

User Module

- Functionality:
 - Handles user registration, login authentication, and password recovery.
 - Validates user credentials against database records.
 - On successful login, user is redirected to the dashboard.
- Implementation:
 - User data is captured via JSP forms and sent to the backend controllers.
 - Service layer performs validation and calls repository for database operations.

The figure displays two screenshots of a web-based User Module. The left screenshot shows the 'Register' page, which includes fields for Username, Email, Gender (a dropdown menu), Password, and Confirm Password. A large blue 'Register' button is at the bottom. Below the form, a note says 'Already have an account? [Login here](#)'. The right screenshot shows the 'Login' page, featuring fields for Email and Password, a large blue 'Login' button, and a 'Forgot Password?' link below it.

Register

Username:

Email:

Gender:

Password:

Confirm Password:

Register

Already have an account? [Login here](#)

Login

Email:

Password:

Login

[Forgot Password?](#)

Figure : User Module

Dashboard Module

- Functionality:
 - Displays the summary of total products, low stock products, total sales, and today's sales.
 - Provides navigation options to other modules such as Add Product, Create Invoice, and Product List.
- Implementation:
 - Dashboard data is fetched from the database using service methods in the backend.
 - Controller aggregates the required counts and sales amounts and passes them to the dashboard JSP view.

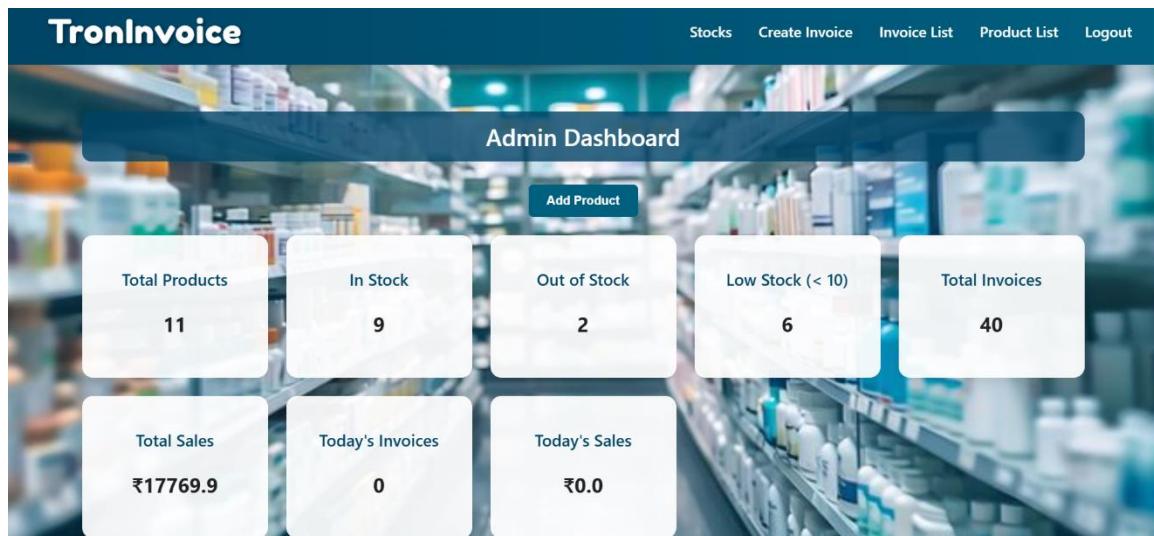


Figure : Dashboard Module

Product Module

- Add Product:
 - User inputs product details including barcode, product name, cost, GST percentage, quantity, and type (In Stock/Out of Stock).
 - System calculates SGST, CGST, total GST, and net total automatically.
 - Product data is saved into the products table.
- Product List:
 - Displays all products in a scrollable table with options to update or delete records.
 - Includes search functionality by product name, barcode, or category.
 - Allows filtering for low stock or in-stock items.
- Implementation:
 - JSP forms capture product details and send to backend controllers.
 - Backend services perform GST calculations and validate inputs before saving via Hibernate.
 - The product list page fetches product data via service calls and displays it using JSTL loops.

Product Details

ProductId	Product Name
<input type="text"/>	<input type="text"/>
Quantity	Cost
<input type="text" value="0"/>	<input type="text" value="0.0"/>
GST Percentage	
<input type="text" value="0.0"/>	

GST Details

SGST Amount	CGST Amount
<input type="text" value="0.0"/>	<input type="text" value="0.0"/>
Total GST	Net Total
<input type="text" value="0.0"/>	<input type="text" value="0.0"/>
Type	
Select	

Submit

Product List

ID	ProductId	Product Name	Quantity	Cost	GST %	SGST	CGST	Total GST	Net Total	Type	Actions
3	78901	Amlodipine	5	70.0	12.0	21.0	21.0	42.0	392.0	In Stock	Update Delete
4	12345	paracetamol500	3	70.0	10.0	10.5	10.5	21.0	231.0	In Stock	Update Delete
5	12123	Antibiotics	0	10.0	3.0	0.0	0.0	0.0	0.0	Out of Stock	Update Delete
6	12298	paramet	5	50.0	4.0	5.0	5.0	10.0	260.0	In Stock	Update Delete

Figure : Product Module

Invoice Module

- Functionality:
 - Allows selection of multiple products to add to an invoice.
 - Captures customer details and calculates total GST and net amount.
 - Validates product stock before confirming invoice creation.
 - Provides options to save the invoice or print it as a PDF.
- Implementation:
 - Invoice creation form submits product selections and customer info to the controller.
 - Controller checks stock availability using product service methods.
 - On success, an InvoiceEntity and associated InvoiceItemEntity objects are saved using cascading in Hibernate.

The screenshot shows a web-based application for creating a new invoice. At the top, there's a header titled "Create New Invoice". Below the header, there are two input fields: "Customer Name:" and "Phone Number:", each with a corresponding text input box and a "Submit" button. Underneath these fields is a search bar with the placeholder "Enter Barcode to Search Pr" and a "Search Product" button. The next section is labeled "Customer Details:" and contains two input fields: "Name:" and "Phone Number:". Below this is a section titled "Invoice Items" which includes a table with columns: ProductId, Name, Quantity, Price, GST (%), Total, and Action. A "Generate Invoice" button is located at the bottom left of the form area.

Figure : Invoice Module

Stock Module

- Functionality:
 - Identifies and flags products that are low in stock or completely out of stock.
 - Helps users take timely action for restocking, ensuring smooth inventory management.
 - Displays alerts or highlights in the product list to inform users about low stock items.
- Implementation:
 - Stock quantity is stored in the products table and updated during product addition, invoice generation, or manual update.
 - On the Product List and Dashboard, service methods fetch and compare current quantity with threshold levels to determine stock status.
 - Backend logic in the service layer automatically reduces stock when an invoice is created (based on quantity sold).
 - JSP pages use conditional logic to highlight low stock products and trigger user alerts for action.
 - Optional filters (e.g., "Low Stock", "In Stock", "Out of Stock") allow users to view stock-based product segments.

The screenshot shows the TronInvoice application's StockModule. The top navigation bar includes links for Dashboard, Stocks, Create Invoice, Invoice List, Product List, and Logout. Below the navigation is a search bar with fields for 'Search by ProductId' and 'Filter by Type', a 'Search' button, and a green 'Add Product' button. The main area displays a table of product stock information:

ProductId	Name	Quantity	Cost	GST%	Net Total	Type	Actions
78901	Amlodipine	5	70.0	12.0	392.0	In Stock	Update Delete
12345	paracetamol500	3	70.0	10.0	231.0	In Stock	Update Delete
12123	Antibiotics	0	10.0	3.0	0.0	Out of Stock	Update Delete
12298	paramet	5	50.0	4.0	260.0	In Stock	Update Delete
34567	ocacet	3	10.0	1.0	30.3	In Stock	Update Delete

Figure 4.6: StockModule

GST CALCULATION

The system automatically calculates GST components including CGST, SGST, and the total GST based on the selected products and their respective GST rates. This ensures compliance with tax regulations and accurate billing.

Product Details

ProductId	67547	Product Name	retinol
Quantity	100	Cost	200
GST Percentage	10		

GST Details

SGST Amount	1000.00	CGST Amount	1000.00
Total GST	2000.00	Net Total	22000.00

Figure :GST Calculation

STOCK UPDATES AND SEARCHING PRODUCTS

After invoice generation, the system updates the stock quantities for the sold products. This real-time stock management helps maintain accurate inventory levels and prevents overselling.

TronInvoice

Dashboard Stocks Create Invoice Invoice List Product List Logout

20205 - Filter by Type -- Search + Add Product

ProductId	Name	Quantity	Cost	GST%	Net Total	Type	Actions
20205	flucold	10	10.0	0.0	100.0	In Stock	Update Delete

ProductId	Name	Quantity	Cost	GST%	Net Total	Type	Actions
78901	Amiodipine	3	70.0	12.0	235.2000000000002	In Stock	Update Delete
12345	paracetamol500	3	70.0	10.0	231.0	In Stock	Update Delete
12298	paramet	5	50.0	4.0	260.0	In Stock	Update Delete
34567	acet	3	10.0	1.0	30.3	In Stock	Update Delete

Figure : Stock Searching and updates

ProductId	Name	Quantity	Cost	GST%	Net Total	Type	Actions
12123	Antibiotics	0	10.0	3.0	0.0	Out of Stock	Update Delete
40404	flue syrup	0	100.0	1.0	0.0	Out of Stock	Update Delete

INVOICE GENERATION

The invoice generation module allows users to create detailed invoices by selecting products and entering customer details. Upon submission, the system processes the input, calculates necessary taxes, and displays the final invoice.

Create New Invoice

Customer Name: Phone Number:

Product Found:

Name: Amlodipine
ProductId: 78901
Cost: \$70.0
GST %: 12.0%
SGST: \$21.0
CGST: \$21.0
Total GST Amount: \$42.0
Net Total (incl. GST): \$392.0

Customer Details:

Name: mankind
Phone Number: 1234567890

Invoice Items

ProductId	Name	Quantity	Price	GST (%)	Total	Action
78901	Amlodipine	2	\$70.0	12.0%	\$156.8	Remove
89074	cipla cough syrup	100	\$100.0	4.5%	\$10450.0	Remove

Total: ₹10606.8

Figure : Invoice Generation

Invoice Summary

Customer Name: mankind
Customer Mobile: 1234567890

Barcode	Name	Cost	GST %	Net Total
78901	Amlodipine	70.0	12.0	156.8
89074	cipla cough syrup	100.0	4.5	10450.0

Total: ₹10606.8
Paid Amount: ₹9000.00
Remaining Amount: ₹1606.80

Amount Paid by Customer:

Save [View All Invoices](#)

Invoice Item List:

TronInvoice

ID	Barcode	Name	Quantity	Cost	GST (%)	Net Total	Customer Name	Phone Number	Invoice Number	Total Amount	Paid Amount	Balance Amt
44	78901 89074	Amlodipine cipla cough syrup	2 100	70.0 100.0	12.0 4.5	156.8 10450.0	mankind	1234567890	INV-67862FF8	10606.8	9000.0	Remaining ₹1606.799999999999

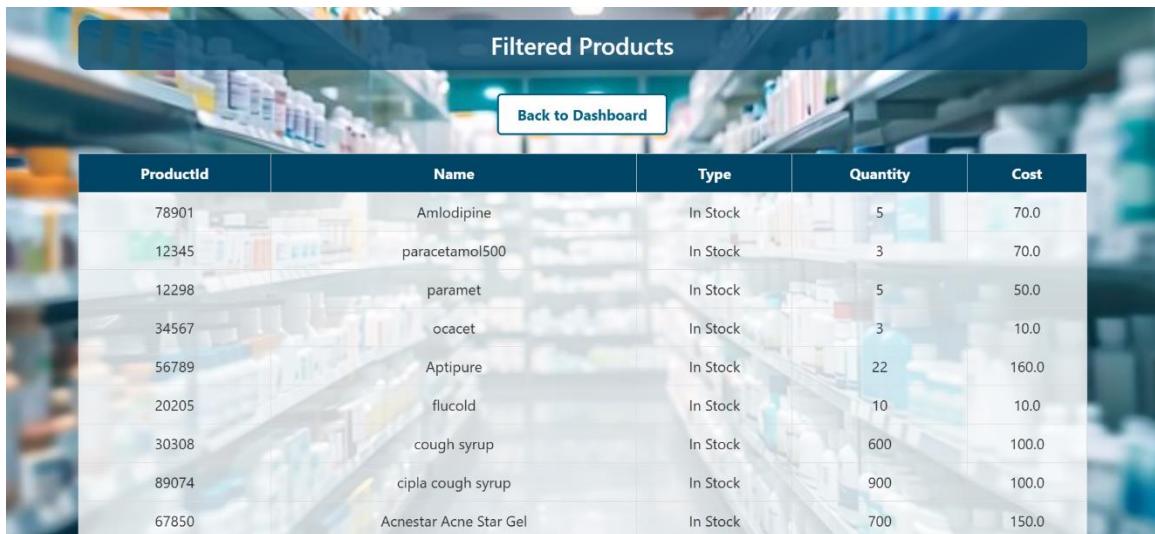
TronInvoice

Item	Cost	GST (%)	Net Total	Customer Name	Phone Number	Invoice Number	Total Amount	Paid Amount	Balance Amount	Date & Time	Actions
	70.0	12.0	156.8	mankind	1234567890	INV-67862FF8	10606.8	9000.0	Remaining: ₹1606.799999999999	2025-06-07T01:23:16.183735	View Details Delete
	100.0	4.5	10450.0								

Figure : Invoice Item List

DASHBOARD NAVIGATION VIA CARDS

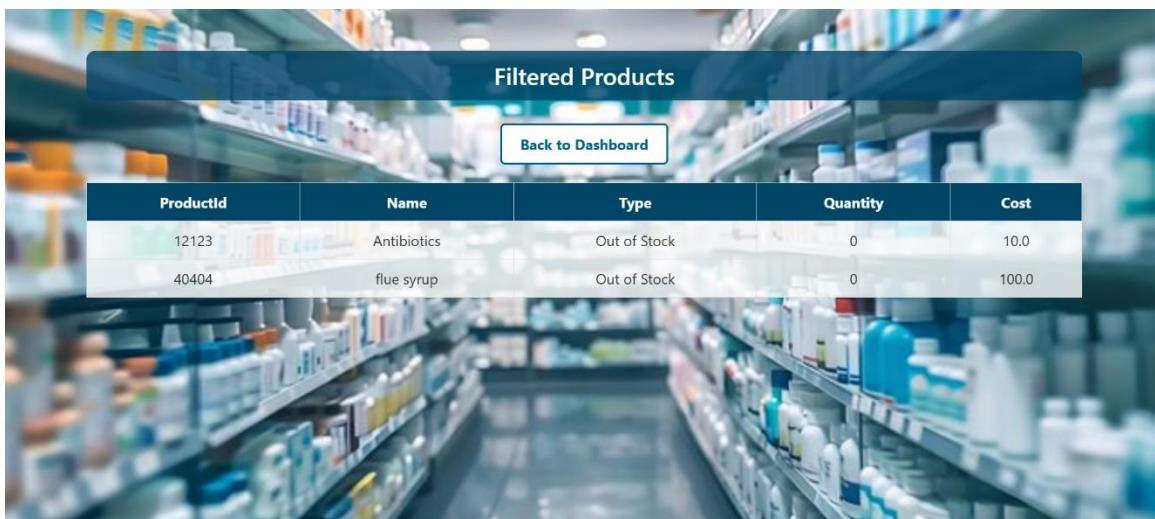
When a user clicks on a card, they are redirected to the respective module's interface.



Filtered Products

[Back to Dashboard](#)

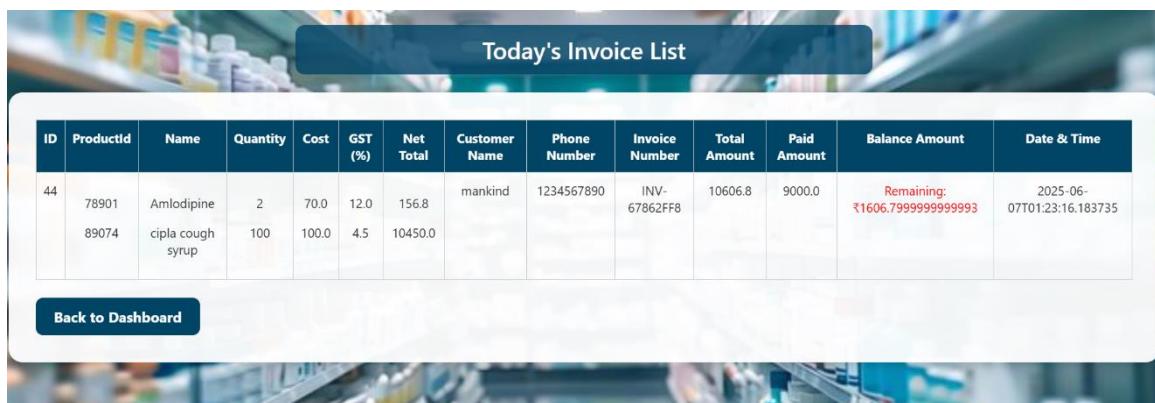
ProductId	Name	Type	Quantity	Cost
78901	Amlodipine	In Stock	5	70.0
12345	paracetamol500	In Stock	3	70.0
12298	paramet	In Stock	5	50.0
34567	ocacet	In Stock	3	10.0
56789	Aptipure	In Stock	22	160.0
20205	flucold	In Stock	10	10.0
30308	cough syrup	In Stock	600	100.0
89074	cipla cough syrup	In Stock	900	100.0
67850	Acnestar Acne Star Gel	In Stock	700	150.0



Filtered Products

[Back to Dashboard](#)

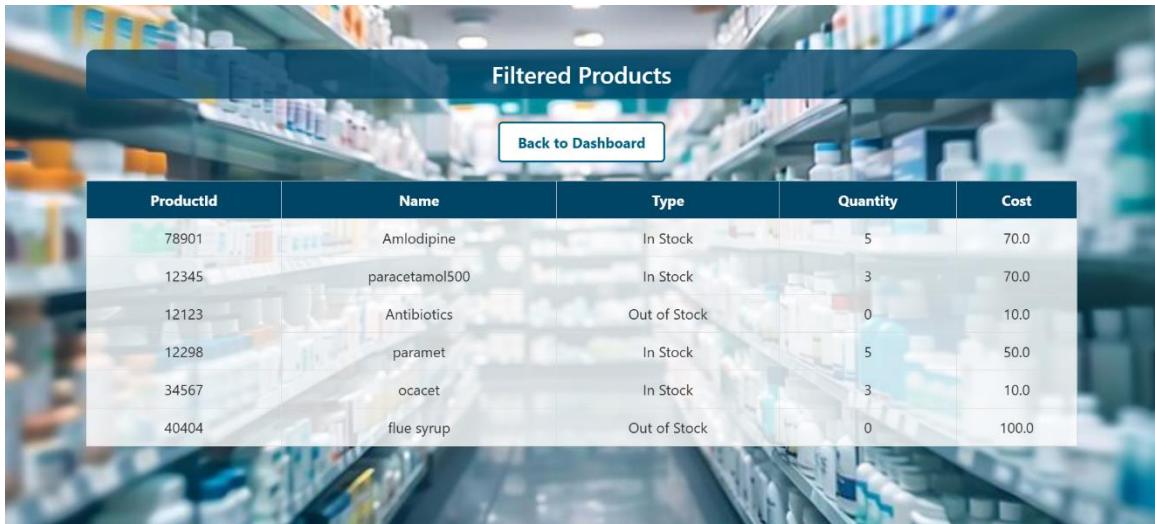
ProductId	Name	Type	Quantity	Cost
12123	Antibiotics	Out of Stock	0	10.0
40404	flue syrup	Out of Stock	0	100.0



Today's Invoice List

[Back to Dashboard](#)

ID	ProductId	Name	Quantity	Cost	GST (%)	Net Total	Customer Name	Phone Number	Invoice Number	Total Amount	Paid Amount	Balance Amount	Date & Time
44	78901	Amlodipine	2	70.0	12.0	156.8	mankind	1234567890	INV-67862FF8	10606.8	9000.0	Remaining: ₹1606.799999999993	2025-06-07T01:23:16.183735
	89074	cipla cough syrup	100	100.0	4.5	10450.0							



The dashboard displays a table titled "Filtered Products" showing six rows of product information. A "Back to Dashboard" button is located above the table.

ProductId	Name	Type	Quantity	Cost
78901	Amlodipine	In Stock	5	70.0
12345	paracetamol500	In Stock	3	70.0
12123	Antibiotics	Out of Stock	0	10.0
12298	paramet	In Stock	5	50.0
34567	ocacet	In Stock	3	10.0
40404	flue syrup	Out of Stock	0	100.0

Figure 6.5: navigations on dashboard

