



# Comprehensive Project at E Connect Solutions Pvt. Ltd.

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# Revamping RAJ-SIMS Portal for Optimised Supply Chain Management

- Inefficiencies in Procurement and Inventory Management
- Lack of Transparency
- Scalability and Performance Issues
- Scalability and Performance Constraints

# Outline

- About Company
- Motivation
- Objective
- Literature Review
- Implementation Methodology
- Results
- Future Scope of Work
- Conclusion
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# About Company

E Connect Solutions Private Ltd. founded in 1991, provides comprehensive end-to-end business and IT solutions that enhance customers' business operations. It has over 30 years of experience and continue it's commitment to provide innovative solutions that leverage the best business & IT thinking for their customers in India and around the globe.

It has competency in large IT Infrastructure projects specializing in technologies like Oracle/DB2/MS SQL/My SQL .NET, JAVA and JAVA Mobile Framework. It has experience in multiple domains and diversified business verticals with large stack of e-governance and corporate solutions. It has qualified and certified manpower of around 500+ employees and have optimized business processes with quality certificates namely CMMI L5, ISO 9001:2015, ISO 27001:2013, ISO 14001:2015 and ISO 20000-1:2011.

Website

<http://www.e-connectsolutions.com>

Industry

IT Services and IT Consulting 501-1,000 employees

Specialties

E-Governance, E-Business, IT Outsourcing, and System Integration



# Motivation for the Project

- **Complex Ecosystem:** Involves 79+ departments and 23+ sectors, including public sector enterprises.
- **Procurement Dynamics:** Impacting both internal stakeholders & citizens.
  -
- **Scheme Rollouts:** Necessitating efficient distribution of items/products.
- **Collaborative Networks:** Both internal & external, is crucial for effective service delivery.
- **Holistic Solution:** Procurement, distribution, and collaboration management.
- **Digital Transformation:** Enhancing operational efficiency & facilitating transparent governance.
- **Alignment with State Goals:** State's vision for improved service delivery & resource management.



# Objective of the Project

- Addressed Supply Chain Challenges
- Addressed Client Requests for Portal Enhancements
- Enhanced User Experience
- Ensured Backend and Frontend Integration
- Facilitated Efficient Ticket Resolution

# Literature Review

## **Optimized Supply Chain Management:**

- AI and Machine Learning:
  - Analyze data, predict demand, reduce costs.
  - Streamline procurement, optimize inventory, enhance visibility.
  - Proactive risk management and improved resilience.
- Blockchain Technology:
  - Ensure transparency with immutable records.
  - Mitigate risks like counterfeit goods and fraud.
  - Enhance collaboration and information sharing.

## **UI/UX Design in Supply Chain Management:**

- Importance of UI/UX Design:
  - Enhance usability and satisfaction with user-centric design.
  - Improve interactions with intuitive, responsive interfaces.
- Industry Case Studies:
  - Boost operational efficiency and user engagement.
  - Enhance user experience with personalized recommendations.
  - Facilitate decision-making with data visualization.



# Case Studies of Enterprises

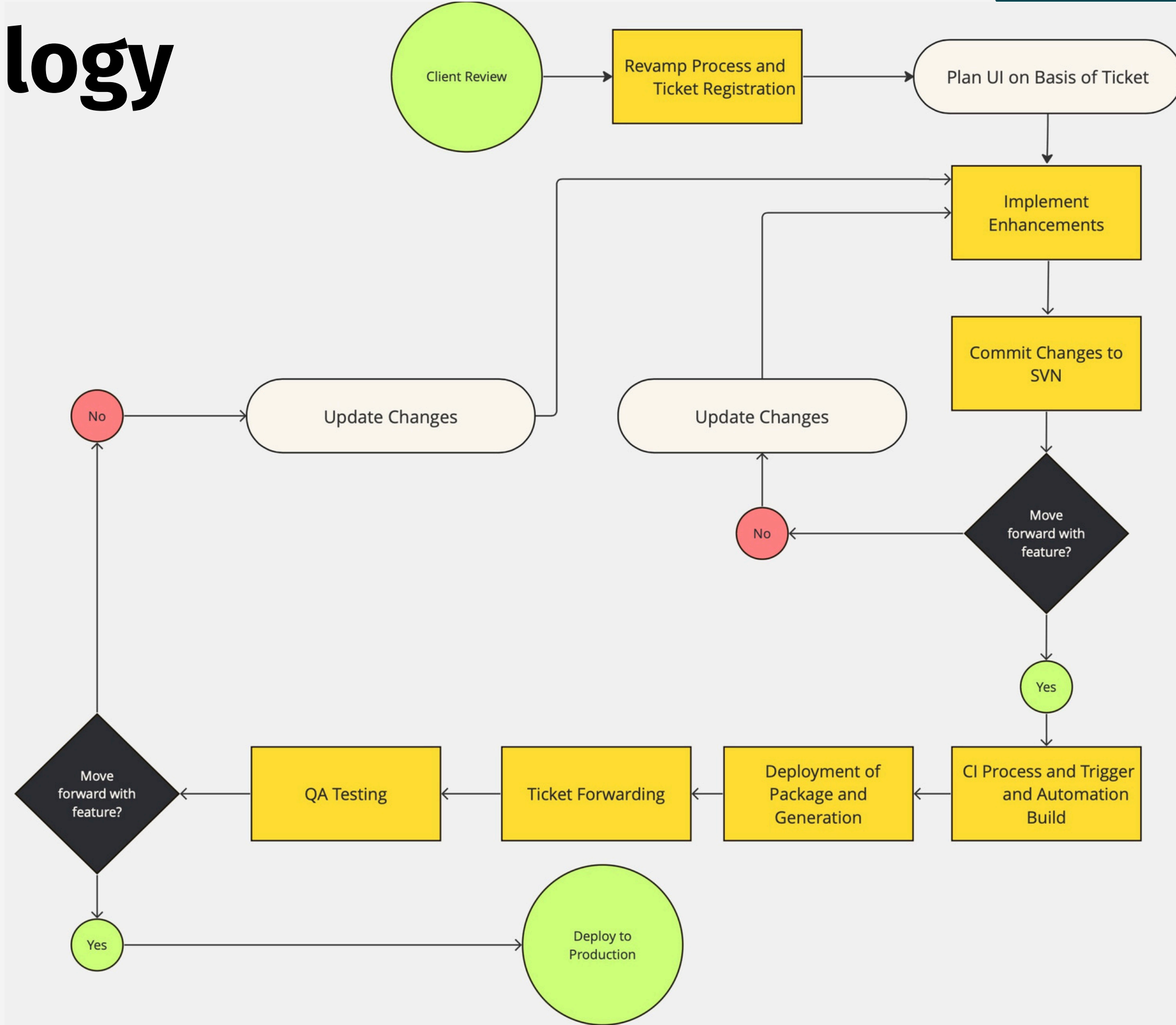
Case Study	Description	Impact
Amazon	<ul style="list-style-type: none"><li>Optimizes inventory levels and minimizes lead times through AI-driven predictive analytics and robotic automation.</li><li>Its user-centric interfaces foster unparalleled user engagement and loyalty.</li></ul>	Innovative supply chain strategies have revolutionized e-commerce, setting new benchmarks for efficiency and customer satisfaction.
FedEx	<ul style="list-style-type: none"><li>Ensures end-to-end visibility of shipments using blockchain technology and IoT-enabled sensors.</li><li>This comprehensive approach enhances trust and reinforces FedEx's reputation as a reliable logistics partner.</li></ul>	Adoption of blockchain and IoT technologies has revolutionized supply chain management, delivering tangible benefits in transparency, security, and efficiency.
Walmart	<ul style="list-style-type: none"><li>Employs AI and data analytics to optimize inventory management and streamline operations.</li><li>Coupled with user-centric UI/UX design principles, its supply chain initiatives enhance operational agility and customer satisfaction.</li></ul>	Strategic investments in AI and data analytics have yielded significant improvements in supply chain efficiency, cost savings, and customer satisfaction, solidifying its position as a market leader in retail.
Alibaba	<ul style="list-style-type: none"><li>Optimizes inventory management and logistics operations using AI and big data analytics.</li><li>Its user-friendly interfaces prioritize seamless navigation, contributing to higher user engagement and loyalty.</li></ul>	Innovative supply chain strategies underscore the transformative potential of advanced technologies, resulting in reduced operating costs, enhanced customer satisfaction, and sustainable growth.
Maersk	<ul style="list-style-type: none"><li>Enhances transparency and traceability in its supply chain network using blockchain technology.</li><li>Its user-friendly interfaces provide stakeholders with real-time visibility into shipment status and logistics operations.</li></ul>	Maersk's adoption of blockchain technology has fostered trust and transparency across its ecosystem, driving operational efficiency, cost savings, and customer satisfaction in the global shipping industry.



Technology	Description	Use in Project	Version
Oracle 19c	Robust database management system offering high availability, security, and scalability for centralized data governance.	Database Management	19c
.NET Core	Versatile framework for building scalable and secure backend services, APIs, and business logic.	Backend Development	3.1.32
React.js	Component-based JavaScript library for building modern and responsive user interfaces.	Frontend Development	18.1.0
Oracle Cloud	Comprehensive cloud infrastructure for hosting databases, storage, and compute resources, ensuring scalability and reliability.	Cloud Infrastructure	-
SVN (Apache Subversion)	Centralized version control system known for its simplicity and reliability, facilitating collaborative development and code management.	Version Control	1.14.7
Jenkins	Automation server for continuous integration and continuous deployment, streamlining software development processes and improving deployment reliability.	CI/CD	2.440

# Tools & Technology Used

# Implementation Methodology



**User Workflow**

Software Engineering System 2.0										
Ticket No. : RSIMS002026		Status : Open		Sub Phase Completed : Design/ Impact Analysis						
7	Test Case Preparation	-	-	-	0					
8	Test Case Review	-	-	-	0					
9	Test Case Execution	08-May-2024	08-May-2024	1						
10	Bug Fixing	-	-	0						
11	Bug Verification	-	-	0						
12	Internal Release	-	-	0						
13	UAT	-	-	0						
14	Customer Meeting	-	-	0						
15	Internal Operations Meeting	-	-	0						
16	Project Support/ Troubleshooting	-	-	0						
17	Customer Support	-	-	0						
Action History										
#	Date	Action By	Action To	Action	Status	Moderation	Fixing	Testing	Accept	Remarks
1	01/05/2024 17:34:18	Sakshi Swarnkar	-	Register	Open	Under Evaluation	-	-	-	
2	01/05/2024 17:34:53	Sakshi Swarnkar	Divya Tanwar	Assign	Open	Evaluated	In Progress	-	-	
3	08/05/2024 09:39:48	Divya Tanwar	Raunak Bhanawat	Forward	Open	Evaluated	In Progress	-	-	done
4	08/05/2024 10:52:07	Raunak Bhanawat	Sakshi Swarnkar	Fix & Test Release	Open	Evaluated	Fixed	In Verification	-	please check after Dev Update.

The screenshot displays the RAJ-SIMS application interface. A modal dialog titled "DI Locations" is open in the center, showing a table with two rows: "dummy" with a quantity of 1, and "Head Office" with a quantity of 9. An "Ok" button is visible at the bottom right of the dialog. The background interface includes a left sidebar with navigation options like "Inventory Declaration", "Stock Conversion", "Annual Purchase Dem...", "Material Indent", "Configuration", and "Purchase Process". The main area shows the "Purchase Process" section with a table of purchase orders and a "Product Detail" section below it.

Location	Quantity
dummy	1
Head Office	9

S.No	DI No	DI Date	UOM	Quantity	Dispatch Quantity	Deliver Within (Days)	Actions
1	RISL/ODS/0000012/DI/23-24/8	21-FEB-2024	Stayfree Number		10	10	10

**Product Detail**

Product Selection \*      Select \*

Select      Select      **Search**

S.No.	Product Name	Packing	HSN Code	GST Rate (in%)	Est. Purchase Rate	Required Qty.	Purchase Value (
	<input type="text" value="Search by Product Name"/>						

2024 @ DOITC      Designed and Developed by...

Action	Path	Mime type
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\sales\private-book-sale.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\sales\sale-invoice-add-edit.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\sales\sale-product-info-table.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\sales\bhandar-sale.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\sales\cash-sale-add-edit.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\sales\product-information.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\sales\private-sale-product-info.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\sales\sale-invoice-list.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\sales\distribution-product-info.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\sales\distribution-add-edit.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\sales\distribution-janadhar.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\sales\print-citizen-4by.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\sales\print-citizen_new.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\sales\print-pensioner.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\sales\print-bhandar-bhandar.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\... \print-bhandar_bhandar_new.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\sales\print-citizen.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\sales\print-department-4by.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\sales\print-department-sale.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\... \print-department-sale_new.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\sales\print-rghs-rghs-holder.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\m... \print-saleinvoice-rghs-rghs-holder-4by...	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\... \print-saleinvoice-rghs-rghs-holder.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\m... \print-saleinvoice-rghs-rghs-holder_new.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\... \free-distribution-challan-add-ed...	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\... \distribution-product-info-janadha...	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\... \parchayat-demand-entry-add-ed.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\... \free-distribution-challan-list.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\reports\stock-report-date-wise.js	
Added	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\... \supply-receive-cant-report...	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\... \indm-consumption-format2-report.js	
Added	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\mod... \indm-consumption2-no-school-report.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\m... \indm-consumption-hierarchy-format2-report...	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\modules\DM\... \distribution-no-based-report.js	
Updated	E:\Projects\RAJ-SMS\branches\dev\src\WebApps\EConnect.Core.RajSms.WebApp.ReactJS\src\m... \horizon-stock-entry-monitoring-report.js	

## ➤ Detailed Action History of Ticket Raised

# Implement Revamps based on the raised Ticket

# Commit Changes to SVN

# RESULTS

## UI Improvements:

- Utilized Material-UI to revamp the interface, making it more intuitive & user-friendly.
- Improved navigation, leading to higher user satisfaction & productivity.

## Data Visualization:

- Introduced dynamic dashboards & interactive reporting mechanisms.
- Facilitated real-time insights into supply chain operations, aiding prompt & informed decision making processes.

## Database Optimization:

- Optimized the database infrastructure to expedite data retrieval & processing.
- Ensured faster access to critical information, reduced wait times, & enhanced user productivity across departments.

## Security Enhancements:

- Implemented role-based access control to protect sensitive data.
- Ensured that only authorized personnel have access to specific information.

## Centralized Monitoring:

- Provided users with greater visibility and control over supply chain operations.
- Enabled tracking of key performance indicators and generation of customized reports, enhancing accountability & transparency.

## Specific Complex Ticket Updates:

- Implemented decimal logic to restrict input to specific or limited numbers after the decimal point based on maximum decimal places.
- For maximum decimal places set to 0, the system prohibits the entry of decimal values altogether.



# Detailed Ticket Statistics

## Front-End Tickets:

- Implemented new design elements to improve user experience.
- Enhanced form validation mechanisms for accurate data entry.
- Integrated Material-UI components for a modern and intuitive interface.

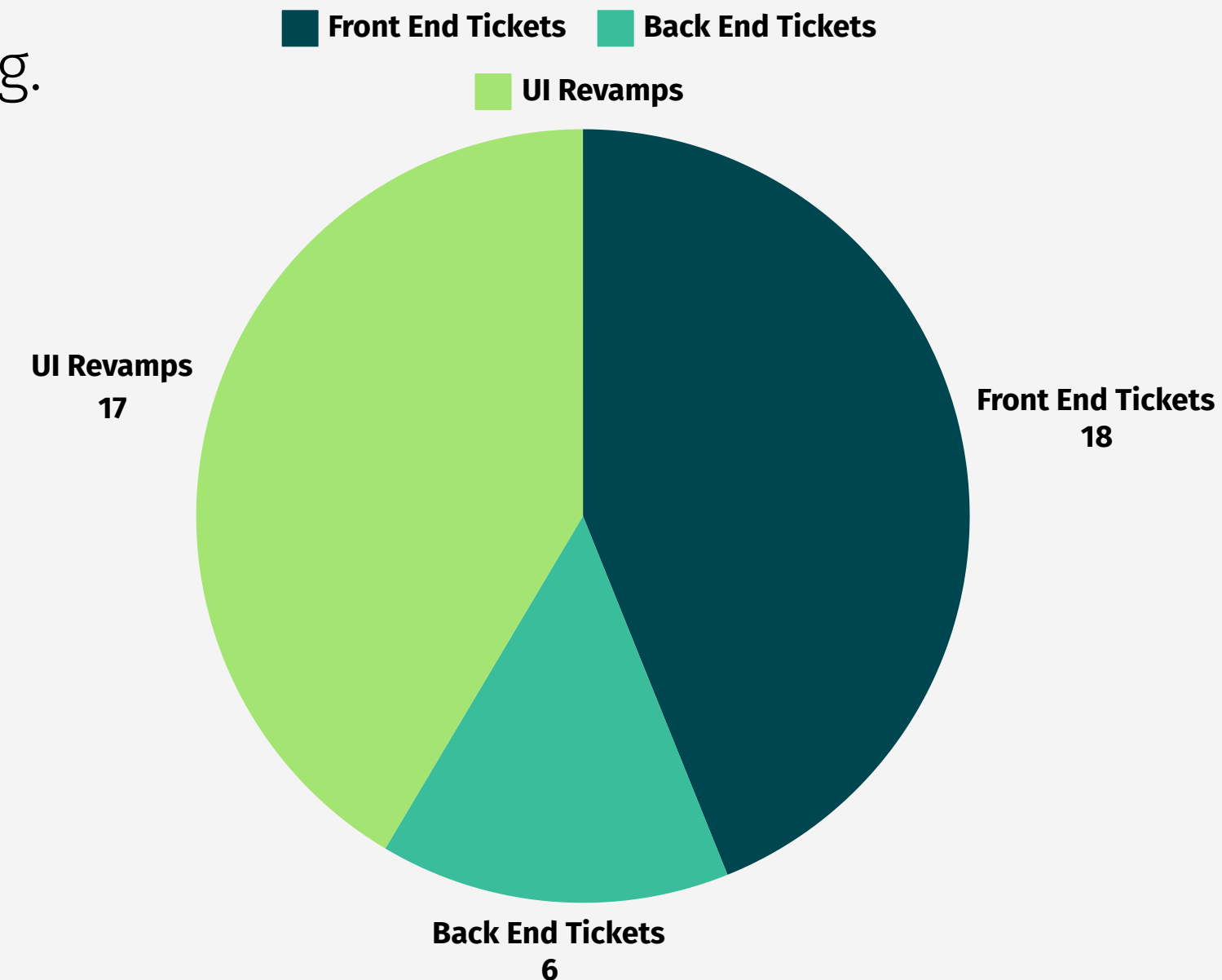
## UI Revamps:

- Overhauled existing UI components for consistency and better user interaction.
- Improved accessibility features to ensure the platform is user-friendly for all.
- Conducted extensive user testing and incorporated feedback for continuous improvement.

## Back-End Tickets:

- Improved business logic for better data processing.
- Optimized database queries to enhance performance and speed.
- Implemented new backend features to support advanced functionalities.

**40 + Tickets Resolved  
( Till 17th May, 2024 )**



IM

Search in menu

Inventory Declaration

Stock Conversion

Annual Purchase Dem...

Material Indent

Configuration

Purchase Process

Supply Challan Agains...

Vendor Empanelment ...

Purchase Order

Dispatch Instructions

Dispatch Instructions

Purchase Invoice

Payment Advice

Invoice Against Challan

RAJ-SIMS

[Download User Manual](#)

Home

Create Purchase Order

RISL / Departmental Scheme / Office / Head Office

Vendor

PAN NO.

GSTIN

Contact No.

Email

Address

DI Detail

S.No	DI No	DI Date	Product (Product Group) - UOM	PO Order Quantity	Dispatch Quantity	Deliver Within (Days)	Actions	Locations
1	RISL/ODS/0000012/DI/23-24/8	21-FEB-2024	Stayfree Number		10	10	10	<a href="#">View</a>

Product Detail

Product Selection \*

Select \*

Search

S.No.	Product Name	Packing	HSN Code	GST Rate (In%)	Est. Purchase Rate	Required Qty.	Purchase Value
1	<input checked="" type="checkbox"/> Stayfree - Number	1 * 10	1234567	15	50	9	50

DecimalInput.js

```
src > DecimalInput.js > ...
1 import React, { useState } from 'react';
2
3 function DecimalInput() {
4   const [inputValue, setInputValue] = useState('');
5   const maxDecimalPlaces = 0;
6
7   function handleChange(event) {
8     let currentValue = event.target.value; // current input value
9     const decimalIndex = currentValue.indexOf('.'); // Position of the decimal
10
11     // If maxDecimalPlaces is not provided or less than 0, set it to 0
12     const allowedDecimalPlaces = decimalIndex !== -1 ? currentValue.substring(decimalIndex + 1).length : 0;
13
14     // Input value contains only numbers and at most maxDecimalPlaces decimal places
15     let isValid = !isNaN(parseFloat(currentValue)) && allowedDecimalPlaces <= maxDecimalPlaces;
16
17     // Check if the input value already contains a decimal point
18     const containsDecimalPoint = currentValue.includes('.');
19
20     // Prevent multiple decimal points
21     if (containsDecimalPoint && event.key === '.') {
22       event.preventDefault();
23       return;
24     }
25
26     // Prevent decimal point if maxDecimalPlaces is 0
27     if (maxDecimalPlaces === 0 && event.key === '.') {
28       event.preventDefault();
29       return;
30     }
31
32     if (isValid || currentValue === '') {
33       // Update the state variable with the new input value
34       setInputValue(currentValue);
35     } else {
36       // Validation fails
37       event.target.value = inputValue;
38     }
39
40     // Add decimal point if not present and if input is valid
41     if (!containsDecimalPoint && event.key === '.' && isValid) {
42       setInputValue(currentValue + '.');
43     }
44   }
45 }
```



January 2024	February 2024	March 2024	April 2024	May 2024
<ul style="list-style-type: none"><li>• In the first month, I familiarized myself with the RAJ-SIMS portal, understanding its features and the ticket handling process.</li><li>• I identified key areas for frontend, backend, and UI enhancements, documented requirements, and set up my development environment.</li><li>• I began addressing high-priority tickets involving minor UI adjustments, bug fixes, and simple backend logic improvements.</li></ul>	<ul style="list-style-type: none"><li>• I enhanced the frontend by addressing tickets focused on UI revamps using Material-UI, resulting in a more intuitive interface.</li><li>• I improved form validations and user feedback mechanisms. On the backend, I updated business logic, optimized database queries, and enhanced performance. Frontend changes were integrated with backend updates for seamless functionality.</li><li>• User testing sessions were conducted for the new UI/UX changes, and the feedback collected was used to refine and iterate on these features, ensuring user satisfaction.</li></ul>	<ul style="list-style-type: none"><li>• I developed and implemented advanced features based on raised tickets.</li><li>• I optimized the Oracle 19c database by implementing indexing and query optimization for faster data retrieval.</li><li>• I addressed backend tickets involving complex logic improvements and conducted comprehensive testing for new features and enhancements.</li><li>• Integration testing ensured compatibility with the existing system, and any bugs identified were promptly fixed.</li></ul>	<ul style="list-style-type: none"><li>• Refined and optimized backend and frontend components based on user feedback and additional tickets.</li><li>• Implemented decimal logic for input validations, enhancing data accuracy and input consistency.</li><li>• Made UI adjustments to improve accessibility and ease of use, incorporating user feedback.</li><li>• Continued backend enhancements focused on improving the efficiency of complex queries and data processing routines, ensuring system reliability under increased load.</li></ul>	<ul style="list-style-type: none"><li>• Focused on addressing remaining tickets, making minor adjustments and finishing touches.</li><li>• Ensured UI components were consistent and user-friendly, completed backend logic improvements, and finalized database optimizations.</li><li>• Conducted rigorous testing, including regression testing, to ensure stability.</li><li>• Post-deployment, monitored the system for issues and provided immediate support. Gathered feedback to plan future enhancements and updates.</li></ul>

# Conclusion

- As a front-end developer for the RAJ-SIMS project, I have had the privilege of collaborating with a dedicated team to enhance an already established platform. Our focus has been on addressing client-raised tickets to refine both the user experience and the underlying functionalities. I have successfully implemented UI revamps and feature enhancements that make the application more intuitive and visually appealing across various devices.
- Incorporating AI-driven analytics and blockchain technology has further optimized the supply chain management processes, significantly increasing transparency and efficiency. These technological advancements ensure that the RAJ-SIMS portal continues to evolve and meet the dynamic needs of the Government of Rajasthan, enabling better resource management and service delivery.
- Overall, my contributions have been centered on making the RAJ-SIMS interface more user-friendly and effective, ultimately helping to create a more streamlined and responsive system for all users.

# Future Scope of Work

## **Optimization and Predictive Analytics:**

Enhance database performance for faster data retrieval. Integrate AI for advanced predictive analytics to improve demand forecasting and inventory management.

## **Advanced Features and Security:**

Implement AI-driven tools for automated procurement and inventory tracking. Integrate blockchain for increased transparency and security.

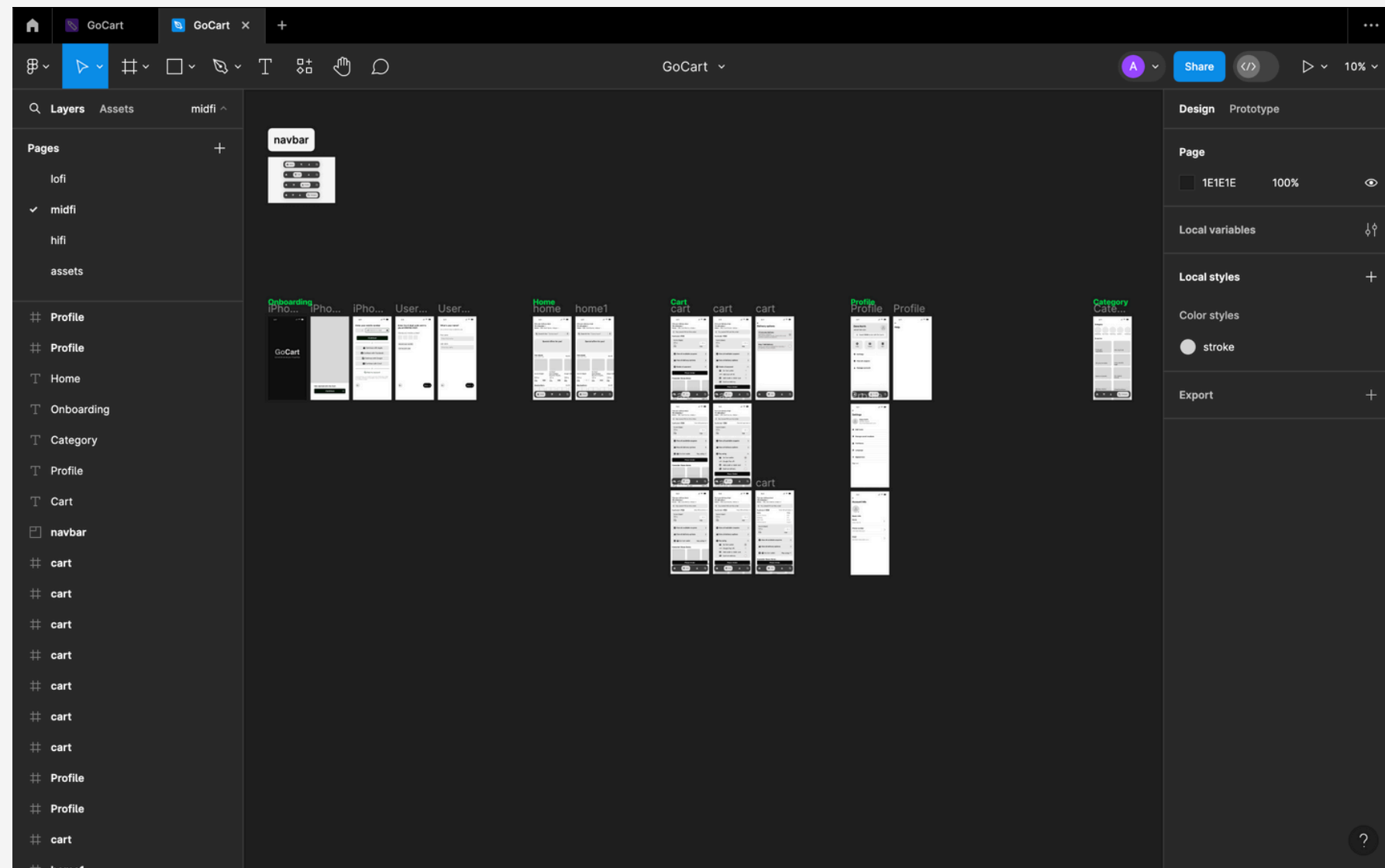
## **User Experience and Continuous Improvement:**

Regularly update UI/UX based on user feedback and trends. Adopt emerging technologies to keep RAJ-SIMS effective and relevant.

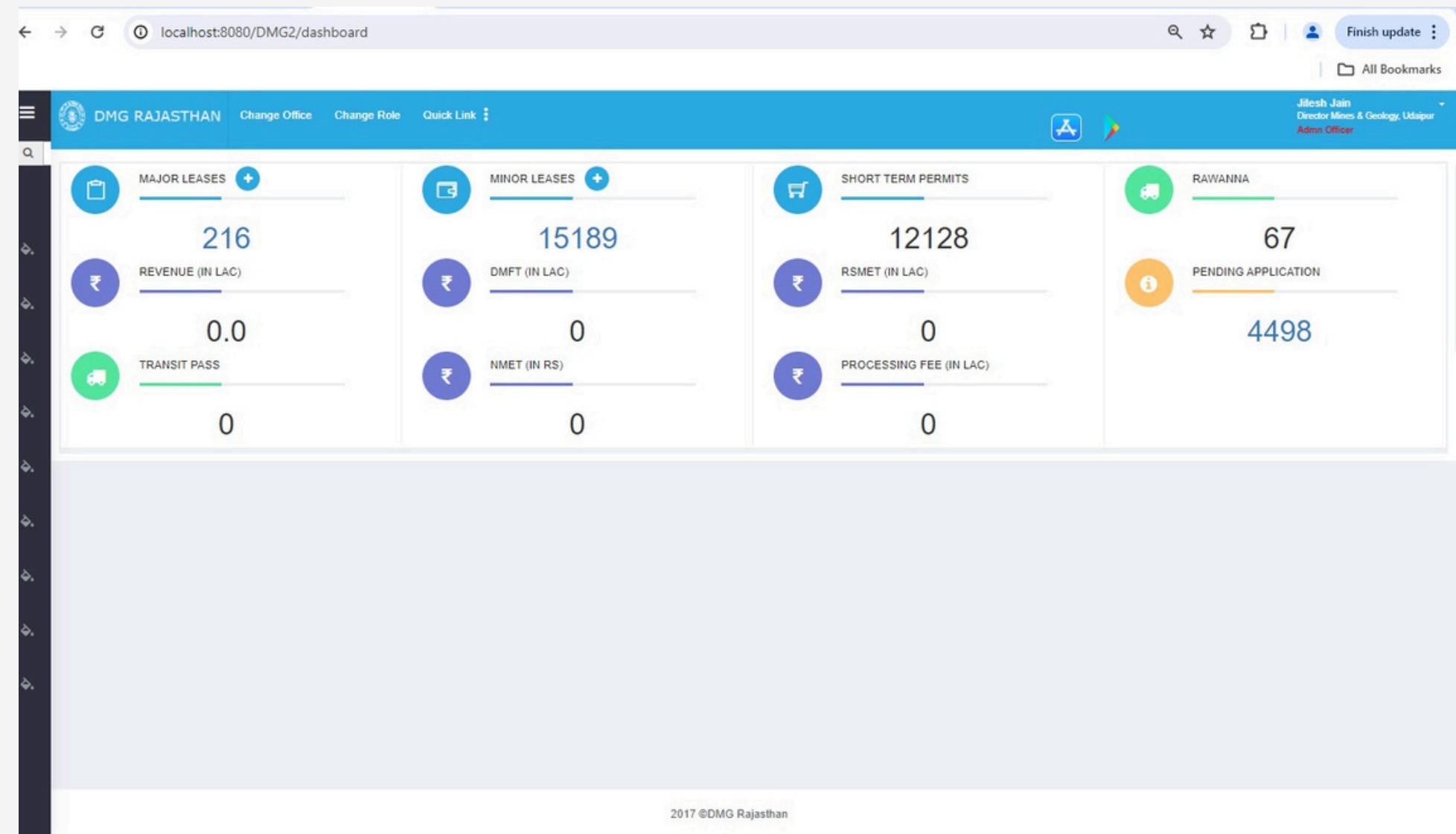
# References

- <https://rajsims.rajasthan.gov.in/>
- <http://103.203.136.20/>
- <https://www.mckinsey.com/capabilities/operations/our-insights/future-proofing-the-supply-chain>
- <https://www.weforum.org/projects/the-future-of-industrial-strategies-initiative/>
- [https://medium.com/@the\\_manifest/amazons-user-experience-a-case-study-fb567f79b51f](https://medium.com/@the_manifest/amazons-user-experience-a-case-study-fb567f79b51f)
- <https://reads.alibaba.com/understanding-the-global-supply-chain-a-comprehensive-guide/>
- <https://www.maersk.com/news/articles/2021/07/27/how-blockchain-technology-is-beefing-up>
- <https://www.forbes.com/sites/stevebanker/2021/04/01/amazon-supply-chain-innovation-continues/?sh=577e9f8877e6>

# Extra Work

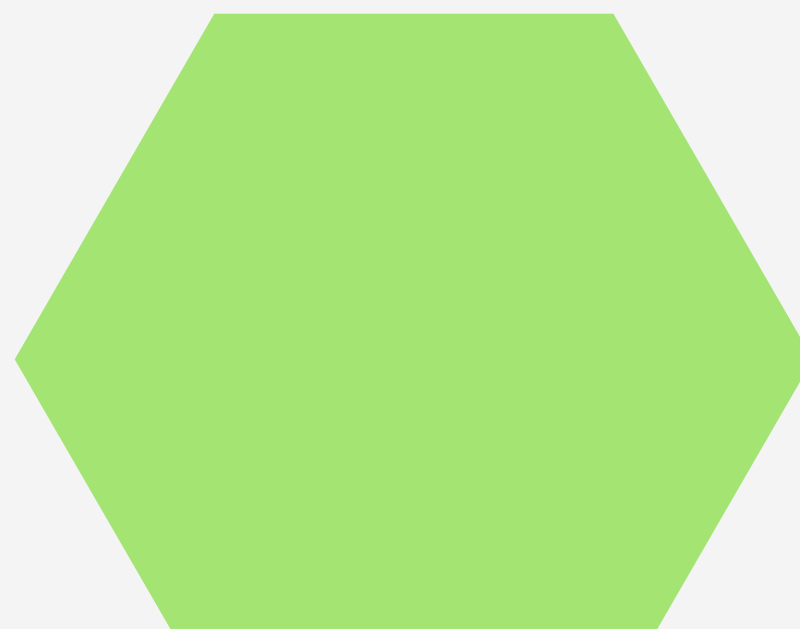


UI/UX Designing of a Product Sharing App



DMG Rajasthan Mining Project

**Thank You !**





# Resource Page

