



# SMARTSHELF – INVENTORY FORECAST & AUTO-RESTOCK

## Team Members :

Varun Namdev

Lavanya Janarthanan

Ravi Aluri

Suraj Thoke

Danisa Subhani

Warle Shreekant



**Mentor :** Suramya Biswas







# Agenda



01

## INTRODUCTION

Gives an overview of the project, explaining its purpose, goals, and the problem it aims to solve.

04

## KEY OUTPUTS

Highlights the major results, reports, or outcomes generated after implementing the system successfully.

02

## TEHCNOLOGY STACK

Contains the technologies, tools, and frameworks used in developing and implementing the entire application.

05

## FUTURE ENHANCEMENTS

Mentions the possible improvements, additional features, or upgrades planned for future versions of the project.

03

## IMPLEMENTED MODULES

Describes the main modules or components that have been developed and integrated within the system.

06

## CONLUSION

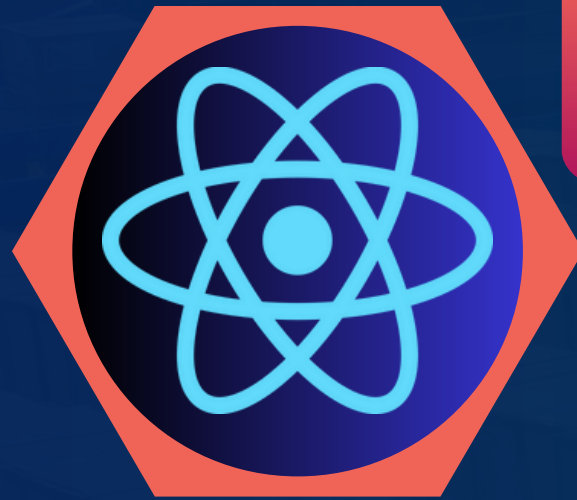
Summarizes the overall work, key learnings, and effectiveness of the project in achieving its objectives.



# INTRODUCTION

- 01 SmartShelfX is an inventory management system designed to automate stock monitoring and restocking.
- 02 It uses Stock keeping unit (SKU)-based tracking to manage and analyze all product details efficiently.
- 03 The system provides real-time analytics for both single products and the entire inventory.
- 04 Transaction In and Transaction Out history is maintained for complete stock movement transparency.
- 05 Users can add, view, issue, update, and delete products or Stock keeping unit easily
- 06 Role-based dashboards are available for Admin, Manager, and Vendor for better control and visibility.
- 07 The platform aims to reduce manual workload and optimize inventory operations using intelligent insights.





**React JS**



**Spring Security**



**Java Spring Boot**

**RDBMS  
MySQL 8**



**VS Code  
IDE**



**Eclipse  
IDE**



## Technology Overview



**Chart JS**



**Spring data  
JPA**





# IMPLEMENTED MODULES

## USER AND ROLE MANAGEMENT

- User Registration & Login
- Role-based Access Control
- Password Encryption
- Admin Controls

## USER AND ROLE MANAGEMENT

- Add Products and View Product List
- Update & Delete Products
- Purchase & Issue Operations
- Stock Monitoring
- Unique Identifiers Product ID & SKU ID

## STOCK IN AND STOCK OUT

- Stock In (Purchase Entry)
- Stock Out (Issue Entry)
- Reorder Level Check:
- Transaction History:

## SKU MANAGEMENT

- Unique SKU Id Generation
- Quick Search & Filtering
- Error Prevention
- Product Identification:

## ALERTS AND NOTIFICATIONS

- Low Stock Alerts
- Reorder Notifications
- Purchase/Issue Confirmation Alerts
- Error & Warning Messages

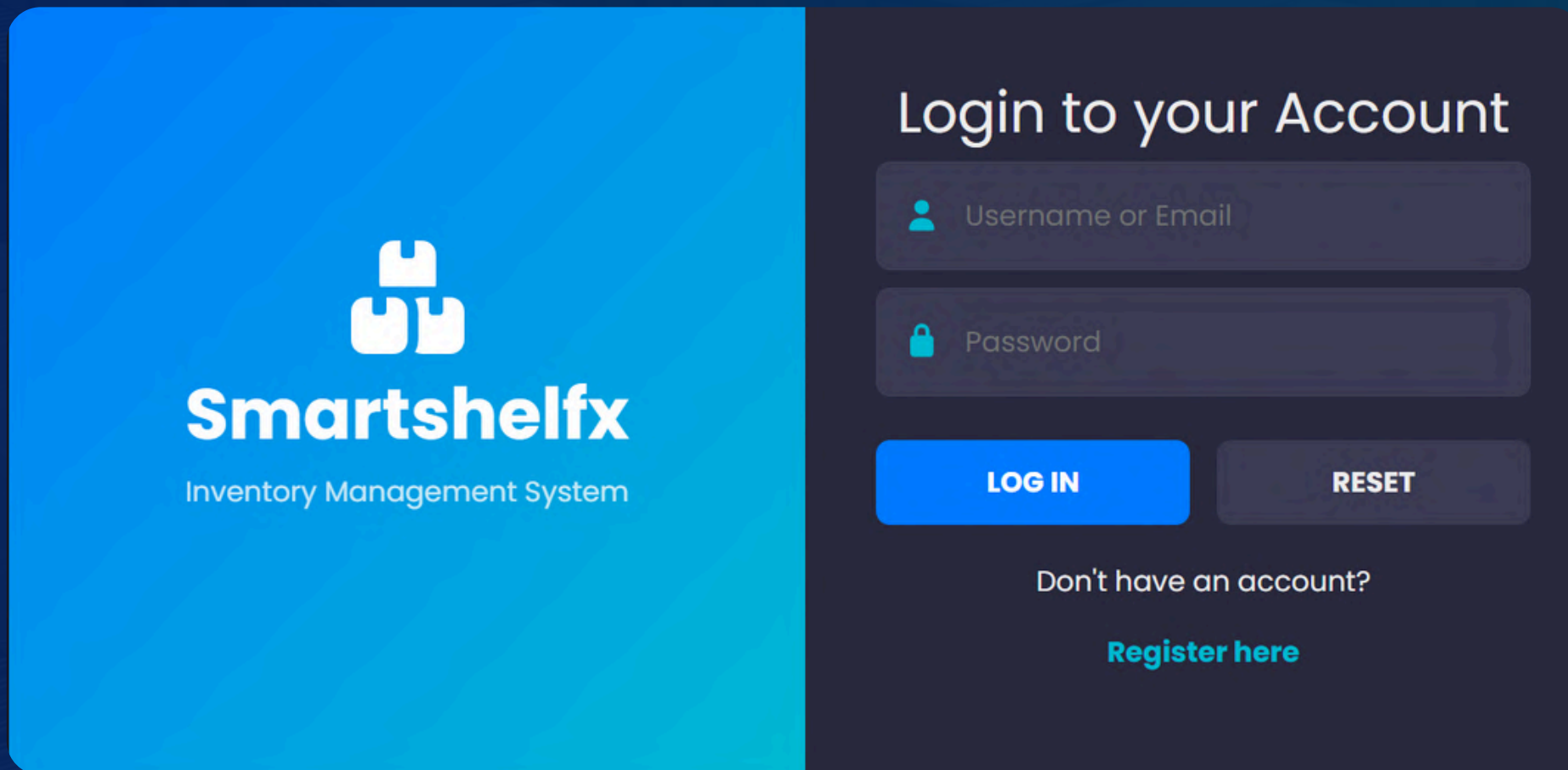
## ANALYTICS DASHBOARD & REPORTS

- Real-time Updates
- Graphical Reports
- Overall Analytics Dashboard
- Single Product Analytics





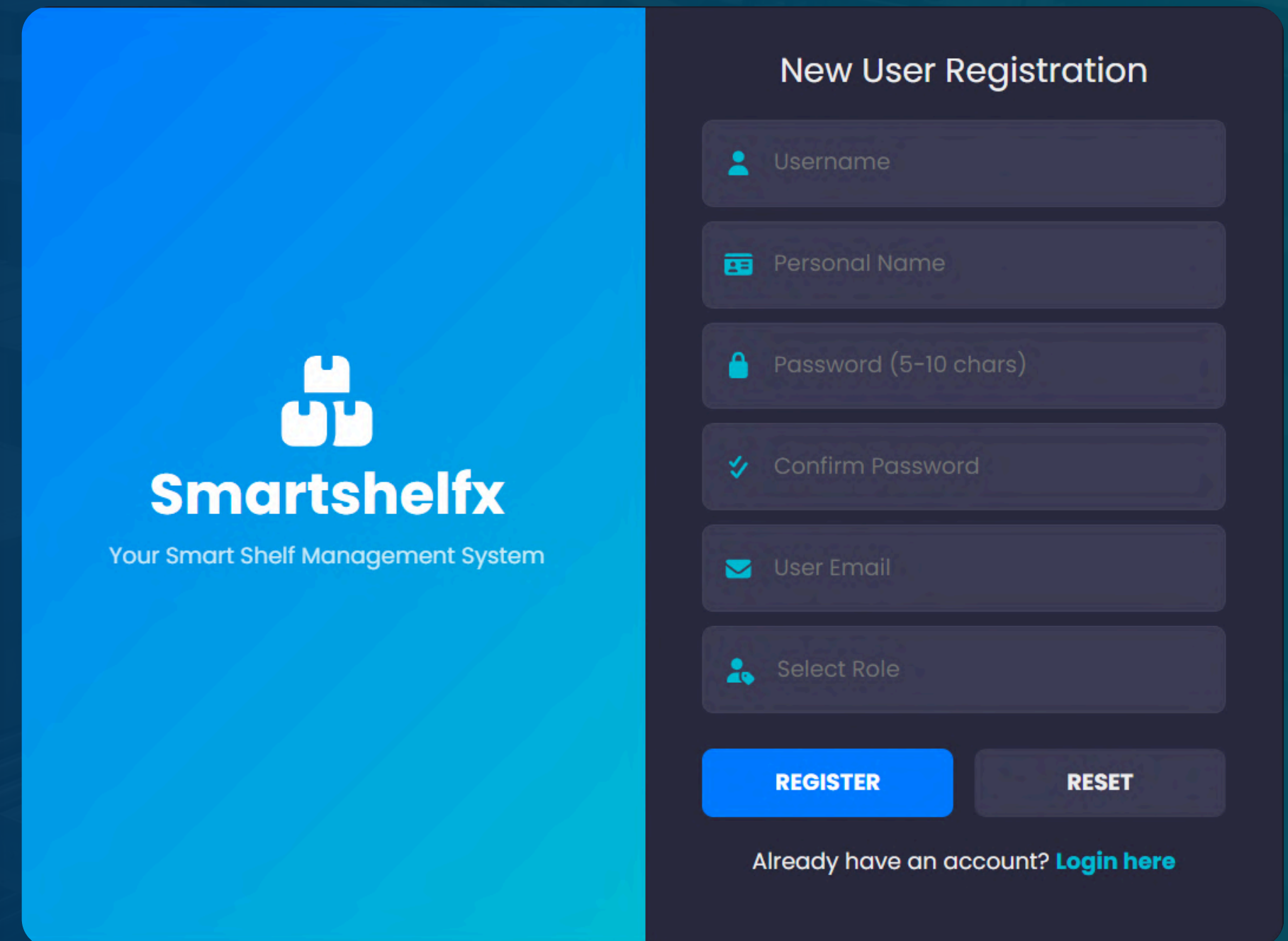
# Key Outputs



The login page features a blue sidebar with the Smartshelfx logo and tagline. The main content area is dark grey and contains a 'Login to your Account' form with fields for 'Username or Email' and 'Password', a 'LOG IN' button, a 'RESET' button, and a link to 'Register here'.

## LOGIN PAGE:

Provides a secure login interface where users can access the system using valid credentials. Ensures role-based authentication for different user types.



The registration page features a blue sidebar with the Smartshelfx logo and tagline. The main content area is dark grey and contains a 'New User Registration' form with fields for 'Username', 'Personal Name', 'Password (5-10 chars)', 'Confirm Password', 'User Email', and 'Select Role'. It includes 'REGISTER' and 'RESET' buttons, and a link to 'Login here' for existing users.

## NEW USER REGISTRATION:

Allows creation of new accounts by collecting essential user details such as name, email, password, and role. Ensures smooth onboarding for new users.



## New SKU Addition

SKU ID:

skuld

SKU Description:

Submit

Reset

Return

## SKU List

SKU Id	Description	Update SKU	Delete SKU
BVG-BIS-MAR-200G	Marie Gold Biscuits 200g	<button>Update</button>	<button>Delete</button>
BVG-NES-COF-100G	Nescafe Instant Coffee 100g	<button>Update</button>	<button>Delete</button>
BVG-TET-TEA-250G	Tata Tea Premium 250g	<button>Update</button>	<button>Delete</button>
CK-SPICE-HIMAL-PINK-200G	Himalayan Pink Salt - Fine Grain 200g	<button>Update</button>	<button>Delete</button>
DAL-MOO-GRN-1KG	Moong Dal (Green Gram) 1KG	<button>Update</button>	<button>Delete</button>
DAL-TOO-RED-1KG	Toor Dal (Red Gram) 1KG	<button>Update</button>	<button>Delete</button>
GHE-AMU-PUR-500ML	Amul Pure Ghee 500ml	<button>Update</button>	<button>Delete</button>
MAI-PIL-FLO-1KG	Pillsbury Maida 1KG	<button>Update</button>	<button>Delete</button>
OIL-FOR-SUN-1L	Fortune Sunflower Oil 1L	<button>Update</button>	<button>Delete</button>

### ADD NEW SKU PAGE:

Allows users to easily add new Stock Keeping Units (SKU) with ID and description, simplifying inventory expansion and data accuracy.

### SKU LIST PAGE:

Displays all available Stock Keeping Units SKUs with options to update or delete, ensuring efficient product tracking and management.





### New Product Addition

Product ID:

P10007

Product Name:

product name

SKU:

Purchase Price:

0

Reorder Level:

0

Stock:

0

Vendor ID:

Submit

Reset

Return

Product List										
Product ID	Product Name	SKU	Purchase Price	Sales Price	Reorder Level	Stock	Vendor ID	Stock Status	Actions	
P10001	Olive Oil	OIL-GOY-EVOO-250ML	180	210	20	236	Jasmine	Permitted to Issue	View	Issue
P10002	Sun Oil	OIL-FOR-SUN-1L	135	155	25	200	Jasmine	Permitted to Issue	View	Issue
P10003	Mustard Oil	OIL-GEM-MUS-1L	140	165	15	180	Jasmine	Permitted to Issue	View	Issue
P10004	Basmati Rice	RCE-BAS-PRE-1KG	85	110	50	153	Jasmine	Permitted to Issue	View	Issue
P10005	Brown Rice	RCE-SOR-BRN-1KG	75	95	40	420	Jasmine	Permitted to Issue	View	Issue
P10006	Wheat	WHT-PAT-FIN-1KG	45	60	30	80	Marigoldi	Permitted to Issue	View	Issue
P10007	Maida	MAI-PIL-FLO-1KG	42	55	30	240	Marigold	Permitted to Issue	View	Issue
P10008	Sugar	SUG-PAR-WHT-1KG	52	65	25	300	Marigold	Permitted to Issue	View	Issue

Product List										
Product ID	Product Name	SKU	Purchase Price	Sales Price	Reorder Level	Stock	Vendor ID	Stock Status	Actions	
P10001	Olive Oil	OIL-GOY-EVOO-250ML	180	210	20	236	Jasmine	Permitted to Issue	View	Issue
P10002	Sun Oil	OIL-FOR-SUN-1L	135	155	25	200	Jasmine	Permitted to Issue	View	Issue
P10003	Mustard Oil	OIL-GEM-MUS-1L	140	165	15	180	Jasmine	Permitted to Issue	View	Issue
P10004	Basmati Rice	RCE-BAS-PRE-1KG	85	110	50	153	Jasmine	Permitted to Issue	View	Issue

NEW PRODUCT ADDITION PAGE:

Allows seamless entry of new product data with fields for pricing, stock, reorder level, and vendor, ensuring accurate inventory tracking.

PRODUCT LIST PAGE:

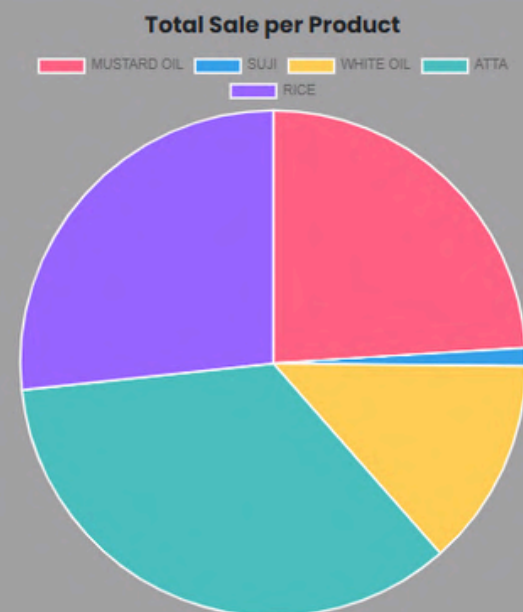
Displays all product details including price, stock, and vendor information. Admin can perform key actions like viewing, issuing, purchasing, price updates, and deletion. Shows essential product data with limited access for managers to view, issue, or purchase





### Product Sale Dashboard

Product Name	Sales Amount
MUSTARD OIL	21600.00
SUJI	1050.00
WHITE OIL	12000.00
ATTA	31320.00
RICE	24000.00



Return

### PRODUCT SALE DASHBOARD (ALL PRODUCTS ANALYSIS) :

Displays a visual summary of total sales per product using tables and pie charts, helping in quick comparison of product performance.

### Single Product Demand Trend

Select Product: ATTA



Return

### SINGLE PRODUCT DEMAND TREND :

Shows demand and sales trend for a selected product through graphical visualization, enabling data-driven decision-making and stock planning.





## Issue List

Transaction ID	Product ID	Rate	Quantity	Transaction Value	Transaction Date	User Name
100002	P10006	42	25	1050	28-10-2025	tulip
100003	P10001	120	200	24000	30-10-2025	tulip
100004	P10003	150	250	37500	03-11-2025	tulip
100005	P10004	180	120	21600	03-11-2025	tulip
100006	P10005	240	50	12000	03-11-2025	tulip
100007	P10002	108	290	31320	04-11-2025	tulip
100012	P10002	108	200	21600	05-11-2025	tulip
100014	P10002	108	500	54000	05-11-2025	tulip
100015	P10003	150	100	15000	09-11-2025	tulip
100017	P10003	150	300	45000	09-11-2025	tulip

### ISSUE LIST:

Maintains a record of all product issue transactions showing rate, quantity, and total value. Assists in monitoring stock outflow and user accountability.

## Purchase List

Transaction ID	Product ID	Rate	Quantity	Transaction Value	Transaction Date	User Name
100001	P10006	35	50	1750	28-10-2025	tulip
100008	P10002	90	500	45000	04-11-2025	tulip
100009	P10006	35	250	8750	04-11-2025	tulip
100010	P10003	125	200	25000	04-11-2025	tulip
100011	P10004	150	250	37500	04-11-2025	tulip
100013	P10002	90	600	54000	05-11-2025	tulip
100016	P10003	125	500	62500	09-11-2025	tulip
100018	P10003	125	100	12500	09-11-2025	tulip
100019	P10003	125	1	125	09-11-2025	tulip

### PURCHASE LIST:

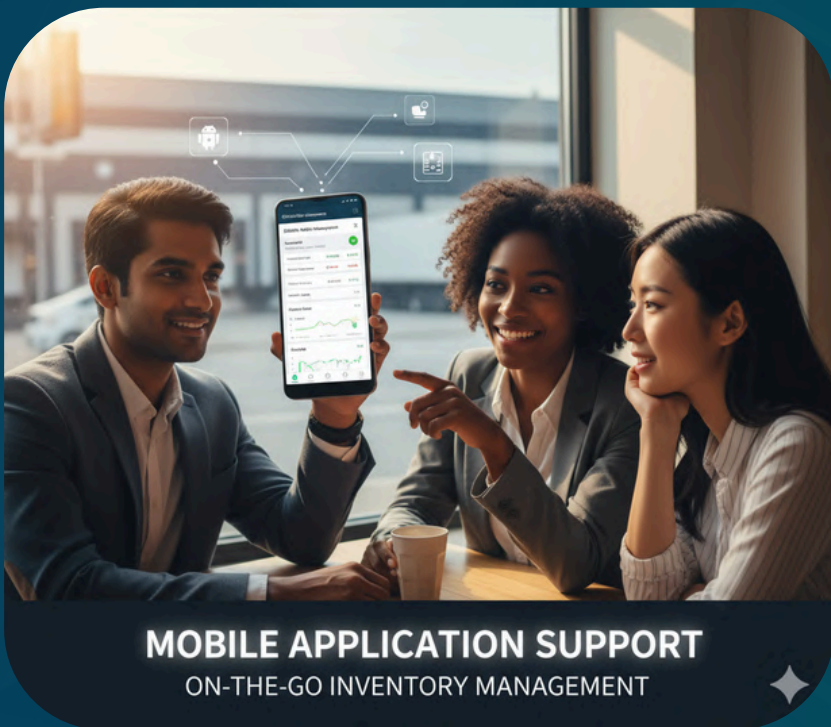
Displays all product purchase transactions with details like rate, quantity, transaction value, and date. Helps in tracking stock inflow and purchase history efficiently.



# FUTURE ENHANCEMENTS



BARCODE/QR CODE INTEGRATION



MOBILE APPLICATION SUPPORT



AUTOMATED REORDER ALERTS

AI-BASED DEMAND FORECASTING  
MACHINE LEARNING POWERED OPTIMIZATION



AI-BASED DEMAND FORECASTING

VENDOR PERFORMANCE ANALYTICS



VENDOR PERFORMANCE ANALYTICS



# CONCLUSION

## CONCLUSION

SmartShelfX – Inventory Forecast & Auto-Restock simplifies the entire product management cycle, from product registration to reporting. It ensures accuracy, transparency, and efficient daily operations through secure, user-friendly modules. By reducing manual errors and improving real-time decisions, SmartShelfX boosts operational efficiency and has strong potential to grow into a complete enterprise management solution.

