Govt. Graduate College Samanabad

Pharma
Enterprise Resource Planning (ERP)
Software System

SAIF Ali

21304/411704

Introduction to Software Engineering (CSI-401)

Ma’am Anza

20th September 2023

INTRODUCTION

Enterprise Resource Planning (ERP) programs are core software programs used by companies to relate information in every business area. ERP (pronounced “E-R-P”) programs help to manage all the business processes within a company, using a common database and shared management reporting tools. ERP software supports the efficient operation of business processes by integrating throughout the business tasks related to sales, marketing, manufacturing, logistics, accounting, and staffing and helps in optimization of overall organization that includes sharing and exchange of information from a common database.

The pharmaceutical industry is a highly competitive and dynamic sector that demands efficient management and streamlined processes to remain competitive. To meet these challenges, our company recognizes the need for a robust Enterprise Resource Planning (ERP) software system specifically designed for the head office of a pharmaceutical retail company. This project aims to develop and implement an integrated ERP solution that will revolutionize the way our company operates, enabling us to optimize our business processes, enhance decision-making capabilities, and achieve sustainable growth in this rapidly evolving industry.

Background and Rationale

1.1 Overview of the Pharmaceutical Retail Industry:

The pharmaceutical retail industry serves as the critical link between pharmaceutical manufacturers and end consumers. As our company expands its operations, it becomes increasingly challenging to manage the complexities associated with inventory management, procurement, sales and distribution, financial management, regulatory compliance, and customer relationship management.

1.2 Need for an ERP Software System:

Currently, our company uses different systems and manual methods that make it difficult to see what's happening in real-time, make decisions, and grow. We need an ERP software system to bring all these separate systems together into one place. With an ERP system, we'll have a central database and everything will work together smoothly. This will make our operations run more efficiently, make our data more accurate, help us get more done, and make our customers even happier.

Objectives:

2.1 Streamlined Business Processes:

The ERP software system will automate and integrate core business processes such as inventory management, procurement, sales, finance, human resources, and more. This integration will ensure a smooth flow of information across departments, reduce manual errors, eliminate redundant tasks, and enable efficient resource allocation.

2.2 Improved Customer Relationship Management:

The ERP software system will enable our company to provide personalized and efficient customer service. With a centralized customer database, our sales and customer service teams can access comprehensive customer information, including purchase history, preferences, feedback, and more, fostering stronger customer relationships and facilitating targeted marketing campaigns.

2.3 Enhanced Customer Relationship Management:

The ERP software system will make it easier for our company to take care of our customers. By having all their information in one place, our sales and customer service teams can quickly access details like what they've purchased in the past, their preferences, and any feedback they've given. This will help us build stronger relationships with our customers and provide them with personalized and efficient service. We can also use this information to create targeted marketing campaigns that cater to their specific interests and needs. With the ERP system, we'll be able to deliver exceptional customer experiences and keep our customers happy.

2.4 Improved Management of Human Resources:

The ERP system will have a special section just for managing our employees, making everything more organized and efficient. This section will handle things like keeping track of employee information, hiring new employees, getting them settled in, evaluating their performance, providing training, and taking care of payroll. This will make our HR processes smoother and help us manage our employees better. It will also make sure we follow all the rules and regulations related to labor and employment.

DATA FLOW DIAGRAMS

Level 0 DFD:

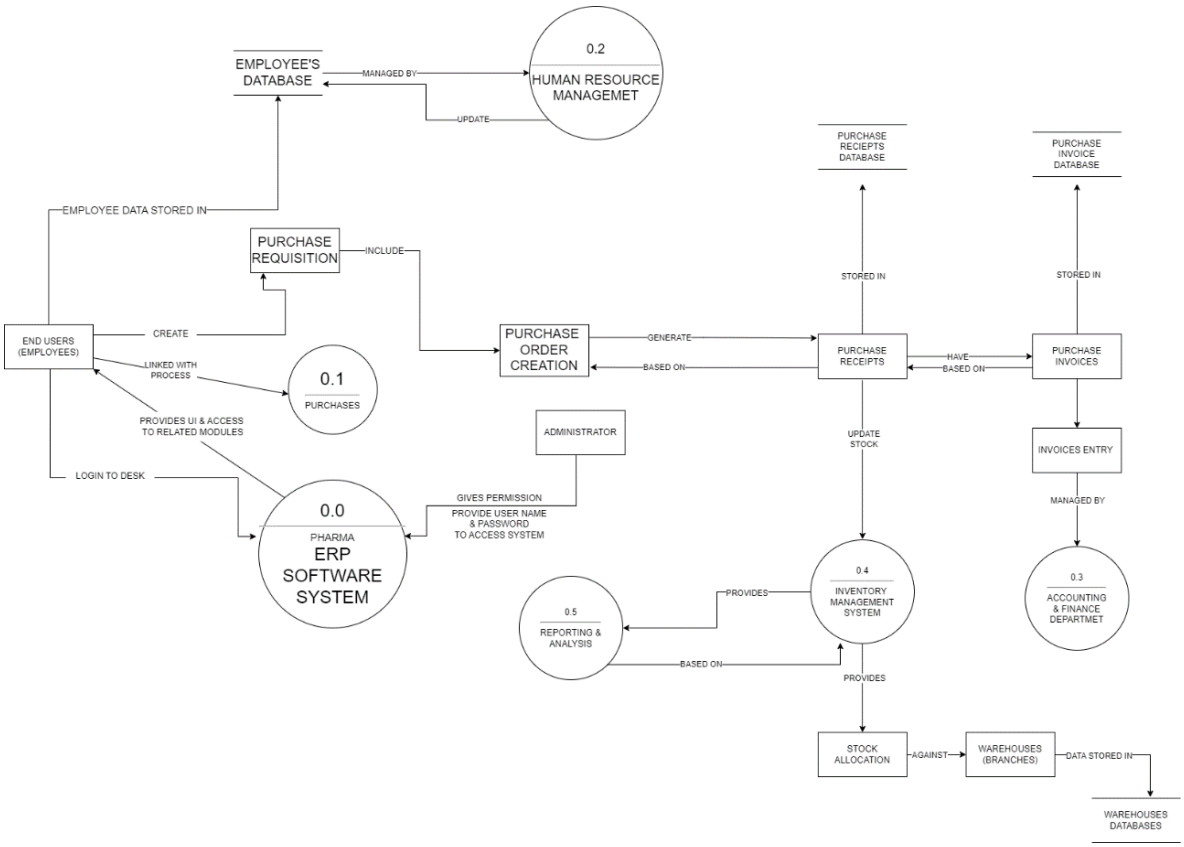

Fig 1. Level 0 DFD

Level 1 DFD:

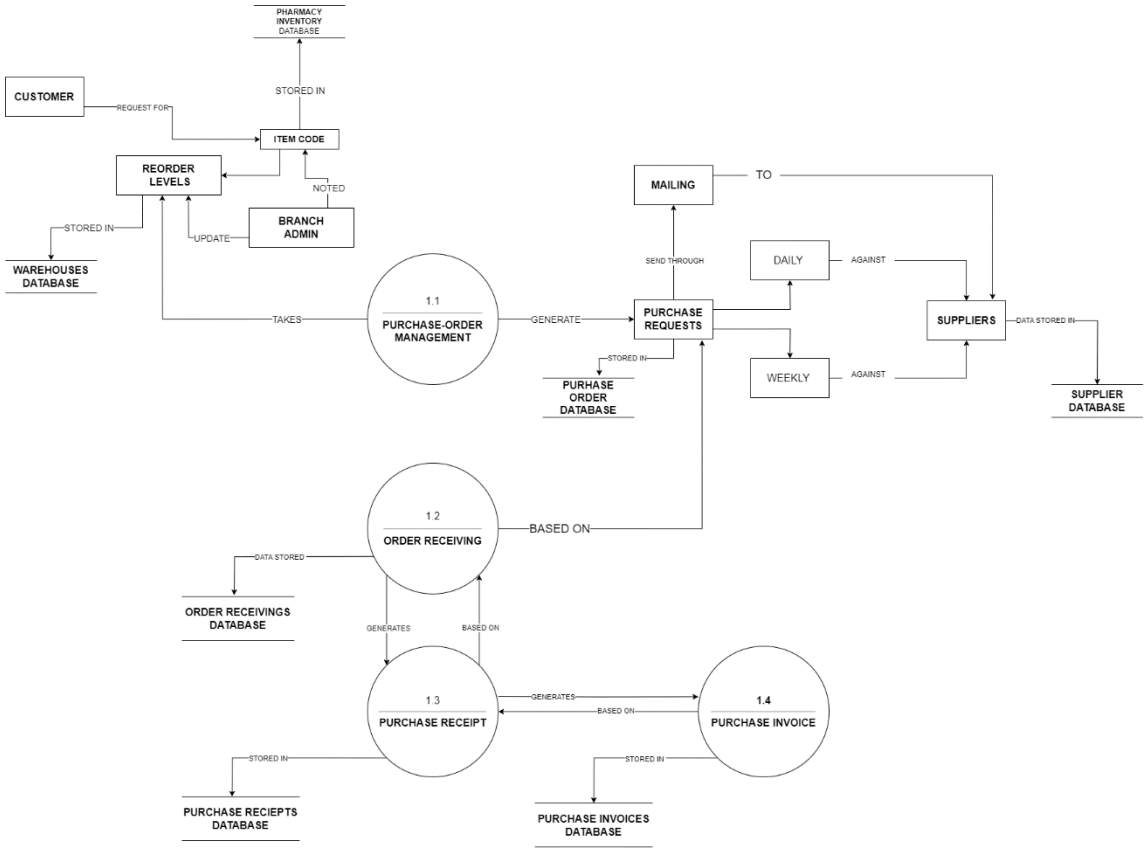

Fig 2. Level 1 DFD

List of Requirements

Functional requirements:

Requirement No.	Requirement name	Source person
Req-01	Purchase Order Management	Purchasing Manager
Req-02	Vendor Management	Purchasing Manager
Req-03	Purchase Reports and Analytics	Management Reporting Team
Req-04	Inventory Integration	Stock Manager
Req-05	Purchase History Tracking	Purchasing Manager
Req-06	Financial Transaction Management	Accountant
Req-07	Invoicing and Payment Processing	Accountant
Req-08	Financial Statements and Reporting	Management Reporting Team
Req-9	Tax Calculation and Reporting	Tax Specialist
Req-10	Banking System Integration	Accountant
Req-11	Real-Time Inventory Tracking	Stock Manager
Req-12	Stock Transfers and Inter-Branch Movements	Stock Manager

Req-13	Employee Information Management	HR Manager
Req-14	Payroll Reports and Salary Calculations	Payroll Specialist
Req-15	Attendance and Timesheet Management	HR Manager

Non-Functional Requirements:

Performance:

The system should have fast response times to ensure efficient and smooth operation.
It should handle large volumes of data without significant performance degradation.
The system should support concurrent user access without significant slowdowns.

Scalability:

The ERP system should be able to scale horizontally or vertically to accommodate increasing data volumes and user loads.
It should handle future growth and additional modules or functionalities without major architectural changes.

Reliability:

The system should be highly reliable and available, minimizing downtime and ensuring business continuity.
It should have mechanisms in place to handle and recover from failures, such as backups and redundancy.

Security:

The ERP system should enforce robust security measures to protect sensitive data and prevent unauthorized access.
It should include authentication and access control mechanisms to ensure data confidentiality and integrity.
It should comply with relevant security standards and regulations, such as encryption and secure data transmission.

Usability:

The system should have a user-friendly interface that is intuitive and easy to navigate.

It should provide clear and concise error messages to aid in troubleshooting and user support.

The system should support customization and personalization options to accommodate user preferences.

Maintainability:

The ERP system should have a modular and well-documented architecture to facilitate future updates and maintenance.

It should be easy to troubleshoot and debug any issues that may arise.

The system should support version control and change management processes.

Interoperability:

The ERP system should have the ability to integrate with other existing systems or third-party applications.

It should support data exchange and interoperability standards to ensure seamless information flow.

Compliance:

The ERP system should comply with industry regulations and legal requirements specific to the pharmaceutical retail sector.

It should support audit trails and logging functionalities to enable compliance monitoring and reporting.

Performance Monitoring and Analytics:

The system should provide performance monitoring and analytics capabilities to track system health, usage patterns, and resource utilization.

It should generate reports and metrics to help identify bottlenecks and optimize system performance.

Disaster Recovery:

The ERP system should have backup and recovery mechanisms in place to protect against data loss or system failures.

It should support regular data backups and have a well-defined disaster recovery plan.

Use Case Diagram:

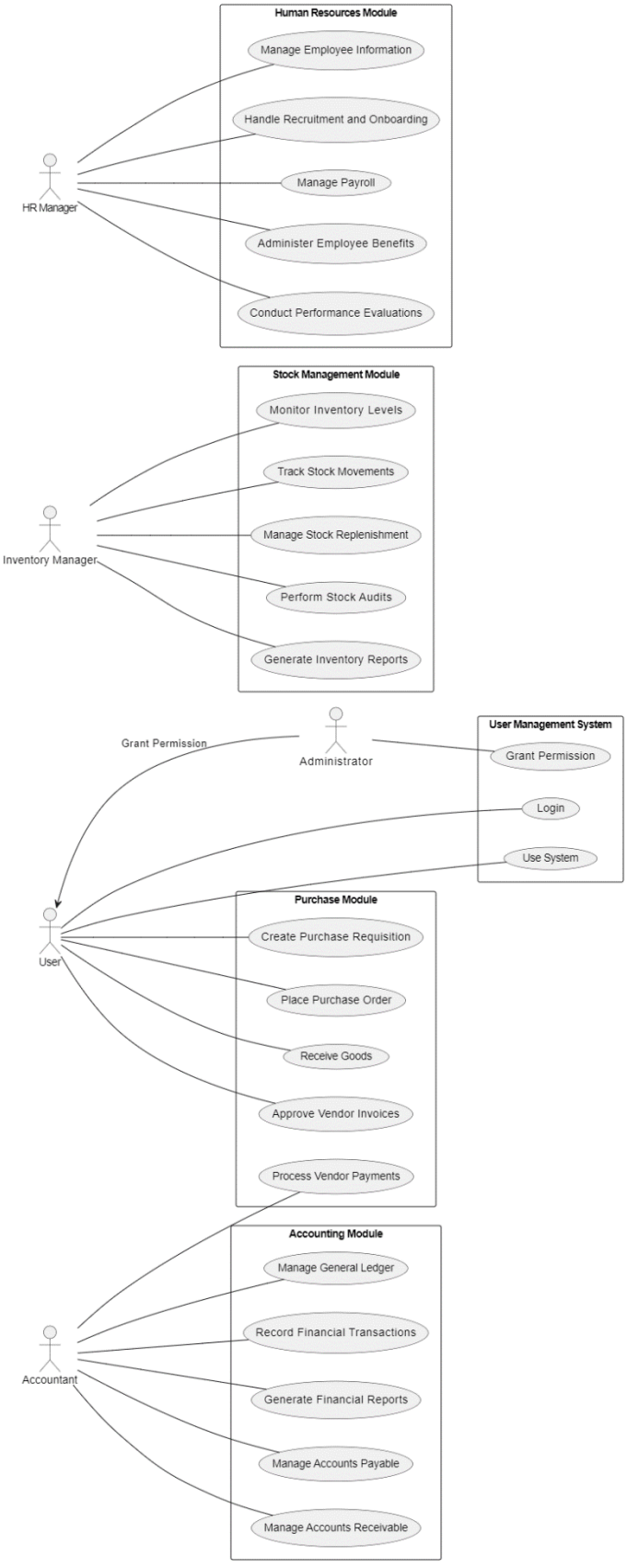

Fig 3. Use Case Diagram

Class Diagram:

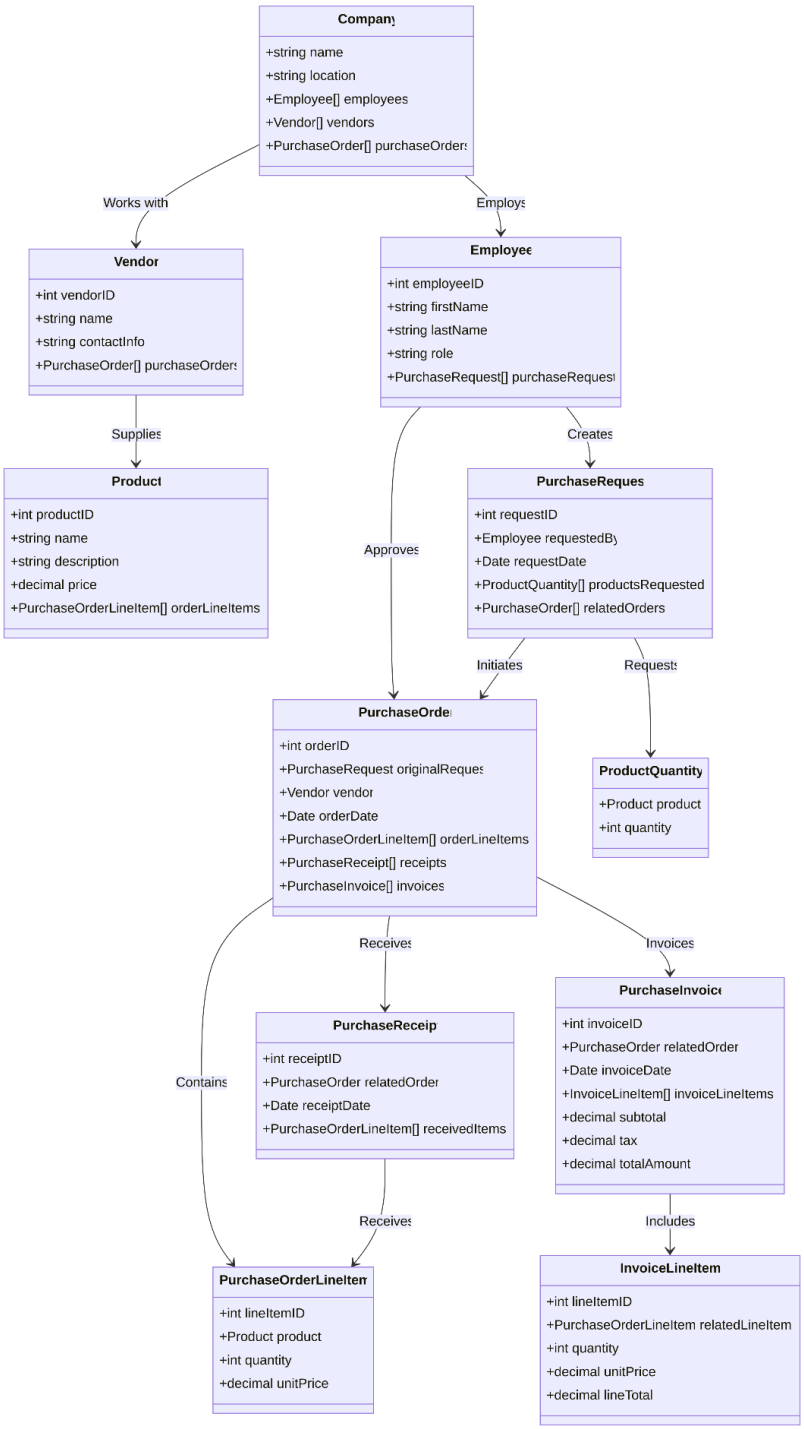

Fig 4.Class Diagram

Sequence Diagram:

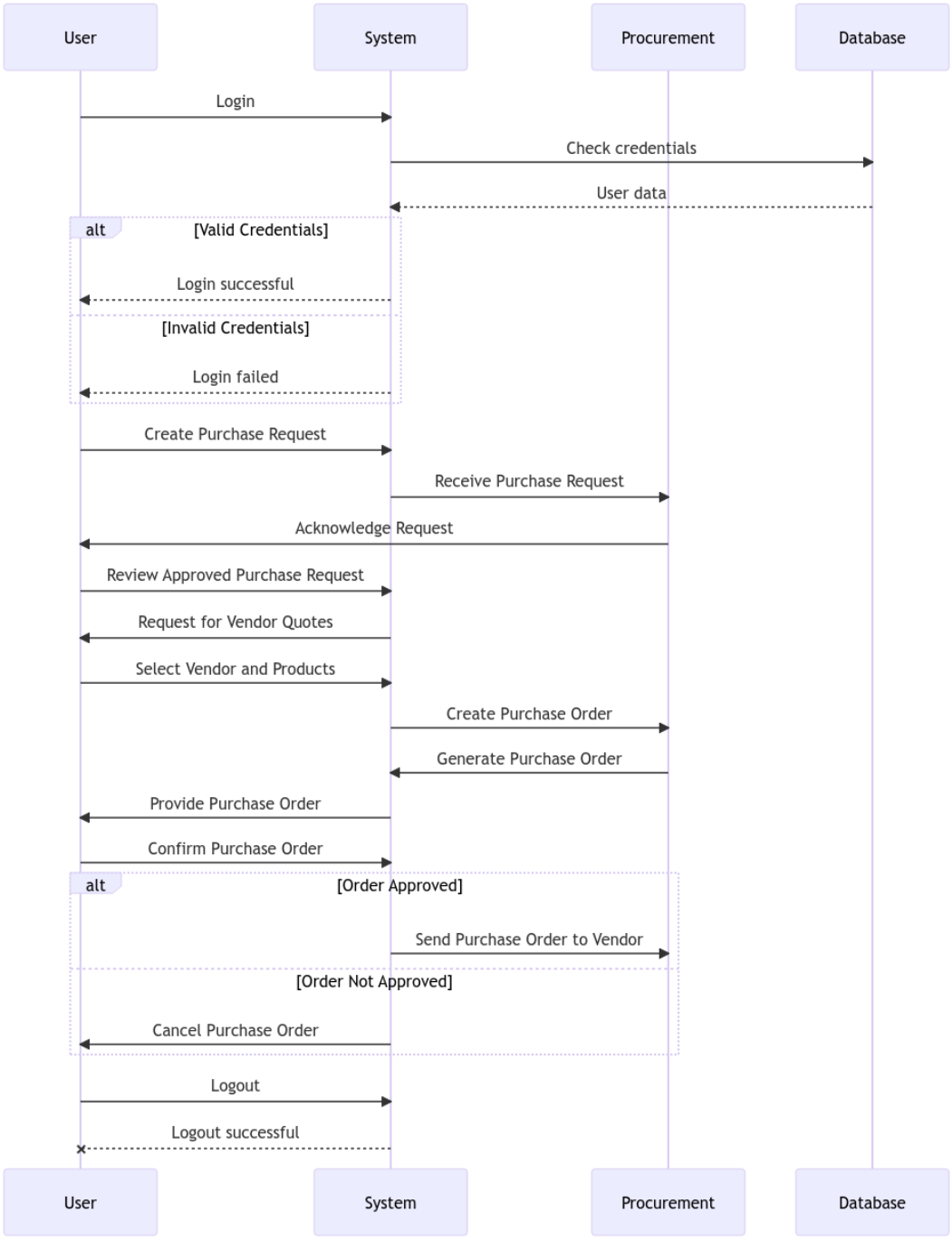

Fig 5. Sequence Diagram

E-R Diagram of ERP –Purchase Management System:

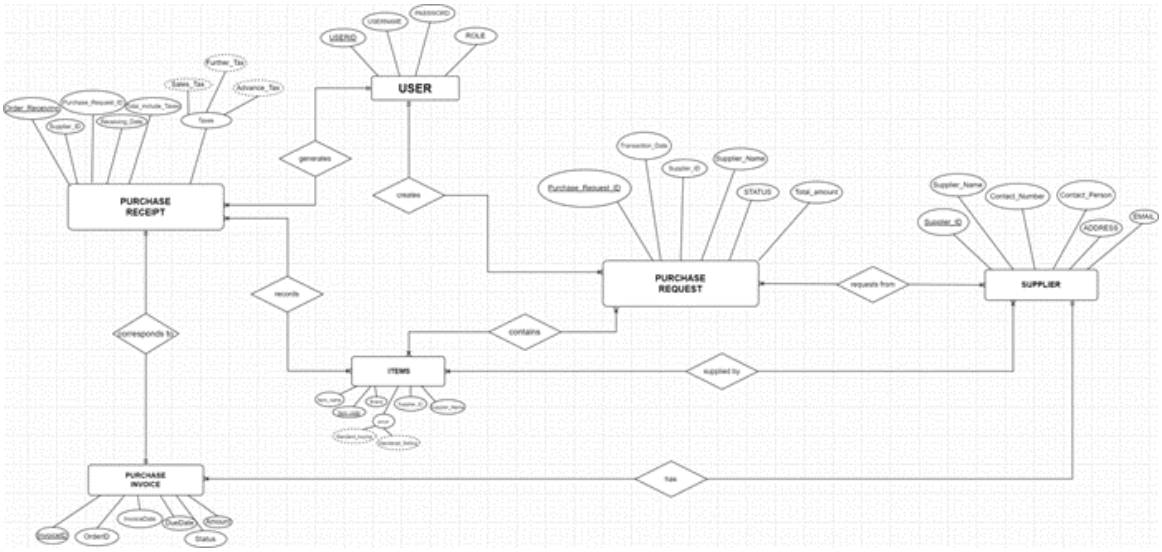

Fig 6. ER Diagram

WBS –Diagram Of ERP Software System:

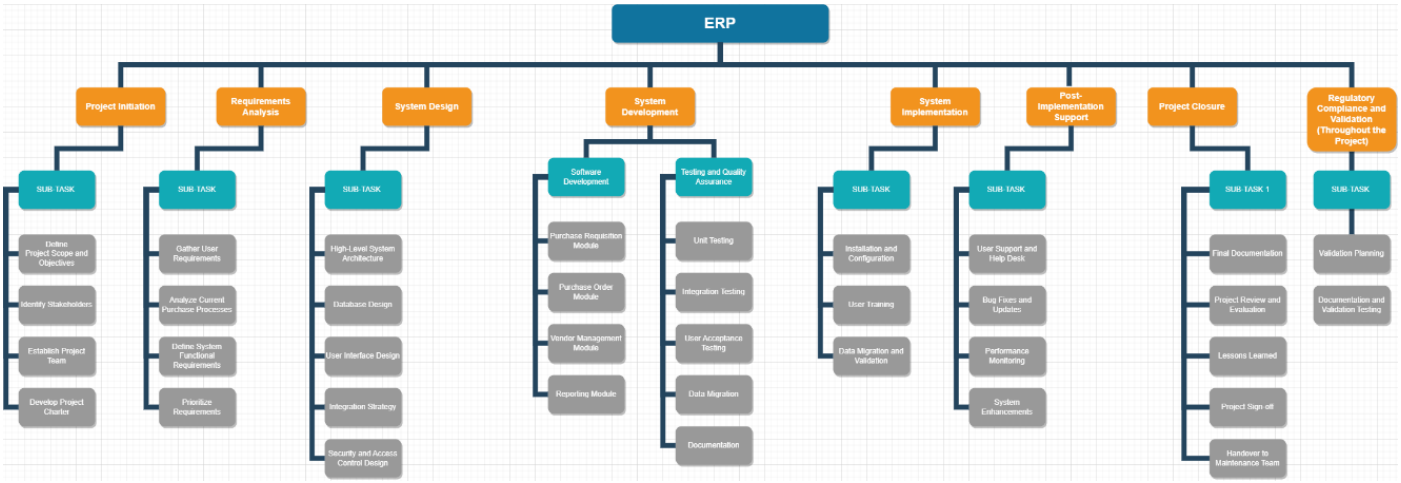

Fig 6. WBS