized database, minimizing the risk of data loss or unauthorized access. Role-based access control ensures that only authorized users can access specific modules, improving security and confidentiality. The ERP also streamlines payment processing by allowing accountants to track full and partial payments, reducing discrepancies and improving financial management. Another key advantage is improved efficiency. Automated order tracking eliminates paperwork, reducing processing time and ensuring smooth workflow. The system also prevents duplication of customer or vendor entries, ensuring data consistency. With real-time monitoring, enhanced security, and automation, the proposed ERP system significantly improves operational efficiency, reduces errors, and enables better decision-making, making it an essential solution for modern printing businesses.

#### **Advantages:**

This contains the following benefits:

- Automation and Accuracy
- Real-time Order and Inventory Tracking
- Centralized Data Management
- Role-based Access Control
- Efficient Payment Handling
- Improved Business Efficiency

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**Features of the Proposed system:**

1. Integrated Workflow Management – Ensures seamless communication between departments, allowing users to track job progress from reception to delivery efficiently.
2. Automated Inventory and Sales Tracking – Maintains real-time stock levels and dynamic pricing for better financial control.
3. Secure Role-Based Access – Restricts data access based on user roles, ensuring confidentiality and security.

**3.3 System Requirements Specification:****3.3.1 User Requirements:**

- Must have a Computer/ Laptop.
- Must have their Email-id/Registration number required for the authentication.

**3.3.2 Hardware Requirements:**

Name of the Component	Specification
Processor	i3 or Newer
RAM	4 GB
Hard disk	512 GB
Monitor	15” Color monitor
Keyboard	122Keys

Table 1: Hardware Requirements

### 3.3.3 Software Requirements:

Name of the Component	Specification
Operating System	Windows 7 or 10
Database	MySQL Server
IDE (Integrated Development Environment)	Visual Studio Code

Table 2: Software Requirements

### 3.3.4 Tools and Techniques:

- JavaScript
- XAMPP
- MySQL
- HTML
- CSS
- PHP

#### JavaScript

JavaScript is a lightweight, interpreted, or just-in-time compiled programming language with first class functions. While it is most well-known as the scripting languages for Web pages, many non-browser environments also use it, such as Node.js, Apache, CouchDB and Adobe Acrobat. JavaScript is a prototype-based, multi-paradigm, single-threaded, dynamic language, supporting object-oriented, imperative, and declarative styles.

JavaScript is used by programmers across the world to create dynamic and interactive web content like applications and browsers. JavaScript is so popular that it is the most used programming language in the world, used as a client-side programming language by 97.0% of all websites

## **XAMPP**

XAMPP is a free and open-source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages. XAMPP stands for Cross-Platform (X), Apache (A). It is a simple, lightweight Apache distribution that makes it extremely easy for developers to create a local web server for testing and deployment purposes. XAMPP works equally well on Linux and Windows. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server extremely easy as well.

## **MySQL**

MySQL is a relational database management system based on SQL-Structured Query Language. The application is used for a wide range of purposes, including data warehousing, e-commerce and logging applications. The most common use for MySQL is for the purpose of a web database. MySQL creates a database for storing and manipulating data, defining the relationship of each table. Clients can make request by typing specific SQL statements on MySQL.

## **HTML**

Hypertext Markup Language (HTML) is the standard markup language for creating web pages and web applications.

Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

HTML elements are the building blocks of HTML pages. With HTML constructs, images and other objects such as interactive forms may be embedded into the rendered page.

## **CSS**

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language like HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript. CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts.

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## **PHP**

PHP is an acronym for Hypertext Preprocessor. PHP is a widely-used, open-source scripting language. PHP scripts are executed on the server. PHP is free to download and use. PHP can generate dynamic page content and can create, open, read, write, delete, and close files on the server. PHP can collect form data. It can send and receive cookies. PHP can add, delete, modify data in your database and can be used to control user-access and PHP can encrypt data.

### **3.4 Feasibility Study:**

#### **3.4.1 Technical Feasibility:**

The proposed system is developed using HTML and CSS as front-end tool and MySQL, PHP, JavaScript as the back end. The proposed system needs a Personal Web Server to serve the requests submitted by the users. The Web browser is used to view the web page that is available within the Windows operating system itself.

The proposed system will run under Win9x, NT, and win2000 environment. As Windows is very user friendly and GUI OS, it is easy.

All the required hardware and software are readily available in the market. Hence the system is technically feasible.

#### **3.4.2 Operational Feasibility:**

The proposed system is fully GUI based that is very user-friendly and all inputs to be taken all self-explanatory even to a layman. Besides, a proper training has been conducted to let know the essence of the system to the users so that they feel comfortable with the new system. As far, this is concerned the system is comfortable. The proposed system is operationally feasible because of the following reasons.

- The customer is benefited more as most of his time is saved.
- The customer is serviced at his place of work.
- The cost of the proposed system is almost negligible when compared to the benefits gained.

### **3.4.3 Economic Feasibility:**

As the necessary hardware and software are available in the market at a low cost, the initial investment is the only cost incurred and does not need any further enhancements. Hence it is economically feasible. The system is feasible in all respects and hence it encourages taking up the system design.

- All hardware and software cost has to be borne by the organization.
- Overall, the benefits the organization is going to receive from the proposed system will surely overcome the initial costs and running costs.

# **Chapter-4**

# **SYSTEM DESIGN**



## 4. SYSTEM DESIGN

### 4.1 System Architecture:

The system architecture is the conceptual model that defines the structure, behavior, and different views of the system. An architecture description is a formal representation of the system, organized to support reasoning about its components, their interactions, and overall functionality.

The system architecture of this workflow management system consists of multiple roles, including **Super Admin, Admin, Reception, Accountant, and Multicolor users**. The system performs various functions such as **inventory stock management, user management, vendor/customer management, item addition, file uploading, payment processing, and delivery tracking**.

The architecture includes a **validity check mechanism** to ensure that actions and data inputs are authenticated before further processing. Invalid actions lead to termination or redirection, while valid actions proceed through submission and completion stages. The final output is **successful processing and completion of tasks, leading to the end of the workflow**.

Key functional modules include:

- **Super Admin:** Manages users and inventory stock.
- **Admin:** Handles vendor/customer management and item addition.
- **Reception:** Creates a job sheet by taking requirement from customer.
- **CTP:** Uploads files and processes submissions.
- **Multicolor:** Uploads files and processes submissions.
- **Digital:** Fixes the digital plates prices and uploads the completed documents to delivery.
- **Delivery:** Ensures final shipment of goods.
- **Accountant:** Manages financial data and payment processing.
- **Dispatch:** Once the work is done items are to dispatch.

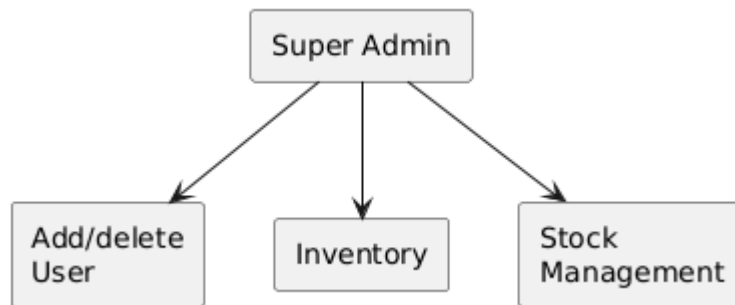


Fig 1: Super Admin Role

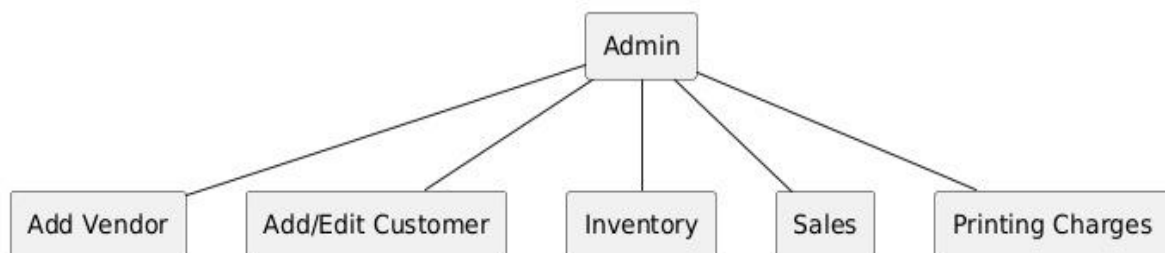


Fig 2: Admin Role

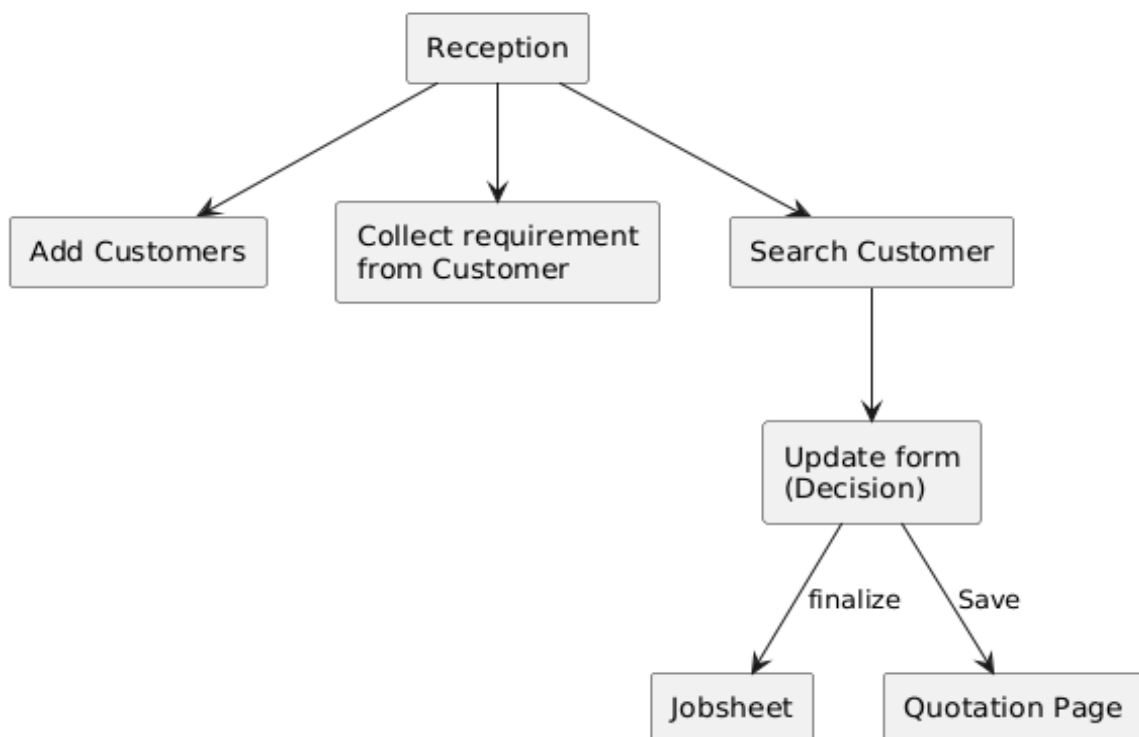


Fig 3: Receptionist Role

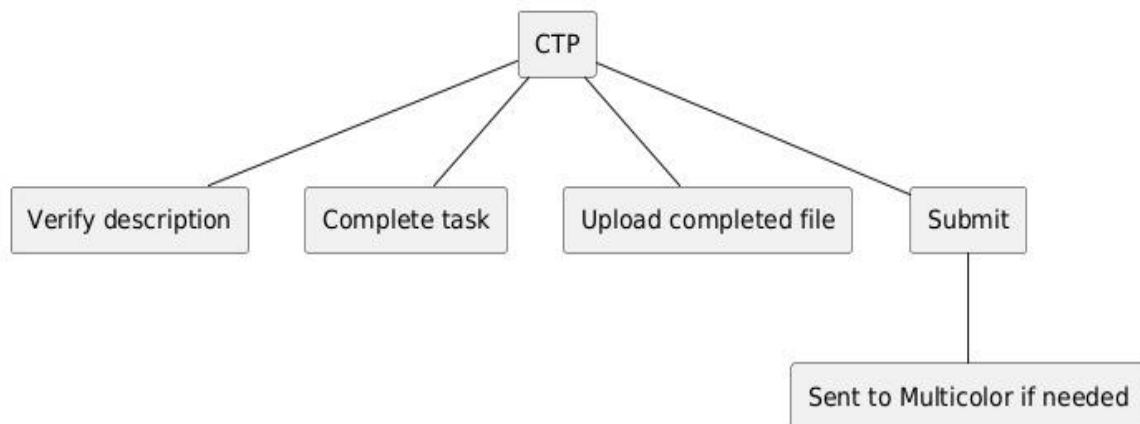


Fig 4: CTP User Role

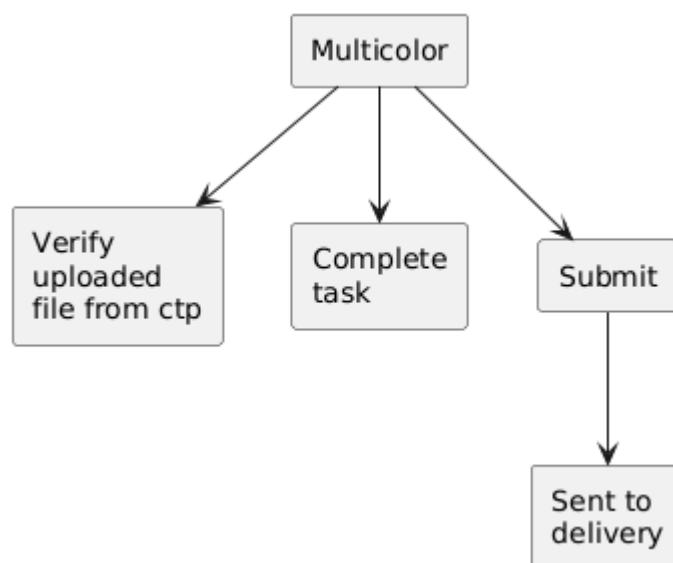


Fig 5: Multicolor User Role

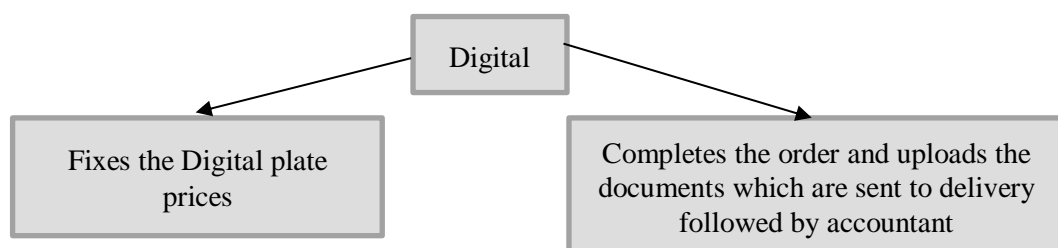


Fig 6: Digital User Role

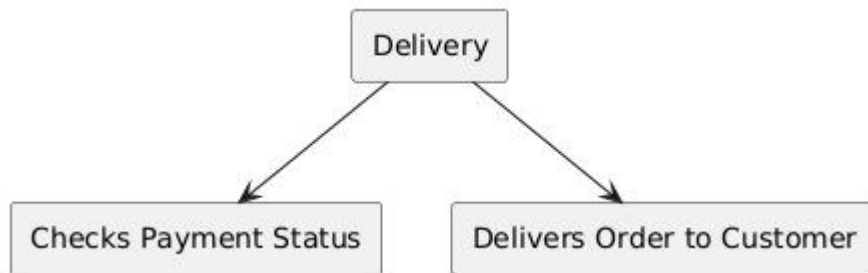


Fig 7: Delivery User Role

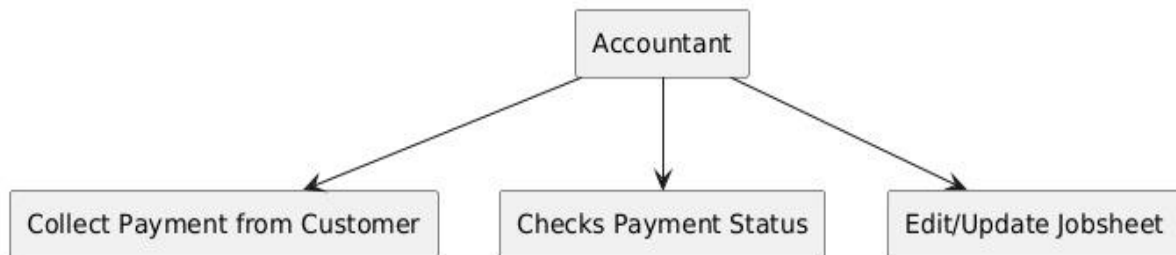


Fig 8: Accountant Role

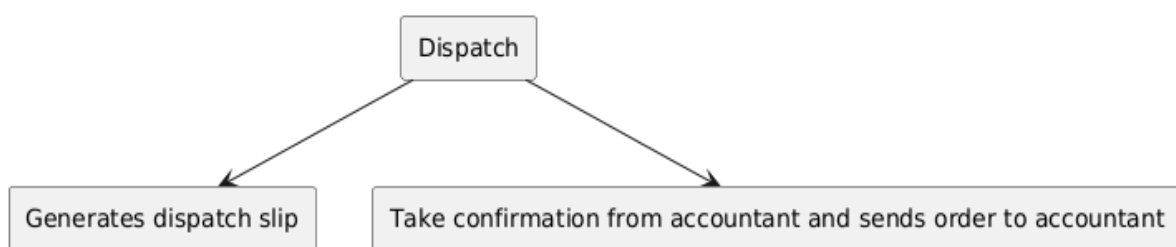


Fig 9: Dispatch User Role

## 4.2 UML Diagrams:

To model a system, the most important aspect is to capture the dynamic behavior. Dynamic behavior means the behavior of the system when it is running/operating. Only static behavior is not sufficient to model a system; rather dynamic behavior is more important than static behavior. In UML, there are five diagrams available to model the dynamic nature and use case diagrams are one of them.

A use case diagram is a graphical depiction of a users possible interactions with a system. A use case diagram shows various use cases and different types of users the system has and will often be accompanied by other types of diagrams as well. A use case diagram is used to represent the dynamic behavior of a system. It encapsulates the system's functionality by incorporating use cases, actors and their relationships. Use case diagrams consist of actors, use cases and their relationships. The diagram is used to model the system/subsystem of an application. A single use case diagram captures a particular functionality of a system. Hence to model the entire system, a number of use case diagrams are used. The purpose of a use case diagram is to capture the dynamic aspect of a system.

**Purpose:** The main purpose of use case diagrams is to portray the dynamic aspect of a system.

Following are some purposes of a use case diagram:

- It represents the interaction between the actors.
- It depicts the external view of the system.
- It gathers the system's needs.
- It recognizes the internal as well as external factors that influence the system.

### 4.2.1 Use Case Diagram:

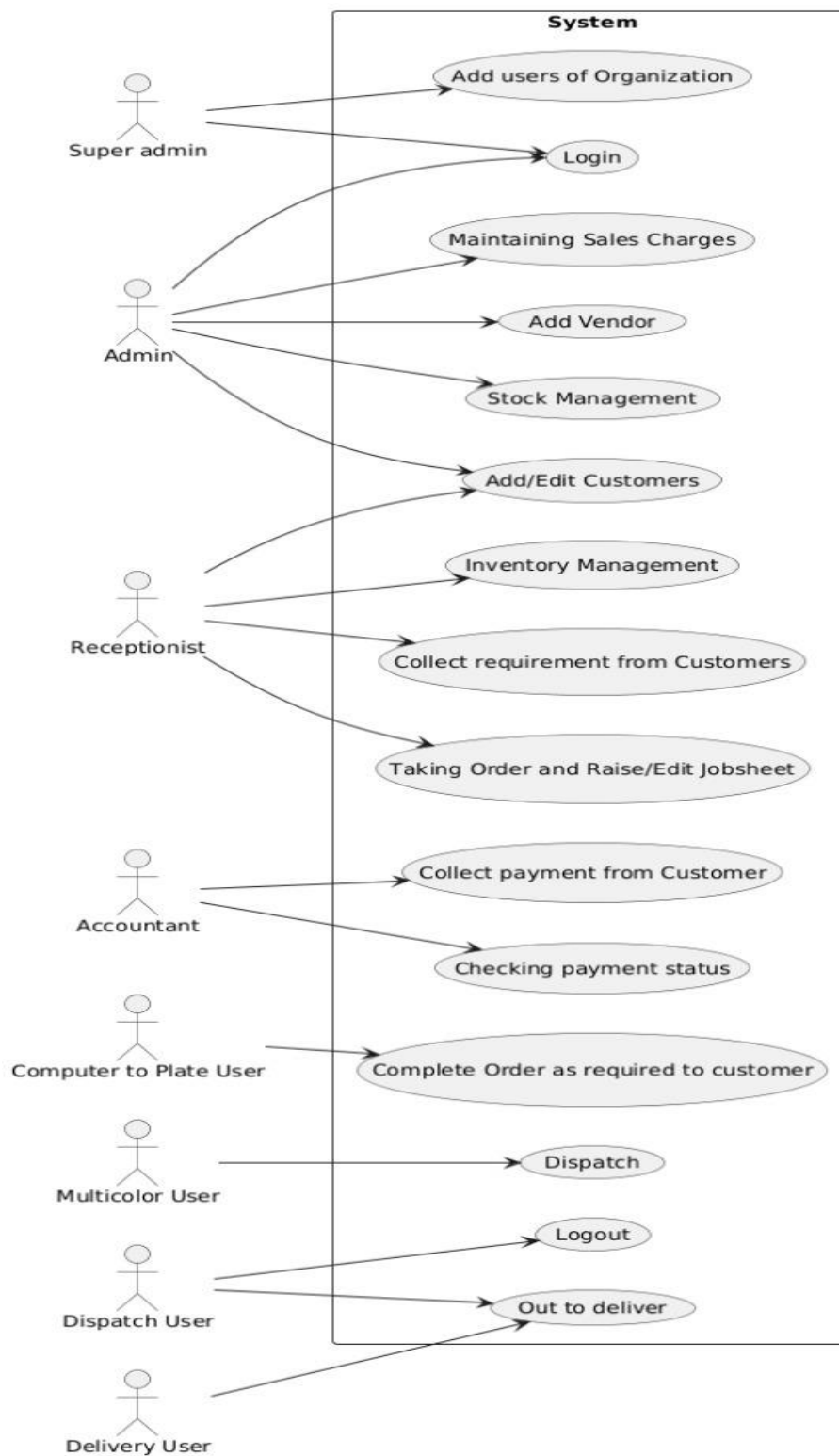


Fig 10: Use Case Diagram

#### 4.2.2 Activity diagram:

Fig 11: Activity Diagram

### 4.2.3 Sequence diagram:

Fig 12: Sequence Diagram



# **Chapter-5**

## **SAMPLE CODE**

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## 5. SAMPLE CODE

### SAMPLE CODE

```
/******admin.php*****/
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Admin Dashboard</title>
  <link rel="stylesheet" href="../css/style.css">
</head>
<body>

  <div class="navbar">
    <h2 class="brand">Admin Dashboard</h2>
    <div class="nav-buttons">
      <button onclick="location.href='add_vendor.php'">Add Vendor</button>
      <button onclick="location.href='add_edit_customers.php'">Add/Edit
Customers</button>
      <button onclick="location.href='admin_inventory.php'">Inventory</button>
      <button onclick="location.href='sales.php'">Sales</button>
      <button onclick="location.href='printing_charges.php'">Printing Charges</button>
      <button onclick="location.href='../auth/logout.php'">Logout</button>
    </div>
  </div>

  <div class="content">
    <h3>Welcome, admin</h3>
    <p>Quick overview will appear here...</p>
  </div>

</body>
</html>
```

```
/******super_admin.php*****/
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Admin Dashboard</title>
  <link rel="stylesheet" href="../css/style.css">
</head>
<body>

  <div class="navbar">
    <h2 class="brand">Super Admin Dashboard</h2>
    <div class="nav-buttons">
      <button onclick="location.href='../dashboards/add_user.php'">Add User</button>
      <button
onclick="location.href='../dashboards/super_inventory.php'">Inventory</button>
      <button onclick="location.href='../dashboards/stock_inventory.php'">Stock
Inventory</button>
      <button onclick="location.href='../dashboards/paper_inventory.php'">Paper
Inventory</button>
      <button onclick="location.href='../auth/logout.php'">Logout</button>
    </div>
  </div>

  <div class="content">
    <h3>Welcome, Super Admin</h3>
    <p>Quick overview will appear here...</p>
  </div>

</body>
</html>
```

```
/***/reception.php*****/
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Admin Dashboard</title>
  <link rel="stylesheet" href="../css/style.css">
</head>
<body>

  <div class="navbar">
    <h2 class="brand">Reception Dashboard</h2>
    <div class="nav-buttons">
      <button onclick="location.href='New_Order.php'">New Order</button>
      <button onclick="location.href='view_order.php'">View Order</button>
      <button onclick="location.href='../auth/logout.php'">Logout</button>
    </div>
  </div>

  <div class="content">
    <h3>Welcome, Reception</h3>
    <p>Quick overview will appear here...</p>
  </div>

</body>
</html>
```

# **Chapter-6**

# **IMPLEMENTATION**

# **OF THE PROJECT**

## 6. IMPLEMENTATION OF THE PROJECT

### 6.1 Installing XAMPP:

XAMPP stands for Cross-Platform (X), Apache (A), MySQL (M), PHP (P) and Perl (P). It is a simple, lightweight Apache distribution that makes it extremely easy for developers to create a local web server for testing purposes. Everything you need to set up a web server–server application (Apache), database (MySQL), and scripting language (PHP) is included in a simple extractable file. XAMPP is also cross-platform, which means it works equally well on Linux, Mac and Windows. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server is extremely easy as well.

**Step 1:** Disable your anti-virus as it can cause some XAMPP components to behave erratically.

**Step 2:** Disable User Account Control (UAC). UAC limits write permissions to XAMPP's default installation directory (c:/Program Files/xampp), forcing you to install in a separate directory. You can learn how to disable UAC here. (Optional)

**Step 3:** Start the installation process by double-clicking on the XAMPP installer. Click 'Next' after the splash screen.

**Step 4:** Here, you can select the components you want to install. Choose the default selection and click 'Next'.

**Step 5:** Choose the folder you want to install XAMPP in. This folder will hold all your web application files, so make sure to select a drive that has plenty of space.

XAMPP has three main components. They are:

**1. Apache:** Apache is the actual web server application that processes and delivers web content to a computer. Apache is the most popular web server online, powering nearly 54% of all websites.

**2. MySQL:** Every web application, however simple or complicated, requires a database for storing collected data. MySQL, which is open source, is the world's most popular database

management system. It powers everything from hobbyist websites to professional platforms like WordPress.

**3. PHP:** PHP stands for Hypertext Preprocessor. It is a server-side scripting language that powers some of the most popular websites in the world, including WordPress and Facebook. It is open source, relatively easy to learn, and works perfectly with MySQL, making it a popular choice for web developers.

## 6.2 Testing Your XAMPP Installation:

Follow these steps to test your XAMPP installation by launching the Apache web server and creating a simple PHP file.

Step 1: In the XAMPP control panel, click on 'Start' under 'Actions' for the Apache module. This instructs XAMPP to start the Apache webserver.

Step 2: Open your web browser and type in: `http://localhost` or `127.0.0.1` Step 3: Select your language from the splash screen.

Step 4: You should see the following screen. This means you've successfully installed XAMPP on your computer.

Step 5: We will now test whether XAMPP has installed PHP successfully. To do this, fire up Notepad and type the code into a new document.

Save this file as with .php extension in `c:\xampp\htdocs\`.

Step 6: Navigate to `localhost/filename.php`. You should see the output message.

## 6.3 Implementation of phpMyAdmin

### Overview of MySQL

**MySQL** is a powerful, open-source **Relational Database Management System (RDBMS)**. It is widely used in web development for storing, managing, and retrieving data efficiently. MySQL is the **default database engine included in XAMPP** and works seamlessly with PHP, making it a core part of dynamic web applications.

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## Accessing MySQL via XAMPP

XAMPP makes it very easy to manage your MySQL databases using a web-based GUI tool called **phpMyAdmin**.

### Steps to Access MySQL:

#### 1. Start MySQL Module in XAMPP:

- Open the **XAMPP Control Panel**.
- Click **Start** next to **MySQL**. The background should turn green.

#### 2. Open phpMyAdmin:

- In your browser, go to: <http://localhost/phpmyadmin>
- You will be directed to the **phpMyAdmin dashboard**, which allows you to manage your databases, tables, users, and more.

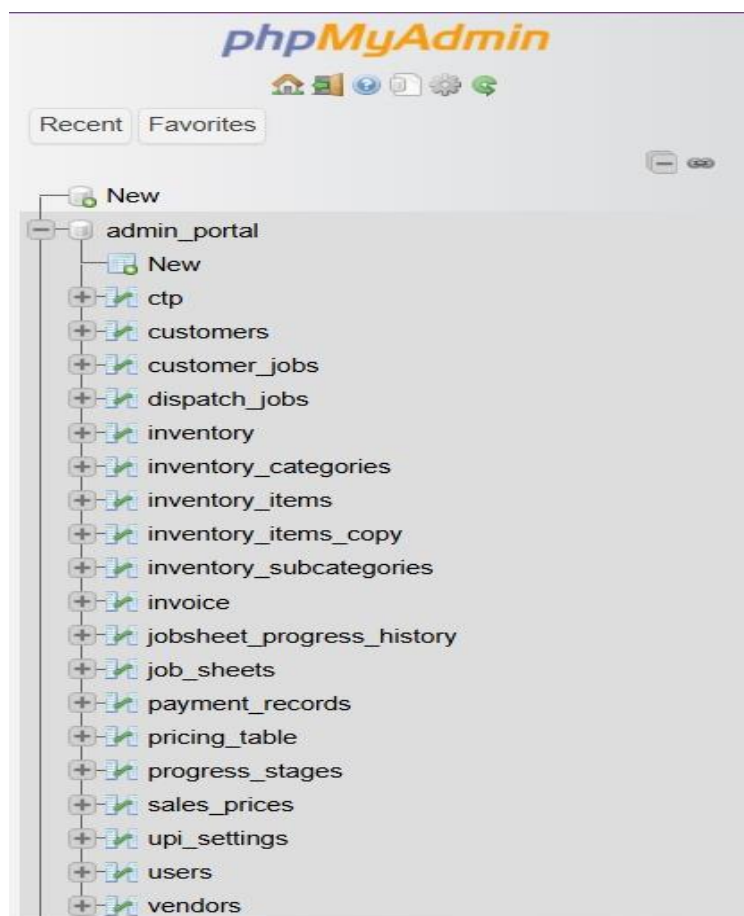


Fig 13: Implementation of phpMyAdmin



## **6.4 Modules – Wise Implementation:**

### **6.4.1 Super Admin Module**

**Purpose:** Oversee the complete system with user and inventory control.

**Features:**

- Add, edit, or remove user accounts for all roles.
- Assign roles and departments to users.
- Manage or configure inventory accessible by Admin.
- Monitor system-wide operations and security settings.

### **6.4.2 Admin Module**

**Purpose:** Manage core business operations and resources.

**Features:**

- Login securely with redirection to Admin Dashboard.
- Add, edit, or delete vendor and customer profiles.
- Manage inventory and set sales prices.
- Maintain and update daily business transaction records.

### **6.4.3 Receptionist Module**

**Purpose:** Handle customer interaction and order intake.

**Features:**

- Login to Reception Dashboard.
- Collect customer requirements and details.
- Create new orders and register them in the job sheet.
- Track the progress of jobs in the job sheet.

### **6.4.4 Computer to Plate (CTP) User Module**

**Purpose:** Pre-press processing of job documents.

**Features:**

- Secure login with access to CTP Dashboard.

- View documents uploaded by Receptionist for assigned jobs.
- Process documents and upload finalized versions to the Multicolour department.

#### **6.4.5 Multicolour User Module**

**Purpose:** Manage coloring and multicolour print operations.

**Features:**

- Login securely to Multicolour Dashboard.
- Access and verify processed documents from CTP users.
- Complete multicolour jobs and forward them to Delivery.
- Maintain records of machine operations and updates.

#### **6.4.6 Digital User Module**

**Purpose:** Handle digital print tasks and pricing.

**Features:**

- Login to Digital Dashboard securely.
- Set or update pricing for digital orders.
- Complete assigned digital orders.
- Upload finalized digital documents and forward them to Delivery.

#### **6.4.7 Delivery User Module**

**Purpose:** Deliver final outputs to customers.

**Features:**

- Access jobs completed by Digital and Multicolour departments.
- Confirms the order of customer is perfectly completed.

#### **6.4.8 Accountant Module**

**Purpose:** Manage financial operations and payments.

**Features:**

- Login securely to Accounting Dashboard.
- Check payment details for completed orders.

- Verify if payment is full or partial.
- Collect and record payments.

#### **6.4.9 Dispatch User Module**

**Purpose:** Prepare orders for final delivery.

**Features:**

- Access completed jobs from print departments.
- Confirm and generate dispatch slips.
- Package and prepare items for delivery.
- Notify Delivery User for pickup and transport.
- Maintain logs of dispatched items.

# Chapter-7

## TESTING

## 7. TESTING

### Testing Project:

#### 7.1 About Testing:

Testing is the process of evaluating an application or its components to check whether it behaves as expected and meets the specified requirements.

It helps in:

- Detecting bugs or errors.
- Validating functionality.
- Ensuring performance, security, and usability.
- Making sure the system works reliably under different conditions.

#### 7.2 Types of Software Testing:

##### 1. Manual Testing:

Manual testing involves checking the application without using any automation tools. Testers follow test cases step-by-step to find defects and usability issues. It helps in testing UI, functionality, and system behavior from a user's perspective.

##### 2. Black Box Testing:

In black box testing, the tester checks the system without knowing internal code or logic. Only inputs and expected outputs are validated to see if the software behaves correctly. It is useful for validating user interactions, access control, and system outputs. In your project, it's used to ensure each user role sees only the correct event data.

##### 3. Integration Testing:

Integration testing checks if different modules (login, uploads, database, etc.) work together. It ensures smooth data flow between components and catches issues in their interaction. This helps identify errors when modules pass information or trigger actions. For example, verifying that uploaded events are stored correctly and shown to the right user.

##### 4. System Testing:

System testing involves testing the complete integrated software in a real-world scenario. It ensures the system behaves as expected from start to finish for all user roles. End-to-end

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flows like login, upload, approval, and viewing events are tested. This helps ensure the platform is reliable and ready for actual use by students, faculty, and admins.

### **5. User Acceptance Testing (UAT):**

This testing is done by real users (like faculty or principal) to confirm the system meets their needs. It helps validate functionality from the end-user's perspective before going live. Feedback collected during UAT helps finalize the system and make improvements. It ensures the software is user-friendly, complete, and ready for deployment.

## **7.3 Testing Used in Enterprise Management System :**

In the Web-based Printing Cluster project, the testing process included the following key points:

### **1. Manual Testing:**

We manually tested all role-based user logins to ensure that each type of user—Super Admin, Admin, Reception, and Accountant—was able to access their respective dashboards and functionalities. We specifically tested the upload options for multicolor CTP and verified that each user-specific functionality worked as expected.

### **2. Integration Testing:**

We ensured that the current system is properly integrated with the database. This involved verifying that all data entered through the web pages was accurately stored and reflected in the database tables. We tested different user actions to confirm that the system maintained consistent and reliable communication with the backend.

### **3. Black Box Testing:**

We focused on verifying system behavior without looking into the internal code. For example, we tested whether users were restricted from performing actions not permitted to their role—such as a user attempting to add a new job sheet despite having a due of more than ₹50,000. These tests helped us validate that the application handled such scenarios appropriately and enforced all defined rules.

**Table 7.3.1. Test Case 1**

<b>Test Case</b>	<b>Expected Output</b>	<b>Actual Output</b>
Does it provide different login portals for different users?	When the homepage is loaded, it should show options to select the type of user.	When the homepage is loaded, it shows options to select the type of user.

**Table 7.3.2. Test Case 2**

<b>Test Case</b>	<b>Expected Output</b>	<b>Actual Output</b>
What happens when a user is selected?	When a user is selected, the login page should be loaded according to the selected user.	When a user is selected, the login page is loaded according to the selected user.

**Table 7.3.3. Test Case 3**

<b>Test Case</b>	<b>Expected Output</b>	<b>Actual Output</b>
Does it authenticate user credentials?	When credentials are entered, the system should validate the input.	When credentials are entered, the system validates the input.

**Table 7.3.4. Test Case 4**

<b>Test Case</b>	<b>Expected Output</b>	<b>Actual Output</b>
What happens when the Admin clicks 'Add Vendor'?	The Admin should be able to add vendor details to the system.	The Admin can add vendor details to the system..

**Table 7.3.5. Test Case 5**

<b>Test Case</b>	<b>Expected Output</b>	<b>Actual Output</b>
What happens when the Admin clicks 'Add Customer'?	The Admin should be able to add new customer details to the system.	The Admin can add new customer details to the system.

**Table 7.3.6. Test Case 6**

<b>Test Case</b>	<b>Expected Output</b>	<b>Actual Output</b>
What happens when the Admin tries to add a duplicate customer?	The system should notify the Admin about the duplicate entry.	The system notifies the Admin about the duplicate entry.



**Table 7.3.7 Test Case 7**

<b>Test Case</b>	<b>Expected Output</b>	<b>Actual Output</b>
What happens when the Admin adds inventory	The system should store the inventory details along with vendor information	The system stores the inventory details along with vendor information.

**Table 7.3.8. Test Case 8**

<b>Test Case</b>	<b>Expected Output</b>	<b>Actual Output</b>
What happens when the Admin sets sales charges?	The system should update the price details for each inventory item.	The system updates the price details for each inventory item.

**Table 7.3.9. Test Case 9**

<b>Test Case</b>	<b>Expected Output</b>	<b>Actual Output</b>
What happens when the Supesr Admin adds a new user	The system should create a new user with assigned credentials.	The system creates a new user with assigned credentials.

**Table 7.3.10. Test Case 10**

<b>Test Case</b>	<b>Expected Output</b>	<b>Actual Output</b>
What happens when a user logs out?	The system should redirect the user to the homepage.	The system redirects the user to the homepage.

**Table 7.3.11. Test Case 11**

<b>Test Case</b>	<b>Expected Output</b>	<b>Actual Output</b>
What happens when the Receptionist creates a job sheet	The system should allow the Receptionist to create a job with the customers requirements	Job sheet is prepared and saved as draft

**Table 7.3.12. Test Case 12**

<b>Test Case</b>	<b>Expected Output</b>	<b>Actual Output</b>
What happens when the Super Admin monitors stock utilisation?	The system should display current stock, used stock, and available quantity clearly.	The system shows all stock levels and usage statistics accurately.

**Table 7.3.313. Test Case 13**

<b>Test Case</b>	<b>Expected Output</b>	<b>Actual Output</b>
What happens when the Account user approves the payment?	The system should validate the payment and trigger the dispatch process.	The system approves the payment and initiates the dispatch process.

**Table 7.3.14. Test Case 14**

<b>Test Case</b>	<b>Expected Output</b>	<b>Actual Output</b>
What happens when the Dispatch user generates a dispatch slip?	The system should list all ready-for-dispatch items and allow slip generation.	The system displays the list and generates the dispatch slip successfully.

# **Chapter-8**

# **RESULTS**

# **AND**

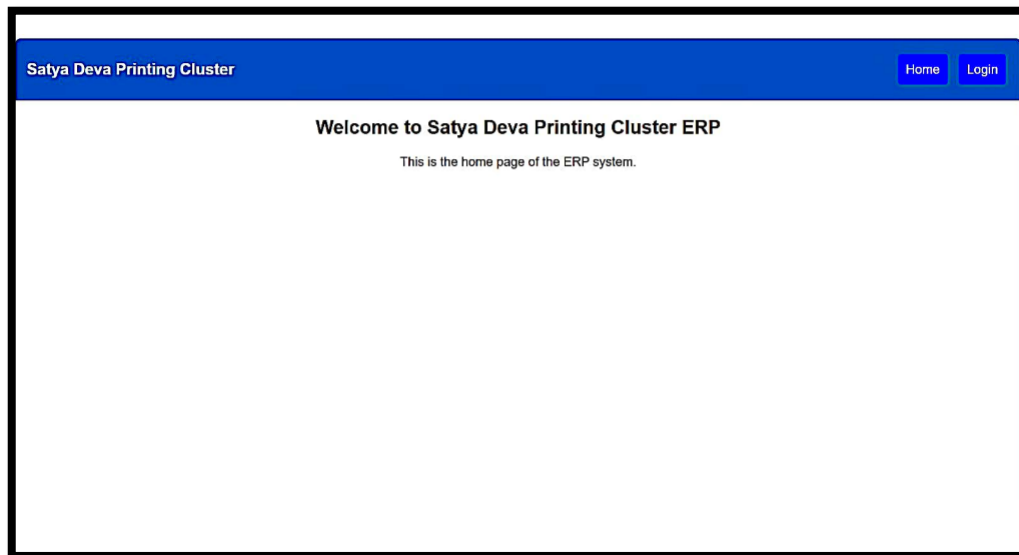
# **DISCUSSION**

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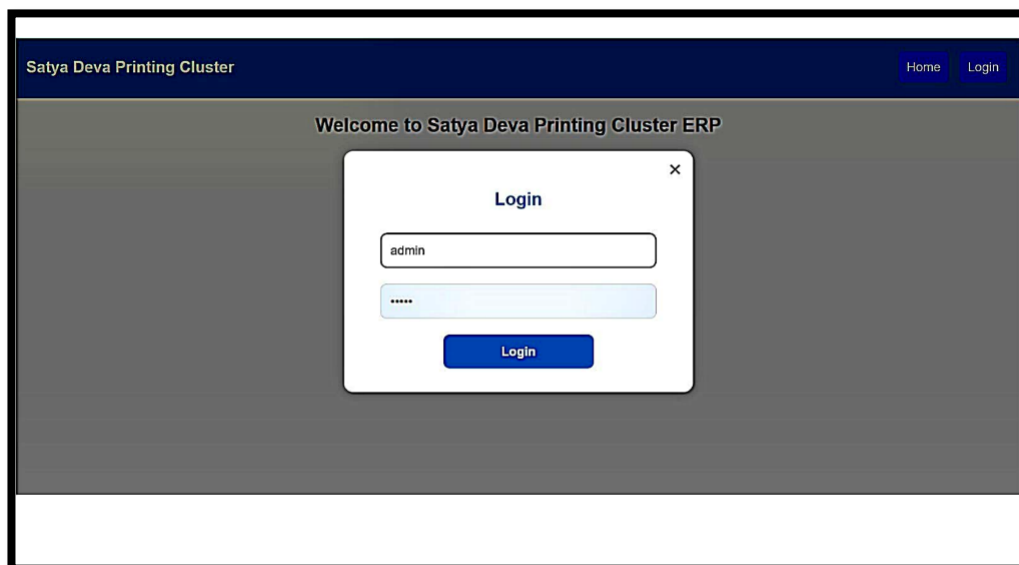
## 8.RESULTS AND DISCUSSION

### 8.1 Results:

#### 8.1.1 Main Web page



#### 8.1.2 User login page



### 8.1.3 Super Admin Dashboard

Super Admin Dashboard

Add UserInventoryLogout

Add New User

Enter User Name:

Enter User Name

Enter Password:

Enter Password

Role:

Select Role

Add User

Existing Users

Username	Role	Created At	Action
admin	admin	02/24/2025	Delete
reception	reception	02/24/2025	Delete
accounts	accounts	03/20/2025	Delete
multicolour	multicolour	03/20/2025	Delete
ctp	ctp	03/26/2025	Delete

### 8.1.4 Admin Dashboard

Admin Dashboard

Add VendorAdd/Edit CustomerInventorySalesPrinting ChargesLogout

Customer Management

Search Customer...Search

### 8.1.5 Reception Dashboard

Reception Dashboard

New OrderView OrderLogout

Job Sheets

Filter by Status:

Finalized

Search by Customer

Search

ID	Customer Name	Phone Number	Job Name	Total Charges	Status	Actions
42	karthikaya	9704800363	Book Printing	₹36,500.00	Finalized	ViewEditFinalizePrint
41	karthikaya	9704800363	pamphlet Printing	₹5,500.00	Finalized	ViewEditFinalizePrint
40	karthikaya	9704800363	Brochure Printing	₹4,510.00	Finalized	ViewEditFinalizePrint

### 8.1.6 CTP Management

CTP Dashboard

HomeCompleted OrdersLogout

Welcome, CTP User!

Active CTP Orders

ID	Customer Name	Job Name	Total Charges	File	Description	Actions
19	Raju	Book Printing	₹0.00	Download All	h	ViewUploadClear FilesCompleted
18	Ramya	Calendar Print	₹0.00	Download All	done	ViewUploadClear FilesCompleted

### 8.1.7 Multicolor Management

Multicolour Dashboard

HomeCompleted OrdersLogout

Welcome, Multicolour User!

Active Multicolour Orders

ID	Customer Name	Job Name	Total Charges	File	Description	Actions
35	Raju	Book Printing	₹0.00	Download 1	(From CTP)	<a href="#">View</a> <a href="#">Completed</a>
22	Ramya	Calendar Print	₹0.00	Download 1Download 2	blh (From CTP)	<a href="#">View</a> <a href="#">Completed</a>
20	Shiva	Pamphlet Printing	₹0.00	Download 1Download 2	hi (From CTP)	<a href="#">View</a> <a href="#">Completed</a>
15	Ramu	Magazine Printing	₹0.00	Download 1	h	<a href="#">View</a> <a href="#">Completed</a>
11			₹0.00	Download 1	h	<a href="#">View</a> <a href="#">Completed</a>

### 8.1.8 Digital Management

Digital Dashboard

HomeCompleted OrdersLogout

Welcome, Digital User!

Active Digital Orders

No active Digital orders found.



## 8.1.9 Delivery Management

Delivery Dashboard
Delivered Orders
Logout

Welcome, Delivery User!
Active Delivery Orders

ID	Customer Name	Job Name	Total Charges	File	Description	Tracking	Actions
39	Raju	Book Printing	₹0.00	Download 1		Multicolour Only	View Submit
38	Shiva	Pamphlet Printing	₹0.00	Download 1		CTP Only	View Submit
37	Ramu	Magazine Printing	₹0.00	Download 1	hh	CTP & Multicolour	View Submit

## 8.1.10 Accounts Management

Accounts Dashboard
Completed Orders
Logout

Completed Orders (Pending Payment)

ID	Customer Name	Job Name	Total Charges	File	Description	Payment Status	Actions
41	Raju	Book	₹5,500.00	Download 1		Partially Paid	View Statement Print
26	Ramya	Calendar	₹0.00	Download 1 Download 3	Download 2 Download 4 zip file	Incomplete	View Statement Print

### 8.1.11 Dispatch Management

Dispatch Dashboard

Logout

WELCOME, DISPATCH USER

ID	CUSTOMER NAME	JOB NAME	TOTAL CHARGES	DESCRIPTION	PAYMENT STATUS	BALANCE	ACTION
70	karthikeya	new	₹10,000.00	0	Partially Paid	₹7,000.00	Print
67	karthikeya	books	₹1,000.00	0	Partially Paid	₹400.00	Print

# **Chapter-9**

# **CONCLUSION**

# **AND**

# **FUTURE SCOPE**

## 9. CONCLUSION AND FUTURE SCOPE

### 9.1 Conclusion:

The Digital ERP System for the Printing Press is a game-changing solution designed to streamline operations, eliminate manual paperwork, and enhance overall efficiency. Traditionally, printing press businesses relied on handwritten records and spreadsheets, which led to errors, duplication, and inefficiencies in tracking vendors, customers, inventory, and sales. This system solves these problems by centralizing all data and automating key processes. One of the most significant advantages of the system is its ability to save time and reduce human errors. With structured record-keeping, users can quickly access vendor details, monitor inventory levels, and track sales without sifting through physical files. The system prevents duplicate entries, ensuring accurate financial records and eliminating confusion. Role-based access for Admins and Super Admins enhances security by restricting unauthorized access while allowing users to perform their designated tasks efficiently.

Financial accuracy is another crucial benefit of this ERP system. The system automates sales price calculations, ensuring transparency in profit margins and cost management. Additionally, inventory tracking ensures that businesses can monitor stock levels in real-time, reducing the risk of shortages or overstocking. This leads to better decision-making and improved resource allocation. Furthermore, the digital transformation introduced by this ERP system makes the business more scalable. Whether a small or large printing press, the system adapts to different business needs. It reduces dependency on manual labor and paperwork, ultimately lowering operational costs and increasing productivity.

Overall, this ERP system revolutionizes how a printing press operates by making processes more efficient, data-driven, and secure. By implementing this solution, businesses can improve workflow management, ensure better customer and vendor relations, and make informed financial decisions. As technology advances, this system provides a foundation for future enhancements that will further improve efficiency, usability, and automation in printing press operations.

## 9.2 Future Scope:

The proposed ERP system establishes a strong foundation for streamlining operations across departments such as Reception, CTP, Multicolor, Delivery, Accounting, and Administration. While the current implementation significantly improves workflow efficiency and centralizes data management, there is still meaningful potential for future expansion focused on practicality and long-term scalability.

Given that our company operates as a printing cluster, and has transitioned from manual, Excel-based order management to a more structured system, the future direction emphasizes reliability, accessibility, and system integration rather than incorporating advanced AI technologies.

Key areas for future development include:

### **Cloud Migration**

Transitioning the system to a cloud-based infrastructure to support real-time collaboration, enhanced data security, easier access from multiple locations, and improved disaster recovery.

### **Mobile Accessibility**

Developing a mobile-friendly version or dedicated application to allow staff to monitor tasks and manage workflows while on the move.

### **Advanced Reporting & Analytics**

Introducing customizable reports and data visualization tools to track order trends, performance metrics, and customer history for more informed decision-making.

### **Integration with Third-party APIs**

Connecting with external platforms such as accounting software, CRM systems, or logistics partners to extend the ERP's functionality and reduce duplication of work.

### **Notification System**

Adding real-time alerts via SMS or email for important events like job completion, payment updates, or low stock warnings.

# **Chapter-10**

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