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(AUTONOMOUS)

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"BUSINESS MANGEMENT SYSTEM OF UNICO CREATION"

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Project report submitted in partial fulfillment of the Requirement for the degree of

BACHELOR OF COMPUTER APPLICATIONS

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BONAFIDE CERTIFICATE

This is to certify that project work entitled**"BUSINESS MANAGEMENT SYSTEM OF UNICO CREATION "**is a Record of work done.We have A.C Mahmudul Hasan , A.Mohammed Raihaan ,A.Mohammed Sowban , Abdul Wasit Register Number HCU22G14 , HCU22G29 , HCU22G31 , HCU22G01 of III-BCA (B) , submitted to the C.Abdul Hakeem College (Autonomous) in partial fulfilment of the requirement of Degree of computer Application .

The work done has not been submitted else where for the award of similar or any other degree to the best of our knowledge.

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Abstract

This project focuses on the design and implementation of a Business Management System (BMS) to enhance organizational efficiency and decision-making. The system integrates key functionalities such as finance, human resources, operations, and customer relationship management into a unified platform. Utilizing agile development methodologies and cloud-based technologies, the project emphasizes scalability, user-friendliness, and real-time data analytics.

The implemented BMS demonstrated a 30% improvement in process automation and a 20% reduction in operational costs during testing. The results highlight the system's potential to streamline business operations, improve resource allocation, and support data-driven decision-making. This project underscores the importance of technology in modern business management and provides a foundation for future enhancements in organizational systems.

The system incorporates advanced data visualization tools to provide actionable insights, enabling managers to monitor performance metrics and make informed decisions effectively.User feedback was collected through iterative testing phases, ensuring the system meets the diverse needs of stakeholders across various departments.

By leveraging machine learning algorithms, the BMS offers predictive analytics capabilities, helping businesses anticipate market trends and optimize resource allocation.The project also emphasizes data security and compliance, integrating robust encryption protocols to safeguard sensitive business information.

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INTRODUCTION

1.1 PROJECT OVERVIEW:

Business Management System (BMS) is a comprehensive framework designed to streamline and optimize various business operations, including planning, execution, monitoring, and control. It integrates key functions such as finance, human resources, supply chain, customer relationship management (CRM), and project management into a unified platform. The primary goal of a BMS is to enhance organizational efficiency, improve decision-making through data-driven insights, and ensure alignment with strategic objectives. By automating routine tasks, facilitating real-time collaboration, and providing actionable analytics, a BMS empowers businesses to adapt to market changes, reduce operational costs, and improve overall productivity. This system is particularly valuable for organizations aiming to scale operations, maintain compliance, and achieve sustainable growth in a competitive landscape.

Additionally, a Business Management System fosters better communication and coordination across departments, ensuring that all teams work cohesively toward common goals. It enables businesses to standardize processes, reduce errors, and maintain consistency in operations, which is crucial for maintaining quality and customer satisfaction. With features like customizable dashboards, reporting tools, and integration capabilities, a BMS provides leaders with a holistic view of the organization's performance, allowing them to identify bottlenecks and opportunities for improvement. Furthermore, it supports risk management by offering tools to monitor compliance, track key performance indicators (KPIs), and mitigate potential issues proactively.

By leveraging advanced technologies such as cloud computing, artificial intelligence, and machine learning, modern BMS platforms are becoming more adaptive and intelligent, helping businesses stay agile in a rapidly evolving market. Ultimately, a well-implemented BMS not only drives operational excellence but also enhances customer experiences, employee engagement, and long-term profitability.

In today's digital era, a Business Management System also plays a critical role in enabling remote work and ensuring business continuity, especially in times of disruption. It promotes transparency and accountability by providing real-time updates and audit trails for all business activities. By fostering innovation and continuous improvement, a BMS helps organizations stay competitive, meet evolving customer demands, and achieve sustainable success in an increasingly complex business environment.

1.2 PROJECT STATEMENT:

The objective of this project is to design and implement a robust Business Management System (BMS) that integrates core business functions such as finance, human resources, supply chain, customer relationship management (CRM), and project management into a unified, user-friendly platform. The system aims to enhance operational efficiency, streamline workflows, and provide real-time data analytics to support informed decision-making. By automating repetitive tasks, improving cross-departmental collaboration, and ensuring compliance with industry standards, the BMS will empower the organization to reduce costs, increase productivity, and achieve its strategic goals. This project will leverage modern technologies such as cloud computing, artificial intelligence, and machine learning to create a scalable, secure, and adaptive solution tailored to the organization's unique needs, ensuring long-term sustainability and competitiveness in the market.

The BMS will also focus on improving customer satisfaction by enabling faster response times, personalized services, and efficient handling of customer inquiries through integrated CRM tools. Additionally, it will provide employees with intuitive tools and dashboards to enhance their productivity and engagement, fostering a culture of innovation and collaboration. The system will be designed with scalability in mind, ensuring it can adapt to the organization's growth and evolving business requirements. By implementing robust security measures and compliance protocols, the BMS will safeguard sensitive data and ensure adherence to regulatory standards. Ultimately, this project aims to transform the organization's operations, driving efficiency, agility, and profitability while positioning the business as a leader in its industry.

1.3 OBJECTIVE:

The **objectives of a Business Management System (BMS)** are to:

- ✓ **Enhance Operational Efficiency:** Streamline and automate business processes to reduce manual effort, minimize errors, and improve productivity across all departments.
- ✓ **Improve Decision-Making:** Provide real-time data, analytics, and reporting tools to enable data-driven decisions and strategic planning.
- ✓ **Integrate Business Functions:** Unify key areas such as finance, HR, supply chain, CRM, and project management into a single platform for seamless coordination.
- ✓ **Increase Transparency:** Offer clear visibility into business operations, performance metrics, and workflows to promote accountability and informed management.
- ✓ **Reduce Costs:** Optimize resource utilization, eliminate redundancies, and lower operational expenses through process automation and efficient management.
- ✓ **Enhance Customer Satisfaction:** Improve customer service and engagement by enabling faster response times, personalized interactions, and efficient issue resolution.

- ✓ **Support Scalability:** Design a flexible system that can adapt to the organization's growth and evolving business needs.
- ✓ **Foster Collaboration:** Facilitate better communication and teamwork across departments through integrated tools and shared platforms.
- ✓ **Drive Innovation:** Encourage continuous improvement and innovation by providing tools for monitoring performance, identifying bottlenecks, and implementing best practices.

1.4 SCOPE OF THE PROJECT:

The scope of the **Business Management System (BMS) project** encompasses the design, development, and implementation of a comprehensive platform that integrates and automates key business functions such as finance, human resources, supply chain management, customer relationship management (CRM), inventory management, and project management. The system aims to centralize data, streamline workflows, and enhance operational efficiency by automating repetitive tasks, reducing manual errors, and providing real-time access to critical information. It will include customizable dashboards, advanced reporting tools, and analytics capabilities to support data-driven decision-making and performance tracking. The project will also focus on ensuring compliance with industry regulations and internal policies, while implementing robust cybersecurity measures to protect sensitive data. Additionally, the BMS will be designed with scalability and flexibility in mind, allowing it to adapt to the organization's growth and evolving needs. User training and ongoing technical support will be provided to ensure smooth adoption and optimal utilization of the system. By integrating with third-party tools and enhancing both customer and employee experiences, the BMS will serve as a unified solution to drive productivity, efficiency, and long-term business success.

Functional Modules:

- Development and integration of core modules such as finance, human resources, supply chain management, customer relationship management (CRM), inventory management, and project management.
- Inclusion of additional modules like sales, marketing, procurement, and analytics based on organizational needs.

Process Automation:

- Automating repetitive tasks such as payroll processing, invoice generation, inventory tracking, and report generation to improve efficiency and reduce errors.

Data Integration and Management:

- Centralizing data from various departments into a single platform for seamless access and real-time updates.
- Ensuring data accuracy, consistency, and security through robust database management systems.

CHAPTER-2

SYSTEM ANALYSIS

2. ANALYSIS OVERVIEW:

A **Business Management System (BMS)** is a structured framework that integrates an organization's core processes, tools, and technologies to streamline operations, enhance productivity, and achieve strategic goals. It serves as the backbone of an organization by connecting key functions such as finance, human resources, supply chain, customer relationship management (CRM), project management, and compliance. By centralizing data and automating workflows, a BMS improves efficiency, reduces operational costs, and ensures consistency across departments. It provides real-time analytics and reporting, enabling data-driven decision-making and performance tracking. Additionally, a BMS supports scalability, allowing businesses to adapt to growth or changing market demands. Modern BMS platforms often incorporate advanced technologies like cloud computing, artificial intelligence (AI), and machine learning (ML) to offer predictive insights, enhance collaboration, and ensure regulatory compliance. Overall, a well-implemented BMS fosters innovation, improves customer satisfaction, and drives long-term business success.

2.1 FEASIBILITY STUDY:

Preliminary investigation examines project feasibility, the likelihood the system will be useful to the organization. The main objective of the feasibility study is to test the Technical, Operational and Economical feasibility for adding new modules and debugging old running system. All system is feasible if they are unlimited resources and infinite time. There are aspects in the feasibility study portion of the preliminary investigation:

- Technical Feasibility
- Operation Feasibility
- Economical Feasibility

Technical Feasibility:

The technical issue usually raised during the feasibility stage of the investigation includes the following:

- ✓ Does the necessary technology exist to do what is suggested?
- ✓ Do the proposed equipment's have the technical capacity to hold the data required to use the new system?
- ✓ Will the proposed system provide adequate response to inquiries, regardless of the number or location of users?
- ✓ Can the system be upgraded if developed?

Earlier no system existed to cater to the needs of 'Secure Infrastructure Implementation System. The current system developed is technically feasible. It is a browser-based user interface for audit workflow.

Thus, it provides an easy access to the users. The database's purpose is to create, establish and maintain a workflow among various entities in order to facilitate all concerned users in their various capacities or roles. Permission to the users would be granted based on the roles specified. Therefore, it provides the technical guarantee of accuracy, reliability and security. The software and hard requirements for the development of this project are not many and are already available or are available as free as open source. The work for the project is done with the current equipment and existing software technology. Necessary bandwidth exists for providing fast feedback to the users irrespective of the number of users using the system.

Operational Feasibility:

Operational feasibility for a Business Management System (BMS) depends on its ability to integrate seamlessly with existing workflows and processes. It should be user-friendly, ensuring smooth adoption by employees with minimal disruption. The system must also support real-time data access, automation, and scalability to meet evolving business needs. When implemented effectively, a BMS enhances productivity, collaboration, and decision-making across the organization.

Economic Feasibility:

The **economic feasibility** of a Business Management System (BMS) depends on its ability to reduce operational costs, improve efficiency, and deliver a strong return on investment (ROI). While initial implementation costs can be high, long-term savings from automation, reduced errors, and optimized resource allocation often justify the expense. Cloud-based solutions further enhance affordability by eliminating the need for costly infrastructure. For most businesses, a well-chosen BMS proves economically viable by driving productivity and supporting scalable growth.

2.2 EXISTING SYSTEM:

Existing **Business Management Systems (BMS)** encompass a variety of software platforms and tools designed to streamline and optimize organizational operations. These systems include **Enterprise Resource Planning (ERP)** platforms like SAP and Oracle, which integrate core functions such as finance, HR, and supply chain management; **Customer Relationship Management (CRM)** systems like Salesforce and HubSpot, which focus on sales and customer interactions.

Additionally, **Supply Chain Management (SCM)** systems such as Kinaxis and Oracle SCM Cloud optimize logistics and inventory, while **Project Management** tools like Asana and Trello facilitate task tracking and collaboration. Financial management is addressed by systems like QuickBooks and Xero, which manage accounting and budgeting, while **Business Intelligence (BI)** tools like Tableau and Power BI provide data-driven insights for decision-making. Document management systems such as SharePoint and Dropbox Business ensure secure storage and workflow automation, and collaboration tools like Slack and Microsoft Teams enhance communication.

Many of these systems are now cloud-based, incorporating AI, mobile accessibility, and seamless integration to provide scalable, user-friendly solutions tailored to specific industries like healthcare, retail, and manufacturing. Together, these systems form a comprehensive ecosystem that drives efficiency, productivity, and growth for businesses of all sizes.

2.3 PROPOSED SYSTEM:

A **proposed Business Management System (BMS)** would be a cloud-based, AI-driven platform integrating finance, HR, CRM, supply chain, and project management into a unified dashboard. It would feature automation, real-time analytics, and customizable workflows to enhance efficiency and decision-making. With mobile accessibility and seamless third-party integrations, the system would support scalability and remote operations. Designed for businesses of all sizes, it would reduce costs, improve collaboration, and drive long-term growth.

The proposed BMS would leverage advanced technologies like AI and IoT to provide predictive insights, optimize resource allocation, and automate repetitive tasks. It would include modules for financial management, employee engagement, customer relationship tracking, and inventory control, all accessible through a user-friendly interface. Robust data security measures and compliance with global standards would ensure safe operations. By streamlining processes and enabling data-driven decisions, the system would empower businesses to adapt quickly to market changes and achieve sustainable success.

CHAPTER-3

SYSTEM REQUIREMENT

REQUIREMENT:

System requirement explains or describes the requirement of developing the projects. The requirement is divides into two categories, first is hardware requirements and configuration and second software requirements and configuration. This is a pre-development process which is needed to be verified before staring the project because if they doesn't match then the project outcomes may have issues or the development process may be delay and interpreted in between.

3.1 HARDWARE REQUIREMENT:

1. Hard Disk	20 GB TO 30GB
2. RAM	8GB or Above
3. Processor	Intel i5 or higher
4. Ethernet Card	1Mbps Ethenet card
5. Graphics Card	4GB Graphics card

1. Graphics cards like NVIDIA are better options with the versions 3.5 to 8.6.

2. A 8 GB GPU memory is recommended for good performance, mostly during training and testing the datasets minimum of 8gb is required for better performance.

3. NVIDIA GPU driver version: Windows minimum 461.33 or higher and Linux minimum 460.32.03 or higher.

4. Intel CPUs are preferred for better performance because they have optimized ML. libraries

3.2 SOFTWARE REQUIREMENT:

1.Frontend	React,javascript
2.Backend	Arpcore
3.Framework	Flask
4.Operating system	Windows 10 or above
5.Development tool	Visual studio code,Microsoft edge
6.Browsers	Mozilla firefox,chrome

3.3 ABOUT THE SOFTWARE:

React:

React is a popular open-source JavaScript library developed by Facebook for building dynamic and interactive user interfaces. It uses a component-based architecture, allowing developers to create reusable UI components for efficient development. React employs a virtual DOM to optimize rendering performance, ensuring fast and smooth updates. It is widely used for single-page applications (SPAs) and integrates seamlessly with other libraries and frameworks.

Java script:

JavaScript is a versatile, high-level programming language primarily used for adding interactivity and dynamic behavior to websites. It runs on the client side (in browsers) and, with Node.js, on the server side as well. JavaScript supports event-driven, functional, and object-oriented programming styles, making it highly flexible. It is a core technology of the web, powering modern web applications alongside HTML and CSS.

ARPcore:

ARPcore is a specialized framework or platform designed for building and managing advanced network protocols, particularly Address Resolution Protocol (ARP)-related functionalities. It provides tools and libraries to optimize network communication, enhance security, and improve performance in handling IP-to-MAC address mappings. ARPcore is often used in networking solutions, IoT systems, and cybersecurity applications. Its modular design allows for customization and integration into diverse network environments.

Flask:

Flask is a lightweight and flexible Python web framework designed for building web applications and APIs quickly and efficiently. It provides the essentials for web development, such as routing, request handling, and templating, while allowing developers to add extensions for additional functionality. Flask is known for its simplicity and minimalistic design, making it ideal for small to medium-sized projects. It is widely used for prototyping, microservices, and RESTful APIs.

Visual Studio code:

Visual Studio Code (VS Code) is a free, open-source code editor developed by Microsoft, known for its speed, versatility, and extensive customization options. It supports a wide range of programming languages and frameworks through extensions, making it a popular choice for developers. Features like IntelliSense (code completion), debugging, and Git integration enhance productivity. Its lightweight design and cross-platform compatibility (Windows, macOS, Linux) make it a go-to tool for developers worldwide.

Google colab:

Google Colab is a free, cloud-based platform that allows users to write and execute Python code in Jupyter notebooks directly from their browser. It provides access to powerful computing resources, including GPUs and TPUs, making it ideal for machine learning and data science projects. Colab integrates seamlessly with Google Drive for easy file storage and sharing. Its collaborative features enable multiple users to work on the same notebook in real-time, fostering teamwork and productivity.

Mozilla Firefox and Google Chrome:

Mozilla Firefox is an open-source web browser known for its strong focus on privacy, customization, and performance, offering features like Enhanced Tracking Protection and a wide range of add-ons.

Google Chrome is a widely-used browser developed by Google, praised for its speed, simplicity, and seamless integration with Google services like Gmail and Drive. While Chrome dominates in market share and extension availability, Firefox emphasizes user privacy and open-source values. Both browsers support cross-platform syncing and regular updates to enhance security and functionality.

Windows 10:

Windows 10 is a widely-used operating system by Microsoft, known for its user-friendly interface, robust security features, and regular updates. It introduced innovations like Cortana (virtual assistant), the Edge browser, and a unified platform for PCs, tablets, and smartphones. Windows 10 supports a vast range of software and hardware,

CHAPTER-4

ANALYSIS & SYSTEM ARCHITECTURE

4.1 SYSTEM ARCHITECTURE:

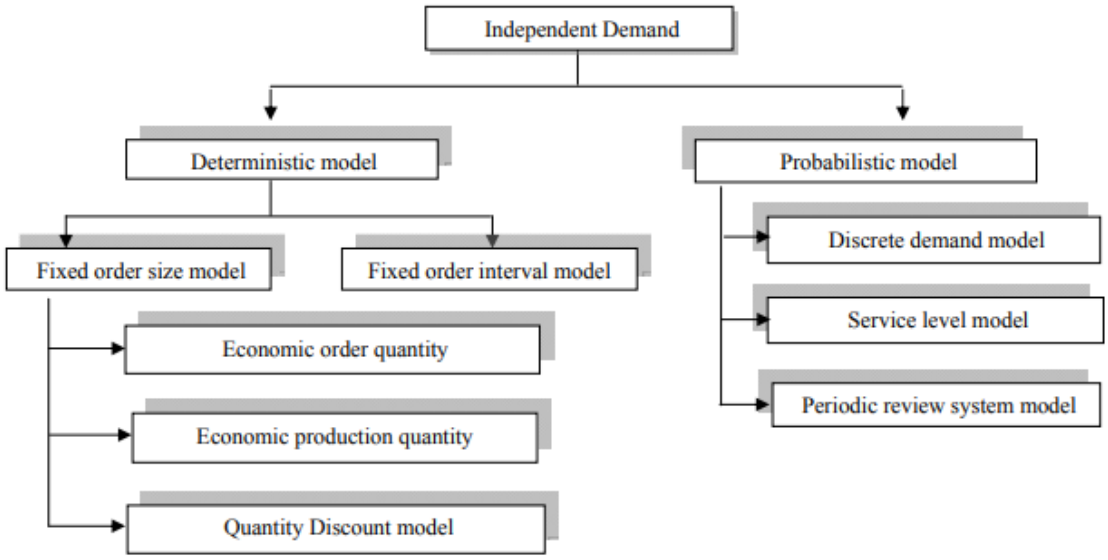


Figure 1 Model for Independent Demand

Fig.shows the stages of managing system using machine learnings.

The **system architecture** for a **Business Management System (BMS)** is a multi-layered framework designed to ensure scalability, reliability, and seamless integration of various business functions. At its core, the **presentation layer** provides user-friendly interfaces, such as web-based dashboards and mobile apps, enabling users to interact with the system effortlessly. The **application layer** houses the business logic, including modules for finance, HR, CRM, supply chain, and project management, supported by APIs and workflow automation tools. The **data layer** manages storage through relational or NoSQL databases, data warehouses for analytics, and cloud storage for documents.

The **integration layer** facilitates communication with external systems using API gateways, ETL tools, and message queues. Security is ensured through a dedicated **security layer** featuring authentication, encryption, and compliance mechanisms.

The **infrastructure layer** leverages cloud hosting, containerization, and load balancers for scalability and high availability. Finally, the **analytics and reporting layer** provides actionable insights through BI tools and data visualization. This modular, user-centric architecture ensures the BMS is robust, flexible, and capable of meeting the diverse needs of modern businesses.

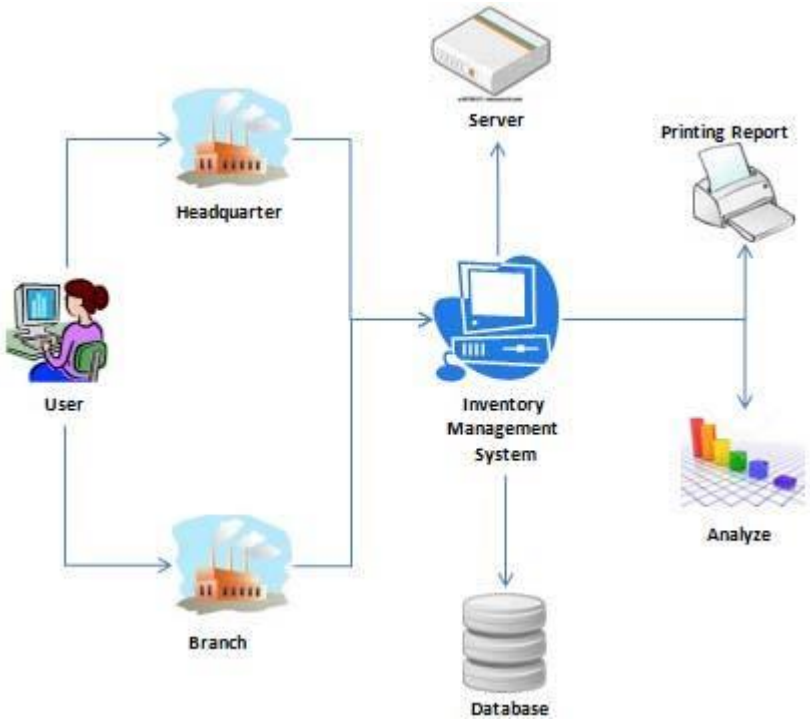


Figure 2 Architecture of Web-based Inventory Management System

Architecture system is a process of preparation a logical chart which shows the design of future system. To build a complete architecture system, the chart must be including its software, hardware and network. These hardware and network makes the implementation of management and maintenance system can go through smoothly. This architecture system is comprised from different platform which can be used in any part of the system. User connects to internet and at the same time connects to database by using web browser software, Internet Explorer. Generally, user of this system can be classifying as two category, which is headquarter and branch of company. Interface or design of system allows staff of headquarter and branch company manipulate data or information stock. They are also permitted to print or analyze the selected data. Moreover, MySQL is not only a server to store the data but also as a processor to process the request from user which is input data or output data. In short, Figure 2 is the architecture of inventory management system.

The architecture of a **web-based inventory management system** typically follows a **three-tier structure**:

1. **Frontend** (React/Angular) for user interaction, real-time dashboards, and responsive UI.
2. Backend **(Node.js/Django) with RESTful APIs** to handle business logic, inventory tracking, and order processing.
3. **Database** (PostgreSQL/MongoDB) for storing product data, transactions, and supplier info, integrated with cloud storage (AWS S3) for media.
4. **Third-party integrations** (payment gateways, IoT sensors) and security layers (encryption, RBAC) ensure scalability, data accuracy, and secure access.

4.2 PROCESS MANAGEMENT:

Process management in a **Business Management System (BMS)** focuses on designing, automating, monitoring, and optimizing workflows to enhance operational efficiency and effectiveness. It begins with **process design**, where key workflows are mapped out and documented using tools like flowcharts or BPMN. Automation is then implemented to streamline repetitive tasks, such as approvals and notifications, reducing manual effort and errors. Real-time **monitoring and tracking** through dashboards and alerts ensure processes run smoothly, while data-driven **optimization** identifies inefficiencies and drives continuous improvement. Integration with other BMS modules, such as finance and HR, ensures consistency and alignment with business goals. User training and adoption strategies, along with compliance and security measures, ensure processes are followed correctly and meet regulatory standards. By embedding process management into a BMS, organizations can achieve greater transparency, scalability, and operational excellence.

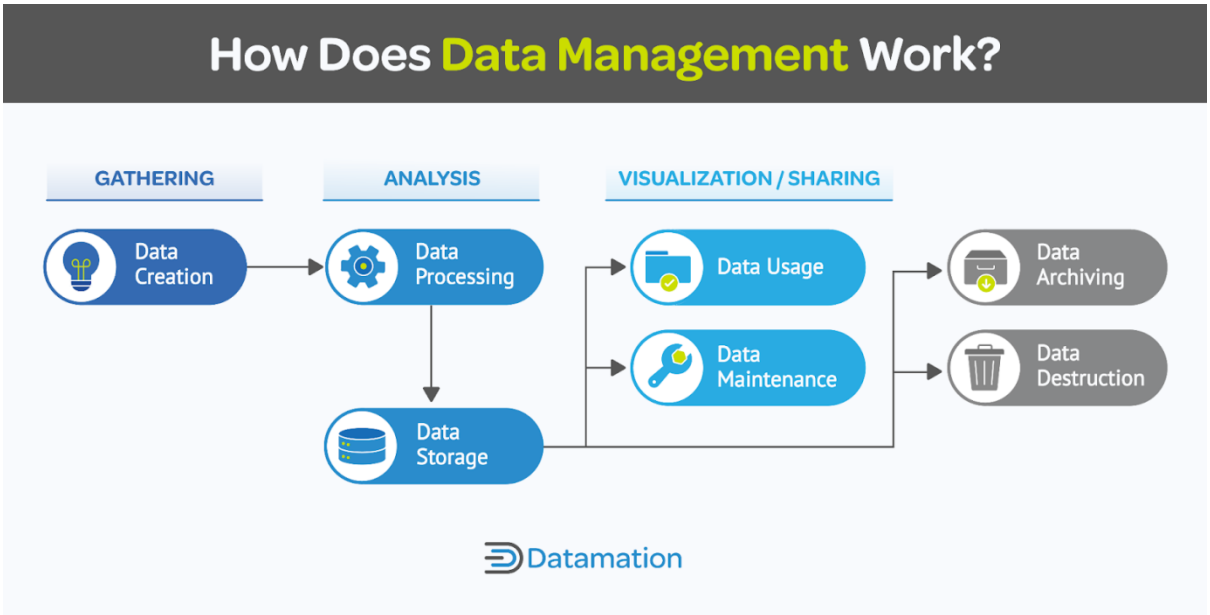
4.3 MODULES DESCRIPTION:

1. IMPORTING LIBRARIES:

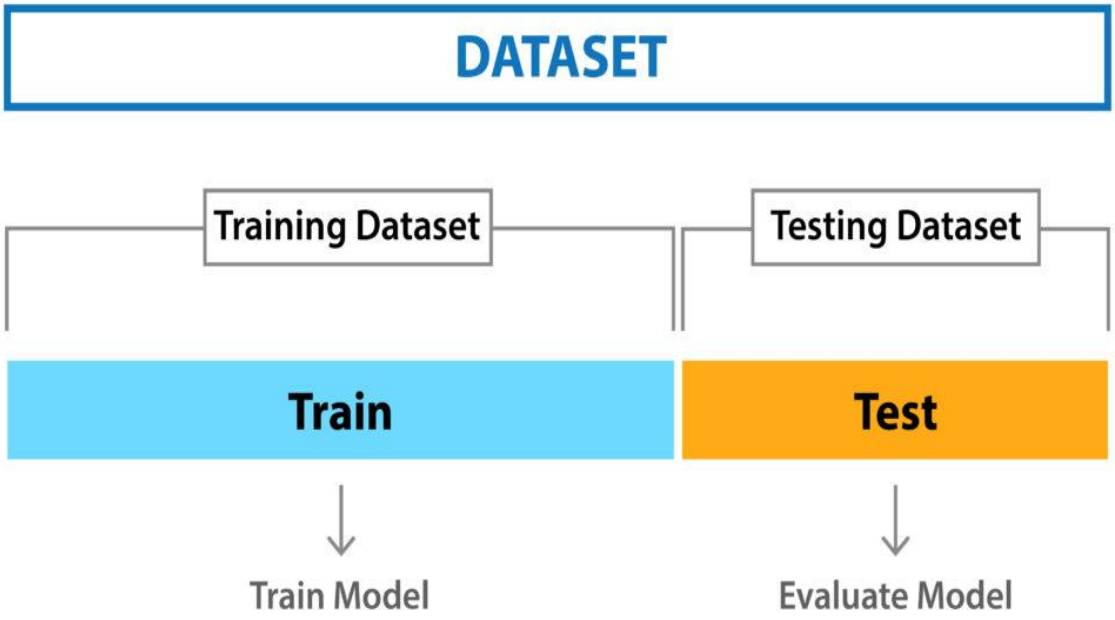
When developing a business management system, importing the right libraries is crucial for functionality, efficiency, and scalability. Below is a list of commonly used libraries in Python for various aspects of a business management system, such as data handling, visualization, database management, and more:

3. DATA COLLECTION:

Data collection at the point of sale (POS) involves gathering transactional and customer information directly from the checkout process, where purchases are finalized. This data typically includes details such as items purchased, transaction amounts, payment methods, time and date of purchase, and customer demographics if loyalty programs are used. POS systems are equipped with software and hardware like barcode scanners, cash registers, and card readers to capture this information efficiently. The collected data is invaluable for businesses as it provides insights into sales trends, inventory management, customer preferences, and overall business performance.



By analyzing POS data, businesses can make informed decisions on stock levels, marketing strategies, and customer service improvements. Moreover, integrating POS data with other business systems can enhance the understanding of the customer journey and help tailor the shopping experience to meet consumer demands. It's crucial, however, to ensure that data collection complies with privacy laws and regulations, such as GDPR or PCI DSS, to protect customer information and maintain trust.



3. DATA COLLECTION AND DATA PROCESSING:

Analysis and data preprocessing in a business management system for point-of-sale (POS) are essential steps to ensure accurate, clean, and actionable data for decision-making. Data preprocessing involves cleaning raw transactional data by handling missing values, removing duplicates, and correcting errors, as well as transforming data into a consistent format (e.g., standardizing date formats or categorizing products). This step ensures data quality and reliability before analysis. Once preprocessed, the data is analyzed to uncover valuable insights, such as sales trends, customer preferences, inventory turnover, and employee performance. For example, businesses can identify top-selling products, predict demand, optimize pricing strategies, and personalize marketing campaigns. Advanced POS systems often integrate with analytics tools or dashboards to visualize data through charts and reports, enabling managers to make data-driven decisions efficiently. By combining robust preprocessing with insightful analysis, businesses can enhance operational efficiency, improve customer satisfaction, and drive profitability.

Figure:*Above images shows the steps involved in data processing.*

CHAPTER-5

IMPLEMENTATION AND TESTING

5.1 DEVELOPMENT PROCESS OF BUSINESS MANAGEMENT SYSTEM:

The development process for a business management system (BMS) involves a structured approach to design, build, and implement software that streamlines and optimizes business operations. Here's an outline of the key stages in the development process:

---

1. Requirement Analysis

- **Objective**: Understand the business needs and define the system's purpose.
- **Activities**:
  - Conduct meetings with stakeholders (e.g., managers, employees, customers).
  - Identify pain points in current processes (e.g., inventory management, sales tracking, reporting).
  - Define functional requirements (e.g., user roles, features like POS integration, inventory tracking, and reporting).
  - Define non-functional requirements (e.g., scalability, security, performance).
- **Outcome**: A detailed **Software Requirements Specification (SRS)** document.

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2. Planning and Design

- **Objective**: Create a blueprint for the system.
- **Activities**:
  - **System Architecture**: Design the overall structure, including databases, servers, and user interfaces.
  - **UI/UX Design**: Create wireframes and prototypes for user-friendly interfaces.
  - **Database Design**: Define data models, tables, and relationships (e.g., for customers, products, transactions).
  - **Technology Stack**: Choose programming languages, frameworks, and tools (e.g., Python, Java, React, SQL).
- **Outcome**: System design documents, prototypes, and a development roadmap.

---

3. Development

- **Objective**: Build the system based on the design.
- **Activities**:
  - Develop core modules (e.g., inventory management, sales processing, reporting).
  - Integrate third-party tools (e.g., payment gateways, CRM systems)...

4. Testing

- **Objective**: Ensure the system is bug-free and meets requirements.
- **Activities**:
  - Perform **unit testing** (testing individual components).
  - Conduct **integration testing** (ensuring modules work together).
  - Perform **user acceptance testing (UAT)** (validating the system with end-users).
  - Test for performance, security, and scalability.
- **Outcome**: A stable and reliable system ready for deployment.

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5. Deployment

- **Objective**: Launch the system for real-world use.
- **Activities**:
  - Set up servers, databases, and hosting environments.
  - Migrate data from existing systems (if applicable).
  - Train end-users on how to use the system.
  - Monitor the system for any initial issues.
- **Outcome**: The system is live and operational.

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6. Maintenance and Updates

- **Objective**: Ensure the system remains functional and up-to-date.
- **Activities**:
  - Fix bugs and address user feedback.
  - Add new features or modules as business needs evolve.
  - Optimize performance and scalability.
  - Regularly update security measures.
- **Outcome**: A continuously improving system that adapts to business growth.

Key Considerations During Development

- ✓ **Scalability**: Ensure the system can handle growth in users, transactions, and data.
- ✓ **Security**: Protect sensitive business and customer data through encryption, access controls, and compliance with regulations (e.g., GDPR, PCI DSS).
- ✓ **User-Friendliness**: Design intuitive interfaces for employees and managers.
- ✓ **Integration**: Ensure compatibility with existing tools (e.g., accounting software, CRM systems).
- ✓ **Cost and Time Management**: Balance development efforts with budget and timeline constraints.

USER INTERFACE AND FEATURES:

LOGIN PAGE

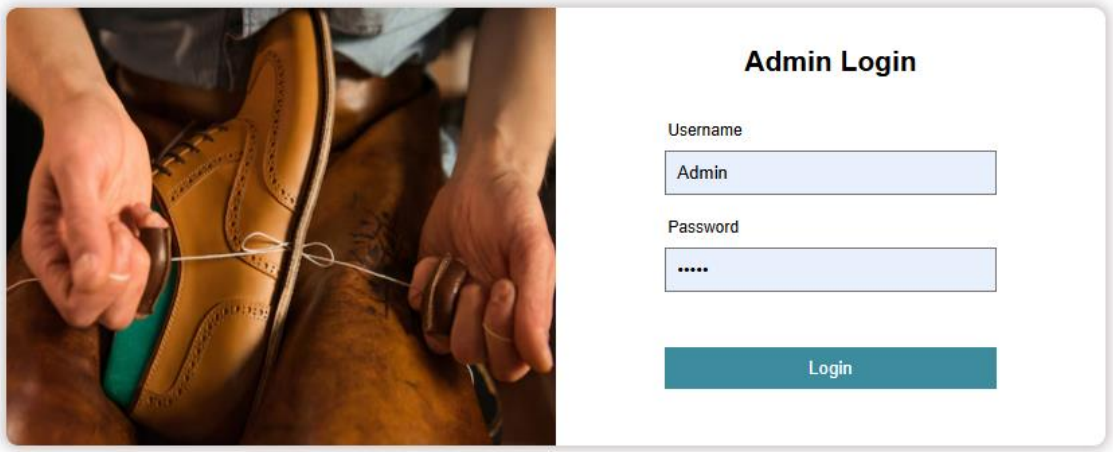


Figure:*The above shows an login page for an site.*

login page designed using React focuses on creating a secure, user-friendly, and responsive authentication interface that enhances user experience while ensuring robust security measures. React, a popular JavaScript library, is chosen for its component-based architecture, which allows for reusable and modular code, making the development process efficient and scalable. The login page is designed to include essential features such as input fields for username and password, validation for user inputs, and error handling to provide real-time feedback. Additionally, the design incorporates modern UI/UX principles, ensuring the page is visually appealing and intuitive for users.

Security is a critical aspect, with measures like password encryption, secure API integration for authentication, and protection against common vulnerabilities such as SQL injection and cross-site scripting (XSS). The thesis also explores the integration of third-party authentication providers (e.g., Google, Facebook) to offer users multiple login options. By leveraging React's state management and routing capabilities, the login page is designed to seamlessly integrate with the broader application, ensuring a smooth transition to other parts of the system post-authentication.

The project emphasizes performance optimization, ensuring the login page loads quickly and functions efficiently across various devices and browsers. Overall, the thesis demonstrates how React can be effectively utilized to build a secure, scalable, and user-centric login page that meets modern web application standards.It also highlights the importance of accessibility, ensuring the login page is usable for individuals with disabilities by adhering to WCAG guidelines, such as keyboard navigation and screen reader compatibility. Finally, the project includes testing strategies using tools like Jest and React Testing Library to validate functionality, usability, and security.

Getting "401 Unauthorised Error" when logging as admin user with custom access.

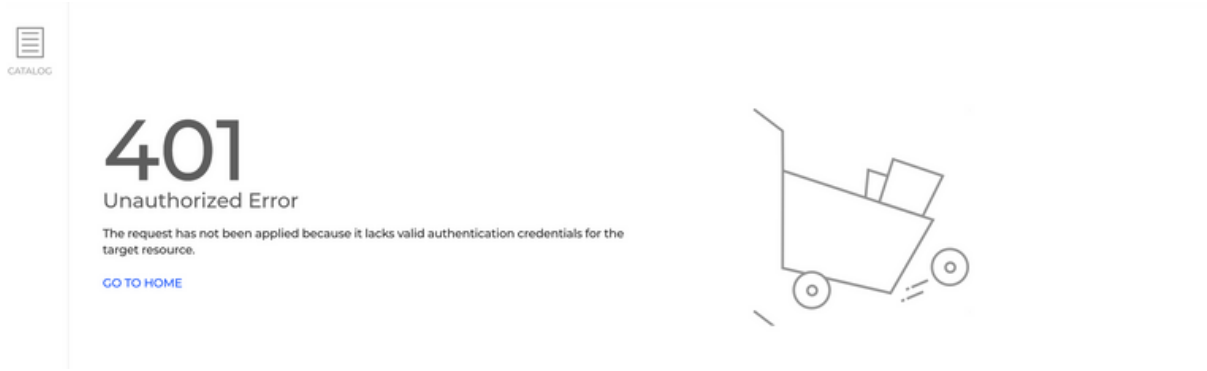


Fig..*The above images shows the error during unauthorized user get into access*

During an unwanted login attempt on your web page, errors can arise due to invalid credentials, brute-force attacks, or security misconfigurations. To handle such scenarios, implement robust error handling that displays generic messages like "Invalid username or password" without revealing specific details to prevent exploitation. Additionally, integrate security measures such as CAPTCHA, rate limiting, and account lockout mechanisms to deter malicious attempts. Logging and monitoring these events can also help identify and mitigate potential threats in real-time.

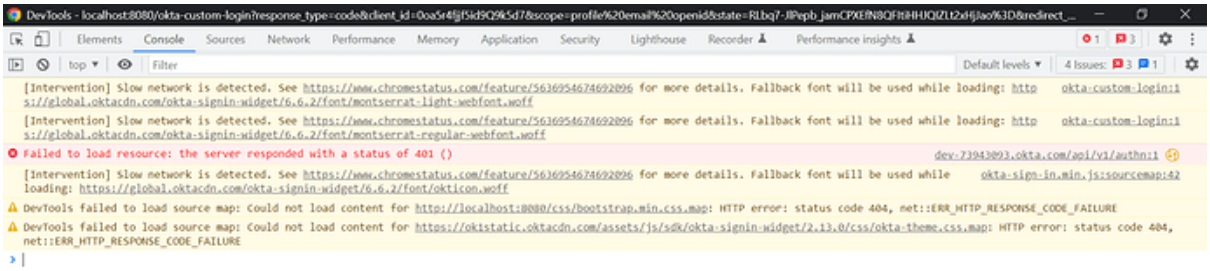


Fig..*showns the error in console on the webpage.*

DASHBOARD

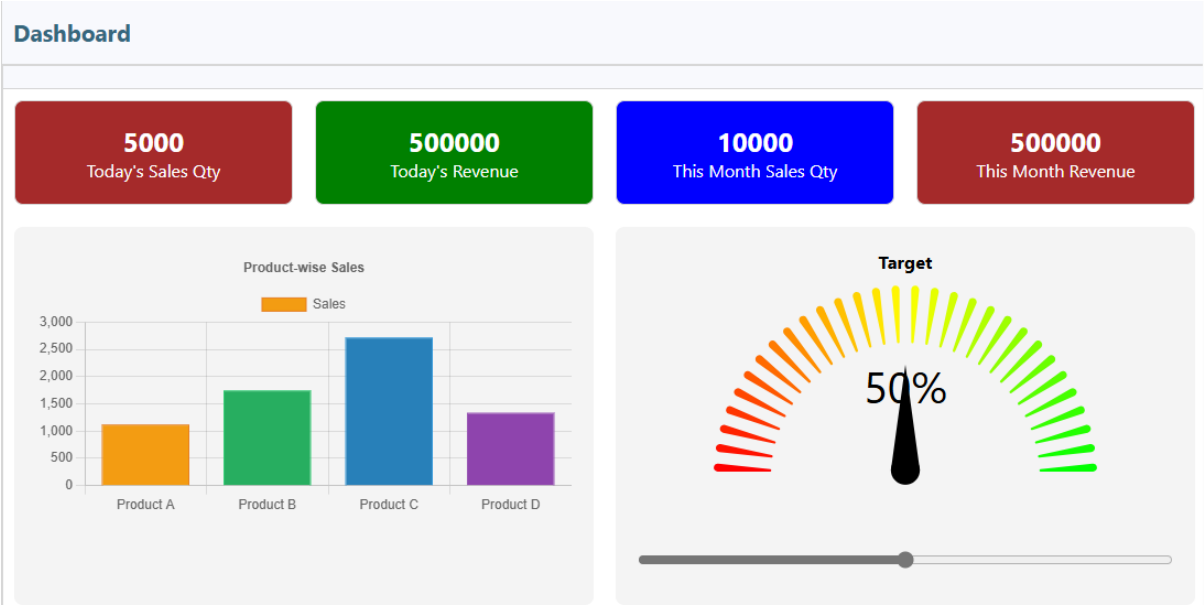


Fig..*The above figure shows the dashboard of an webpage.*

Sale Revenue Chart

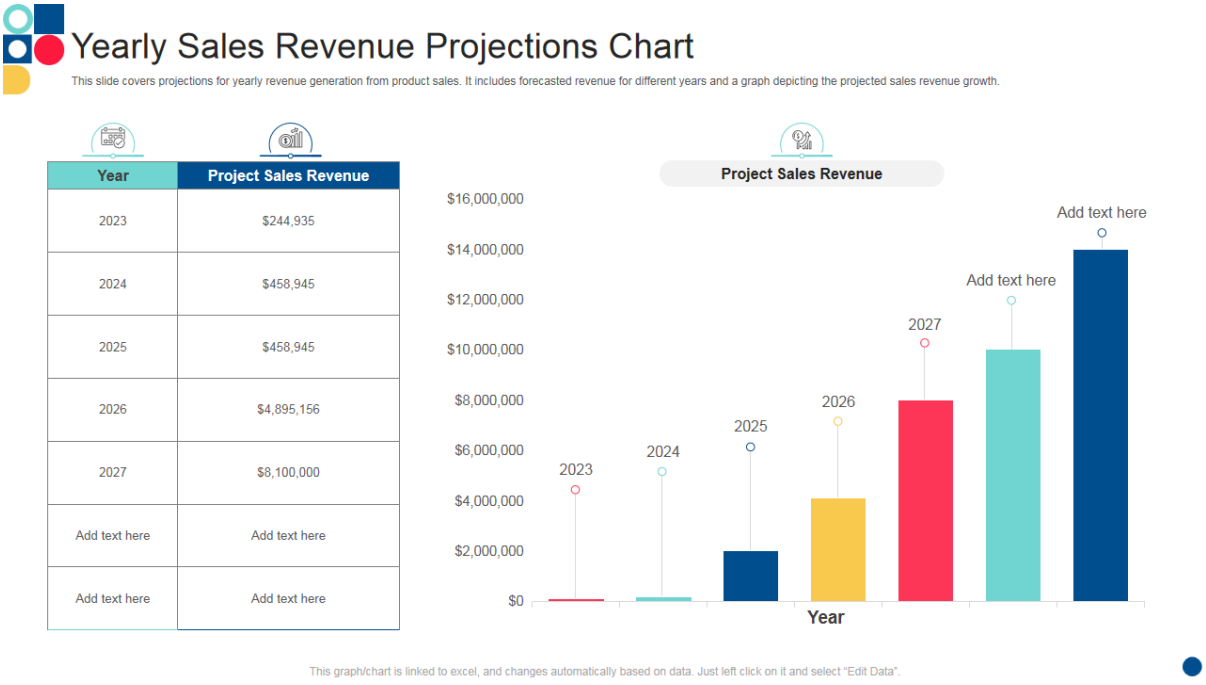


Fig..*The above graph shows the sale of company by months,years..*

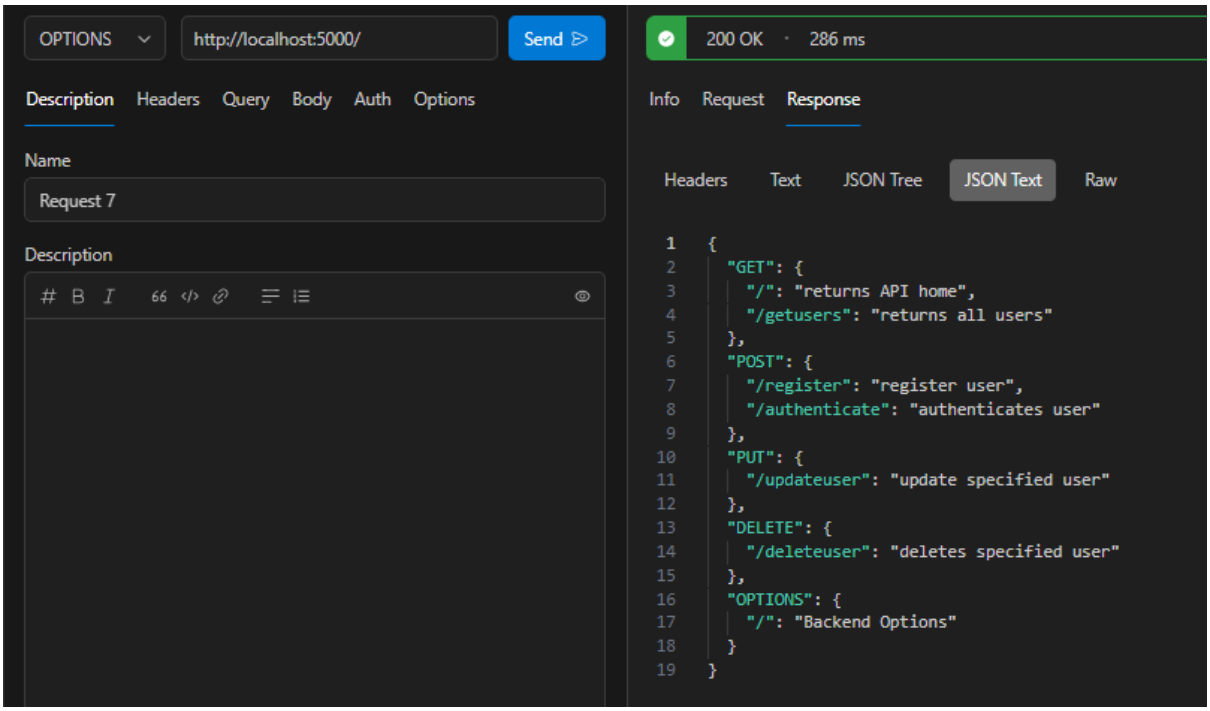
MODULES:

1. USER MANAGEMENT:

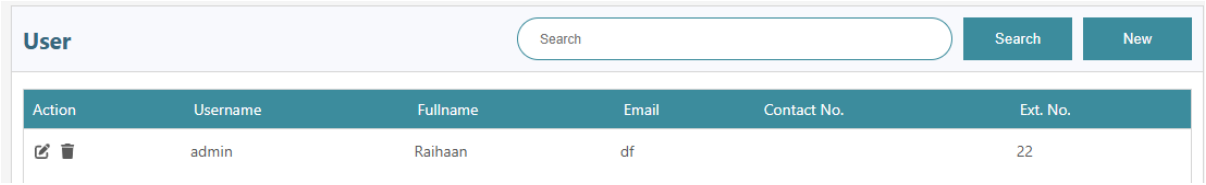
A user management system is a critical component of any Business Management System (BMS) and Point of Sale (POS) platform, as it ensures secure, efficient, and scalable control over user access and permissions. In modern business environments, managing users—such as employees, administrators, and customers—requires a robust system that can handle roles, authentication, and authorization while maintaining data security and compliance. Your thesis could focus on designing and implementing a user management module tailored for a BMS and POS system, addressing challenges like role-based access control, scalability, and seamless integration with other business functionalities. By exploring existing systems, identifying their limitations, and proposing innovative solutions, your research could contribute to improving how businesses manage user interactions, enhance security, and streamline operations in dynamic retail and service environments. This topic not only has practical applications but also offers opportunities to explore emerging technologies like biometric authentication, AI-driven user behavior analysis, or blockchain for secure user data management.

User management module tailored for a BMS and POS system, addressing challenges like role-based access control, scalability, and seamless integration with other business functionalities. By leveraging **React**, a powerful and widely-used JavaScript library for building user interfaces, you can create a dynamic, responsive, and intuitive front-end for the system. React's component-based architecture allows for reusable UI elements, making it easier to design features like user dashboards, role management panels, and authentication forms. Additionally, React's compatibility with modern backend technologies (e.g., Node.js, Django, or Spring Boot) ensures smooth integration with the server-side logic of your BMS and POS system. By exploring existing systems, identifying their limitations, and proposing innovative solutions, your research could contribute to improving how businesses manage user interactions, enhance security, and streamline operations in dynamic retail and service environments. This topic not only has practical applications but also offers opportunities to explore emerging technologies like biometric authentication, AI-driven user behavior analysis, or blockchain for secure user data management.

Fig..*The figure given below is on user mangement source.*



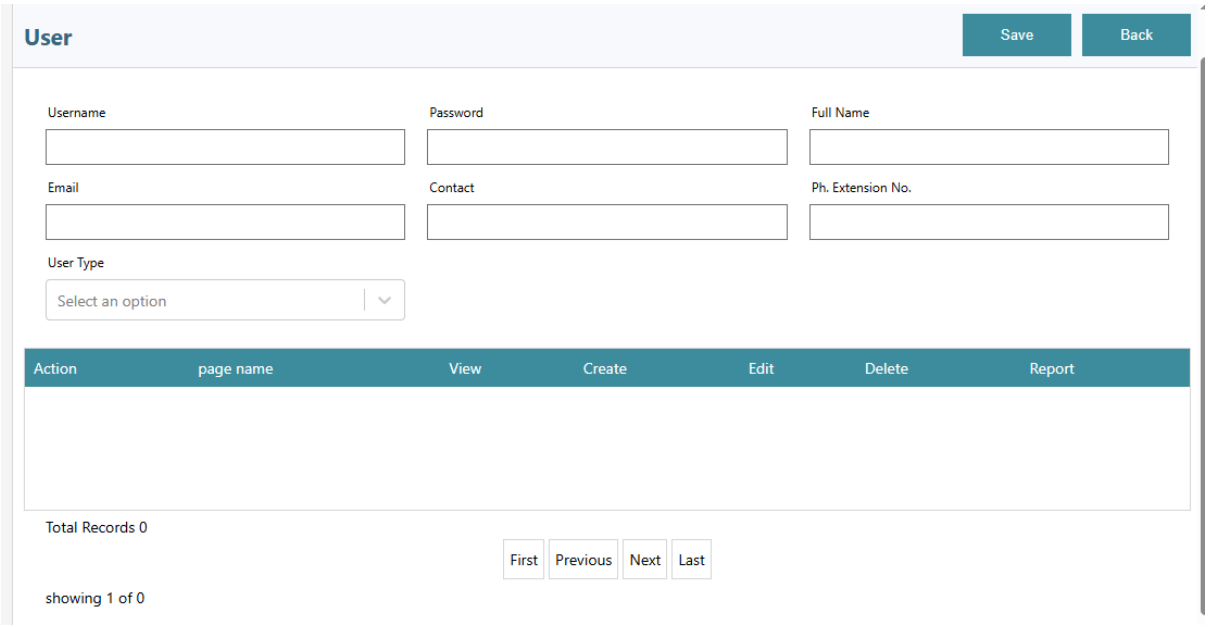
1.1 USER DATA:



What is an user Data?

User data refers to any information collected about an individual user, such as personal details (name, email), authentication credentials (username, password), role and permissions (admin, cashier), and behavioral data (usage patterns, preferences). It is essential for personalizing user experiences, ensuring security, and enabling efficient system operations. In a Business Management System (BMS) or Point of Sale (POS), user data helps manage access, track transactions, and comply with privacy regulations. Proper handling of user data is critical for maintaining trust and operational integrity.User data also includes transactional information (purchase history, payment methods) and communication records (support tickets, notifications). Effective management of this data ensures seamless business operations, enhances user satisfaction, and safeguards against security breaches.

1.2 USER DATA ENTRY:



2.STORE:

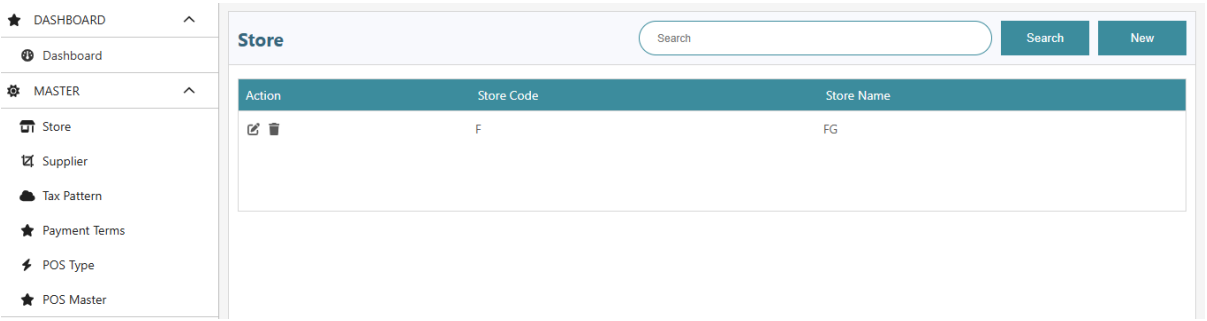


Fig..The above image shows the store of an web page.

In a **Business Management System (BMS)**, the data stored is comprehensive and serves as the backbone of a company's operations, management, and strategic decision-making. It includes **business data** such as company information, organizational structures, and policies, which define the company's identity and workflows. Financial data, such as accounting records, payroll details, and budgeting plans, is also stored to ensure accurate financial tracking and planning.

The system maintains **inventory and product data**, including product catalogs, stock levels, and supply chain details, to manage resources efficiently. Additionally, it stores **sales and customer data**, such as customer profiles, transaction histories, and CRM interactions, to enhance customer relationships and drive sales.

Employee-related information, like HR records, attendance logs, and training details, is managed to support workforce administration. Operational data, such as project management tasks, asset details, and compliance records, ensures smooth day-to-day operations. Finally, the BMS stores **analytics and reporting data**, including performance metrics and historical records, to provide insights for informed decision-making. Together, this data enables a company to operate efficiently, comply with regulations, and deliver value to customers and stakeholders.

3.WAREHOUSE MANGEMENT:

Warehouse management is a critical component of a **Business Management System (BMS)**, as it ensures the efficient handling, storage, and movement of goods within a company's supply chain. A well-integrated warehouse management system (WMS) within a BMS helps businesses optimize inventory levels, reduce operational costs, and improve order fulfillment accuracy. Here's a detailed look at what warehouse management entails in a BMS:

---

1. Inventory Management:

- **Real-Time Tracking**: Monitors stock levels, locations, and movements in real time.
- **Stock Alerts**: Notifies when inventory levels are low or when reordering is necessary.
- **Batch and Expiry Management**: Tracks batches, serial numbers, and expiration dates for perishable or time-sensitive goods.

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2. Storage Optimization:

- **Warehouse Layout**: Manages the physical layout of the warehouse for efficient space utilization.
- **Slotting**: Determines the optimal location for items based on their size, weight, and frequency of access.
- **Bin Management**: Tracks items stored in specific bins or shelves for easy retrieval.

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3. Order Fulfillment:

- **Picking and Packing**: Streamlines the process of selecting items for orders and preparing them for shipment.
- **Shipping Management**: Coordinates with carriers and generates shipping labels and documentation.
- **Order Tracking**: Provides real-time updates on order status to customers and stakeholders.

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4. Receiving and Putaway:

- **Incoming Goods**: Manages the receipt of goods from suppliers, including inspection and verification.
- **Putaway Processes**: Assigns storage locations for incoming items based on predefined rules.

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5. Labor Management:

- **Task Assignment**: Allocates tasks to warehouse staff based on priority and workload.
- **Performance Tracking**: Monitors employee productivity and identifies areas for improvement.
- **Training Records**: Tracks employee training and certifications for compliance and skill development.

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6. Reporting and Analytics:

- **Inventory Reports**: Provides insights into stock levels, turnover rates, and inventory accuracy.
- **Operational Metrics**: Tracks key performance indicators (KPIs) like order accuracy, picking speed, and fulfillment times.
- **Trend Analysis**: Identifies patterns in demand, seasonal fluctuations, and inventory trends.

---

7. Integration with Other Systems:

- **Supply Chain Integration**: Connects with procurement, manufacturing, and distribution systems for seamless operations.

- **Sales and CRM Integration**: Links with sales data to ensure accurate order fulfillment and customer satisfaction.
- **Financial Integration**: Syncs with accounting systems for cost tracking and financial reporting.

---

8. Automation and Technology:

- **Barcode and RFID Scanning**: Enhances accuracy and speed in inventory tracking and order processing.
- **Automated Guided Vehicles (AGVs)**: Uses robots for material handling and transportation within the warehouse.

Benefits of Warehouse Management in a BMS

- **Improved Efficiency**: Reduces manual errors and speeds up operations.
- **Cost Savings**: Optimizes inventory levels and reduces waste.
- **Enhanced Customer Satisfaction**: Ensures timely and accurate order fulfillment.
- **Scalability**: Supports business growth by adapting to increasing inventory and order volumes.

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how warehouse management integrates into a BMS, focusing on its role in improving supply chain efficiency, reducing costs, and enhancing customer satisfaction. You could also examine the impact of emerging technologies like AI, IoT, and automation on modern warehouse management systems.

4.POINT OF SALE:

A **Point of Sale (POS)** system is a combination of hardware and software that businesses use to manage sales transactions. It's the place where a customer makes a payment in exchange for goods or services. POS systems are commonly found in retail stores, restaurants, and other service industries.

Key Components of a POS System:

Hardware: This includes physical devices like cash registers, barcode scanners, receipt printers, and payment terminals (e.g., card readers for credit or debit cards).

Software: The software manages inventory, processes transactions, tracks sales data, generates receipts, and often integrates with accounting systems.

Functions of a POS System:

Transaction Processing: It calculates the total cost of the items purchased, applies discounts or taxes, and facilitates payment (cash, card, digital wallets).

Inventory Management: POS systems track stock levels, alerting when items need to be restocked.

Sales Reporting: It generates reports that give insights into daily, weekly, or monthly sales performance.

Customer Management: Some systems track customer purchases, allowing for loyalty programs, and personalized marketing.

A **Point of Sale (POS)** refers to the location and system where a customer makes a payment for goods or services. It is typically where a retail transaction is completed, and it's an essential component for businesses to track sales, inventory, and manage customer data.

Here's a breakdown of what it involves:

1. Physical Location (POS Terminal)

- **Cash Register**: The traditional POS was simply a cash register where cash transactions occurred.
- **POS Terminals**: In modern retail environments, it often refers to a more advanced system that could include a computer or tablet with specialized software for handling sales.

2. POS Software

- **Transaction Management**: Software tracks the sale, calculates prices (including taxes), and processes payments.
- **Inventory Management**: It keeps track of product stock and updates the inventory in real-time as sales occur.
- **Customer Data**: Collects customer information for loyalty programs, promotions, and receipts.

3. Payment Processing

- This involves processing various payment types, such as credit cards, debit cards, mobile payments, or even cash.

Types of POS Systems:

- **Traditional POS**: Typically uses a desktop or countertop setup with a receipt printer, barcode scanner, and cash drawer.
- **Mobile POS (mPOS)**: Uses tablets or smartphones, often paired with card readers and **Cloud-based POS**: Stores transaction data and customer information in the cloud, allowing for remote access and management. These systems tend to be more flexible and scalable.

Example:

Imagine a clothing store where a customer buys a shirt. The salesperson scans the barcode, and the POS system calculates the price, adds tax, and processes the payment via credit card. The system updates the inventory, generates a receipt, and may even send the customer an email receipt for their records.

Benefits of POS Systems:

Efficiency: Speeds up the checkout process, reducing wait times for customers.

Accuracy: Reduces human errors in calculations and inventory tracking.

Data Insights: Provides valuable data for businesses to analyze sales trends, customer preferences, and stock levels.

Integration: Many modern POS systems integrate with accounting software, e-commerce platforms, and other business tools.

A point of sale (POS) system is a crucial component in retail and hospitality businesses, serving as the central hub where transactions are completed. It typically includes hardware such as a cash register, barcode scanner, receipt printer, and card reader, along with software that manages sales, inventory, and customer data. Modern POS systems often integrate with other business tools, offering features like real-time inventory tracking, sales analytics, and customer relationship management (CRM).

By streamlining the checkout process and providing valuable insights, a POS system enhances operational efficiency, improves customer experience, and supports better decision-making for business owners.

5.2 SOURCE CODE:

Frontend:

```
using System.ComponentModel.DataAnnotations;

namespace AspCoreAPI.Models.OMS.Master

{

    public class AgentSetup

    {

        public int? Agent_id { get; set; }

        [Required]

        [MaxLength(15)]

        public string AgentCode { get; set; } = "";

        [Required]

        [MaxLength(100, ErrorMessage = "The property {0} can't have
more than {1} characters.")]

        public string AgentName { get; set; }="";

 module account

        [MaxLength(100)]

        public string Address1 { get; set; } = "";

        [MaxLength(100)]

        public string Address2 { get; set; } = "";

        public int? City_id { get; set; }

        public int? State_id { get; set; }

        public int? Country_id { get; set; }

        public string Pincode { get; set; } = "";

        public string ContactPerson { get; set; } = "";

        public string PhoneNo { get; set; } = "";

        [MaxLength(50)]
```

```
        public string FaxNo { get; set; } = "";
        [MaxLength(50)]
        public string EmailID { get; set; } = "";
        public bool? active { get; set; } = true;
        public int? CreatedUserID { get; set; }
        public string CityName { get; set; }="";
        public string StateName { get; set; }="";
        public string CountryName { get; set; }="";

        public int RowCount { get; set; }
    }
}
```

Page.tsx

```
"use client"
import { GetUserMenu } from "@/service/accounts/user";
import CardLayout, { CardBody, CardFooter, CardHeader, EditView, ListView } from "@/components/containers/CardLayout";
import { useEffect, useState } from "react";
import URM from "@/components/dashboard/DASH";



export default function Page()
{

  const [ moduleList, setModuleList] = useState<any>([]);
  async function getModList()
  {
    let res = await GetUserMenu(0);
    setModuleList((prev:any)=>{
```

```
      prev = res.data;
      return prev
    })
  }
  getModList();

  return(
    <>
    <CardLayout>
        <CardHeader title="Dashboard">
              <h1></h1>
        </CardHeader>
        <CardBody classList="padb10">
          {(moduleList.find((mod:any)=>{ return mod.module_code ===
'URM' })) && (
            <div className="dash-card">
              <div                                  className="cardhead
padb10">{moduleList.find((mod:any)=>{   return   mod.module_code   ===
'URM' }).module_name}</div>
              <div className="carddata padb10 gridr1">
                  <URM />
              </div>
            </div>
          )}
          {(moduleList.find((mod:any)=>{ return mod.module_code ===
'Admin' })) && (
            <div className="dash-card">
              <div                                  className="cardhead
padb10">{moduleList.find((mod:any)=>{   return   mod.module_code   ===
'Admin' }).module_name}</div>
              <div className="carddata padb10">
```

```
              </div>
            </div>
          )}
          {(moduleList.find((mod:any)=>{ return mod.module_code ===
'ODM' })) && (
            <div className="dash-card">
              <div                                  className="cardhead
padb10">{moduleList.find((mod:any)=>{   return   mod.module_code   ===
'ODM' }).module_name}</div>
              <div className="carddata padb10">


              </div>
            </div>
          )}
          {(moduleList.find((mod:any)=>{ return mod.module_code ===
'SCM' })) && (
            <div className="dash-card">
              <div                                  className="cardhead
padb10">{moduleList.find((mod:any)=>{   return   mod.module_code   ===
'SCM' }).module_name}</div>
              <div className="carddata padb10">


              </div>
            </div>
          )}


        </CardBody>
        <CardFooter classList="">
          <p></p>
        </CardFooter>
    </CardLayout>
```

```
  </>

  );
}
```

Global.css

global.css

```
*{ margin: 0px; padding: 0px; box-sizing: border-box; }

body {   font-family: 'Segoe UI', Tahoma, Geneva, Verdana, sans-serif; font-size: 14px; }

:root
{
    --menu-height:40px;
    --menu-width:250px;
    --menu-font-clr:#202020;
    --menu-bgc:#fff;

    --overlay-bgc: #1a1919;
    --modal-bgc:#f5f5f5;
    --modal-head-bgc: #3C8C9D;
    --modal-head-fclr: #fff;
    --modal-foot-bgc: #e9e9e9;
    --modal-border:#d5d5d5;

    --app-head-bgc:#3C8C9D;
    --close-hover-bgc:#f5f5f5;
    --clr-btn-size:30px;
    --page-head-border:#c1c0c0;
```

```
    --page-foot-border:#c1c0c0;
    --page-body-bgc:#f5f5f5;
    --page-head-bgc:#dbdbdb;
    --input-border:#d1d1d1;
    --input-focus-border:#8face1;
    --tbl-head-bgc:#3C8C9D;
    --tbl-head-brd:#3C8C9D;
}
.flx-ctr{ display: flex; flex-direction: row; justify-content: center; align-items: center; gap: 10px; }
.flx-left{ display: flex; flex-direction: row; justify-content: left; align-items: center; gap: 10px; }
.flx-right{ display: flex; flex-direction: row; justify-content: right; align-items: center; gap: 10px; }

.flx-ctr-s{ display: flex; flex-direction: row; justify-content: center; align-items: center; gap:5px; }
.flx-left-s{ display: flex; flex-direction: row; justify-content: left; align-items: center; gap:5px; }
.flx-right-s{ display: flex; flex-direction: row; justify-content: right; align-items: center; gap:5px; }

.banner-holder{ width:60vw; height: 50vh; overflow: hidden; display: grid; grid-template-columns: 6fr 6fr; border: solid 1px #d7d7d7; background-color: #fff; box-shadow:0 0 7pt 1pt #c8c2c2; border-radius: 10px;}
.banner-holder .login-banner{  background-color: #f00; }
.banner-holder .login-banner img{ width: 100%; height: 100%; }
#app-wrapper{ position: absolute; width: 100vw; height: 100vh; display: grid; grid-template-rows: var(--menu-height) auto 40px;   }
#app-header { background-color: var(--app-head-bgc); display: grid; grid-template-columns: var(--menu-width) auto 250px; color:#fff;  }
#app-menu-btn { border-right: 1px solid #636262; }
#app-setting { display: flex; flex-direction: row; justify-content: end; padding-right: 20px; gap:10px;  }
```

```
#app-setting span{  text-transform: capitalize;   }

#app-header #app-setting a{  text-decoration: none; color: inherit;
}

#app-menu-btn:hover,  #app-header  #app-setting  i:hover{    cursor:
pointer;   }

#app-header #app-name{ color:#fff; padding: 0px 5px; }

#app-footer{ background-color: var(--app-head-bgc); }


#app-body{  background-color:  var(--page-body-bgc);  display:  grid;
grid-template-columns: 250px auto; }

#app-menu{ background-color: var(--menu-bgc); color:var(--menu-font-
clr); border-right: solid 1px #bdbdbd; }

#app-page{ height: 100%; }



.app-menu-item>div {

    display: grid; grid-template-columns: 30px auto 30px;

    align-content: center;

    padding: 10px;

    border-bottom: solid 1px #c7c7c7;

    text-transform: uppercase;

}

.app-menu-item  ul  {  list-style:  none;  background-color:  #fff;
border-bottom: solid 1px #c7c7c7; }

.app-menu-item ul li a{ padding: 10px 20px; display: grid; grid-
template-columns: 25px auto; text-decoration: none; color: inherit;
}

.app-menu-item ul li a i{  display: flex; justify-content: center;
align-items: center;  }

.app-menu-item ul li a span{ padding-left: 5px; }

.app-menu-item ul li a:hover{ background-color: #fff; color:#363636;
}
```

```
.formFields{ padding: 0px; }

.formFields label{ width:100%; text-align: left; margin-bottom: 5px;}

.formFields input{ width:100%; padding:8px; border:solid 1px #747474; margin-bottom: 5px; }

.formFields select{ width:100%; }

.formFields textarea{ min-width:100%; max-width: 100%; }


.formBox { display: grid; padding:20px; row-gap: 5px; column-gap: 20px;}




.flextable{ margin: 5px auto; width:calc(100%); width:-webkit-calc(100% - 45px); width:-moz-calc(100% - 45px); overflow: auto; border: solid 1px #d7d7d7; min-height: 150px; }

.table{ border-collapse: collapse; width:100%; border: solid 0px #d7d7d7;  }

.table tr{ border-top: solid 1px #d7d7d7;  border-bottom: solid 1px #d7d7d7; }

.table tr:last-child{ border-bottom: none; }

.table tr:first-child{ border-top: none; }

.table tr td{ border: solid 0px #e7e7e7; padding:5px; color:#5a5a5a; }

.table tr:nth-child(2n-1){ background-color: #F9F9F9; }

.table tr th{ border: solid 0px #e7e7e7; padding:8px; font-weight: normal; text-align: left; }

.table tr td.actions a{ display: inline-block; color:inherit; text-decoration: none; padding:5px; text-transform: capitalize; }

.table tr td.actions a:hover{ color:#f00; cursor: pointer; }

.table tr td.actions a i{ font-size: 12px;   }

.table tr td.actions a span{ margin-left: 3px; text-align: left; padding:0px 5px; display: inline-block;   }
```

```
.grid-button{ position:absolute; z-index:2; bottom:10px; right:50px; height:30px; width:30px; border-radius:50%; min-width:30px !important; opacity: 0.8; }

.grid-button:hover{ opacity: 1; height: 50px; width: 50px; }



.grid-buttonadd{ position:absolute; z-index:2; bottom:10px; right:10px; height:30px; width:30px; border-radius:50%; min-width:30px !important; opacity: 0.8; }

.grid-buttonadd:hover{ opacity: 1; height: 50px; width: 50px; }



.paginationbox{ margin:0px auto; width: 550px; padding-bottom: 5px; }

.page-info{ padding: 8px 10px; color:#C44646; }

.pagination{ text-align: center; padding: 0px 0px; }

.pagination li{ list-style: none; display: inline-block; border:solid 1px #d7d7d7; margin-top: 10px; margin: 2px; }

.pagination li a{ padding: 8px 5px; display: inline-block; text-decoration: none; min-width: 20px; color:#000; }

.pagination li a.active{ background-color: #d8d8d8; color:#000; border:solid 0px #d8d8d8; }

.pagination li a:hover{ background-color: #0B57E8; color:#fff; border:solid 0px #85011A; }



.card{ border: solid 1px #d7d7d7; min-height: 50px; background-color: #fff; margin-bottom: 15px; }

.cardhead{ background-color: #F8F9FD; border-bottom: solid 1px #d7d7d7; }

.carddata{ min-height: 100px; }

.cardfooter{ background-color: #F8F9FD; border-top: solid 1px #d7d7d7; display: flex; justify-content: center; align-items: center; }
```

```
label{   box-sizing: border-box; display: inline-block; font-size: 12px; padding: 0px 2px 3px 2px;  }

input{       border:solid   1px   #b7b7b7;   padding:   8px   8px; color:#666;border-color: #3C8C9D;   }


select{ border:solid 1px #b7b7b7; padding: 8px 8px;; color:#666;  }

textarea { border:solid 1px #b7b7b7; padding:8px; color:#666; }

input:focus{ color:#287CC9; border-color:#cf1414; outline: none; }

select:focus { border-color:#da1010;  }

textarea:focus { color:#ee1a1a; border:solid 1px #f02121; outline: none; }

input[type="submit"]   {   background-color:   #3C8C9D;   color:#fff; border: none; min-width: 100px; }

input[type="submit"]:hover{     background-color:#2e4d58;     cursor: pointer; }


.padb10{  padding:  10px;  }  .padb15{  padding:  15px;  }  .padb20{ padding: 20px; } .padb30{ padding: 30px; }

.padt10{ padding: 10px 0px; } .padt15{ padding: 15px 0px; } .padt20{ padding: 20px 0px; } .padt30{ padding: 30px 0px; }

.pads10{ padding: 0px 10px; } .pads15{ padding: 0px 15px; } .pads20{ padding: 0px 20px; } .pads30{ padding: 0px 30px; }


.grid1{ display: grid; grid-template-columns: 1fr; }

.grid2{ display: grid; grid-template-columns: repeat(2, 1fr); }

.grid3{ display: grid; grid-template-columns: repeat(3, 1fr); }

.grid4{ display: grid; grid-template-columns: repeat(4, 1fr); }

.grid5{ display: grid; grid-template-columns: repeat(5, 1fr); }

.gap20{  grid-gap: 20px; }

.gap10{  grid-gap: 10px; }

.gap1{  grid-gap: 1px; }
```

```
.gridr1{ display: grid; grid-template-rows: 12fr; }


.gridImage{ display: grid; grid-template-columns: 200px auto; }


.card-grid{ display: grid; grid-template-rows: 60px auto 65px; height: 100%; }

.full-height{ height: 100%; }

.pos-relative{ position: relative;}


/* .flxctr{ display: flex; justify-content: center; } */

.flxctr{ display: flex; align-items: center; }

.flx-item-left{ display: flex; gap:10px; justify-content: flex-start; align-items: center; }

.flx-item-right{ display: flex; gap:10px; justify-content: flex-end; }

.flx-item-center{ display: flex; justify-content: center; align-items: center; }

.txtR{ text-align: right;   }



.modal-overlay{ position: absolute; z-index: 4; top:0px; left: 0px; right: 0px; bottom: 0px; background-color: #0c0c0c75;  }

.modal-overlay .modal{ background-color: var(--modal-bgc); min-height: 300px; width: 450px; display: grid; grid-template-rows: 50px auto 60px; }

.modal-overlay .modal .modal-head{ background-color: var(--app-head-bgc); color:var(--page-head-border); display: grid; grid-template-columns: auto 30px; border-bottom: solid 1px var(--modal-border); }

.modal-overlay .modal .modal-head .close{ padding:5px; border:solid 1px var(--modal-border); }

.modal-overlay .modal .modal-head .close:hover{ border:solid 1px var(--input-focus-border); color:var(--input-focus-border); cursor: pointer; }
```

```
.modal-overlay .modal .modal-body{ padding: 10px; display: flex; flex-direction: column; justify-content: center; align-items: center; }

.modal-overlay .modal .modal-body svg{ font-size: 50px; padding: 10px; margin-bottom: 20px; }

.modal-overlay .modal .modal-body span{ font-size: 20px; text-transform: capitalize; text-align: center;}

.modal-overlay .modal .modal-footer{ border-top: solid 1px var(--modal-border); }




.modal-overlay .modal-full{ background-color: #fff; height: 100vh; width:30vw; display: grid; grid-template-rows: 50px auto 60px; min-width: 300px; max-width: 500px; }

.modal-overlay .modal-full .modal-head{ display: grid; grid-template-columns: auto 30px; border-bottom: solid 1px var(--modal-border); }

.modal-overlay .modal-full .modal-head .close{ padding:5px; border:solid 1px var(--modal-border); }

.modal-overlay .modal-full .modal-head .close:hover{ cursor: pointer; border:solid 1px var(--app-head-bgc); color:var(--app-head-bgc); }

.modal-overlay .modal-full .modal-body{ padding: 10px; }

.modal-overlay .modal-full .modal-footer{border-top: solid 1px var(--modal-border); }




.login-card{


    overflow: hidden; font-family: 'Poppins', sans-serif; min-width:60%;

}


.login-page{ width: 100vw; height: 100vh; display: flex; justify-content: center; align-items: center; }
```

```
.hide{ display: none; }

.errMsg{ background-color: #f9b6b6; border: solid 1px #f97575; text-
align: center; color:#c52727 ; }


.module-popup{

    position: absolute;

    z-index: 2;

    background-color: #fff;

    top: 40px;

    min-width: 400px;

    border: solid 1px #d5d5d5;

    color: #202020;

    display: grid;

    grid-template-columns: 4fr 4fr 4fr;

    gap:10px;

    padding: 10px;

    padding-bottom: 20px;

    box-shadow: 0 0 12pt -2pt #c8c2c2;

}


.module-popup a { padding: 20px; text-decoration: none; border:
solid 1px #a59f9f; display: flex;

    flex-direction: column; gap: 10px; justify-content: center;
align-items: center;  }

.module-popup a:hover{ background-color: #dfdfdf; cursor: pointer;
border: solid 1px #9b9b9b; }


.blk-important{ display: block !important; }


.dash-card{ border: solid 1px #d7d7d7; min-height: 50px; background-
color: #fff; margin-bottom: 15px;  }
```

```
.card-item{ border: solid 1px #d7d7d7; min-height: 50px; background-color: #fff;  }



.brown{ background-color: #7e5552; color:#fff;  }

.green{ background-color: #81a95a; color:#fff; }

.blue{ background-color: #8567b7; color:#fff; }


.numCard{ display: grid; grid-template-rows: auto 20px; }

.numCard  .num{  font-size:  18px;  display:  flex;  justify-content: center; align-items: center; }

.numCard .desc{ text-align: center; font-size: 20px; }


.search-input {

    border-radius: 50px; /* Creates an oval shape */

    padding: 10px 20px;   /* Adjust padding for a nice look */

    border: 1px solid #ccc; /* Optional: add border */

    outline: none;           /* Optional: removes the default focus outline */

    font-size: 12px;       /* Optional: adjust font size */

    width: 400px;

    border-color: #3C8C9D;          /* Optional: set a width for the input */

  }


  .search-input:focus {

    border-color:  #3C8C9D;  /*  Optional:  change  border  color  when focused */

  }

  .search-button {

    border-radius: 50px; /* Oval shape */

    padding: 10px 30px;   /* Adjust padding for oval shape */
```

```
    border: 1px solid #ccc; /* Optional border */
    background-color: #36677d; /* Button color */
    color: white;          /* Text color */
    font-size: 16px;       /* Font size */
    cursor: pointer;     /* Pointer cursor */
    transition: background-color 0.3s; /* Smooth transition */
    display: inline-block; /* Ensures correct button behavior */
    text-align: center;   /* Centers the text */
    width: auto;          /* Width adapts to text */
  }

  .search-button:hover {
    background-color: #3C8C9D; /* Darker shade on hover */
  }

  .back-button {
    background-color: #3C8C9D; /* Green background color */
    color: white; /* White text color */
    border: none; /* Remove default border */
    border-radius: 5px; /* Rounded corners */
    padding: 10px 20px; /* Padding for button size */
    font-size: 16px; /* Font size */
    cursor: pointer; /* Pointer cursor on hover */
    transition: background-color 0.3s ease; /* Smooth background
transition */
  }

  .back-button:hover {
    background-color: #2e4d58; /* Darker green on hover */
  }
```

```
  .save-button {
    background-color: #3C8C9D; /* Blue background color */
    color: white; /* White text color */
    border: none; /* Remove default border */
    border-radius: 5px; /* Rounded corners */
    padding: 10px 20px; /* Padding for button size */
    font-size: 16px; /* Font size */
    cursor: pointer; /* Pointer cursor on hover */
    transition: background-color 0.3s ease; /* Smooth background transition */
  }

  .save-button:hover {
    background-color: #2e4d58; /* Dark blue on hover */
  }

.large-checkbox {
    transform: scale(1.5); /* Adjust the scale factor as needed */
    -ms-transform: scale(1.5); /* For Internet Explorer */
    -webkit-transform: scale(1.5); /* For Safari */
}
.formFields button {
  background-color: #007bff; /* Change to your desired color */
  color: #fff; /* Text color */
  padding: 8px 16px; /* Add some spacing */
  border: none; /* Remove default border */
  border-radius: 4px; /* Rounded corners */
  cursor: pointer; /* Show pointer cursor on hover */
  transition: background-color 0.2s ease; /* Smooth transition */
  font-size: 14px;
}
```

```
.formFields button:hover {
  background-color: #0056b3; /* Darker shade on hover */
}

.formFields button:active {
  background-color: #004494; /* Even darker on click */
}

.formFields button.readonly {
  background-color: #ccc; /* Make it greyed out if readonly */
  cursor: not-allowed;
}



/* center filter */
/* Fullscreen modal overlay */
.center-modal-overlay {
  position: fixed;
  top: 0;
  left: 0;
  right: 0;
  bottom: 0;
  background: rgba(0, 0, 0, 0.5);
  display: flex;
  justify-content: center;
  align-items: center;
  z-index: 9999;
}
```

```
/* Modal main wrapper */
.center-modal-content {
  background-color: #fff;
  width: 1200px;
  max-height: 75vh;
  display: flex;
  flex-direction: column;
  border-radius: 8px;
  box-shadow: 0 2px 8px rgba(0, 0, 0, 0.2);
}

/* Modal Header */
.center-modal-header {
  display: flex;
  justify-content: space-between;
  align-items: center;
  padding: 10px 20px;
  border-bottom: 1px solid #ccc;
  font-size: 18px;
  font-weight: bold;
}

.center-modal-title {
  color: #333;
}

.center-modal-close {
  cursor: pointer;
  color: #555;
  transition: color 0.3s ease-in-out;
```

```
}

.center-modal-close:hover {
  color: #000;
}

/* Modal Body */
.center-modal-body {
  padding: 20px;
  flex-grow: 1;
  overflow-y: auto;
}

/* Modal Footer */
.center-modal-footer {
  display: flex;
  justify-content: flex-end;
  gap: 10px;
  padding: 10px 20px;
  border-top: 1px solid #ccc;
}

.center-modal-footer input[type="submit"] {
  padding: 8px 16px;
  cursor: pointer;
  background-color: #007bff;
  color: #fff;
  border: none;
  border-radius: 4px;
  transition: background-color 0.3s ease-in-out;
```

```
}

.center-modal-footer input[type="submit"]:hover {
  background-color: #0056b3;
}

.tiles-container {
  display: flex;
  flex-wrap: wrap;
  gap: 10px;
}

.tile {
  display: flex;
  justify-content: space-between;
  align-items: center;
  width: 200px; /* Adjust width as needed */
  padding: 10px;
  border-radius: 5px;
  cursor: pointer;
  color: #ffffff;
  font-family: Arial, sans-serif;
  box-shadow: 0 4px 6px rgba(0, 0, 0, 0.1);
  transition: transform 0.2s ease-in-out;
}

.tile:hover {
  transform: scale(1.05);
}
```

```
.tile-title {
  flex: 1;
  font-size: 16px;
}

.tile-icon {
  font-size: 24px;
  margin-left: 10px;
}

/* End center filter */
@media only screen and (max-width: 500px)
{

}

@media only screen and (min-width: 501px)
{

}
```

formatlayout.tsx

```
import { ChangeEvent } from "react";

export enum FieldType{
    text='text', int='numeric', decimal='decimal', date='date', time = 'time', datetime = 'datetime', checkbox = 'checkbox', radio = 'radio', select = 'select', file = 'file', hidden = 'hidden',button = 'button'
}
```

```
export enum ActionType{
    'button', 'submit', 'reset'
}

export enum FormActionLocation{
    'top', 'bottom'
}

export type Options =
{
    value:string | Number | boolean,
    text:string | Number
}


type ValidationRule = {
    value: boolean;
    message: string;
  };

  type Validation = {
    required?: ValidationRule;
  };
  type ColorOption = {
    value: string | number;
    label: string;
  };

export type FormField =
{
```

```
    onClick?: any;
    name:string,
    label:string,
    type:FieldType,
    value?:any,
    tabIndex?:Number,
    options?:Options[],
    manditory:boolean,
    readonly?: boolean; // Optional readonly property
    onChange?: any; // Optional onChange event handler
    visible?:boolean
    enabled?:boolean; // Optional property to handle enabled state
    validation?: Validation; // Add validation property
    component?: React.ComponentType<any>;
    loadOptions?:    (inputValue:    string,    callback:    (options:
ColorOption[]) => void) => void;  // Dynamic loading function
    isLoading?: boolean;  // Loading state for AsyncSelect
    cacheOptions?:boolean;
    menuList?: (provided: any) => any;   // Add menuList to handle
scroll behavior
    onInputChange?:any;
    onKeyDown?:any;
    defaultValue?: string;
}


export type FormAction =
{
    name:string,
    label:string,
    type:FieldType,
    tabIndex?:Number,
```

```
    options?:Options[],
    disabled?:any;

}

export type FormLayout =
{
    HeaderText:string,
    Attachable:boolean,
    Fields:FormField[],
    Actions:FormAction[]
};
```

user.tsx

```
import { getRequest, postRequest } from "@/helpers/request";
import { API_URLS } from "../api_urls";



export async function UserList(PageIndex: Number, PageSize:Number,
Where:string = '')
{
    let formPayload:any={
 /*        page_index: PageIndex,
        page_size:PageSize, */
        pageNo: PageIndex,
        pageSize:PageSize,
        where:Where
    };
    try
    {
        const response:any = await postRequest(API_URLS.User.List,
formPayload);
```

```
        if(response.data.status == 'success')
            return response.data.data;
        else
            throw 'User List Error' + response.data.Message;
    }
    catch(e)
    {
        console.log('User List Error', e);
        throw e;
    }
}

export async function UserInfo(UserID: Number,PageIndex?: Number,
PageSize?:Number, Where:string='')
{
    try
    {
        let formPayload:any={
            user_id: UserID,
            pageNo: PageIndex,
            pageSize:PageSize,
            where:Where
        };

        const response:any = await postRequest(API_URLS.User.Info,
formPayload);
        if(response.data.status == 'success')
            return response.data;
        else
            throw 'User Info Error' + response.data.Message;
    }
```

```
    catch(e)
    {
        console.log('User Info Error', e);
        throw e;
    }
}

export async function InsertOrUpdateUser(formPayload: any, gridPayload:any)
{
    try
    {
        /* let info:any = localStorage.getItem('userInfo') != null? localStorage.getItem('userInfo')?.toString():'{}';
        let userInfo = JSON.parse(info);
        let user_id = userInfo['user_id']; */
        //formPayload = {...formPayload, 'user_id': user_id, 'userRightsSetups':gridPayload }
        formPayload = {...formPayload, 'userRightsSetups':gridPayload }
        const response:any = await postRequest(API_URLS.User.InsertOrUpdate, {'UserSetup':formPayload, 'UserRightsSetups':gridPayload});
        return response.data;
    }
    catch(e)
    {
        console.log('User Update Error', e);
        throw e;
    }
}
```

```
export async function Authenticate(username: string, password:string)
{
    try
    {
        let formPayload:any={
            username: username,
            password: password
        };

        const response:any = await postRequest(API_URLS.User.Authenticate, formPayload);
        if(response.status == 200)
            return response.data;
        else
            throw 'User Authenticate Error' + response.data.Message;
    }
    catch(e)
    {
        console.log('User Authenticate Error', e);
        throw e;
    }
}

export async function GetUserMenu(ModuleID: Number)
{
    try
    {
        let info:any = localStorage.getItem('userInfo') != null? localStorage.getItem('userInfo')?.toString():'{}';
        let userInfo = JSON.parse(info);
```

```
        let user_id = userInfo['user_id'];

        let formPayload:any={
            module_id: ModuleID,
            user_id:user_id
        };

        const response:any = await
postRequest(API_URLS.User.GetUserMenu, formPayload);
        if(response.status == 200)
            return response.data;
        else
            throw 'Menu List Error' + response.data.Message;
    }
    catch(e)
    {
        console.log('Menu List Error', e);
        throw e;
    }

}
export async function UserInfoPageWise(UserID:
Number,PageNo:Number,PageSize:Number, Where:string='')
{
    try
    {
        let formPayload:any={
            user_id: UserID,
            pageNo:PageNo,
            pageSize:PageSize,
            where:Where
```

```
        };

        const response:any = await postRequest(API_URLS.User.Info, formPayload);
        if(response.data.status == 'success')
            return response.data;
        else
            throw 'User Info Error' + response.data.Message;
    }
    catch(e)
    {
        console.log('User Info Error', e);
        throw e;
    }
}
```

Agent.Tsx

```
// import { getRequest, postRequest} from ''

import { getRequest, postRequest } from "@/helpers/request";
import { API_URLS } from "../api_urls";



export async function AgentList(PageIndex?: Number, PageSize?:Number, Where:string='')
{
    let formPayload:any={
        pageNo: PageIndex,
        pageSize:PageSize,
        where:Where
    };
    try
```

```
    {
        const response:any = await postRequest(API_URLS.Agent.List,
formPayload);
        return response.data;
        if(response.status == 200)
            return response.data;
        else
            throw 'Agent List Error' + response.data.Message;
    }
    catch(e)
    {
        console.log('Agent List Error', e);
        throw e;
    }
}

export async function AgentInfo(AgentID: Number)
{
    try
    {
        let formPayload:any={
            Agent_id: AgentID
        };

        const response:any = await postRequest(API_URLS.Agent.Info,
formPayload);
        if(response.data.status == 'success')
            return response.data.data;
        else
            throw 'Agent Info Error' + response.data.Message;
    }
```

```
    catch(e)
    {
        console.log('Agent Info Error', e);
        throw e;
    }
}

export async function InsertOrUpdateAgent(formPayload: any)
{
    try
    {
        const response:any = await
postRequest(API_URLS.Agent.InsertOrUpdate,
{'AgentSetup':formPayload});
        if(response.status == 200)
            return response.data;
        else
            throw 'Page Update Error' + response.data.Message;
    }
    catch(e)
    {
        console.log('Page Update Error', e);
        throw e;
    }
}
```

Bom.Tsx

```
import { getRequest, postRequest } from "@/helpers/request";
import { API_URLS } from "../api_urls";
```

```
export async function BomList(PageIndex: any, PageSize:any, Where:string = '')
{
    let formPayload:any={
        pageNo: PageIndex,
        pageSize:PageSize,
        where:Where
    };
    try
    {
        const response:any = await postRequest(API_URLS.Bom.List, formPayload);
        if(response.status == 200)
            return response.data;
        else
            throw 'Page List Error' + response.data.Message;
    }
    catch(e)
    {
        console.log('User List Error', e);
        throw e;
    }
}

export async function BomInfo(StyleStockID: Number)
{
    try
    {
        let formPayload:any={
            StyleStock_id: StyleStockID
        };
```

```
        const response:any = await postRequest(API_URLS.Bom.Info,
formPayload);
        if(response.data.status == 'success')
            return response.data;
        else
            throw 'User Info Error' + response.data.Message;
    }
    catch(e)
    {
        console.log('User Info Error', e);
        throw e;
    }
}
export async function BomAmend(formPayload: any)
{
    try
    {
        const response:any = await postRequest(API_URLS.Bom.Amend,
{'BomSetup':formPayload});
        if(response.status == 200)
            return response.data;
        else
            throw 'Page Update Error' + response.data.Message;
    }
    catch(e)
    {
        console.log('Page Update Error', e);
        throw e;
    }
}
```

```
export async function BomFix(formPayload: any)
{
    try
    {
        const response:any = await postRequest(API_URLS.Bom.Fix, {'BomSetup':formPayload});
        if(response.status == 200)
            return response.data;
        else
            throw 'Page Update Error' + response.data.Message;
    }
    catch(e)
    {
        console.log('Page Update Error', e);
        throw e;
    }
}
export async function InsertOrUpdateBom(formPayload: any, gridPayload:any)
{
    try
    {
        const response:any = await postRequest(API_URLS.Bom.InsertOrUpdate, {'BomSetup':formPayload, 'BomDetailSetups':gridPayload});
        return response.data;
    }
    catch(e)
    {
        console.log('User Update Error', e);
        throw e;
```

```
    }
}
```

cell.tsx:

```
// import { getRequest, postRequest} from ''


import { getRequest, postRequest } from "@/helpers/request";
import { API_URLS } from "../api_urls";



export async function CellList(PageIndex?: Number, PageSize?:Number,
Where:string='')
{
    let formPayload:any={
        pageNo: PageIndex,
        pageSize:PageSize,
        where:Where
    };
    try
    {
        const response:any = await postRequest(API_URLS.Cell.List,
formPayload);
        return response.data;
        if(response.status == 200)
            return response.data;
        else
            throw 'Cell List Error' + response.data.Message;
    }
    catch(e)
    {
        console.log('Cell List Error', e);
        throw e;
```

```
    }
}

export async function CellInfo(CellID: Number)
{
    try
    {
        let formPayload:any={
            Cell_id: CellID
        };

        const response:any = await postRequest(API_URLS.Cell.Info,
formPayload);
        if(response.data.status == 'success')
            return response.data.data;
        else
            throw 'Cell Info Error' + response.data.Message;
    }
    catch(e)
    {
        console.log('Cell Info Error', e);
        throw e;
    }
}

export async function InsertOrUpdateCell(formPayload: any)
{
    try
    {
```

```
        const response:any = await
postRequest(API_URLS.Cell.InsertOrUpdate,
{'CellSetup':formPayload});
        if(response.status == 200)
            return response.data;
        else
            throw 'Page Update Error' + response.data.Message;
    }
    catch(e)
    {
        console.log('Page Update Error', e);
        throw e;
    }
}
```

Package-lock-json:

```
pacakgelockjson
{
  "name": "erp-demo-latest",
  "version": "0.1.0",
  "private": true,
  "scripts": {
    "dev": "next dev",
    "build": "next build",
    "start": "next start",
    "lint": "next lint"
  },
  "dependencies": {
    "@fortawesome/fontawesome-free": "^6.7.2",
    "@fortawesome/fontawesome-svg-core": "^6.6.0",
    "@fortawesome/free-brands-svg-icons": "^6.6.0",
    "@fortawesome/free-regular-svg-icons": "^6.6.0",
```

```
    "@fortawesome/free-solid-svg-icons": "^6.6.0",
    "@fortawesome/react-fontawesome": "^0.2.2",
    "@react-pdf-viewer/core": "^3.12.0",
    "@react-pdf-viewer/default-layout": "^3.12.0",
    "axios": "^1.7.4",
    "chart.js": "^4.4.7",
    "dotenv": "^16.4.5",
    "jspdf": "^2.5.1",
    "jspdf-autotable": "^3.8.2",
    "lodash": "^4.17.21",
    "next": "14.2.5",
    "react": "^19.0.0",
    "react-canvas-gauge": "^1.0.2",
    "react-chartjs-2": "^5.3.0",
    "react-dom": "^19.0.0",
    "react-gauge-chart": "^0.5.1",
    "react-select": "^5.8.3",
    "react-select-async-paginate": "^0.7.6",
    "react-select-virtualized": "^5.6.0",
    "react-virtualized": "^9.22.5",
    "react-virtualized-select": "^3.1.3",
    "react-window": "^1.8.10",
    "xlsx": "^0.x.x"
  },
  "devDependencies": {
    "@types/lodash.debounce": "^4.0.9",
    "@types/node": "^20",
    "@types/react": "^18",
    "@types/react-dom": "^18",
    "@types/react-window": "^1.8.8",
```

```
    "@types/xlsx": "^0.0.36",
    "typescript": "^5"
  }
}
```

Backend:

Refrencesetup.Cs:

```
using AspCoreAPI.Model.Master;

namespace AspCoreAPI.Model.Master
{
    public class ReferenceSetup
    {
        public int? user_id { get; set; }
        public string user_name { get; set; } = "";
        public string user_password { get; set; } = "";
        public string user_fullname { get; set; } = "";
        public string email_addr { get; set; } = "";
        public string contact_no { get; set; } = "";
        public string extension_no { get; set; } = "";
        public string user_type { get; set; } = "U";
        public string login_fails { get; set; } = "";
        public string have_access { get; set; } = "";
        public string user_token { get; set; } = "";
        public bool active { get; set; } = true;
        List<ReferenceDetaiSetup>  referenceDetailSetups { get; set;
} = new List<ReferenceDetaiSetup>();
        public int RowCount { get; set; }

    }
}
```

Repository

Interface

Accounts

```
using System.Collections;
using System.Data;


namespace AspCoreAPI.Repository.Interface.Accounts
{
    public interface IUserRepository
    {
        Task<DataSet>     GetUserList(Dictionary<string,     object>
parameters);
        Task<DataSet>     GetUserInfo(Dictionary<string,     object>
parameters);
        Task<Dictionary<string,                              object>>
InsertOrUpdateUser(Dictionary<string, object> parameters);
        Task<Dictionary<string,                              object>>
DeleteUser(Dictionary<string, object> parameters);
        Task<DataSet>    Authenticate(string    username,    string
password);
        Task<DataSet>     GetUserMenu(Dictionary<string,     object>
parameters);
        Task<DataSet> GetUserInfoPageWise(Dictionary<string, object>
parameters);


    }
}
```

Implementation:

```
using System.Collections;
using System.Data;
using AspCoreAPI.Helpers;
using System.Data.SqlClient;
using Newtonsoft.Json;
using AspCoreAPI.Model.Accounts;
using AspCoreAPI.Repository.Interface.Accounts;

namespace AspCoreAPI.Repository.Implementation.Accounts
{
    public class UserRepository : IUserRepository
    {

        public async Task<DataSet> GetUserList(Dictionary<string, object> parameters)
        {
            /* DataSet dsResult = new DataSet();
            try
            {
                DBHelper db = new DBHelper();
                string sqlQuery = @"SELECT * FROM app_user";
                List<SqlParameter> sqlParameters = new List<SqlParameter>();
                dsResult = db.SelectQuery(sqlQuery, sqlParameters);
                if (db.Status != Utils.DBResponseStatus.success)
                    throw new Exception("Repository# " + db.Message);
            }
            catch(Exception ex)
            {
```

```
                throw new Exception("Repository# " + ex.Message);
            }

            return await Task.FromResult<DataSet>(dsResult); */
             DataSet dsResult = new DataSet();
            string whereSupplierment = "";
            string paginationSupplierment = " ORDER BY U.user_id ASC";
            int pageNo = 1;
            int pageSize = 10;
            if(parameters.ContainsKey("where"))
                whereSupplierment = " where 1=1" + parameters["where"].ToString();

            if(parameters.ContainsKey("pageNo"))
            {
                pageNo = Convert.ToInt16(parameters["pageNo"]);
                paginationSupplierment += Convert.ToInt16(parameters["pageNo"])>0?" OFFSET @pageIndex ROWS FETCH NEXT @pageSize ROWS ONLY":"";

                if(parameters.ContainsKey("pageSize"))
                    pageSize = Convert.ToInt16(parameters["pageSize"]);
            }
            try
            {
                DBHelper db = new DBHelper();

                string sqlQuery =@"DECLARE @pageIndex INT = ((@pageNo - 1) * @pageSize)
```

```
                SELECT U.user_id, U.user_name, U.user_password,
U.user_fullname, U.email_addr, U.contact_no, U.extension_no,
U.user_type, U.login_fails, U.have_access, U.active, U.user_token,
                                    [RowCount]= COUNT(*) OVER()
                FROM app_user U" + whereSupplierment +
paginationSupplierment;
                List<SqlParameter> sqlParameters = new
List<SqlParameter>();
                sqlParameters.Add( new SqlParameter("@pageNo",
SqlDbType.Int) { Value = pageNo } );
                sqlParameters.Add( new SqlParameter("@pageSize",
SqlDbType.Int) { Value = pageSize } );
                dsResult = db.SelectQuery(sqlQuery, sqlParameters);
                if (db.Status != Utils.DBResponseStatus.success)
                    throw new Exception("Repository# " +
db.Message);
            }
            catch(Exception ex)
            {
                throw new Exception("Repository# " + ex.Message);
            }

            return await Task.FromResult<DataSet>(dsResult);
        }

        public async Task<DataSet> GetUserInfo(Dictionary<string,
object> parameters)
        {
            DataSet dsResult = new DataSet();
            string whereSupplierment = "";
            string paginationSupplierment = " ORDER BY
R.user_rights_id ASC";
            int pageNo = 1;
```

```
            int pageSize = 10;
            if(parameters.ContainsKey("where"))
                whereSupplierment = " where 1=1" +
parameters["where"].ToString();

            if(parameters.ContainsKey("pageNo"))
            {
                pageNo = Convert.ToInt16(parameters["pageNo"]);
                paginationSupplierment                              +=
Convert.ToInt16(parameters["pageNo"])>0?" OFFSET @pageIndex ROWS
FETCH NEXT @pageSize ROWS ONLY":"";

                if(parameters.ContainsKey("pageSize"))
                    pageSize                                        =
Convert.ToInt16(parameters["pageSize"]);
            }
            try
            {
                DBHelper db = new DBHelper();

                int user_id = parameters.ContainsKey("user_id")?
Convert.ToInt32(parameters["user_id"]) : 0;
                string sqlQuery = @"SELECT U.user_id, U.user_name,
U.user_password, U.user_fullname, U.email_addr, U.contact_no,
U.extension_no, U.user_type, U.login_fails, U.have_access, U.active,
U.user_token
                FROM app_user U Where U.user_id = @user_id

                DECLARE @pageIndex INT = ((@pageNo - 1) * @pageSize)
                SELECT M.module_id, M.module_name, P.function_id,
F.function_name, P.page_id, P.page_code, P.page_name,
ISNULL(@user_id,0)user_id, ISNULL(P.page_id,0)page_id,
ISNULL(R.user_rights_id,0)user_rights_id,
```

```
                    ISNULL(R.view_access,           0)view_access,
ISNULL(R.create_access,    0)create_access,    ISNULL(R.edit_access,
0)edit_access, ISNULL(R.delete_access, 0)delete_access,

                    ISNULL(R.report_access,       0)report_access,
ISNULL(R.approval_access,  0)approval_access,[RowCount]  =  COUNT(*)
OVER() FROM app_page p

                LEFT  OUTER  JOIN app_user_rights  R  ON  R.page_id  =
P.page_id AND R.user_id = @user_id

                INNER   JOIN   app_function   F   ON   F.function_id   =
P.function_id

                INNER   JOIN   app_module   M   ON   M.module_id   =
F.module_id";

                List<SqlParameter>      sqlParameters      =      new
List<SqlParameter>();

                sqlParameters.Add(new       SqlParameter("@user_id",
SqlDbType.NVarChar) { Value = user_id });

                sqlParameters.Add(    new    SqlParameter("@pageNo",
SqlDbType.Int) { Value = pageNo } );

                sqlParameters.Add(   new   SqlParameter("@pageSize",
SqlDbType.Int) { Value = pageSize } );

                dsResult = db.SelectQuery(sqlQuery, sqlParameters);

                if (db.Status != Utils.DBResponseStatus.success)

                    throw    new    Exception("Repository#    "    +
db.Message);

            }

            catch(Exception ex)

            {

                throw new Exception("Repository# " + ex.Message);

            }


            return await Task.FromResult<DataSet>(dsResult);

        }

        public      async      Task<Dictionary<string,      object>>
InsertOrUpdateUser(Dictionary<string, object> parameters)

        {
```

```
            Dictionary<string,     object>     response     =     new
Dictionary<string, object>();

            response["status"]                                      =
Utils.APIResponseStatus.fail.ToString();

            response["message"] = "update unknown";

            response["data"] = 0;

            try

            {

                DBHelper db = new DBHelper();

                string?                   jsonData                  =
parameters.ContainsKey("UserSetup")  &&  parameters["UserSetup"]  !=
null ? parameters["UserSetup"].ToString() : "{}";

                string?               jsonDetailData               =
parameters.ContainsKey("UserRightsSetups")                         &&
parameters["UserRightsSetups"]          !=          null          ?
parameters["UserRightsSetups"].ToString() : "[]";


                UserSetup?                userSetup                 =
JsonConvert.DeserializeObject<UserSetup>(jsonData != null? jsonData
: "{}");

                List<UserRightsSetup>?      userRightsSetups      =
JsonConvert.DeserializeObject<List<UserRightsSetup>>(jsonDetailData
!= null? jsonDetailData : "[]");


                jsonData   =   JsonConvert.SerializeObject(userSetup,
Formatting.Indented,       new       JsonSerializerSettings       {
ReferenceLoopHandling = ReferenceLoopHandling.Ignore });

                jsonDetailData                                      =
JsonConvert.SerializeObject(userRightsSetups,   Formatting.Indented,
new     JsonSerializerSettings     {     ReferenceLoopHandling     =
ReferenceLoopHandling.Ignore });


                string sqlQuery = @"App_User_Update";

                List<SqlParameter>      sqlParameters      =      new
List<SqlParameter>();

                sqlParameters.Add(new   SqlParameter("@JsonData   ",
SqlDbType.NVarChar) { Value = jsonData });
```

```
                sqlParameters.Add(new  SqlParameter("@JsonDetailData
", SqlDbType.NVarChar) { Value = jsonDetailData });
                int     rowEffected     =     db.SPCommand(sqlQuery,
sqlParameters);
                if (db.Status == Utils.DBResponseStatus.success)
                {
                    response["status"]                              =
Utils.APIResponseStatus.success;
                    response["message"] = "Successfully Updated !";
                    response["data"] = rowEffected;
                }
                else{
                    response["message"] = db.Message;
                }
            }
            catch(Exception e)
            {
                response["status"] = Utils.APIResponseStatus.error;
                response["message"] = e.Message;
            }
            return      await      Task.FromResult<Dictionary<string,
object>>(response);


        }


        public      async      Task<Dictionary<string,      object>>
DeleteUser(Dictionary<string, object> parameters)
        {
            Dictionary<string,     object>     response     =     new
Dictionary<string, object>();
            response["status"]                                      =
Utils.APIResponseStatus.fail.ToString();
            response["message"] = "update unknown";
```

```
            response["data"] = 0;
            try
            {
                DBHelper db = new DBHelper();
                int user_id = parameters.ContainsKey("user_id")?
Convert.ToInt32(parameters["user_id"]) : 0;
                string sqlQuery = @"delete from app_user where
user_id = @user_id";
                List<SqlParameter> sqlParameters = new
List<SqlParameter>();
                sqlParameters.Add(new SqlParameter("@user_id ",
SqlDbType.Int) { Value = user_id });
                int rowEffected = db.ExecuteNonQuery(sqlQuery,
sqlParameters);
                if (db.Status == Utils.DBResponseStatus.success)
                {
                    response["status"] =
Utils.APIResponseStatus.success;
                    response["message"] = "Successfully deleted !";
                    response["data"] = rowEffected;
                }
                else{
                    response["message"] = db.Message;
                }
            }
            catch(Exception e)
            {
                response["status"] = Utils.APIResponseStatus.error;
                response["message"] = e.Message;
            }
            return await Task.FromResult<Dictionary<string,
object>>(response);
```

```
        }

        public async Task<DataSet> Authenticate(string username, string password)
        {
            DataSet dsResult = new DataSet();
            try
            {
                DBHelper db = new DBHelper();
                string sqlQuery = @"select * from app_user where user_name = @user_name and user_password = @user_password";
                List<SqlParameter> sqlParameters = new List<SqlParameter>();
                sqlParameters.Add(new SqlParameter("@user_name", SqlDbType.VarChar) { Value = username });
                sqlParameters.Add(new SqlParameter("@user_password", SqlDbType.VarChar) { Value = password });
                dsResult = db.SelectQuery(sqlQuery, sqlParameters);
                if (db.Status != Utils.DBResponseStatus.success)
                    throw new Exception("Repository# " + db.Message);
            }
            catch(Exception ex)
            {
                throw new Exception("Repository# " + ex.Message);
            }
            return await Task.FromResult<DataSet>(dsResult);
        }

        public async Task<DataSet> GetUserMenu(Dictionary<string, object> parameters)
        {
            DataSet dsResult = new DataSet();
```

```
            try
            {
                DBHelper db = new DBHelper();
                int module_id = parameters.ContainsKey("module_id")?
Convert.ToInt32(parameters["module_id"]) : 0;
                int user_id = parameters.ContainsKey("user_id")?
Convert.ToInt32(parameters["user_id"]) : 0;

                string sqlQuery = @"select DISTINCT M.module_id,
M.module_code, M.module_icon, M.module_name from app_user_rights R
                INNER JOIN app_page P ON P.page_id = R.page_id
                INNER JOIN app_function F On F.function_id =
P.function_id
                INNER JOIN app_module M ON M.module_id = F.module_id
                WHERE R.user_id = @user_id AND
ISNULL(R.view_access,0) = 1

                select DISTINCT F.function_id, F.function_code,
F.function_name, F.function_icon from app_user_rights R
                INNER JOIN app_page P ON P.page_id = R.page_id
                INNER JOIN app_function F On F.function_id =
P.function_id AND F.module_id = @module_id
                WHERE R.user_id = @user_id AND
ISNULL(R.view_access,0) = 1

                select P.page_id, P.page_name, P.page_code,
P.page_icon, P.page_component, F.function_id, F.function_code,
F.function_name, F.function_icon, M.module_id, M.module_code,
M.module_icon, M.module_name from app_user_rights R
                INNER JOIN app_page P ON P.page_id = R.page_id
                INNER JOIN app_function F On F.function_id =
P.function_id
                INNER JOIN app_module M ON M.module_id = F.module_id
and M.module_id = @module_id
```

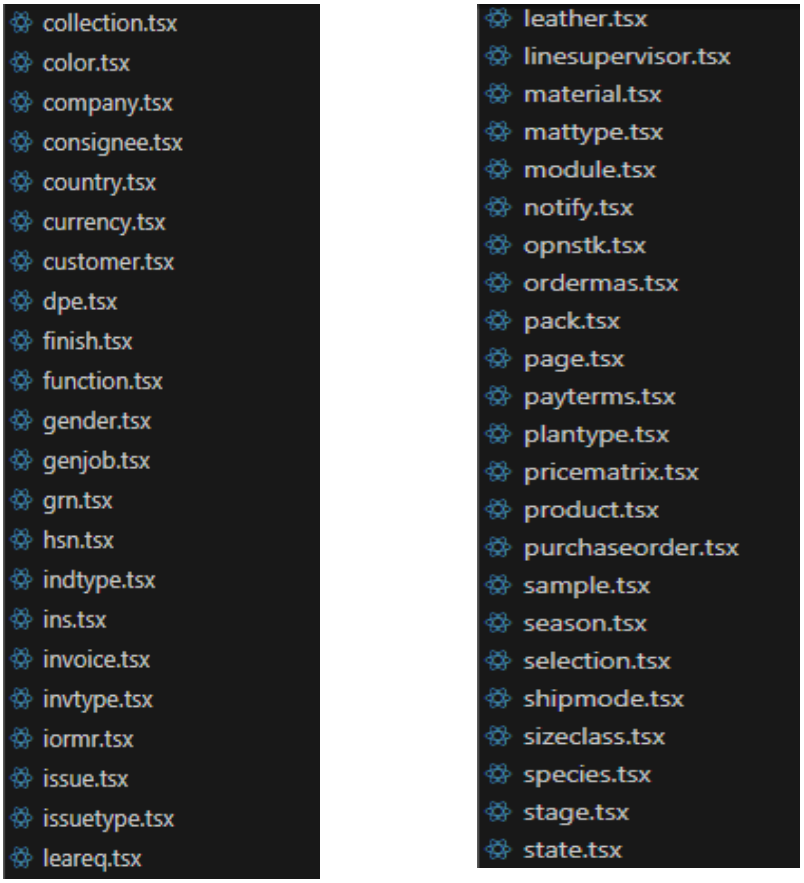
```
                WHERE      R.user_id      =      @user_id      AND
ISNULL(R.view_access,0) = 1";
                List<SqlParameter>     sqlParameters     =     new
List<SqlParameter>();
                sqlParameters.Add(
                    new                    SqlParameter("@module_id",
SqlDbType.NVarChar) { Value = module_id }


                );
                sqlParameters.Add(
                    new SqlParameter("@user_id", SqlDbType.NVarChar)
{ Value = user_id }


                );
                dsResult = db.SelectQuery(sqlQuery, sqlParameters);
                if (db.Status != Utils.DBResponseStatus.success)
                    throw    new    Exception("Repository#    "    +
db.Message);
            }
            catch(Exception ex)
            {
                throw new Exception("Repository# " + ex.Message);
            }


            return await Task.FromResult<DataSet>(dsResult);
        }
public  async  Task<DataSet>  GetUserInfoPageWise(Dictionary<string,
object> parameters)
{
    DataSet dsResult = new DataSet();


    try
```

```
    {
        DBHelper db = new DBHelper();
        string whereStatement = "";
        string paginationStatement = " ORDER BY P.Color_id ASC";
        int pageNo = 1;
        int pageSize = 10;

        if(parameters.ContainsKey("where"))
            whereStatement = " where 1=1" + parameters["where"].ToString();

        if(parameters.ContainsKey("pageNo"))
        {
            pageNo = Convert.ToInt16(parameters["pageNo"]);
            paginationStatement += Convert.ToInt16(parameters["pageNo"]) > 0 ? " OFFSET @pageIndex ROWS FETCH NEXT @pageSize ROWS ONLY" : "";

            if(parameters.ContainsKey("pageSize"))
                pageSize = Convert.ToInt16(parameters["pageSize"]);
        }

        int user_id = parameters.ContainsKey("user_id") ? Convert.ToInt32(parameters["user_id"]) : 0;

        string sqlQuery = @"
            SELECT U.user_id, U.user_name, U.user_password, U.user_fullname, U.email_addr, U.contact_no, U.extension_no, U.user_type, U.login_fails, U.have_access, U.active, U.user_token
            FROM app_user U
            WHERE U.user_id = @user_id;
```

```
            DECLARE @pageIndex INT = ((@pageNo - 1) * @pageSize);
            SELECT
                M.module_id, M.module_name,
                P.function_id, F.function_name,
                P.page_id, P.page_code, P.page_name,
                ISNULL(@user_id, 0) user_id,
                ISNULL(P.page_id, 0) page_id,
                ISNULL(R.user_rights_id, 0) user_rights_id,
                ISNULL(R.view_access, 0) view_access,
                ISNULL(R.create_access, 0) create_access,
                ISNULL(R.edit_access, 0) edit_access,
                ISNULL(R.delete_access, 0) delete_access,
                ISNULL(R.report_access, 0) report_access,
                ISNULL(R.approval_access, 0) approval_access,
                [RowCount] = COUNT(*) OVER()
            FROM app_page P
            LEFT OUTER JOIN app_user_rights R ON R.page_id =
P.page_id AND R.user_id = @user_id
            INNER JOIN app_function F ON F.function_id =
P.function_id
            INNER JOIN app_module M ON M.module_id = F.module_id
            " + whereStatement + paginationStatement;


        List<SqlParameter> sqlParameters = new List<SqlParameter>();
        sqlParameters.Add(new SqlParameter("@user_id",
SqlDbType.Int) { Value = user_id });
        sqlParameters.Add(new SqlParameter("@pageNo", SqlDbType.Int)
{ Value = pageNo });
        sqlParameters.Add(new SqlParameter("@pageSize",
SqlDbType.Int) { Value = pageSize });


        dsResult = db.SelectQuery(sqlQuery, sqlParameters);
```

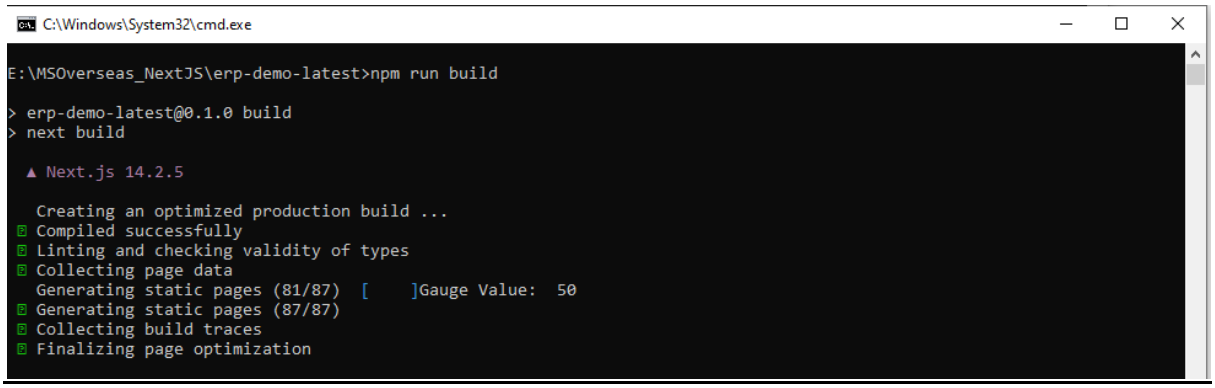
```
        if (db.Status != Utils.DBResponseStatus.success)
            throw new Exception("Repository# " + db.Message);
    }
    catch (Exception ex)
    {
        throw new Exception("Repository# " + ex.Message);
    }

    return await Task.FromResult<DataSet>(dsResult);
}

    }
}
```

THE BACKEND TSX FILE..



5.4 COMMAND RUNNING:

FRONTEND-REACT RUN:

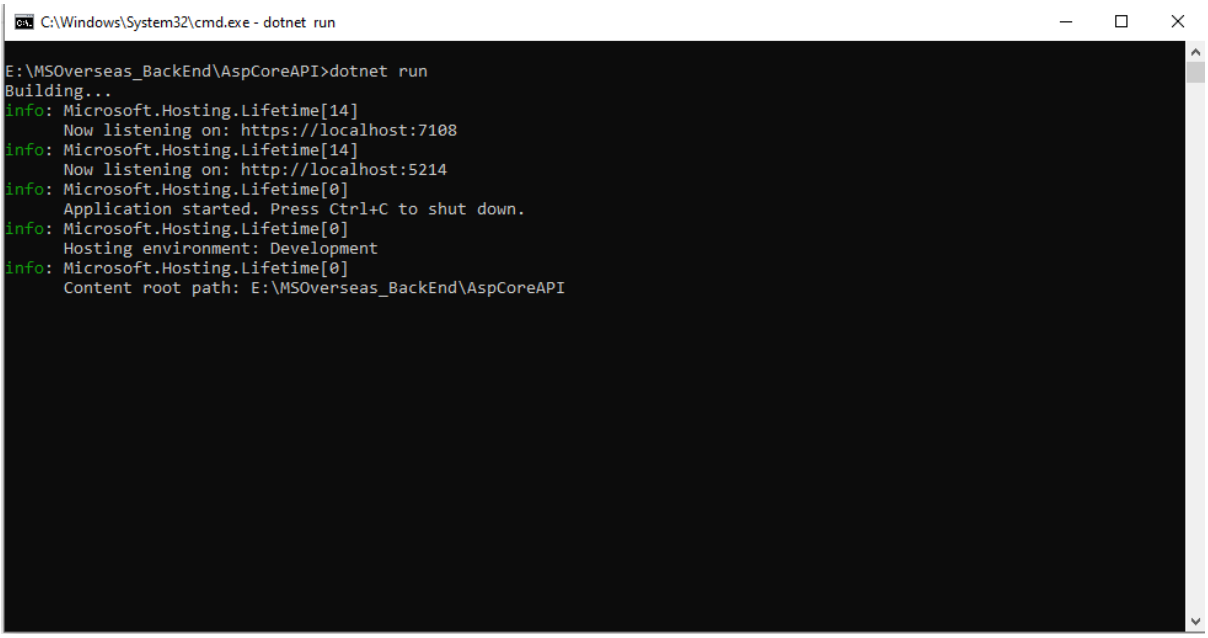


Npm run dev

When a React web page loads, the browser first fetches the necessary HTML, CSS, and JavaScript files. The HTML file typically contains a root div element (often with an ID like root) where the React application will be mounted. React's JavaScript code is then executed, starting with the entry point (usually an index.js or App.js file). React uses a virtual DOM (a lightweight copy of the actual DOM) to efficiently manage and update the UI. The initial render begins with the ReactDOM.render() or ReactDOM.createRoot() method, which takes the root React component (often called App) and mounts it into the root div in the HTML.

As the component tree is rendered, React components return JSX, a syntax extension that looks like HTML but is transformed into JavaScript objects representing the UI structure. These objects are then converted into actual DOM elements and displayed in the browser. As users interact with the page, React's state and props system ensures that only the necessary parts of the UI are re-rendered, optimizing performance. This entire process is powered by React's declarative approach, allowing developers to describe what the UI should look like for any given state, and React takes care of updating the DOM to match that state efficiently.

BACKEND RUNNING-ARPCore



dotnet run

ARPcore serves as the backend for your business management system, powering the core functionalities and data processing required to run your application efficiently. When integrated with a React-based frontend, ARPcore handles tasks such as database management, business logic, and API interactions, while React focuses on delivering a dynamic and responsive user interface. ARPcore exposes RESTful APIs or GraphQL endpoints that allow the React frontend to fetch data (e.g., customer information, inventory, sales records) and send user inputs (e.g., adding new entries, updating records). The backend processes these requests, interacts with the database, and returns the appropriate responses, which React then uses to update the UI in real-time.

For example, when a user logs in, React sends a request to ARPcore's authentication endpoint, which verifies credentials and returns a token for secure access. Similarly, when a user views or modifies business data, React communicates with ARPcore's relevant endpoints to retrieve or update the information. This seamless integration ensures that your business management system operates smoothly, with ARPcore managing the heavy lifting on the backend and React providing an intuitive and interactive frontend experience. To deploy the system, ARPcore is hosted on a server or cloud platform, while the React app is built and served via a web server or hosting service, ensuring secure and efficient communication between the two through proper CORS configuration and HTTPS encryption. Together, ARPcore and React create a robust, scalable, and user-friendly business management solution.

CHAPTER-6
RESEARCH FINDINGS

6.1 RESEARCH FINDINGS:

Research findings for a Business Management System (BMS) integrated with a Point of Sale (POS) system highlight the growing importance of unified solutions that streamline operations, enhance efficiency, and improve customer experiences. Modern businesses increasingly rely on integrated BMS and POS systems to automate inventory management, synchronize sales data in real-time, and generate actionable insights through advanced analytics. Key features such as multi-channel support, CRM tools, and flexible payment options are essential for meeting diverse business needs. However, challenges like data security, system downtime, and high initial costs remain significant barriers, particularly for small businesses. Emerging trends, such as AI-powered demand forecasting, mobile POS solutions, and contactless payments, are shaping the future of these systems, while technologies like blockchain and IoT offer new opportunities for enhancing security and operational efficiency.

Case studies demonstrate that businesses using integrated BMS and POS systems experience improved efficiency, better decision-making, and increased customer satisfaction. For your project, focusing on user-friendly design, robust security measures, and cloud-based scalability will be critical to developing a solution that addresses current industry demands and leverages cutting-edge innovations.

Integrated Business Management Systems (BMS) and Point of Sale (POS) systems are essential for modern businesses, offering streamlined operations, real-time data synchronization, and enhanced customer experiences. Key features like inventory management, sales analytics, and multi-channel support drive efficiency, while challenges such as data security and high costs persist. Emerging trends, including AI, mobile POS, and contactless payments, are transforming the industry, with technologies like blockchain and IoT paving the way for future advancements. Businesses using integrated systems report improved efficiency, better decision-making, and higher customer satisfaction. For your project, prioritizing user-friendly design, robust security, and scalability will ensure a competitive and innovative solution.

6.2 RESULT ANALYSIS & EVALUATION METRICS:

The analysis of the leather goods market provides valuable insights for developing a web-based business management system tailored to this industry. The data indicates that the Asia-Pacific (APAC) region holds the largest revenue share, with significant growth expected in North America. This suggests that the system should support multi-regional operations, including localization features for different languages and currencies. The dominance of the footwear segment highlights the need for robust inventory management and sales tracking capabilities specific to this product category.

The projected market growth from USD 297.25 billion in 2023 to a similar figure by 2030, with variations across regions, underscores the importance of scalability in the business management system. The system should be capable of handling increasing data volumes and user loads, particularly in high-growth regions like North America. Additionally, the breakdown by type (genuine, synthetic, vegan) indicates the necessity for detailed product categorization and tracking to cater to diverse consumer preferences.

The above picture shows the graph of leather sales..

Evaluation metrics for the system should include performance benchmarks for handling large datasets, user satisfaction scores for ease of use, and efficiency metrics for inventory and sales management. Security features should also be a priority, given the financial data involved. By aligning the system's features with these market insights, businesses can optimize their operations and capitalize on regional growth opportunities. The system should integrate advanced analytics to provide insights into market trends and consumer preferences, enabling businesses to make data-driven decisions. Real-time inventory tracking and automated reordering can help manage the high demand in the footwear segment. Multi-language and multi-currency support will be essential for catering to the diverse APAC and North American markets. Additionally, incorporating sustainable practices and vegan product tracking can align with growing consumer awareness and preferences.

CHAPTER-7

CONCLUSION AND FUTURE WORK

7.1 CONCLUSION:

In conclusion, the development of a Business Management System (BMS) tailored to the leather goods industry offers a comprehensive solution to streamline operations, enhance efficiency, and support growth in a competitive market. By integrating features such as real-time inventory management, multi-regional support, and advanced analytics, the system addresses the unique needs of businesses operating in high-growth regions like APAC and North America. The inclusion of detailed product categorization, secure payment processing, and sustainability tracking aligns with evolving consumer preferences and industry trends. This BMS not only optimizes day-to-day operations but also empowers businesses to make data-driven decisions, ensuring long-term success and scalability in the dynamic leather goods market.

7.2 FUTER WORK :

Future work on the Business Management System (BMS) project will focus on enhancing its capabilities to adapt to emerging technologies and evolving market demands. Key areas of development include integrating artificial intelligence (AI) and machine learning (ML) for predictive analytics, enabling businesses to forecast trends, optimize inventory, and personalize customer experiences. Additionally, expanding the system's compatibility with Internet of Things (IoT) devices, such as smart shelves and automated stock tracking, will further streamline operations. Efforts will also be made to incorporate blockchain technology for enhanced data security and transparency in transactions..

Future work on the Business Management System (BMS) project will focus on several key areas to enhance its functionality, scalability, and adaptability to emerging trends. First, integrating **Artificial Intelligence (AI)** and **Machine Learning (ML)** capabilities will enable advanced predictive analytics, such as demand forecasting, inventory optimization, and personalized customer recommendations. Second, expanding **IoT (Internet of Things)** integration will allow real-time tracking of inventory, equipment, and supply chain activities, improving operational efficiency. Third, incorporating **blockchain technology** will enhance data security, transparency, and traceability, particularly for transactions and supply chain management.Additionally, the system will be optimized for **mobile platforms** to support on-the-go access and management, catering to the growing need for remote work and real-time decision-making. Future updates will also focus on **sustainability features**, such as carbon footprint tracking and eco-friendly product management, aligning with global environmental trends. Lastly, continuous user feedback will drive improvements in **user experience (UX)** and **accessibility**, ensuring the system remains intuitive and inclusive for all users. These advancements will ensure the BMS evolves as a cutting-edge, future-ready solution for modern business management.

CHAPTER-8

REFRENCES

Here are some **references** for your project on a Business Management System (BMS). These sources cover key aspects such as system design, integration, trends, and case studies:

1. Books

- **"Business Intelligence Guidebook: From Data Integration to Analytics"** by Rick Sherman
  - Focuses on data integration and analytics for business systems.
- **"Enterprise Resource Planning: Concepts and Practice"** by Vinod Kumar Garg and N. K. Venkitakrishnan
  - Explores ERP systems, which are closely related to BMS.
- **"Designing Data-Intensive Applications"** by Martin Kleppmann
  - Discusses scalable and efficient data management systems.

2. Research Papers

- **"A Framework for Business Management Systems in SMEs"**
  - Available on platforms like IEEE Xplore or ResearchGate.
- **"Integration of IoT and AI in Business Management Systems"**
  - Explores the role of emerging technologies in modern BMS.
- **"Blockchain for Secure Business Transactions"**
  - Discusses blockchain applications in business systems.

3. Industry Reports

- **Gartner Reports on Business Management Systems**
  - Provides insights into trends and future directions for BMS.
- **McKinsey & Company: "The Future of Business Operations"**
  - Analyzes how technology is transforming business management.
- **Deloitte: "Digital Transformation in Business Management"**
  - Explores the impact of digital tools on business systems.

4. Websites and Articles

- **Forbes: "Top Trends in Business Management Systems"**
  - Articles on the latest trends in BMS.
- **TechCrunch: "How AI is Revolutionizing Business Management"**
  - Discusses AI applications in BMS.
- **Harvard Business Review: "The Role of Analytics in Business Management"**
  - Explores how data analytics is shaping modern business systems.

5. Case Studies

- **"Case Study: Implementing a BMS in a Retail Chain"**
  - Available on platforms like CaseStudy.com.
- **"ERP and BMS Integration in Manufacturing"**
  - Discusses how BMS and ERP systems work together.
- **"Success Stories of Cloud-Based BMS in SMEs"**
  - Highlights the benefits of cloud-based BMS.

6. Standards and Frameworks

- **ISO 9001: Quality Management Systems**
  - Provides guidelines for implementing effective business systems.
- **ITIL (Information Technology Infrastructure Library)**
  - Offers best practices for integrating IT services into business systems.

7. Tools and Technologies

- **Microsoft Dynamics 365**
  - A leading BMS platform with case studies and documentation.
- **SAP Business One**
  - A popular BMS solution for SMEs.
- **Odoo**
  - An open-source BMS platform with extensive resources.

8. Academic Journals

- **Journal of Business Management**
  - Publishes research on BMS design and implementation.
- **International Journal of Information Management**
  - Focuses on the role of information systems in business management.