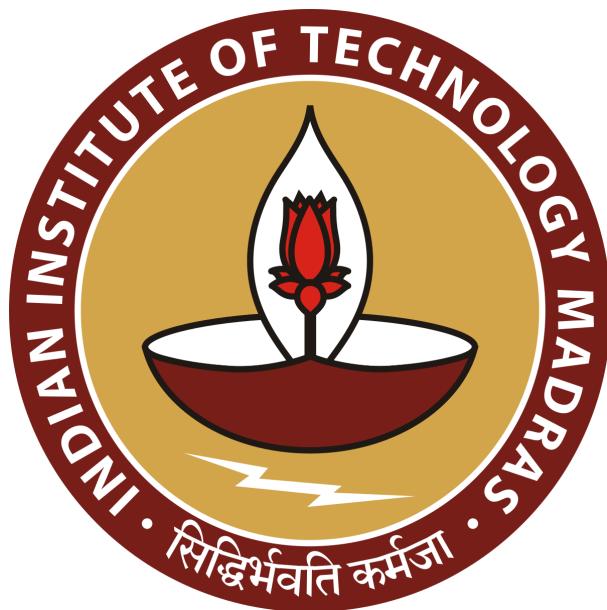


# Software Engineering Project

September 2025 - Team 13

Milestone 3



Afsal Sha	21f2000304
Akash O. G.	23f2004955
R Rahul Varma	22f1000756
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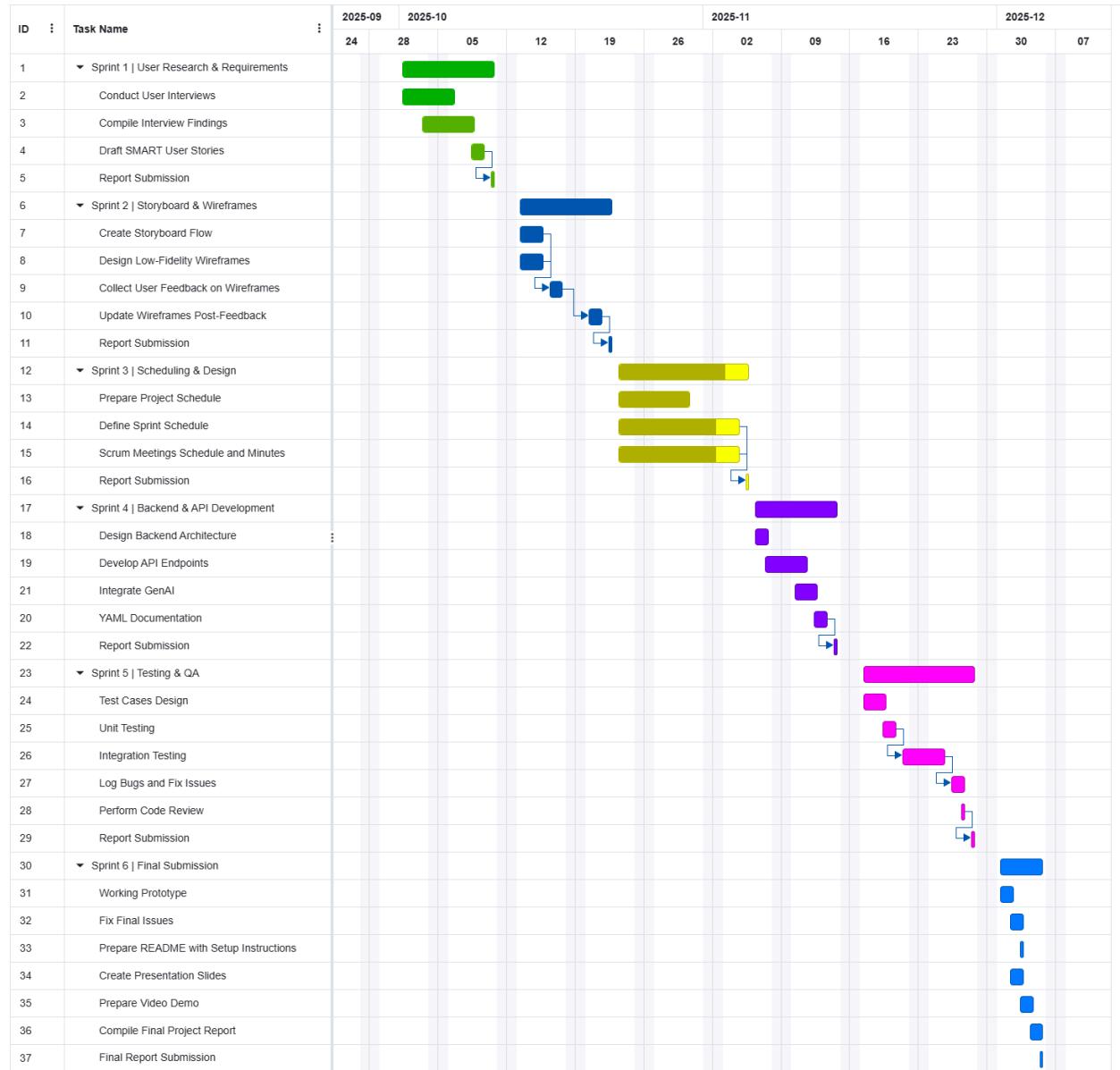
# Project Schedule

- Our team uses **Jira** for project scheduling. We have a total of six Sprints, each aligned with one of the six milestones in the SE project document.
- The project milestones were decomposed into discrete tasks to satisfy the deliverables defined in the project document. These tasks were assigned to team members based on their availability and skill sets.

## Gantt Chart

[Click Here For Better View](#)

Gantt Chart Team 13



## Sprint Schedule

*Below are the screenshots of Sprint Schedules of Team 13 from Jira*

**SGPRI Sprint 1** 1 Oct – 21 Oct (4 work items)

0 0 0 Complete sprint ...

Complete Milestone 1

<input checked="" type="checkbox"/> SGPRI-29 Conduct User Interviews - Afsal, Rahul, Jeleshiya, J...	USER RESEA...	DONE ✓	<span>Oct 6</span>	-	
<input checked="" type="checkbox"/> SGPRI-30 Compile Interview Findings - Afsal	USER RESEA...	DONE ✓	<span>Oct 8</span>	-	
<input checked="" type="checkbox"/> SGPRI-31 Draft SMART User Stories - Afsal	USER RESEA...	DONE ✓	<span>Oct 9</span>	-	
<input checked="" type="checkbox"/> SGPRI-32 Report Submission	USER RESEA...	DONE ✓	<span>Oct 10</span>	-	

+ Create

**SGPRI Sprint 2** 8 Oct – 21 Oct (5 work items)

0 0 0 Complete sprint ...

Complete Milestone 2

<input checked="" type="checkbox"/> SGPRI-38 Create Storyboard Flow - Rahul	STORYBOAR...	DONE ✓	<span>Oct 15</span>	-	
<input checked="" type="checkbox"/> SGPRI-39 Design Low-Fidelity Wireframes - Akash	STORYBOAR...	DONE ✓	<span>Oct 15</span>	-	
<input checked="" type="checkbox"/> SGPRI-40 Collect User Feedback on Wireframes - Akash	STORYBOAR...	DONE ✓	<span>Oct 17</span>	-	
<input checked="" type="checkbox"/> SGPRI-41 Update Wireframes Post-Feedback - Akash	STORYBOAR...	DONE ✓	<span>Oct 21</span>	-	
<input checked="" type="checkbox"/> SGPRI-50 Report Submission - Akash	STORYBOAR...	DONE ✓	<span>Oct 22</span>	-	

+ Create

□ ▾ SGPRI Sprint 3 22 Nov – 4 Dec (4 work items)		0	0	0	Complete sprint	...
Complete Milestone 3						
<input checked="" type="checkbox"/>	SGPRI-44 Prepare Project Schedule - Hari Govind J, Joseph	SCHEDULIN...	IN PROGRES...	Nov 5	-	HJ
<input checked="" type="checkbox"/>	SGPRI-45 Define Sprint Timeline - Hari Govind J, Joseph	SCHEDULIN...	IN PROGRES...	Nov 5	-	HJ
<input checked="" type="checkbox"/>	SGPRI-46 Set Up Scrum Meeting Schedule - Hari Govind J, Jos...	SCHEDULIN...	IN PROGRES...	Nov 5	-	JL
<input checked="" type="checkbox"/>	SGPRI-49 Report Submission - Hari Govind J, Joseph	SCHEDULIN...	IN PROGRES...	Nov 5	-	HJ
<a href="#">+ Create</a>						

□ ▾ SGPRI Sprint 4 5 Nov – 15 Nov (5 work items)		0	0	0	Complete sprint	...
Complete Milestone 4						
<input checked="" type="checkbox"/>	SGPRI-52 Design Backend Architecture - Vyshakh, Ayush	BACKEND & ...	TO DO ▾	Nov 7	-	V
<input checked="" type="checkbox"/>	SGPRI-53 Implement Flask API Endpoints - Vyshakh, Ayush	BACKEND & ...	TO DO ▾	Nov 11	-	V
<input checked="" type="checkbox"/>	SGPRI-55 Integrate GenAI API - Vyshakh, Ayushh	BACKEND & ...	TO DO ▾	Nov 12	-	AM
<input checked="" type="checkbox"/>	SGPRI-54 Write Swagger YAML Documentation - Vyshakh, Ayu...	BACKEND & ...	TO DO ▾	Nov 13	-	V
<input checked="" type="checkbox"/>	SGPRI-57 Report Submission - Vyshakh, Ayush	BACKEND & ...	TO DO ▾	Nov 14	-	AM
<a href="#">+ Create</a>						

□ ▾ SGPRI Sprint 5 16 Nov – 29 Nov (6 work items)		0	0	0	Complete sprint	...
Complete Milestone 5						
<input checked="" type="checkbox"/>	SGPRI-59 Conduct Unit Testing - Jeleshiya	TESTING & QA	TO DO ▾	Nov 19	-	MD
<input checked="" type="checkbox"/>	SGPRI-60 Conduct Integration Testing - Jeleshiya	TESTING & QA	TO DO ▾	Nov 20	-	MD
<input checked="" type="checkbox"/>	SGPRI-61 Write pytest Test Cases - Jeleshiya	TESTING & QA	TO DO ▾	Nov 25	-	MD
<input checked="" type="checkbox"/>	SGPRI-62 Log Bugs and Fix Issues - Jeleshiya	TESTING & QA	TO DO ▾	Nov 27	-	MD
<input checked="" type="checkbox"/>	SGPRI-63 Perform Code Review - Jeleshiya	TESTING & QA	TO DO ▾	Nov 27	-	MD
<input checked="" type="checkbox"/>	SGPRI-64 Report Submission - Jeleshiya, Joseph, Hari Govind J	TESTING & QA	TO DO ▾	Nov 28	-	MD
<a href="#">+ Create</a>						

<input type="checkbox"/> <input checked="" type="checkbox"/> <b>SGPRI Sprint 6</b> 30 Nov – 6 Dec (7 work items)	0	0	0	Complete sprint	...
Complete Milestone 6					
<input checked="" type="checkbox"/> SGPRI-71 Working Prototype	<b>FINAL IMPL...</b>	TO DO ▾	<span>Dec 2</span>	<span>-</span>	
<input checked="" type="checkbox"/> SGPRI-72 Final Fix Issues	<b>FINAL IMPL...</b>	TO DO ▾	<span>Dec 3</span>	<span>-</span>	
<input checked="" type="checkbox"/> SGPRI-66 Prepare README with Setup Instructions - Afsal, Ra...	<b>FINAL IMPL...</b>	TO DO ▾	<span>Dec 3</span>	<span>-</span>	
<input checked="" type="checkbox"/> SGPRI-67 Record Demo Video - Rahul	<b>FINAL IMPL...</b>	TO DO ▾	<span>Dec 3</span>	<span>-</span>	
<input checked="" type="checkbox"/> SGPRI-68 Create Presentation Slides - Afsal, Hari Govind J, Jos...	<b>FINAL IMPL...</b>	TO DO ▾	<span>Dec 4</span>	<span>-</span>	
<input checked="" type="checkbox"/> SGPRI-69 Compile Final Project Report - Hari Govind J, Joseph	<b>FINAL IMPL...</b>	TO DO ▾	<span>Nov 5</span>	<span>-</span>	
<input checked="" type="checkbox"/> SGPRI-70 Submission - Afsal	<b>FINAL IMPL...</b>	TO DO ▾	<span>Nov 5</span>	<span>-</span>	
<a href="#">+ Create</a>					

## Scrum Meetings Summary

We conducted our team meetings based on everyone's availability to ensure maximum participation and smooth coordination. During these meetings, we discussed our project goals, tracked progress, and planned upcoming tasks. In addition to the regular team discussions, we also held short follow-up meetings right after each client meeting to review the client's feedback and align our next steps accordingly.

- Team Meeting: Monday, Thursday, Saturday, 9:00 – 10:00 PM
- Client Meeting: Tuesday, 7pm to 7.30pm

## Meeting Summaries

03-10-2025

- Finalized textile shops as project focus.
- Targeted shops with existing digital billing systems.
- Discussed problem statements for shop owners, customers, and distributors.

**Decision:** Proceed with this focused approach.

11-10-2025

- Configured GitHub for collaboration and version control.
- Discussed the importance of finalizing user stories before Milestone 2.

**Decision:** Combine user stories to complete Milestone 1 and start login screen development.

13-10-2025

- Discussed and prioritized user stories based on relevance and implementation effort.

**Decision:** Finalized key user stories for development.

14-10-2025

- Reviewed and finalized user stories.
- Client suggested adding map functionality.
- Assigned work across design, code review, and documentation tasks.

**Decision:** Agreed to implement finalized user stories and follow assigned roles.

27-10-2025

- Presented and reviewed wireframe for login and signup functionalities.
- Discussed improvements and upcoming Milestone 3 submission.
- Backend and documentation tasks planned.

**Decision:** Complete login/signup pages before next client meeting and update Jira for Milestone 3 tracking.

## Kanban Board

TO DO   18	IN PROGRESS   4	DONE   9 ✓
<p>Design Backend Architecture - Vyshakh, Ayush <b>BACKEND &amp; API DEVELOPMENT</b> 📅 Nov 7, 2025 ☑ SGPRI-52 </p>	<p>Prepare Project Schedule - Hari Govind J, Joseph <b>SCHEDULING &amp; DESIGN</b> 📅 Nov 5, 2025 ☑ SGPRI-44 </p>	<p>Conduct User Interviews - Afsal, Rahul, Jeleshya, Joseph <b>USER RESEARCH &amp; REQUIREMENTS</b> 📅 Oct 6, 2025 ☑ SGPRI-29 </p>
<p>Implement Flask API Endpoints - Vyshakh, Ayush <b>BACKEND &amp; API DEVELOPMENT</b> 📅 Nov 11, 2025 ☑ SGPRI-53 </p>	<p>Define Sprint Timeline - Hari Govind J, Joseph <b>SCHEDULING &amp; DESIGN</b> 📅 Nov 5, 2025 ☑ SGPRI-45 </p>	<p>Compile Interview Findings - Afsal <b>USER RESEARCH &amp; REQUIREMENTS</b> 📅 Oct 8, 2025 ☑ SGPRI-30 </p>
<p>Integrate GenAI API - Vyshakh, Ayushh <b>BACKEND &amp; API DEVELOPMENT</b> 📅 Nov 12, 2025 ☑ SGPRI-55 </p>	<p>Set Up Scrum Meeting Schedule - Hari Govind J, Joseph <b>SCHEDULING &amp; DESIGN</b> 📅 Nov 5, 2025 ☑ SGPRI-46 </p>	<p>Draft SMART User Stories - Afsal <b>USER RESEARCH &amp; REQUIREMENTS</b> 📅 Oct 9, 2025 ☑ SGPRI-31 </p>
<p>Write Swagger YAML Documentation - Vyshakh, Ayush <b>BACKEND &amp; API DEVELOPMENT</b> 📅 Nov 13, 2025 ☑ SGPRI-54 </p>	<p>Report Submission - Hari Govind J, Joseph <b>SCHEDULING &amp; DESIGN</b> 📅 Nov 5, 2025 ☑ SGPRI-40 </p>	<p>Report Submission <b>USER RESEARCH &amp; REQUIREMENTS</b> 📅 Oct 10, 2025 ☑ SGPRI-32 </p>

*Screenshot of partial Kanban Board of Team 13 from Jira*

# SOFTWARE DESIGN

## Frontend

The frontend of **Textile SaaS App** is built with Vue.js, featuring role-specific dashboards for retail managers, customers, distributors, and manufacturers. It offers tailored interfaces powered by AI for inventory management, fabric discovery, demand analytics, and trend forecasting. Its component-based architecture ensures a seamless and consistent user experience across all business functions.

### Sign up Page

The Sign Up page of **Textile SaaS App** features a clean and intuitive interface that adapts seamlessly to each user's role. Users begin by selecting whether they are a Customer, Retail Manager, Distributor , or Manufacturer, after which the form dynamically updates to show only the relevant input fields. This adaptive design simplifies the registration process, minimizing effort and confusion. By tailoring the experience to each role, it ensures faster onboarding and a more personalized start for every user.

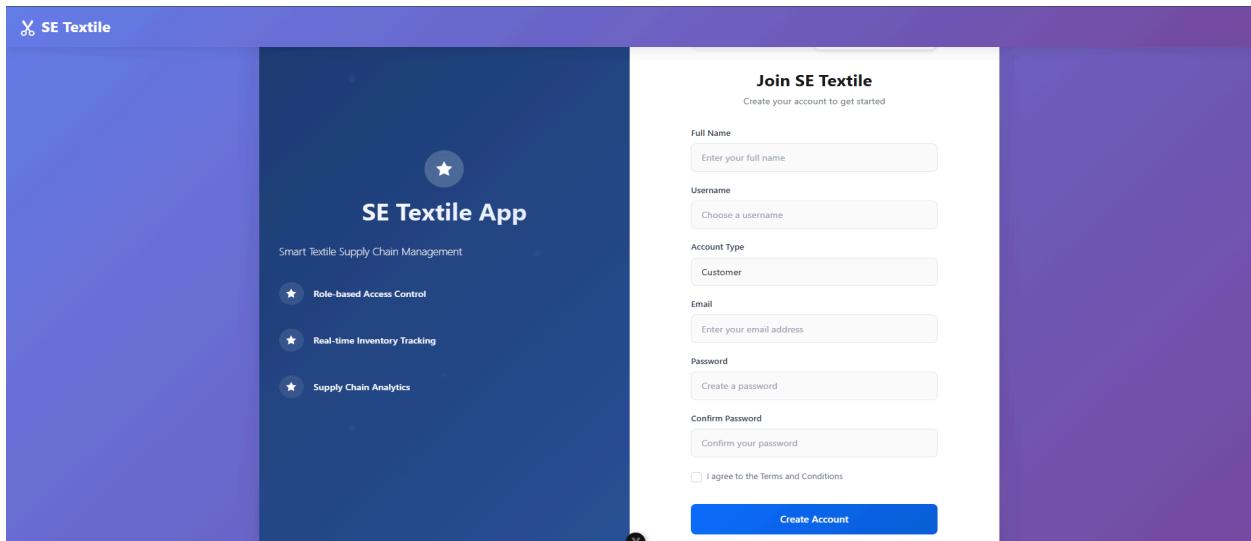
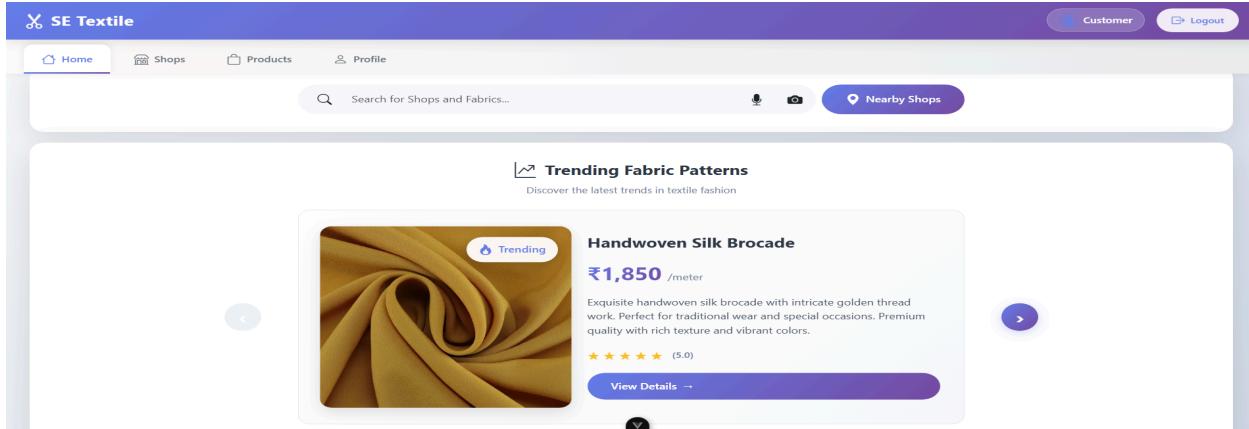


Fig 1: Signup page

### Customer Home page

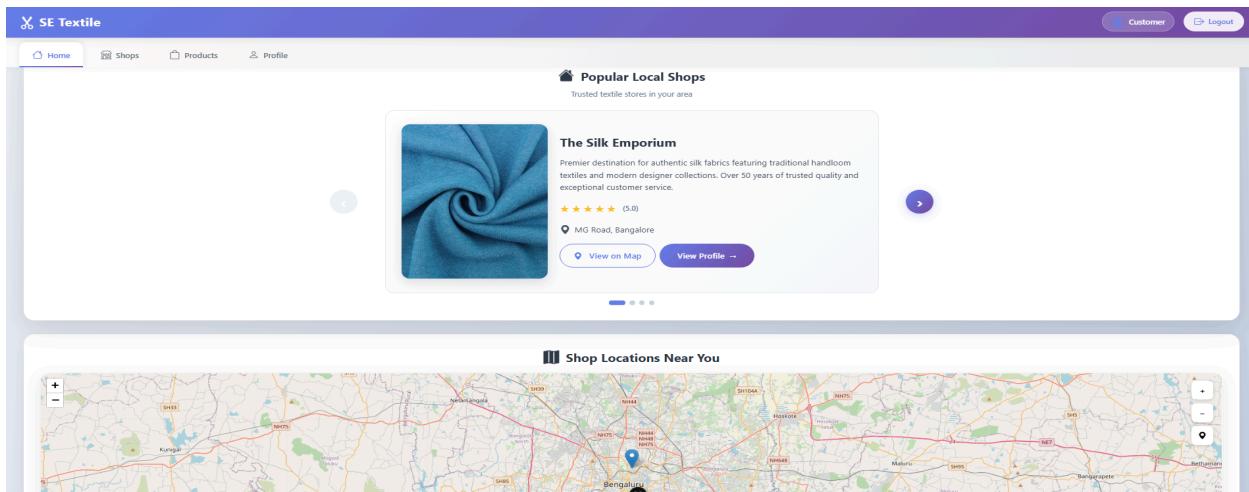
The customer page displays all currently trending fabric patterns, keeping shoppers informed about the latest popular designs and styles in the market. The intelligent search bar supports multiple search methods to accommodate different user preferences and situations, including image upload for finding similar patterns, voice commands for hands-free searching, and

traditional text input for typing specific fabric types, patterns, colors, or store names. Once a search is made, the system displays comprehensive results showing all relevant fabrics and shops that match the query, making product discovery seamless and efficient for customers looking for specific items or exploring new options.



*Fig 2: Trending Fabrics and Search bar*

The page highlights popular local fabric stores based on verified customer reviews and ratings, helping shoppers identify quality options in their area. An integrated map feature displays the nearest shop locations based on the search results, providing real-time positioning and visual navigation to help customers easily locate stores. Customers can interact with stores through a chat or voice-based interface to inquire about details and get directions, with the system offering direct routing to visit the most relevant stores. This combined approach to store recommendations and location finding saves customers time and effort by bringing together product discovery, quality assurance through reviews, and convenient navigation all in one unified experience.



*Fig 3: Popular Local Shops with an Interactive Map to Find Nearby Stores*

## Customer Products Page

The customer products page displays all available fabrics and includes smart filters that let customers narrow down options based on their specific preferences. An embedded map shows which nearby shops currently stock the filtered/searched fabrics, making it easy to find exactly what they're looking for close to home. This combination of filtering and location mapping saves customers from visiting multiple stores unnecessarily or wasting time searching for unavailable items.

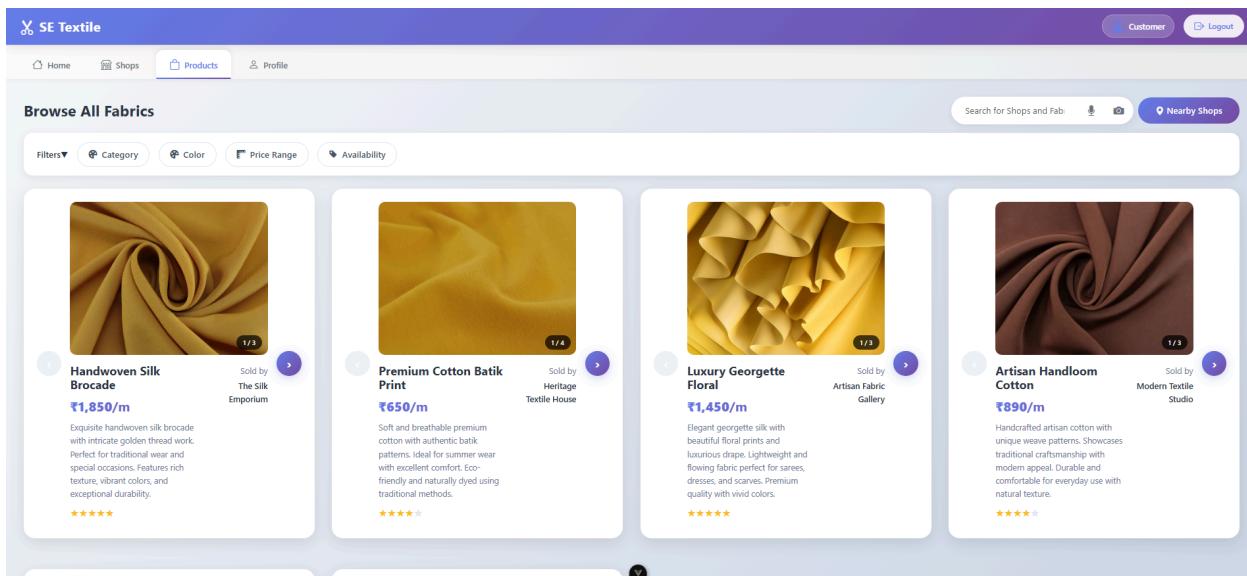
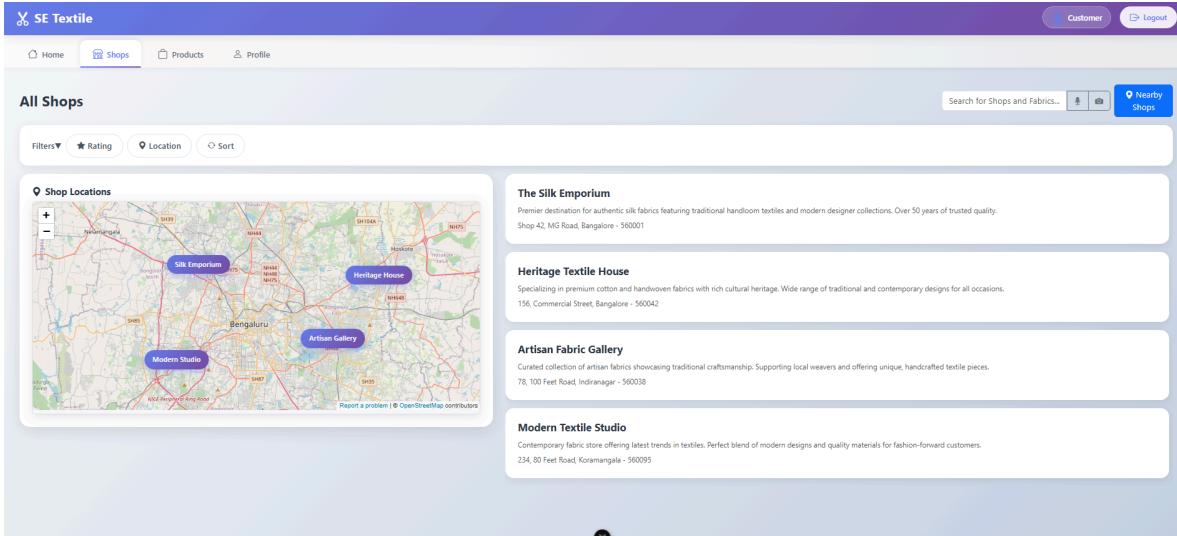


Fig 4: Customer Products Page with All Available Items

## Customer shops page

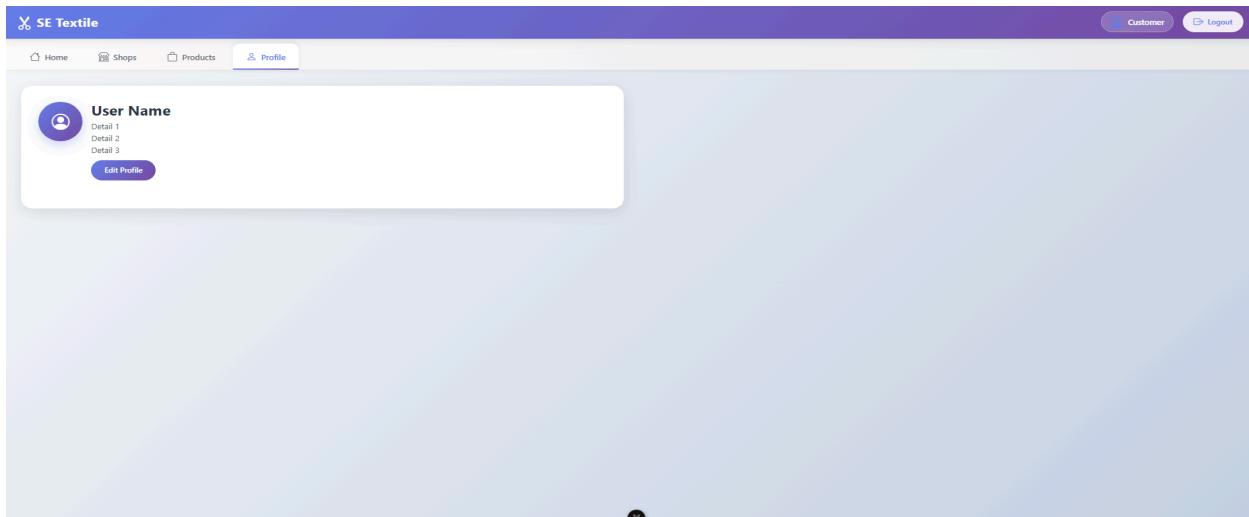
The customer shops page helps customers easily find nearby fabric shops by displaying their locations on an interactive embedded map. A smart search bar allows customers to search for specific shops or types of stores, instantly showing all matching results and their locations on the map. Customers can also use filters to narrow down options based on preferences making the search faster and more convenient. This visual approach saves time by letting customers see exactly where shops are located and choose the most accessible option before heading out.



*Fig 5: Customer Shops Page with All Registered Shops*

## Customer Profile page

The customer profile page lets users view and edit their personal information anytime they want. It keeps all their details organized in one place for easy access.



*Fig 6: Customer Profile page*

## Shop Manager Dashboard

The shop manager uploads weekly sales data into the system for automatic analysis. The AI reviews the data and creates a detailed summary showing important business information and trends. The system displays a weekly sales overview that includes a sales growth graph, total

number of orders, and items that need to be reordered. Customer ratings are also shown to help the owner understand customer satisfaction levels. This complete report helps the shop owner restock efficiently and make better business decisions based on clear data insights.

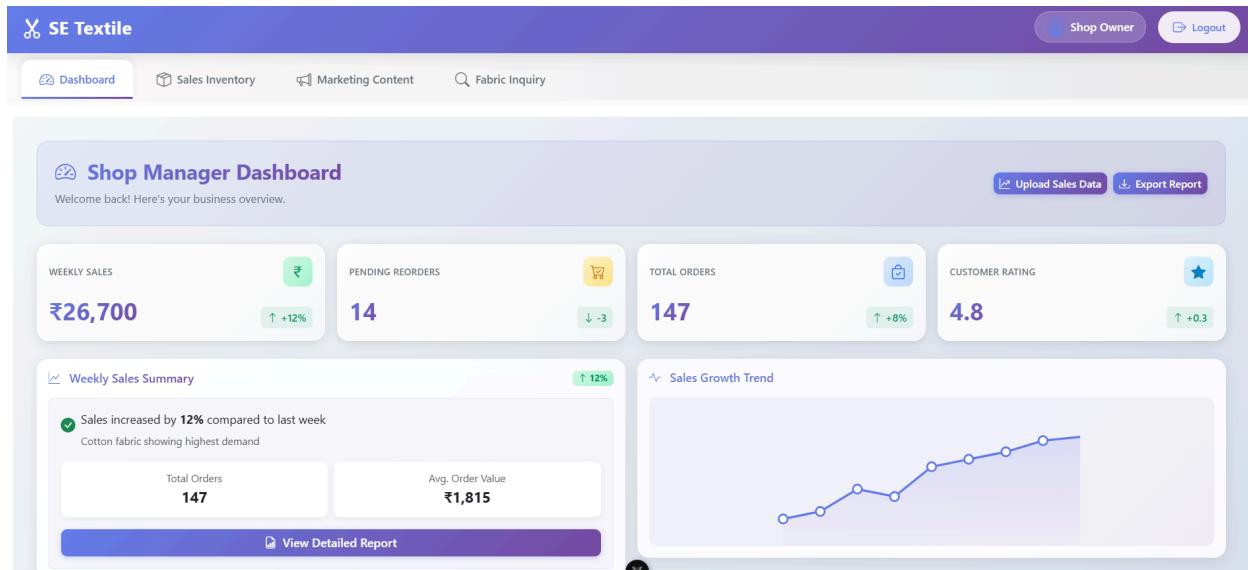


Fig 7: Shop Owner Dashboard with Weekly Sales Summary

From the sales data AI automatically checks which products are running low and groups them by supplier in the "Smart Reorder Suggestions" section. This makes ordering much easier because shop owners can see all items from each supplier in one place. They save time by not having to manually check stock levels or remember which supplier sells what. Ordering multiple items from the same supplier at once can also help get better prices and lower delivery costs. This feature helps ensure products don't run out of stock, keeping customers happy and preventing lost sales.

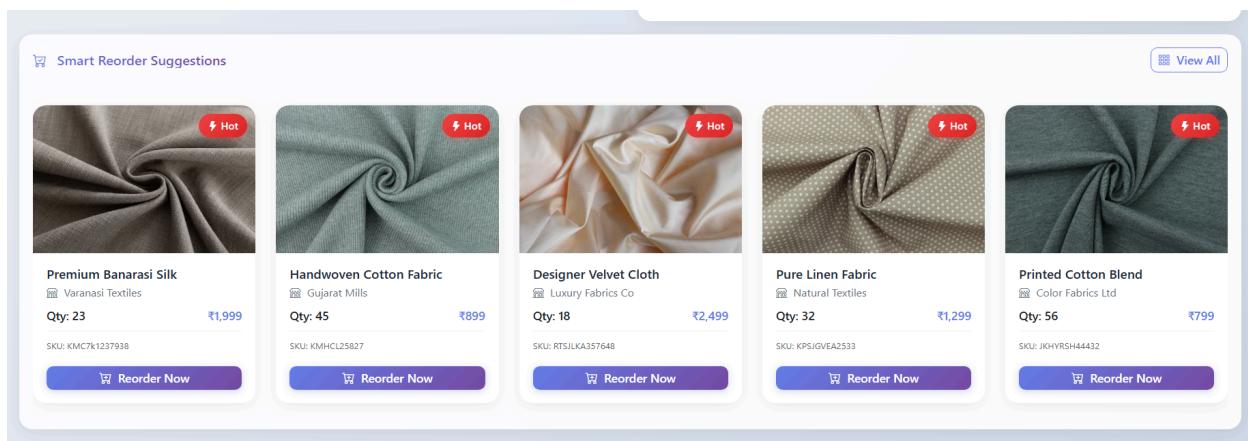


Fig 8: Shop Owner Dashboard with Reorder Suggestions

The shop owner can customize their forecast by clicking "Apply" buttons next to different filters in the AI-Powered Insights section. The AI then analyzes all the weekly sales data uploaded throughout the year and applies these chosen filters to predict which fabrics will increase or decrease in demand over the next quarter. The system also provides helpful seasonal alerts that warn about upcoming high-demand periods for specific fabrics. This advance prediction gives shop owners a full month to order and receive products before customer demand actually begins, ensuring shelves are fully stocked when needed. By planning purchases early, owners avoid rushed orders, potential shortages during peak seasons, and the risk of losing sales due to out-of-stock items.

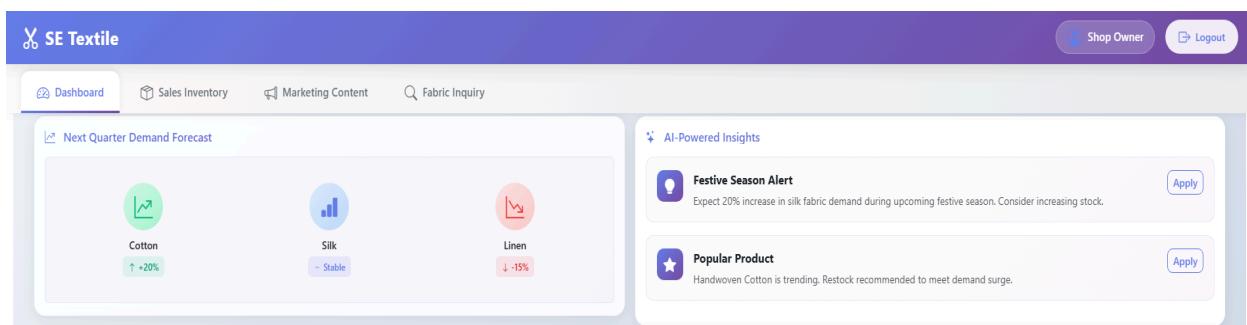


Fig 9: Shop Owner Dashboard with Weekly Sales Summary

The dashboard includes a fabric browsing feature that allows shop owners to explore products from multiple distributors all in one place. Smart filters help narrow down options based on specific criteria like fabric type, price range, or brand, making it quick and easy to find exactly what's needed. This eliminates the hassle of visiting multiple supplier websites or flipping through different catalogs to compare options.

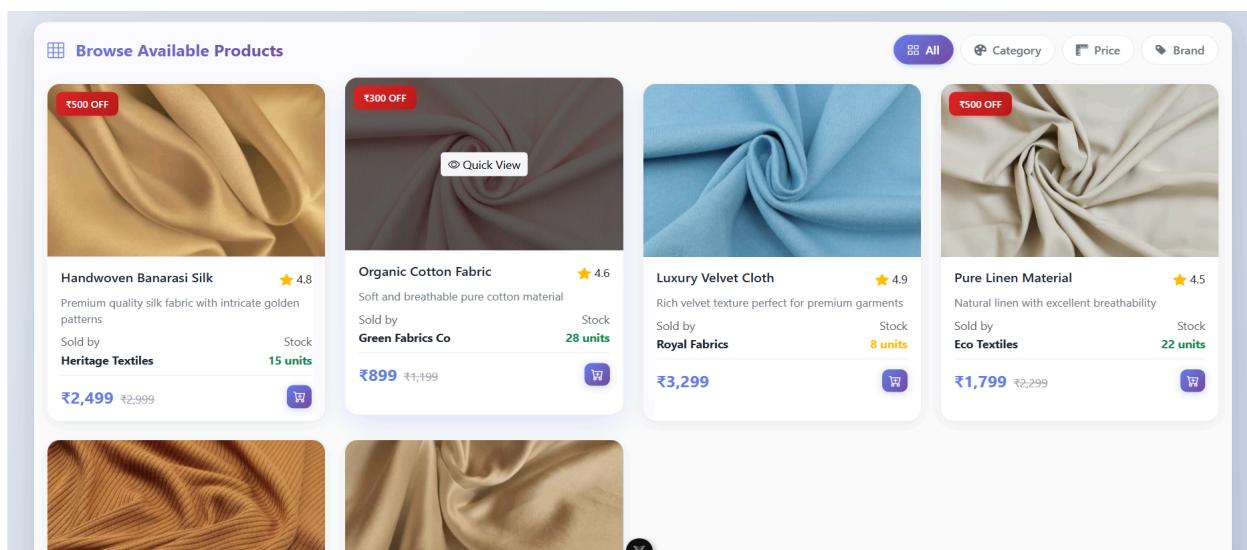
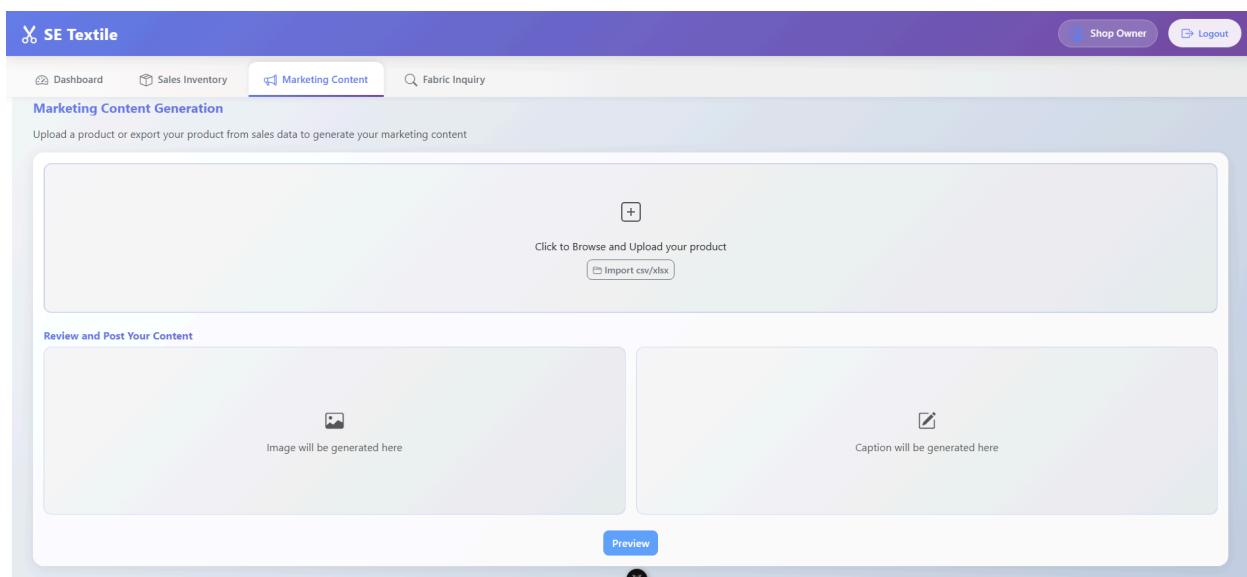


Fig 10: Shop Owner Dashboard with Product Browsing

## **Shop Owner Marketing page**

The marketing page automatically creates professional, ready-to-post images and captions within one minute of uploading a product image. Shop owners can instantly share these polished marketing materials across their social media platforms without needing any design skills or hiring expensive designers. This feature saves both time and money while maintaining a consistent, professional online presence that attracts customers. By automating the marketing content creation process, owners can focus on running their business while keeping their social media active and engaging.



*Fig 11: Shop Owner Marketing Content Page*

## **Shop Owner Inquiry Page**

The shop owner can simply upload a photo of any trending fabric they've spotted, and the system automatically sends it to selected distributors along with an inquiry message. This eliminates the need to manually compose and send separate emails to multiple suppliers asking about availability and pricing. Shop owners receive quick responses about whether similar fabrics are in stock, helping them stay on top of current trends and customer demands. By automating the inquiry process, this feature saves significant time and ensures owners can secure popular items before competitors do.

Fig 12: Shop Owner Inquiry Page

## Shop Sales Inventory Page

The Sales Inventory Page keeps a record of all sales data uploaded by the shop owner. It helps track daily and weekly sales activity, making it easier to identify which products need restocking. The page also supports detailed analysis for reorder planning, highlights sales trends, and provides better forecasting to ensure the store stays stocked efficiently.

S. No.	Image	Product Name	Sales QTY	Price/Meter	Stock	SKU ID	Actions
1		Handwoven Silk Brocade Premium Silk	245 m	₹1,850	82m	SILK-BR-001	
2		Premium Cotton Batik Cotton Fabric	312 m	₹650	156m	COT-BAT-002	
3		Luxury Georgette Floral Georgette	189 m	₹1,450	67m	GEO-FLR-003	
4		Designer Silk Collection Designer Silk	156 m	₹2,150	45m	SILK-DSG-004	
5		Traditional Block Print Cotton Print	278 m	₹780	123m	COT-BLK-005	
6		Artisan Handloom Cotton Handloom	198 m	₹890	89m	COT-HND-006	
7		Ethnic Paisley Print Printed Fabric	167 m	₹720	98m	PRT-PAI-007	

Fig 13: Shop Owner Sales Inventory

## Distributor Demand Page

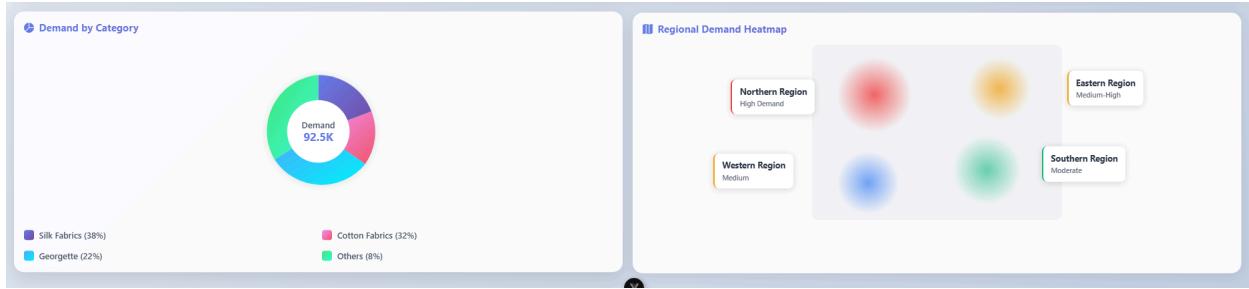
The distributor can select specific months, locations, and time periods (monthly, quarterly, or yearly) to view demand patterns in any particular region. By understanding regional demand patterns automatically, distributors can maximize sales and avoid wasting resources on low-demand locations.

Fig 14:Distributor Dashboard With Regional Demand Analysis page

The system displays the top 5 trending products in the selected region and time period. This information helps distributors plan personalized promotions, decide where to focus stock replenishment, and create targeted marketing campaigns for high-potential areas.

Fig 15: Distributor Dashboard With Trending Products Page

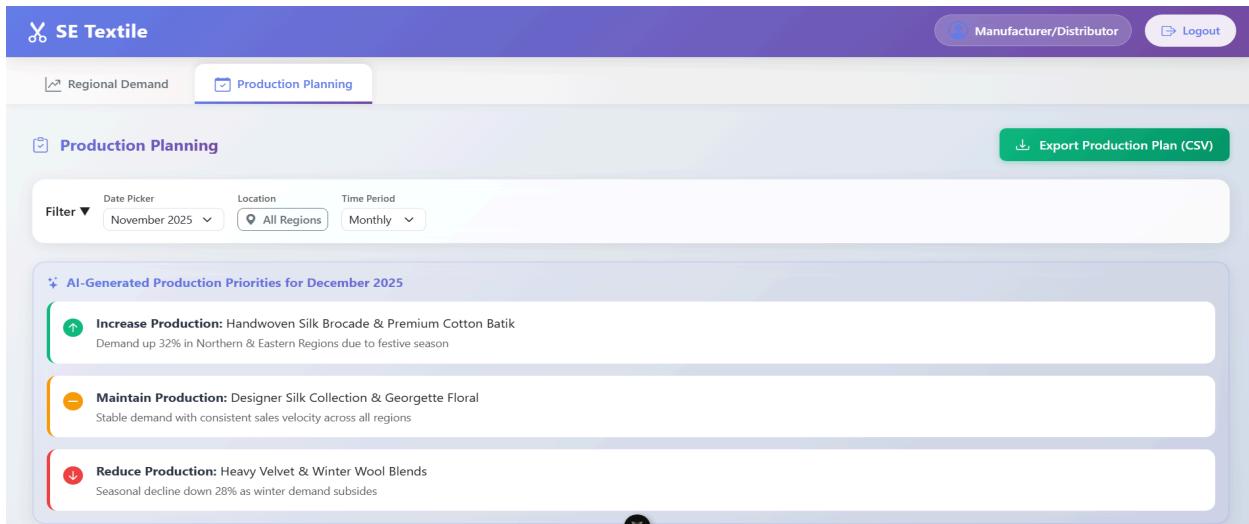
A demand-by-category donut chart breaks down sales proportions across fabric types. By understanding category preferences automatically, distributors can maximize sales and avoid wasting resources on low-demand locations. An AI-generated interactive heatmap visually displays which nearby areas are experiencing rising or falling demand for different fabrics. The system also provides an AI-generated summary that highlights key insights and opportunities without requiring manual data analysis.



*Fig 16: Distributor Dashboard With Heatmap and Donut Chart page*

## Production planning page

The manufacturer can generate production plan reports by selecting specific months, locations, and time periods (monthly, quarterly, or yearly) . The AI provides clear recommendations on which products to increase, reduce, or maintain production for based on actual sales trends.



*Fig 17: Manufacturer Dashboard With Production Planning page*

The report includes top-selling products by region, a donut chart showing the performance breakdown of each product category, and a bottom 5 products section highlighting underperformers. This comprehensive analysis helps manufacturers identify exactly where to focus their production capacity and which items to phase out or reduce. By following these AI-generated insights, manufacturers can plan next month's production priorities efficiently, avoiding overproduction of slow-moving items and ensuring high-demand products are adequately supplied.

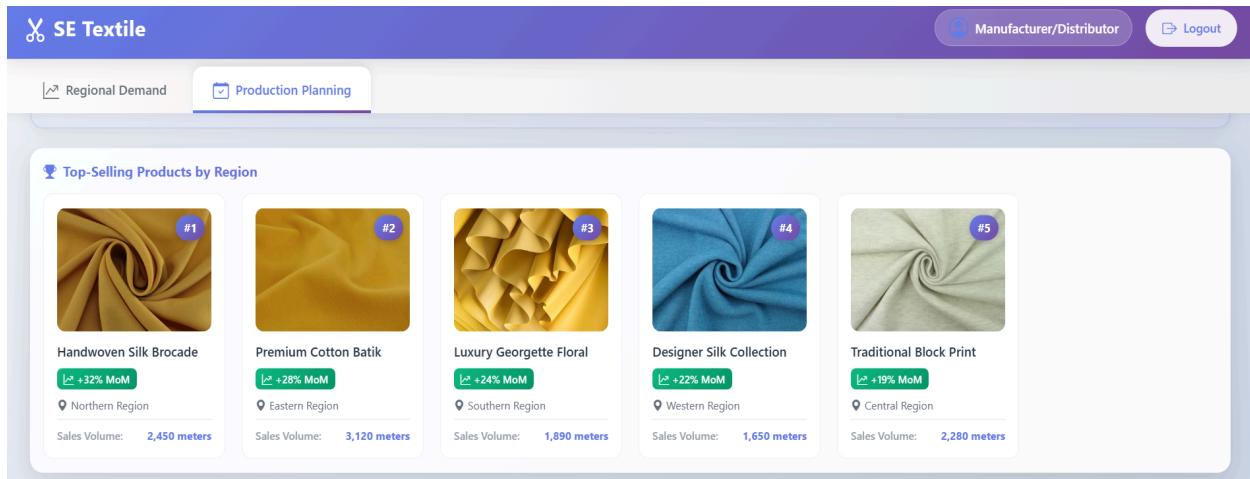


Fig 18: Manufacturer Dashboard with Top-Selling Products by Region Page

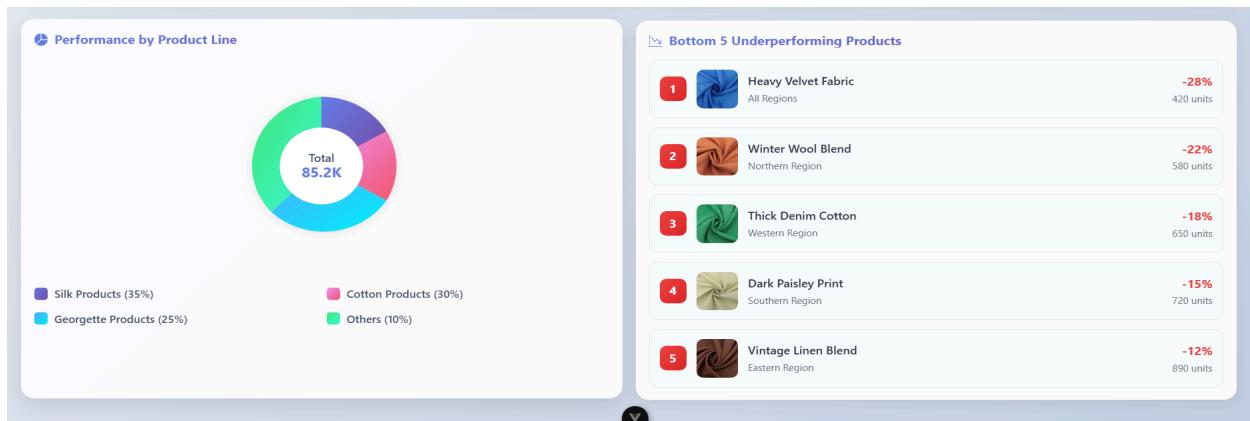


Fig 19: Manufacturer Dashboard with Donut Chart and Top 5 Worst-Performing Products

## Class Diagram

[Click Here For Better View](#)

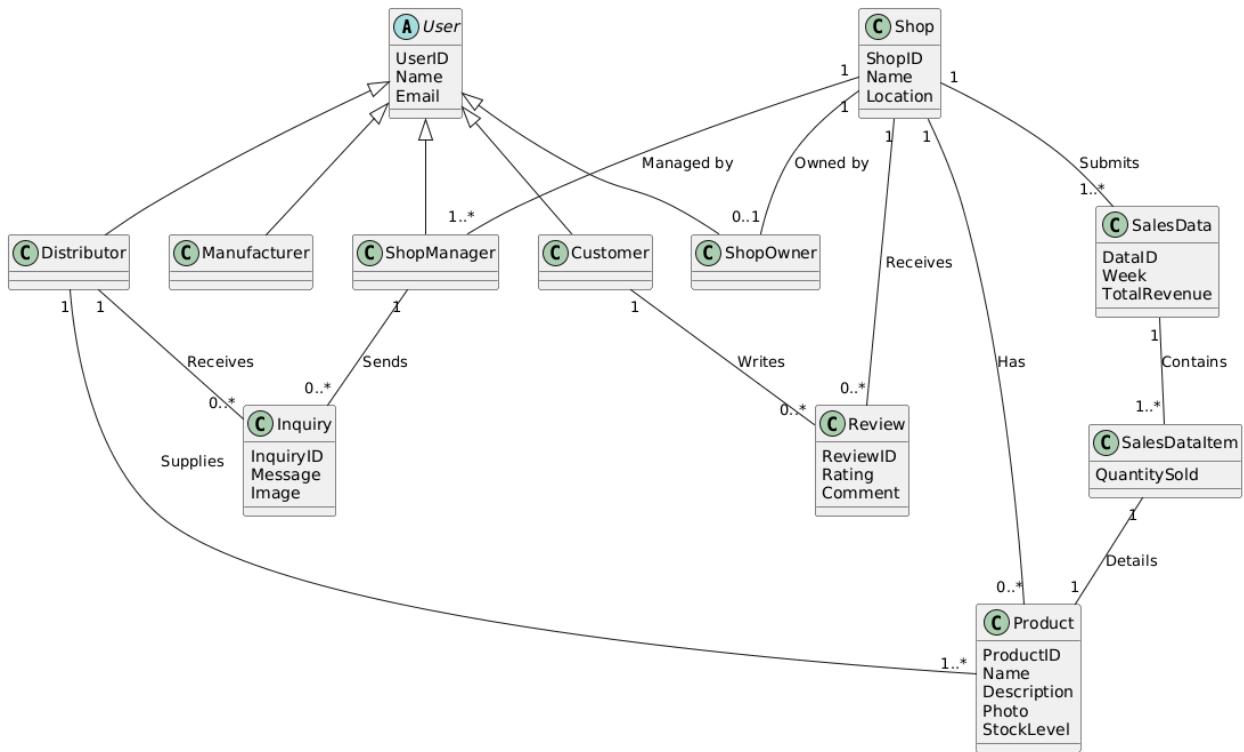
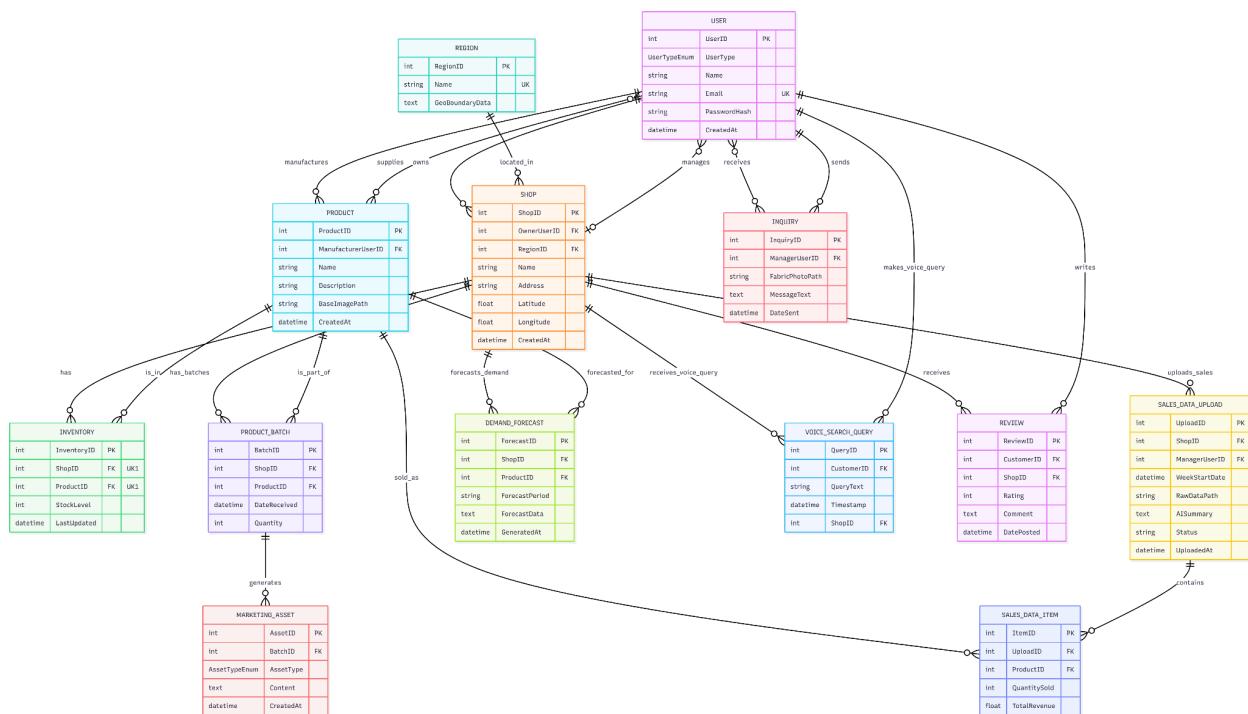


Fig 20: Team 13 Class Diagram (Above)

Fig 21: Team 13 ER Diagram (Below)

## ER Diagram

[Click Here For Better View](#)



## Use Diagram

[Click Here For Better View](#)

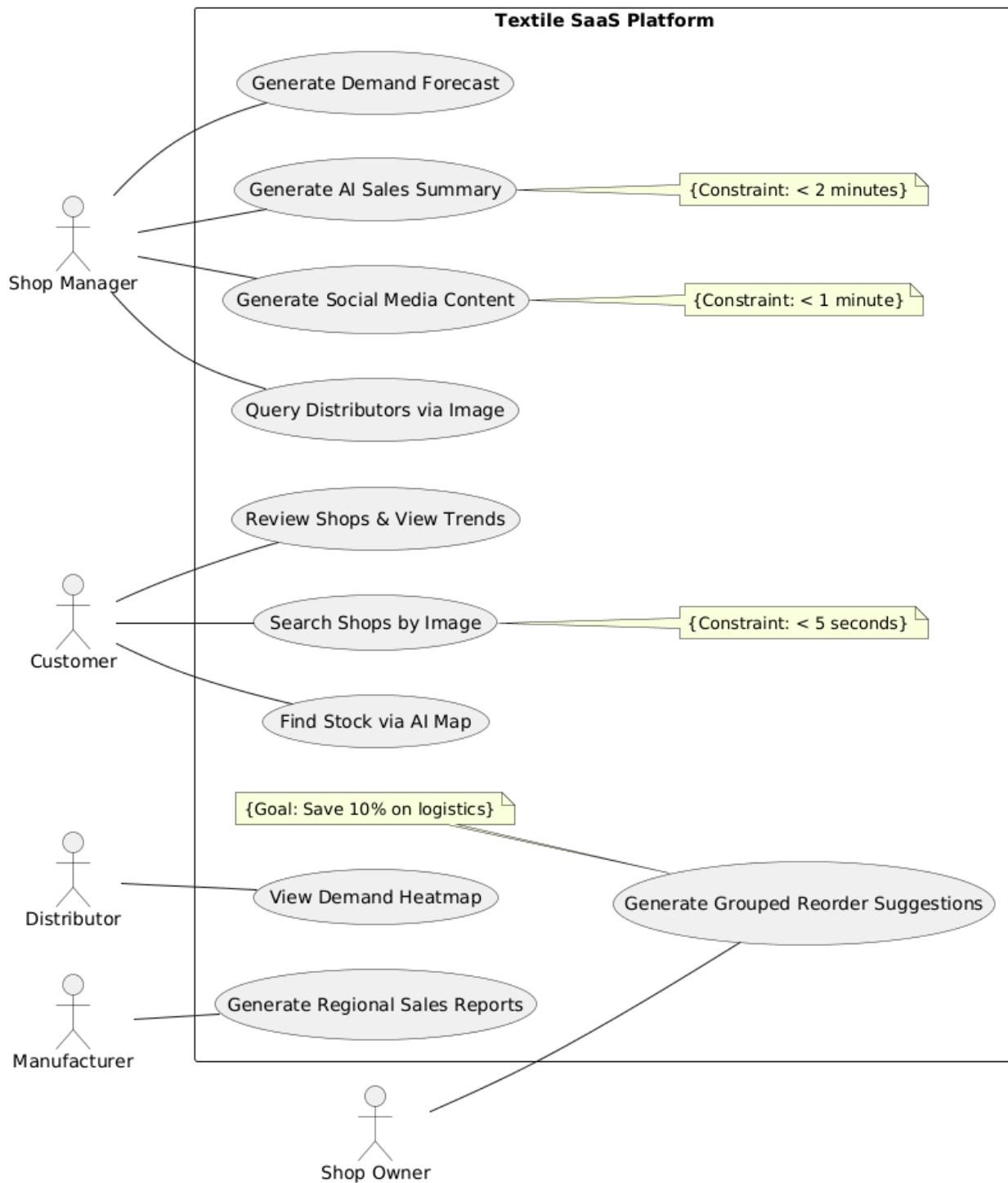


Fig 22: Team 13 Use Diagram (Below)