

FINAL PROJECT



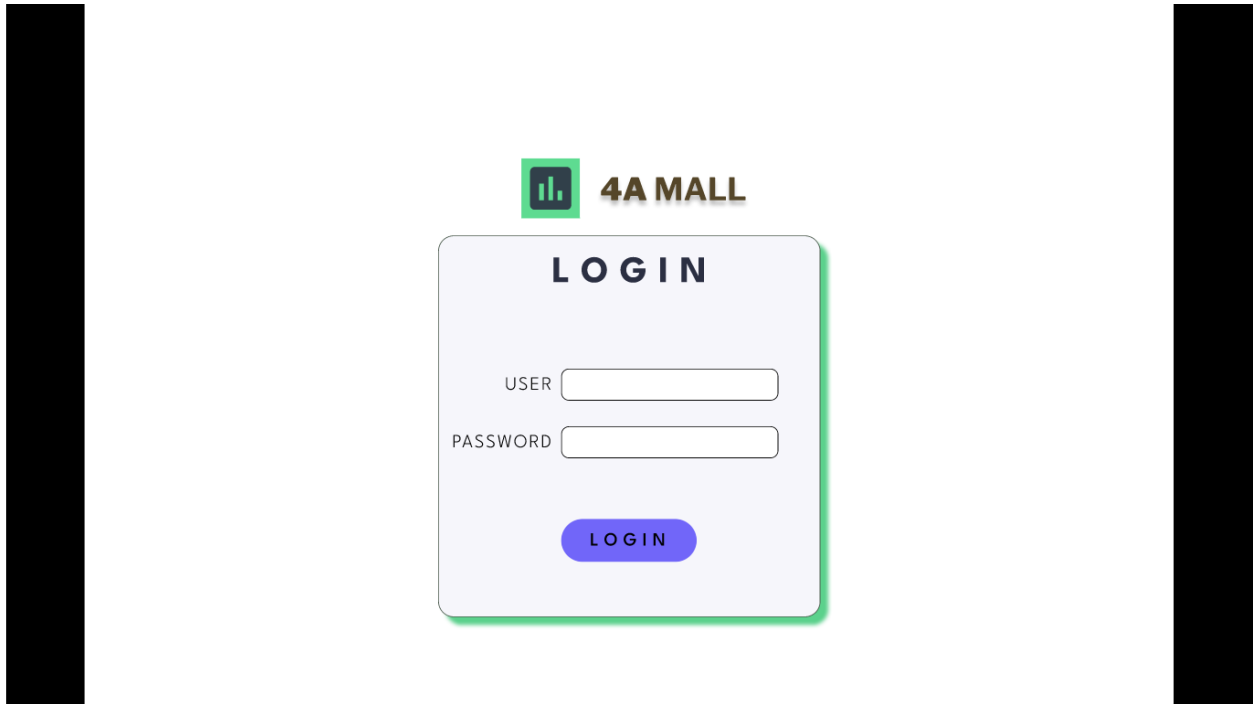
Enterprise Resource Planning System Design

BSIT 4A

Introduction

The 4A Mall's ERP system is a comprehensive software solution that aims to automate and integrate various business processes, including Financial Management, Inventory Management, Supply Management, Customer Management, and HR Management. The system is designed to streamline and improve the efficiency of these processes, while providing valuable insights and data for decision-making. The ERP system will be implemented with the useful technologies and best practices to ensure its scalability, security, and ease of use. The system will be designed to cater to the specific needs of the organization and will be tailored to meet the unique requirements of the business. This document outlines the system design of the ERP system, including the UI Design, Database Design, and System Architecture (Logical and Physical) of the system.

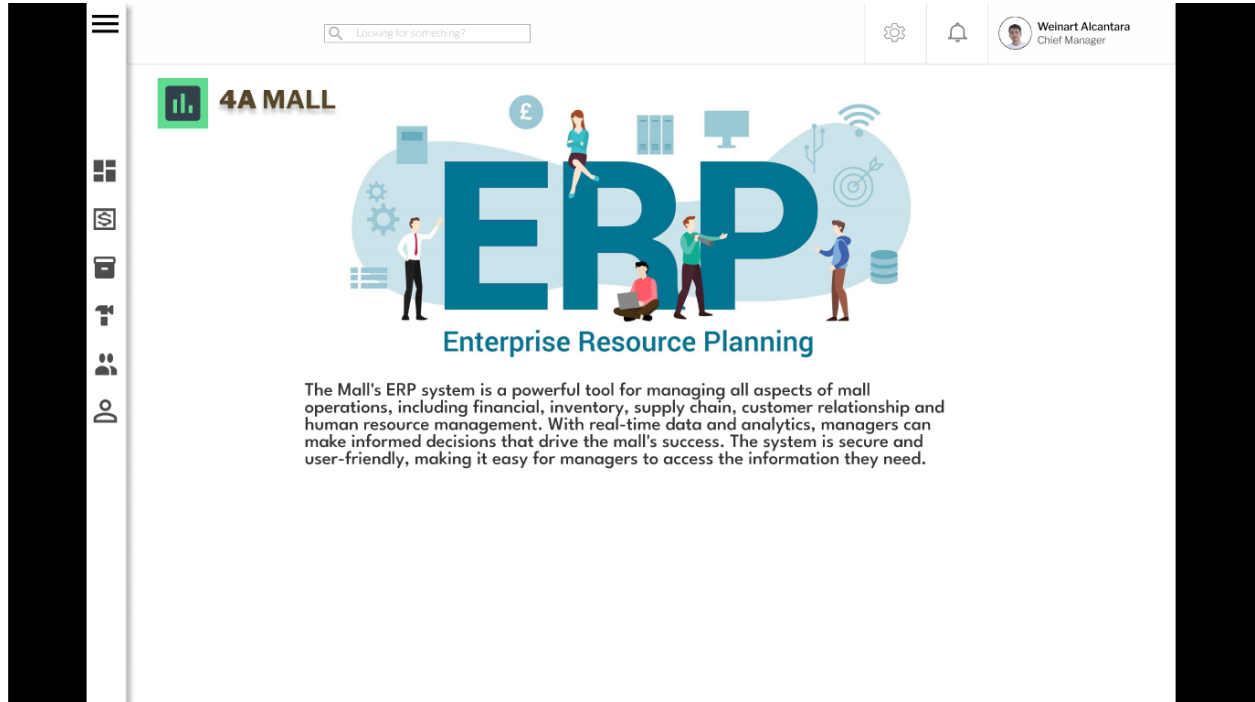
User Interface Design



The **Login Page** in the UI design of the ERP system is a simple and user-friendly page that allows users to access the system. The page consists of the following elements:

- A logo or title that represents the ERP system
- Two input fields for the user's email address and password
- A "Submit" button to log in

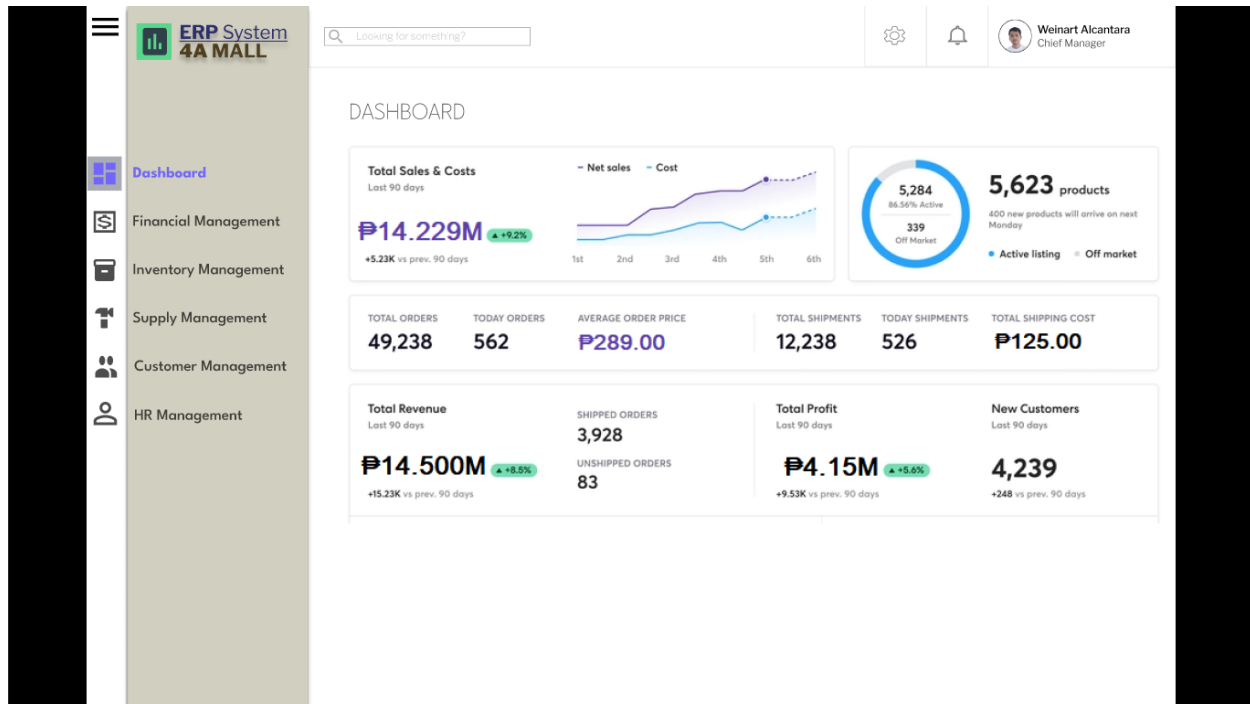
The page will be designed to be responsive, adapting to different screen sizes and devices. The page will use a simple and clean layout with a neutral color scheme, and consistent font styles and sizes. The page will be designed to be accessible, providing clear and concise instructions, labels, and error messages. The page will be designed to be consistent with the overall design and branding of the ERP system.



The **Home** Page in the UI design of the ERP system is the first page that users will see after logging in. The page is designed to provide a quick overview of the system and easy access to the various modules. The page consists of the following elements:

- A graphical picture abstracting the ERP, that can be a visual representation of the system's architecture or a simple graphic that represents the system.
- A short description of the ERP System that explains its main features and purpose.
- A menu button that when clicked opens an overlay with links to the different modules of the system such as Financial Management, Inventory Management, Supply Management, Customer Management, and HR Management.
- A search field
- A settings button that allows users to access and change their settings, such as language, time zone, and other personal preferences.
- A notification button that displays alerts or notifications that are relevant to the user.
- An account area that displays the user's name and role, and allows access to the user's account settings.

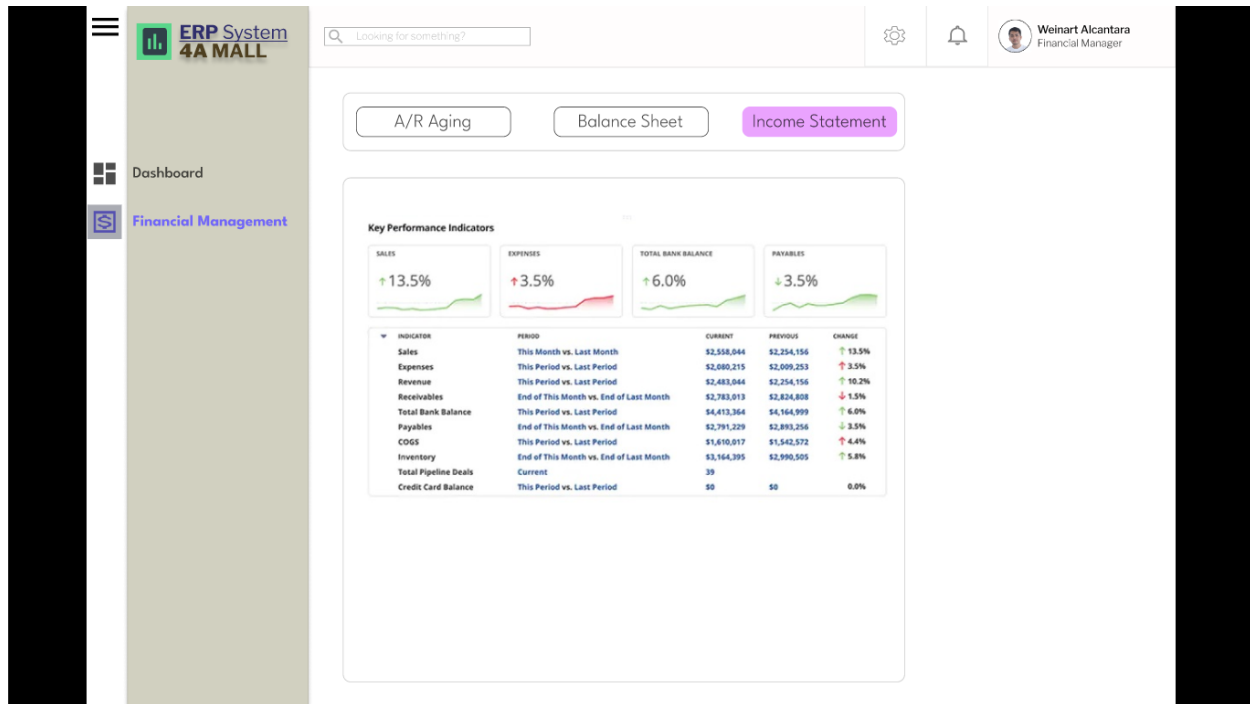
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The **Dashboard** in the UI design of the ERP system is a page that provides an overview of the key performance indicators of the system. The dashboard allows users to quickly access important data and insights about the system's performance. The page consists of the following elements:

- A section that displays an overview of the cost and sales, revenue, new customers, total products, and profit, using graphical representations such as bar charts, line charts, or pie charts.
- A menu button that when clicked opens an overlay with links to the different modules of the system such as Financial Management, Inventory Management, Supply Management, Customer Management, and HR Management.
- A logo or title that represents the ERP system, when clicked the overlay menu closes.
- A search field
- A settings button that allows users to access and change their settings, such as language, time zone, and other personal preferences.
- A notification button that displays alerts or notifications that are relevant to the user.
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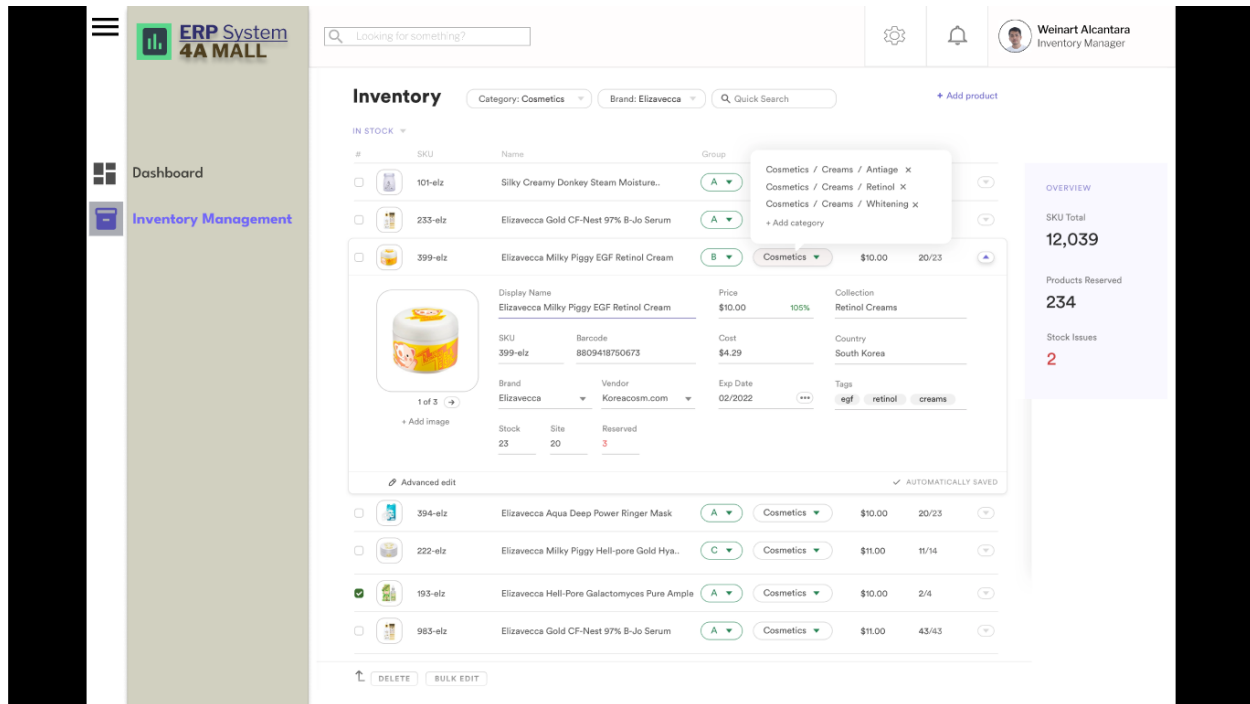
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The **Financial Management** page in the UI design of the ERP system is a page that provides detailed information about the financial performance of the system. The page is designed to be accessible only by the financial manager, and the administrator. The page consists of the following elements:

- A section that displays the A/R Aging, Balance sheet, and Income statement, using graphical representations such as bar charts, line charts, or pie charts.
- A menu button that when clicked opens an overlay with links to the different modules of the system such as the Dashboard, and the Financial Management module, or Dashboard, Financial Management, Inventory Management, Supply Management, Customer Management, and HR Management if accessed by the Administrator.
- A logo or title that represents the ERP system, when clicked the overlay menu closes.
- A search field that allows users to search for specific transactions or financial data.
- A settings button that allows users to access and change their settings, such as language, time zone, and other personal preferences.
- A notification button that displays alerts or notifications that are relevant to the user.
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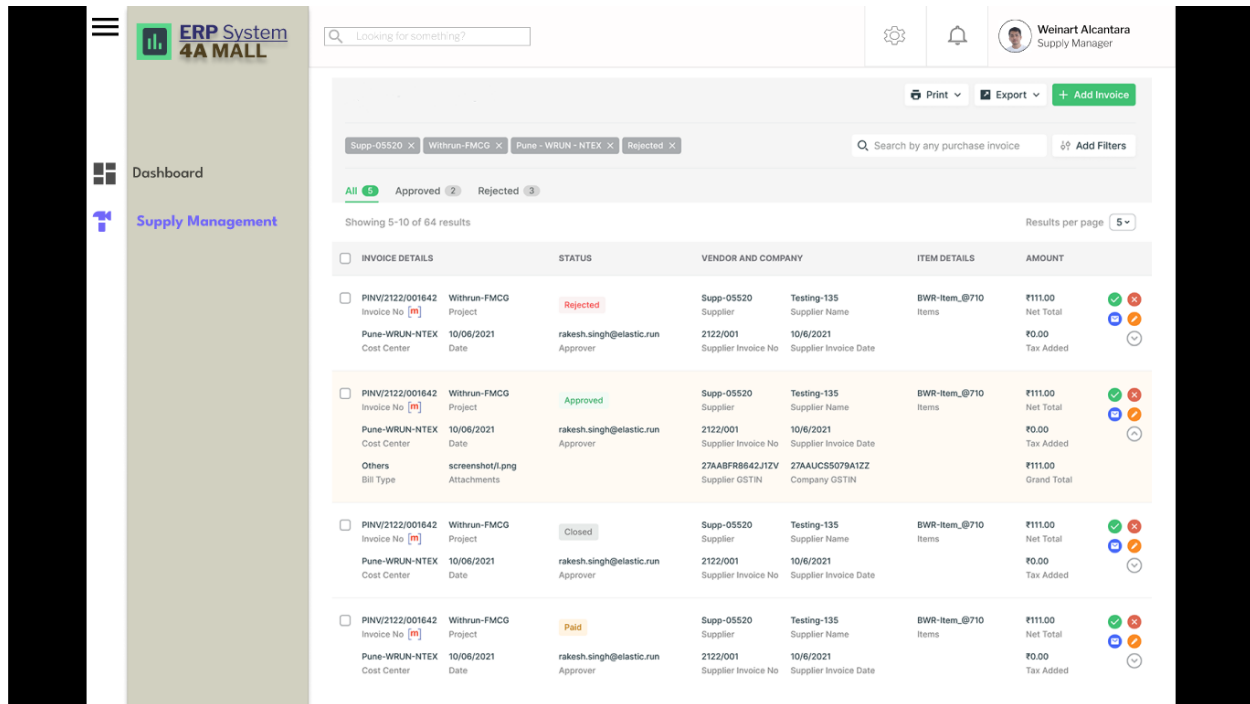
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The **Inventory Management** page in the UI design of the ERP system is a page that provides detailed information about the inventory of the system. The page is designed to be accessible only by the inventory manager, and the administrator. The page consists of the following elements:

- A dropdown category, that allows the user to filter the products by category.
- A dropdown brand, that allows the user to filter the products by brand.
- A button "Add Product" that allows the user to add new products to the inventory.
- A table that displays the SKU, name, Group, Price, and Stock of the products.
- A menu button that when clicked opens an overlay with links to the different modules of the system such as the Dashboard, and the Inventory Management module.
- A logo or title that represents the ERP system, when clicked the overlay menu closes.
- A search field that allows users to search for specific products or inventory data.
- A settings button that allows users to access and change their settings, such as language, time zone, and other personal preferences.
- A notification button that displays alerts or notifications that are relevant to the user.
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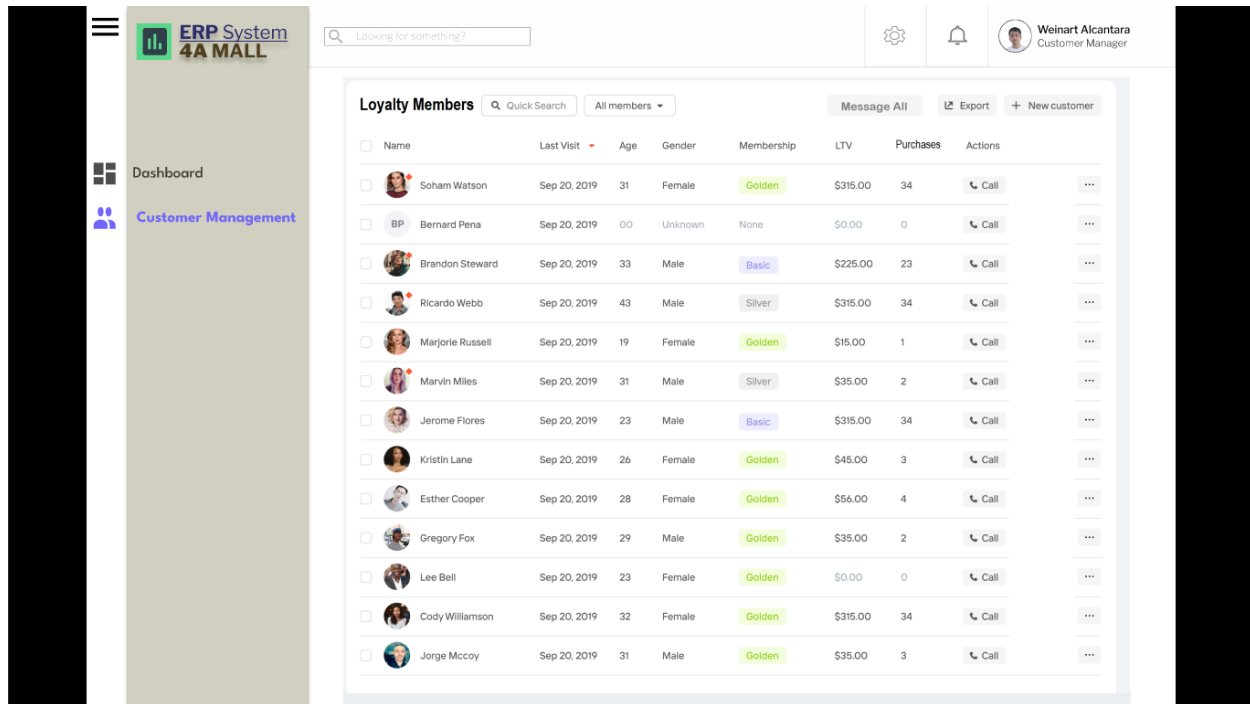
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The **Supply Management** page in the UI design of the ERP system is a page that provides detailed information about the supply chain of the system. The page is designed to be accessible only by the supply manager, and the administrator. The page consists of the following elements:

- A list of suppliers and their invoice transactions that allows the user to view and manage the supplier's invoices.
- A button "Print" that allows the user to print the invoice.
- A button "Add Invoice" that allows the user to add new invoices to the system.
- A menu button that when clicked opens an overlay with links to the different modules of the system such as the Dashboard, and the Supply Management module.
- A logo or title that represents the ERP system, when clicked the overlay menu closes.
- A search field that allows users to search for specific invoices or supply data.
- A settings button that allows users to access and change their settings, such as language, time zone, and other personal preferences.
- A notification button that displays alerts or notifications that are relevant to the user.
- An account area that displays the user's name and role, and allows access to the user's account settings.

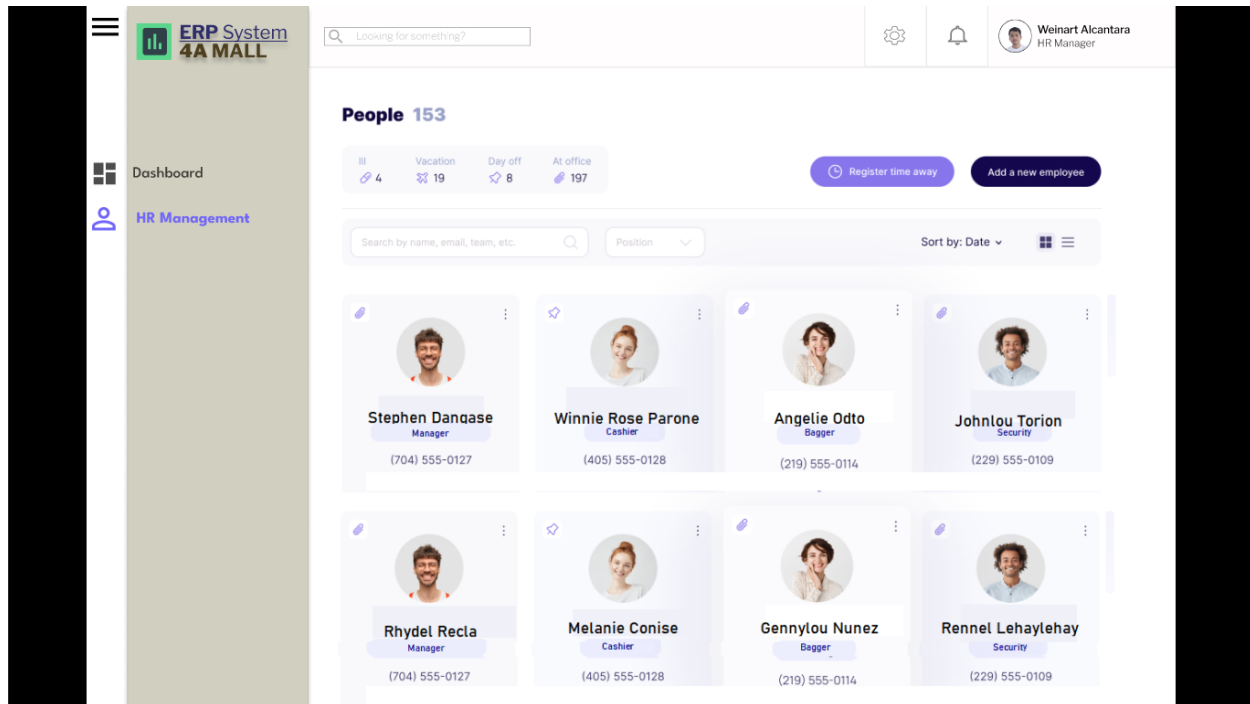
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The **Customer Management** page in the UI design of the ERP system is a page that provides detailed information about the customers of the system. The page is designed to be accessible only by the customer manager, and the administrator. The page consists of the following elements:

- A list of loyalty members and their details that allows the user to view and manage the customer's loyalty program.
- A button "Add New Customer" that allows the user to add new customers to the system.
- A list of customer transactions that allows the user to view and manage the customer's transactions.
- A menu button that when clicked opens an overlay with links to the different modules of the system such as the Dashboard, and the Customer Management module.
- A logo or title that represents the ERP system, when clicked the overlay menu closes.
- A search field that allows users to search for specific customers or transaction data.
- A settings button that allows users to access and change their settings, such as language, time zone, and other personal preferences.
- A notification button that displays alerts or notifications that are relevant to the user.
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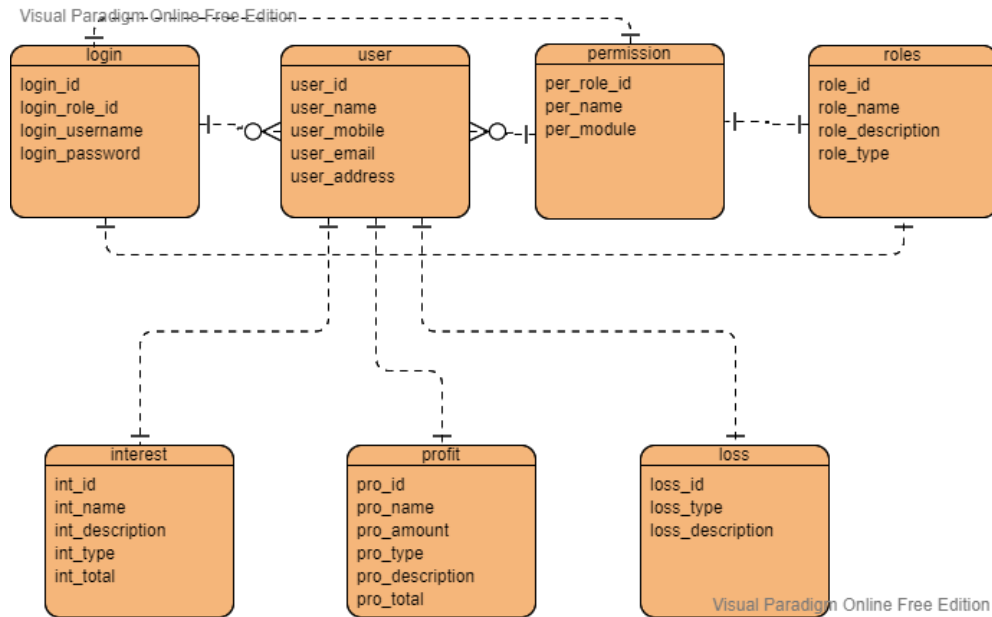


The **HR Management** page in the UI design of the ERP system is a page that provides detailed information about the employees of the system. The page is designed to be accessible only by the HR manager and the administrator. The page consists of the following elements:

- A list of employees that allows the user to view and manage the employee's information and status.
- A button "Register Time Away" that allows the user to register an employee's time away from work.
- A button "Add Employee" that allows the user to add new employees to the system.
- A menu button that when clicked opens an overlay with links to the different modules of the system such as the Dashboard and the HR Management module.
- A logo or title that represents the ERP system, when clicked the overlay menu closes.
- A search field that allows users to search for specific employees or HR-related data.
- A settings button that allows users to access and change their settings, such as language, time zone, and other personal preferences.
- A notification button that displays alerts or notifications that are relevant to the user.
- An account area that displays the user's name and role, and allows access to the user's account settings.

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Database Design

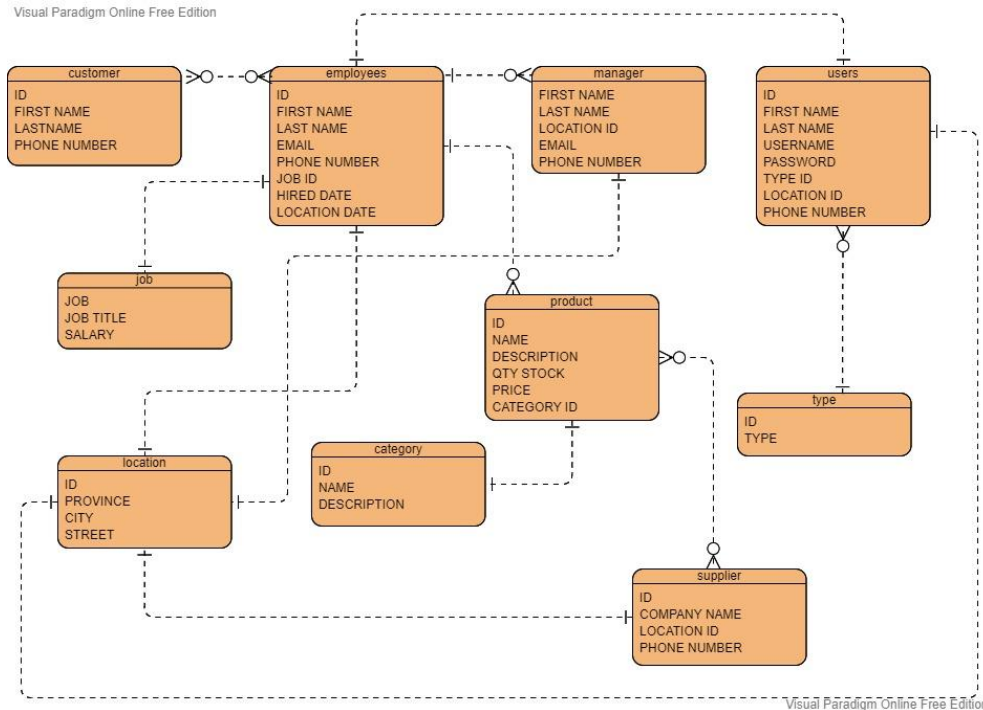


The Database Design for the ERP system in **Financial Management** includes several key elements:

- **Login:** This table includes information on user credentials such as username, password, and login status.
- **User:** This table includes information on the users of the system such as name, role, contact information, and other personal details.
- **Permissions:** This table includes information on the permissions granted to users such as access to different modules, and ability to perform certain actions.
- **Roles:** This table includes information on the different roles within the system such as financial manager, administrator, and other positions.
- **Interest:** This table includes information on the interest rates for different financial transactions such as loans and investments.
- **Profit:** This table includes information on the profits earned by the system such as revenue, costs, and net income.
- **Loss:** This table includes information on the losses incurred by the system such as expenses, write-offs, and other financial losses.

The database will be designed to be secure, reliable, and scalable. It will use a relational database management system (RDBMS) such as MySQL, PostgreSQL, or Oracle. The database will be normalized to minimize data redundancy and improve data integrity. The database will be protected by various security measures such as user authentication, encryption, and backups.

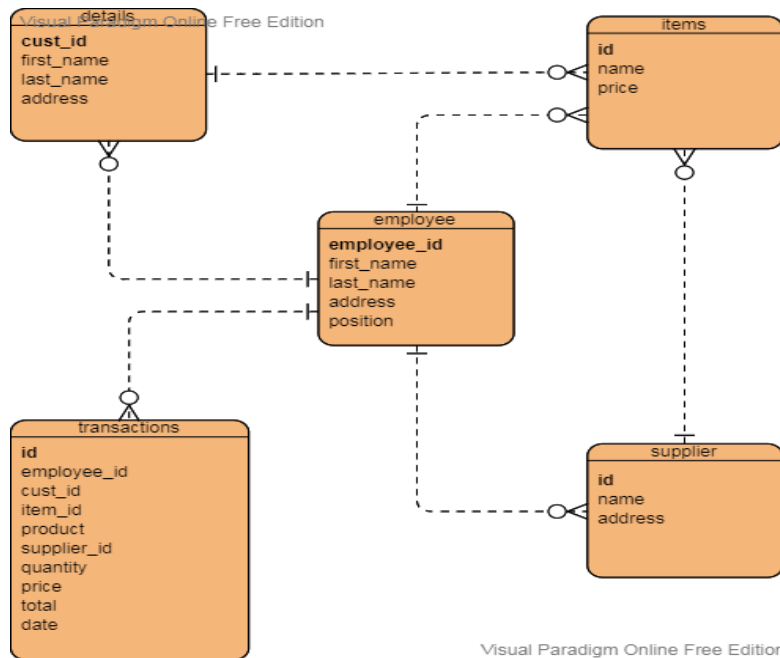
The database design will allow the system to store and retrieve financial data efficiently and effectively. It will provide the necessary information for the different modules of the ERP system, and will allow the system to provide accurate and real-time financial reports and analysis. This will help the system to make better financial decisions, increase its efficiency and reduce costs.



The Database Design for the ERP system in **Inventory Management** includes several key elements:

- **Product:** This table includes information on the products in the inventory such as SKU, name, category, brand, unit of measurement, and other product-specific details.
- **Stock:** This table includes information on the stock levels of the products such as quantity, reorder level, and minimum stock level.
- **Orders:** This table includes information on the purchase and sales orders such as order date, supplier/customer, order quantity, and status.
- **Transactions:** This table includes information on the transactions that occur in the inventory system such as purchase, sales, and stock adjustments.
- **Warehouse:** This table includes information on the warehouse locations and their inventory levels.
- **Suppliers:** This table includes information on the suppliers such as name, contact information, and other details.
- **Customers:** This table includes information on the customers such as name, contact information, and other details.

The database will be designed to be secure, reliable, and scalable. It will use a relational database management system (RDBMS) such as MySQL, PostgreSQL, or Oracle. The database will be normalized to minimize data redundancy and improve data integrity. The database design will allow the system to store and retrieve inventory data efficiently and effectively. It will provide the necessary information for the different modules of the ERP system, and will allow the system to provide accurate and real-time inventory reports and analysis. This will help the system to manage the inventory more efficiently, reduce stockouts, and minimize stock holding costs.

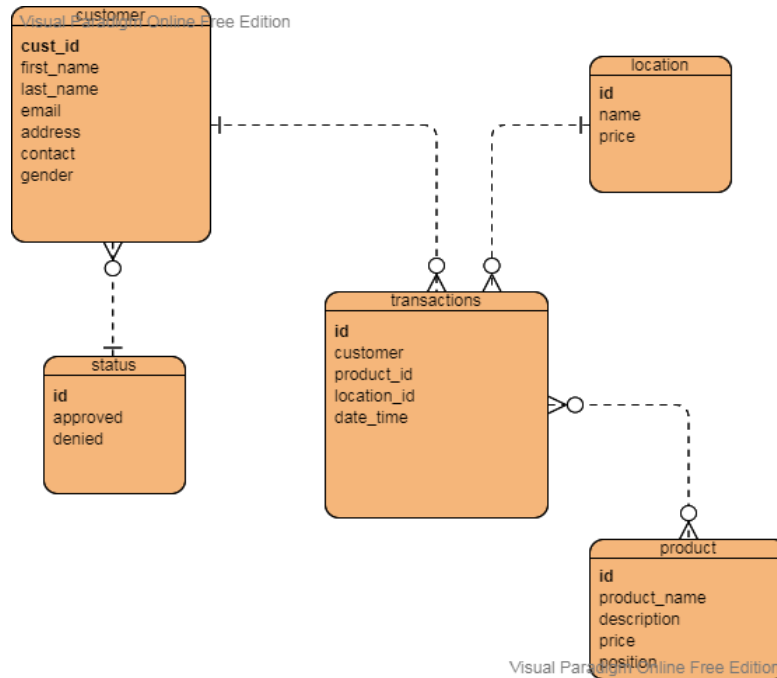


The Database Design for the ERP system in **Supply Management** includes several key elements:

- **Details:** This table includes information on the details of the supply chain such as the item description, item code, unit of measurement, and other details.
- **Items:** This table includes information on the items in the supply chain such as item name, item category, item brand, and other item-specific details.
- **Employee:** This table includes information on the employees that are involved in the supply chain such as name, role, contact information, and other details.
- **Transactions:** This table includes information on the transactions that occur in the supply chain such as purchase, sales, and stock adjustments.
- **Supplier:** This table includes information on the suppliers such as name, contact information, and other details.
- **Invoices:** This table includes information on the invoices such as invoice number, invoice date, supplier name, item details, and other details.

The database will be designed to be secure, reliable, and scalable. It will use a relational database management system (RDBMS) such as MySQL, PostgreSQL, or Oracle. The database will be normalized to minimize data redundancy and improve data integrity. The database will be protected by various security measures such as user authentication, encryption, and backups.

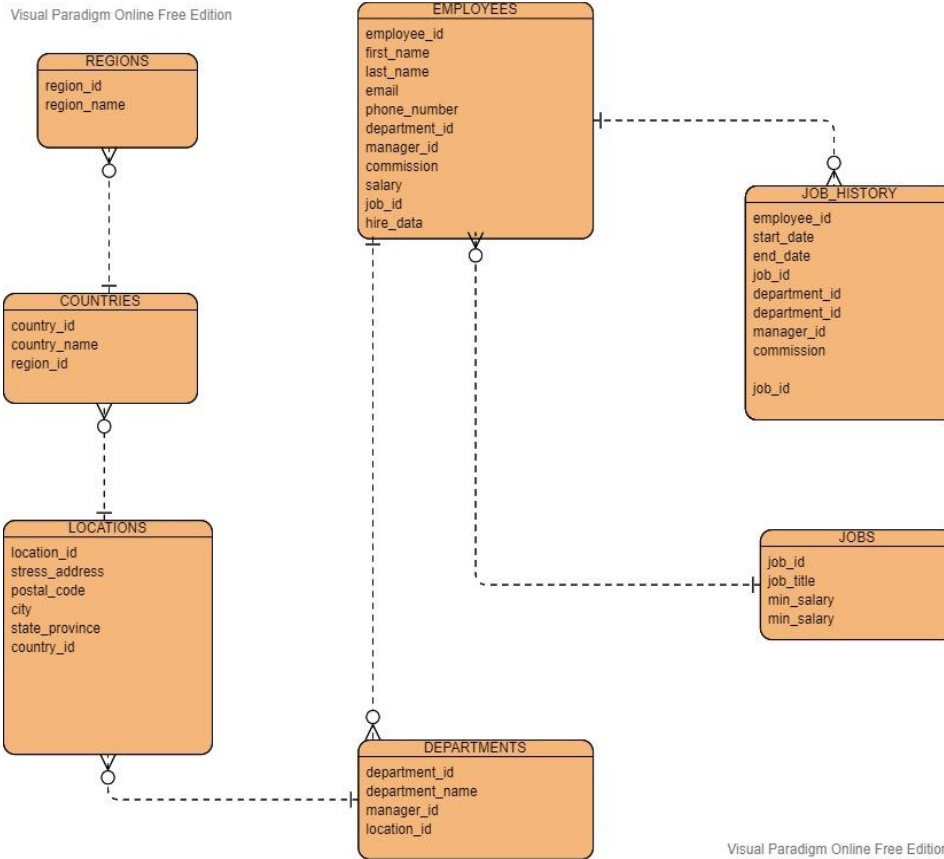
The database design will allow the system to store and retrieve supply chain data efficiently and effectively. It will provide the necessary information for the different modules of the ERP system, and will allow the system to provide accurate and real-time supply chain reports and analysis. This will help the system to manage the supply chain more efficiently, reduce lead times, and minimize inventory costs.



The Database Design for the ERP system in **Customer Management** includes several key elements:

- **Customers:** This table includes information on the customers such as name, contact information, customer status, and other details.
- **Location:** This table includes information on the customer location such as address, city, state, and country.
- **Transactions:** This table includes information on the transactions that occur with the customers such as purchase, sales, and returns.
- **Status:** This table includes information on the status of the customer such as active, inactive, and deleted.
- **Products:** This table includes information on the products that are being purchased by the customers such as product name, product code, unit of measurement, and other details.

The database will be designed to be secure, reliable, and scalable. It will use a relational database management system (RDBMS) such as MySQL, PostgreSQL, or Oracle. The database will be normalized to minimize data redundancy and improve data integrity. The database will be protected by various security measures such as user authentication, encryption, and backups. The database design will allow the system to store and retrieve customer data efficiently and effectively. It will provide the necessary information for the different modules of the ERP system, and will allow the system to provide accurate and real-time customer reports and analysis. This will help the system to manage customer relationships, increase customer loyalty, and improve sales and marketing efforts.



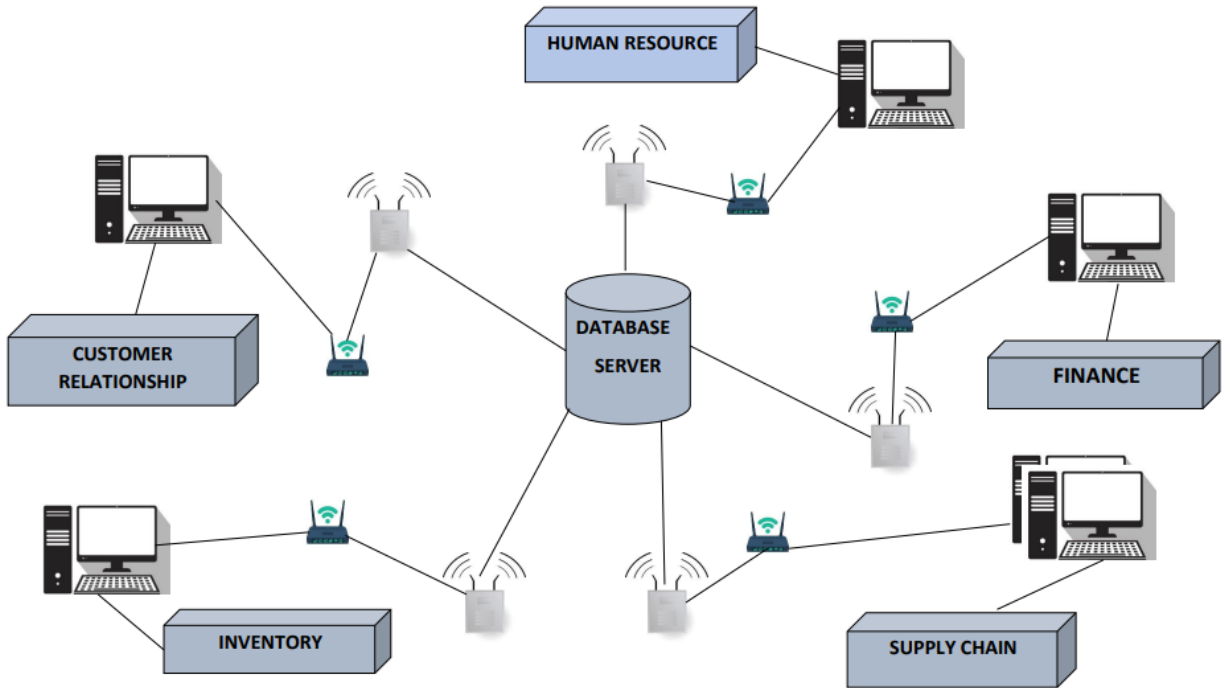
The Database Design for the ERP system in **HR Management** includes several key elements:

- **Employee:** This table includes information on the employees such as name, role, contact information, hire date, salary, and other details.
- **Payroll:** This table includes information on the payroll such as salary, deductions, bonuses, and other details.
- **Benefits:** This table includes information on the benefits such as insurance, retirement plans, and other benefits offered to the employees.
- **Time and Attendance:** This table includes information on the time and attendance of the employees such as clock-in and clock-out time, vacation, and sick leave.
- **Performance:** This table includes information on the performance of the employees such as performance reviews, goals, and progress.

The database will be designed to be secure, reliable, and scalable. It will use a relational database management system (RDBMS) such as MySQL, PostgreSQL, or Oracle. The database will be normalized to minimize data redundancy and improve data integrity. The database will be designed to support various types of queries and reporting, and will be optimized for performance. The database will be protected by various security measures such as user authentication, encryption, and backups.

System Architecture

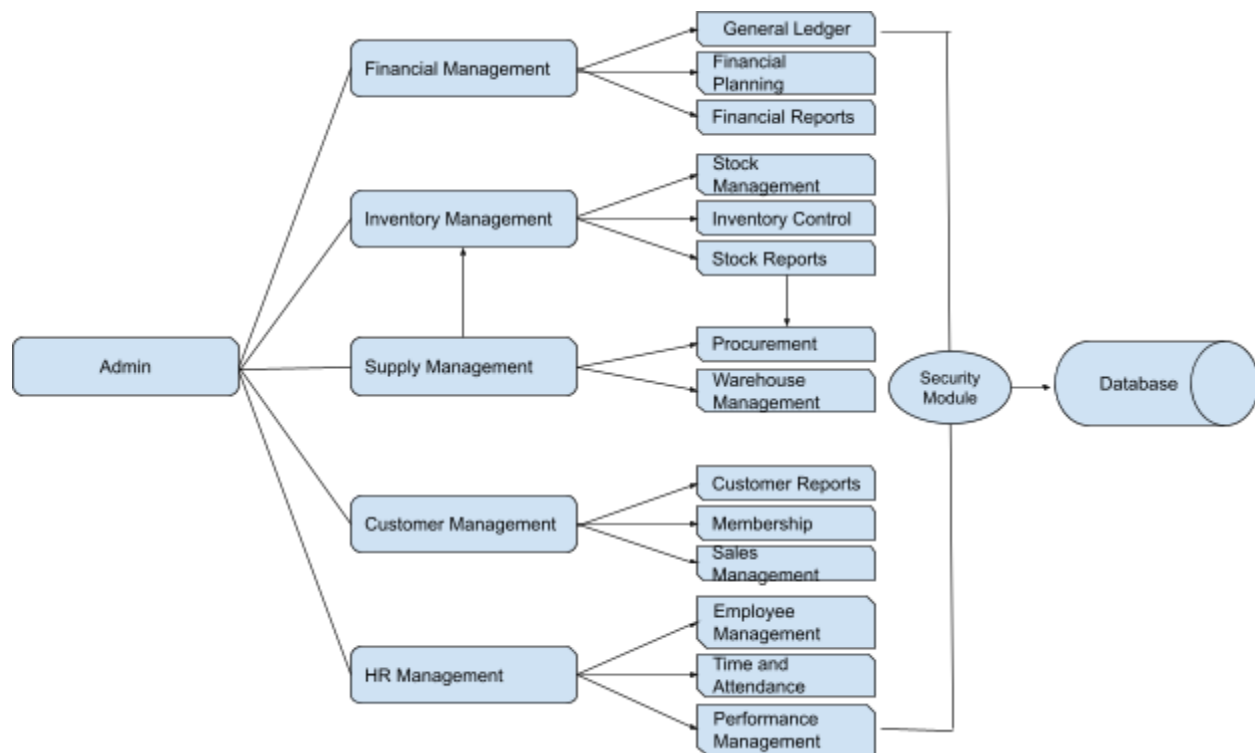
Physical View



The Physical View of the System Architecture of the ERP system includes the use of physical servers located in a data center or in-house, connected to the internet and other networks through a firewall, router, and switch, running an operating system such as Windows, Linux or Unix, using a relational database management system (RDBMS) such as MySQL, PostgreSQL, or Oracle, running on an application server such as Tomcat, JBoss, or Websphere, having regular backups of the data, and having various security measures in place such as firewalls, intrusion detection, and data encryption to ensure the efficient and secure functioning of the ERP system.

System Architecture

Logical View



The logical view of the system architecture for an ERP system is a flowchart that depicts the various modules of the system and how they interact with each other. The diagram contains six main modules: Financial Management, Inventory Management, Supply Management, Customer Management, HR Management, and Administration. Each module is connected to the database module, represented by a rectangle labeled "Database", which stores and manages the data used by the system. The Administration module is connected to the other modules to manage the different aspects of the system, while the security module is connected to all the modules to ensure the system and its data is secured.