

CustomTees

MINI PROJECT REPORT

Submitted in partial fulfillment of the requirements of the degree

BACHELOR OF ENGINEERING IN INFORMATION TECHNOLOGY

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(Academic Year 2024-25)

CERTIFICATE

This is to certify that the Mini Project entitled “**CustomTees – Crafting Personalized Tshirts Application Website**” is a bonafide work of **Aarya Arban (05), Aniket More (65), Digvijaysingh Rajput (81), Jatin Ghind (107)** submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the degree of “**Bachelor of Engineering**” in “**Information Technology**”.

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Mini Project Approval

This Mini Project entitled “**CustomTees – Crafting Personalized Tshirts Application Website**” by **Aarya Arban (05), Aniket More (65), Digvijaysingh Rajput (81), Jatin Ghind (107)** is approved for the degree of **Bachelor of Engineering in Information Technology**.

Examiners

1.....
(Internal Examiner name & Sign)

2.....
(External Examiner name & Sign)

Date: 28 October, 2024

Place: Mumbai

ACKNOWLEDGEMENT

This project has consumed a significant amount of time and resources, and we would like to thank our respected Principal, HOD, Professors, Lab assistants and friends and everyone who has contributed to its success. We would like to express our deepest gratitude to the project head, Dr. Arun Kulkarni for his time, patience and direction, as well as for inspiring us throughout. Without their guidance and support, this project would not have been possible. Their expertise, insights, and encouragement were invaluable in helping us navigate the various challenges and complexities of this project.

We would also like to extend our sincere thanks to the many research papers we consulted throughout this project. The insights and ideas presented in these papers were instrumental in helping us develop a deeper understanding of the subject matter and in shaping the direction of our research.

We are also grateful to our colleagues and friends who provided us with valuable feedback and support throughout the project. Their encouragement and insights were invaluable in helping us refine our ideas and in pushing us to achieve our best work.

ABSTRACT

Existing platforms for custom apparel often struggle to provide users with intuitive design tools, real-time order tracking, and seamless integration of designer contributions, leading to limited personalization options and delayed updates. These challenges highlight the need for an innovative and efficient solution like "CustomTees" to redefine personalized apparel shopping and align with modern consumer expectations.

"CustomTees" is driven by the demand for a streamlined, user-friendly platform that bridges customers, designers, and manufacturers, enhancing the accessibility and customization of unique apparel. By addressing gaps in existing systems and utilizing advanced technologies, this platform seeks to offer real-time design, order tracking, and personalized experiences, ultimately transforming the custom apparel industry.

The main objective of "CustomTees" is to deliver a comprehensive, all-inclusive platform for custom apparel, tailored to the diverse needs of customers, designers, and sellers. Built with the MERN stack, the system integrates features such as a live customization tool, designer marketplace, facilitating creative freedom and user engagement.

Key features of the "CustomTees" platform include an interactive design interface and efficient order tracking to ensure quality and transparency at every stage. Through its dynamic interface and digital-first approach, "CustomTees" aims to empower users with the tools to create apparel that reflects their style while supporting designers with a robust marketplace for their creations.

In conclusion, "CustomTees" provides a transformative solution to the limitations of traditional custom apparel platforms. By merging technology with creativity, this project aspires to modernize the apparel industry, enhance user satisfaction, and foster an engaging, community-driven approach to personalized fashion, making a significant impact on consumer and designer experiences alike.

Contents

1	Chapter 1	Page No
1.1	Introduction	1
1.2	Motivation	1
1.3	Problem Statement & Objectives	2
1.4	Organization of the Report	3
2	Chapter 2	
2.1	Survey of Existing System	4
2.2	Limitation Existing system or research gap	4
2.3	Mini Project Contribution	4
3	Chapter 3	
3.1	Proposed System	5
3.2	Architecture/ Framework	6
3.3	User Flow	7
3.4	Database Structure	8
3.5	Results	9
3.6	Conclusion and Future work	22
3.7	References	23

List of figures

Fig No.	Title	Page No.
3.4.1	Database Structure	8
3.5.1	User Home Page	9
3.5.2	Product Page	10
3.5.3	Product Page (Filtering)	11
3.5.4	Product Details	12
3.5.5	Cart and Checkout Page	12
3.5.6	Payment Gateway	13
3.5.7	Success Page	14
3.5.8	Order History	14
3.5.9	Bill Page	15
3.5.10	Downloaded Invoice	16
3.5.11	3D Customization Tool	16
3.5.12	Design Submission Page	17
3.5.13	Sign In Page	18
3.5.14	Admin Dashboard	18
3.5.15	Admin Products Page	19
3.5.16	Orders Page	19
3.5.17	Order Details Page	20
3.5.18	Design Submission Page	21
3.5.19	Add Design Page	21

CHAPTER 1

1.1 Introduction

In the world of personalized fashion, CustomTees stands as a revolutionary platform, filling a unique gap in the digital marketplace for those looking to create, customize, and showcase individual style through T-shirt design. While many platforms cater to generic apparel needs, CustomTees focuses on empowering customers, artists, and businesses with tools to bring their unique designs to life, reflecting a shift towards personalized and interactive fashion.

CustomTees was born from a passion for creative expression and the desire to make customization accessible for everyone. Our platform streamlines the entire process of designing and purchasing custom apparel, encouraging users to explore their creativity and helping artists gain visibility. With features that foster a sense of individuality and community, CustomTees aims to enhance user experience, bridging the gap between personal creativity and wearable fashion, ultimately shaping a new era in personalized style.

1.2 Motivation

CustomTees embarks on an exciting mission in the world of personalized fashion, recognizing the profound impact that custom apparel can have on self-expression and brand identity. In today's digital landscape, small businesses often face hurdles in providing customers with interactive and unique customization experiences. Many customized T-shirt brands struggle to scale and meet customer demands for personalization while maintaining efficient business management.

CustomTees was created with a specific purpose: to support a friend who founded a customized T-shirt business. Inspired by his vision, we designed this platform to empower his brand to offer a seamless customization experience. With CustomTees, our goal is to simplify the design-to-purchase process for customers, facilitate collaboration with artists, and equip the business with robust tools for managing orders and analytics.

This platform serves as both a tribute to small business owners who innovate and a resource for customers who value individuality in fashion. CustomTees strives to bridge the gap between creativity and accessibility, fostering a closer, more personalized relationship between customers and the apparel they wear, and paving the way for a new wave of digitally-driven custom fashion.

1.3 Problem statement and Objectives

In the field of custom apparel, a significant challenge lies in delivering a seamless, interactive, and accessible customization experience for customers and businesses alike. Acknowledging this gap, the problem CustomTees seeks to address is defined as follows:

"While the demand for personalized fashion is rising, existing platforms often fall short in enabling customers to fully express their creativity through custom designs and in providing businesses with efficient tools to manage orders and customer engagement. The absence of a centralized, user-friendly solution limits the growth potential of small custom apparel businesses, making it difficult for them to meet diverse customer expectations and stand out in the competitive fashion market. This limitation hampers the reach and impact of personalized fashion, stifling creative expression and business growth in the industry."

Objectives

To address the need for personalized fashion and efficient business management in the custom apparel industry, our objective is to develop the CustomTees platform, focusing on:

- **Seamless Customer and Design Management:**
Build an intuitive dashboard to manage customer orders, track designs, and streamline order fulfillment for a more efficient workflow.
- **Enhanced Accessibility and User Experience:**
Provide a user-friendly interface accessible to customers, artists, and the business team, making it easy to create, customize, and order T-shirts, while promoting creativity and customer engagement.

By accomplishing these objectives, CustomTees aims to become an essential tool for custom T-shirt businesses, simplifying the customization process, enhancing the customer experience, and supporting business growth through streamlined operations.

1.4 Organization of the report

This report is divided into three chapters. The first chapter covers the project's introduction, problem description, motivation for the topic, and objectives. The second chapter is a review of the literature. It contains all the research done on this topic. This chapter covers all you need to know about studying current systems and learning new technologies. The third chapter describes the suggested system that will be employed in this project. This chapter contains screenshots of the project's block diagram, methodologies, hardware, and software. All materials referred to and utilized in the development of this project are included in the references section.

CHAPTER 2

2.1 Survey of existing system

The current landscape for custom apparel businesses largely consists of basic e-commerce platforms or third-party services that allow limited personalization options. These platforms provide the means to sell T-shirts with custom designs, yet many lack a fully integrated system for customers to directly create and preview designs, and for business owners to efficiently track orders, manage inventory, and analyze customer trends. This can lead to limitations in customer engagement, process efficiency, and overall business growth. In response to these challenges, CustomTees seeks to offer a complete, tailor-made solution for custom T-shirt businesses. By providing an all-in-one platform that includes an interactive design studio, comprehensive order management, and data-driven insights, CustomTees is designed to streamline the customization and ordering process, enhance user experience, and empower business owners to efficiently manage and grow their operations.

2.2 Limitation of existing system or research gap

In the current landscape of custom apparel platforms, a significant gap exists in providing a comprehensive, interactive solution that meets the needs of both customers and business owners on a centralized platform. Many existing systems lack advanced customization tools, efficient order-tracking capabilities, and seamless integration of customer analytics, limiting the potential for an engaging and efficient user experience. Additionally, the absence of real-time design previews and streamlined business management tools leaves small businesses dependent on manual processes, which can hinder scalability and responsiveness to customer demands. Addressing these limitations is essential to enhance the customization experience, boost operational efficiency, and enable personalized fashion businesses to thrive in a competitive digital market.

2.3 Mini project contribution

CustomTees represents an innovative leap in the personalized apparel industry, providing a seamless platform for customers, artists, and business owners to collaborate on custom T-shirt designs. This intuitive system transforms the way customers experience fashion by enabling real-time customization and easy order management. CustomTees not only simplifies the design-to-purchase process and enhances the customer experience but also equips small businesses with tools for data-driven decision-making and growth. Through its unique features and user-centric design, CustomTees makes a significant contribution to the evolution of personalized fashion, promoting creativity, accessibility, and efficiency in the custom apparel market.

CHAPTER 3

3.1 Proposed System:

Our project, CustomTees, is a comprehensive platform tailored for personalized T-shirt businesses, catering to customers, artists, and business owners. This user-friendly application offers a suite of functionalities designed to streamline the entire customization and ordering process:

Customer Shopping Hub:

Allow customers to easily preview and order their desired T-shirts. CustomTees provides a real-time design studio where users can experiment with colors, styles, and graphics, making the customization experience engaging and intuitive.

Order and Inventory Management:

Manage incoming orders and track inventory in real-time, ensuring smooth fulfillment processes and optimal stock levels. Advanced tracking mechanisms help business owners monitor design trends and prevent inventory shortages, improving overall operational efficiency.

Artist Collaboration Platform:

Enable artists to upload and showcase their designs directly on the platform, giving them a space to reach new customers. This fosters a creative marketplace that adds value for customers while supporting artist visibility.

CustomTees is distinguished by its tailored features, which prioritize simplicity and effectiveness in the personalized apparel market. The platform not only enhances customer experience but also supports business scalability and creativity, making it a valuable tool in the custom fashion industry.

3.2 Architecture / Framework

React.js:

CustomTees leverages React.js for building dynamic user interfaces, providing a responsive and engaging experience for customers. With its component-based architecture, React.js allows developers to create reusable UI components, simplifying the development process and enhancing maintainability. Its virtual DOM feature ensures efficient rendering, resulting in a fast and smooth user experience. Additionally, React's ecosystem supports various libraries and tools, facilitating the integration of features such as real-time design previews and responsive layouts. Overall, React.js serves as a robust framework that elevates the usability and interactivity of the CustomTees platform.

Node.js and Express.js:

The backend of CustomTees is powered by Node.js and Express.js, providing a scalable and efficient server-side environment. Node.js enables asynchronous processing, allowing the application to handle multiple requests simultaneously without performance bottlenecks. Express.js simplifies routing and middleware management, streamlining the development of RESTful APIs. This combination not only optimizes performance but also ensures a seamless flow of data between the frontend and backend, supporting functionalities like order management, customer authentication, and real-time updates.

MongoDB:

The database for the CustomTees project is designed using MongoDB, a NoSQL database known for its flexibility and scalability. MongoDB's document-oriented structure allows for dynamic data storage, which is ideal for managing diverse customer designs, order histories, and artist profiles. This choice facilitates rapid data retrieval and supports the evolving needs of the application as it grows. Additionally, MongoDB's integration with Node.js enhances the overall performance and responsiveness of the application, making it a suitable choice for the CustomTees platform.

3.3 User Flow

Admin Page

Upon logging in, admin will arrive at the CustomTees Admin dashboard, where they can access several key options:

1. **Design Submission:** Add, Update and Delete design submissions. View a list of submitted designs with relevant details. Also add new product based on the design submitted.
2. **Orders:** View and Update customer orders. Display an organized list of all orders with necessary information where admin can update the order status.
3. **Products:** Track the total count of T-shirt sizes and colors available, helping manage stock effectively.
4. **Billing:** Generate invoices for orders, handling secure transactions.
5. **Website Interface:** Admin can change the display banner and advertise products with ease.

User Page

Once the user has logged in, they will arrive at the CustomTees dashboard. Here, the user has access to the following options:

1. **Design Studio:** Create and save custom T-shirt designs by working on a 3d model.
2. **Orders:** Place and track orders, with a list displaying order details and status for easy reference.
3. **Products:** View available T-shirt sizes, colors, and stock levels for each product.
4. **Billing:** Generate and manage invoices for each order, providing a seamless checkout experience.
5. **Submit Design:** Submit a design to be displayed and sold on the website.
6. **Filters:** Search desired tshirt based on advanced search filtering.

3.4 DATABASE STRUCTURE

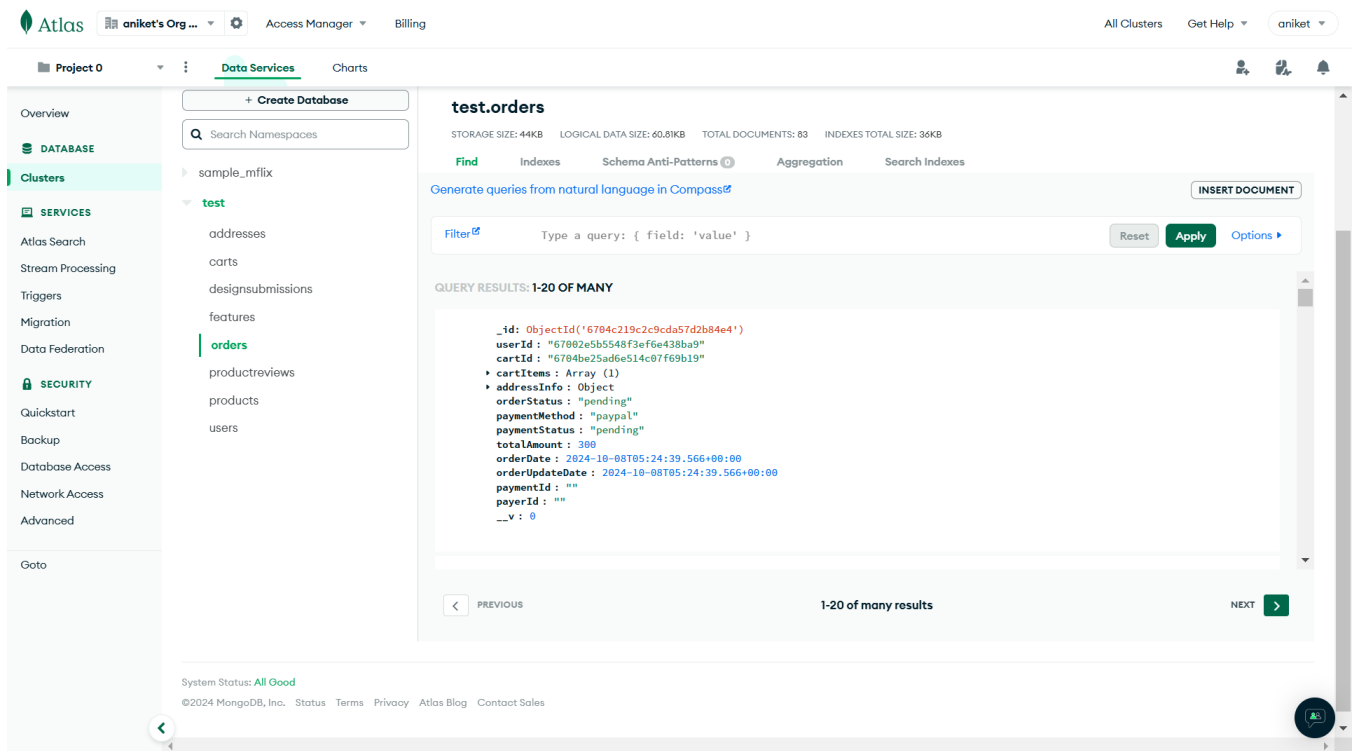


Fig 3.4.1 describes the program for creating databases for our system.

Database Scheme Creation Steps:

- Import the required modules for MongoDB, such as mongoose, to interact with MongoDB databases.
- Define a createSchemas() function to create the necessary collections in the database.
- Establish a connection to the MongoDB database using mongoose.connect() with the CustomTees database URL.
- Define main collections: user, order, products, designsubmissions, carts, etc.
- The user collection stores information such as ID, name, email, gender, contact details, address, and order history.
- The order collection stores information such as order number, user ID, product details, order status, shipping information, and payment details.

The category collection organizes products by ID and name, including categories like Graphics, Men, Women, etc.

The product collection stores product details, including ID, category, name, price, size, colour, quantity, and availability status.

Define each schema using mongoose.Schema() and create models for each schema.

Use the {unique: true} option where needed to ensure unique records for specific fields, such as user

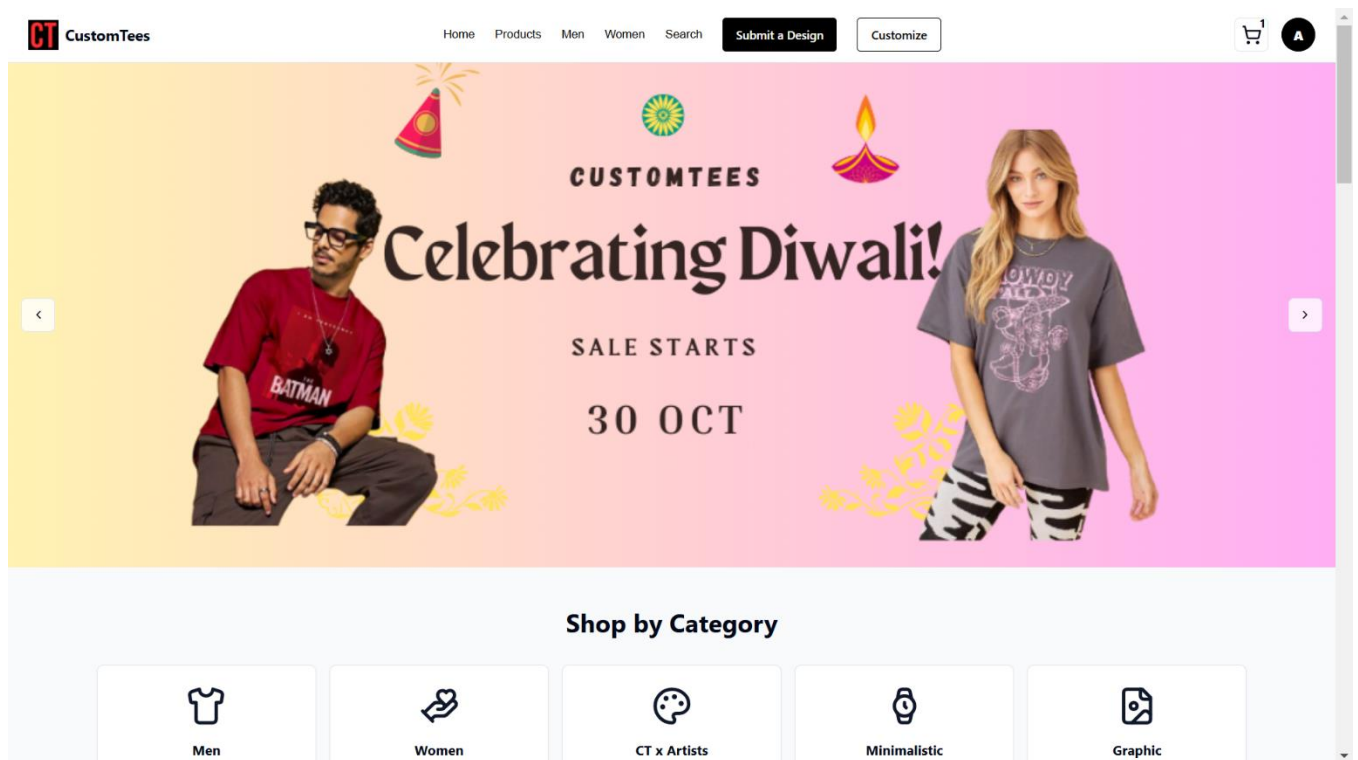
emails.

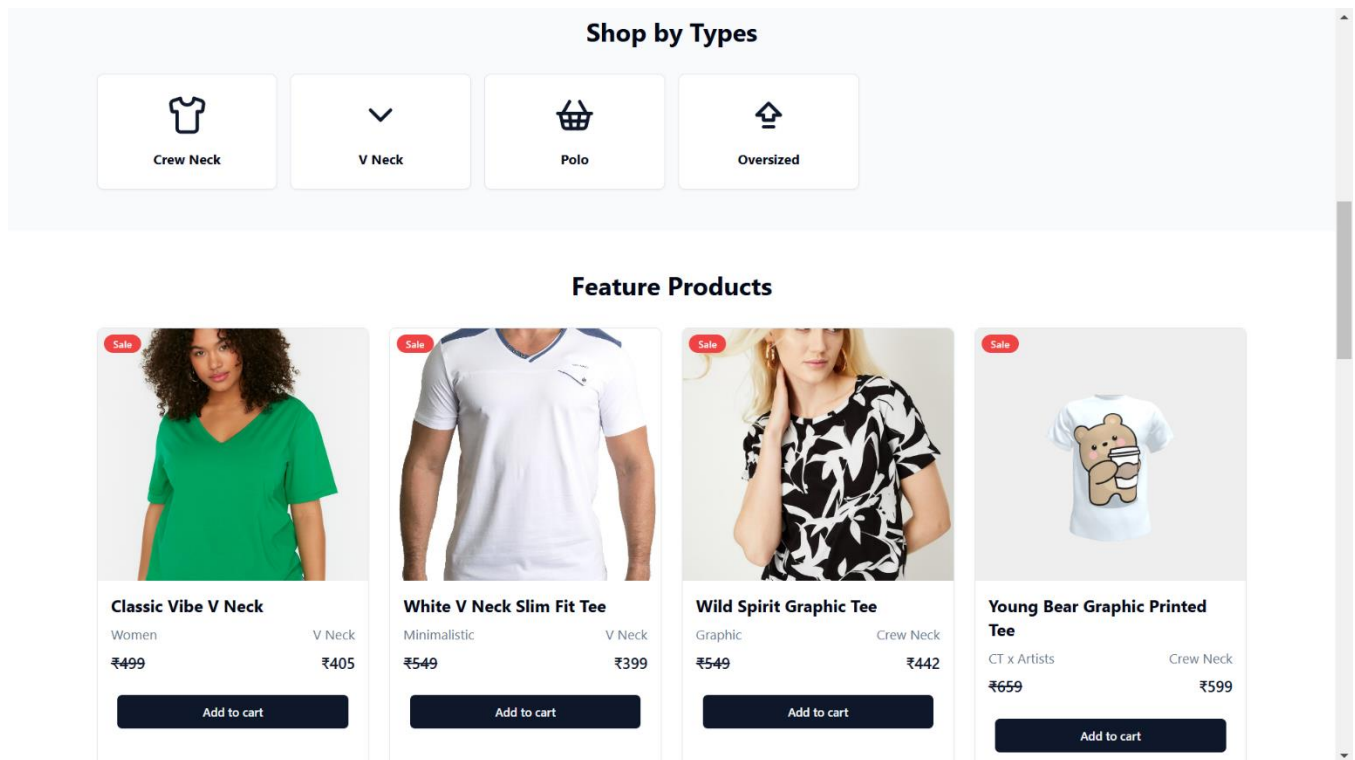
After defining schemas, call createSchemas() to initialize each collection and store sample data if required.

Close the database connection when done to ensure efficient database management

- Call the create_db() function to execute and create the database schema.

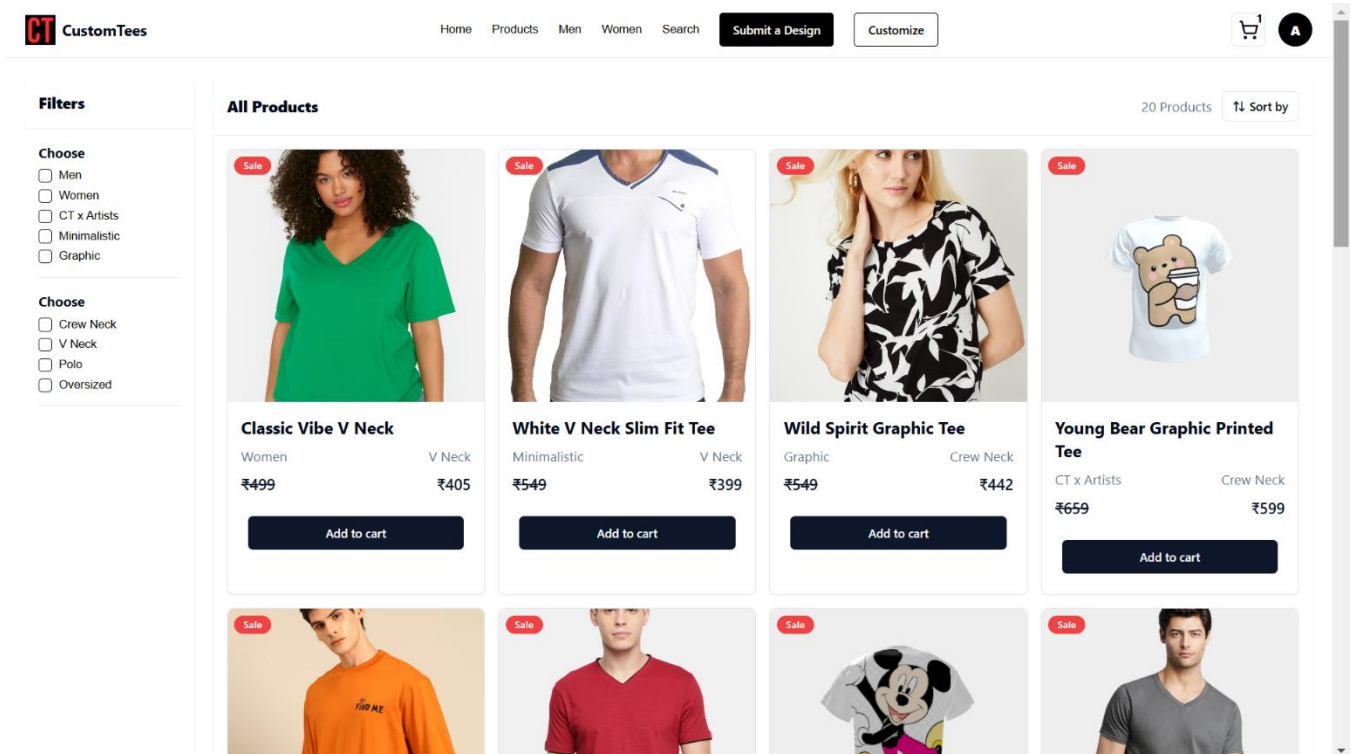
3.5 RESULTS





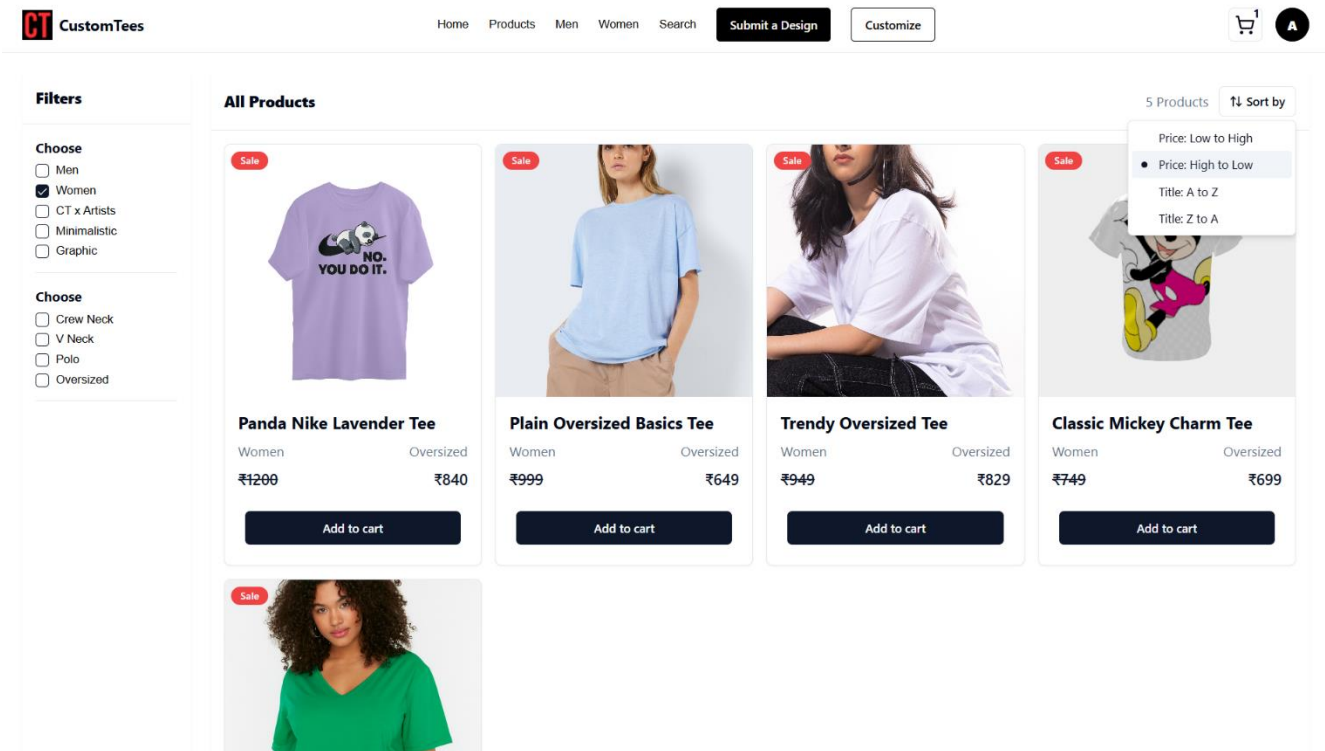
3.5.1 User Home Page

Fig 3.5.1 describes User Home Page. This page shows a list of products and advertisements.



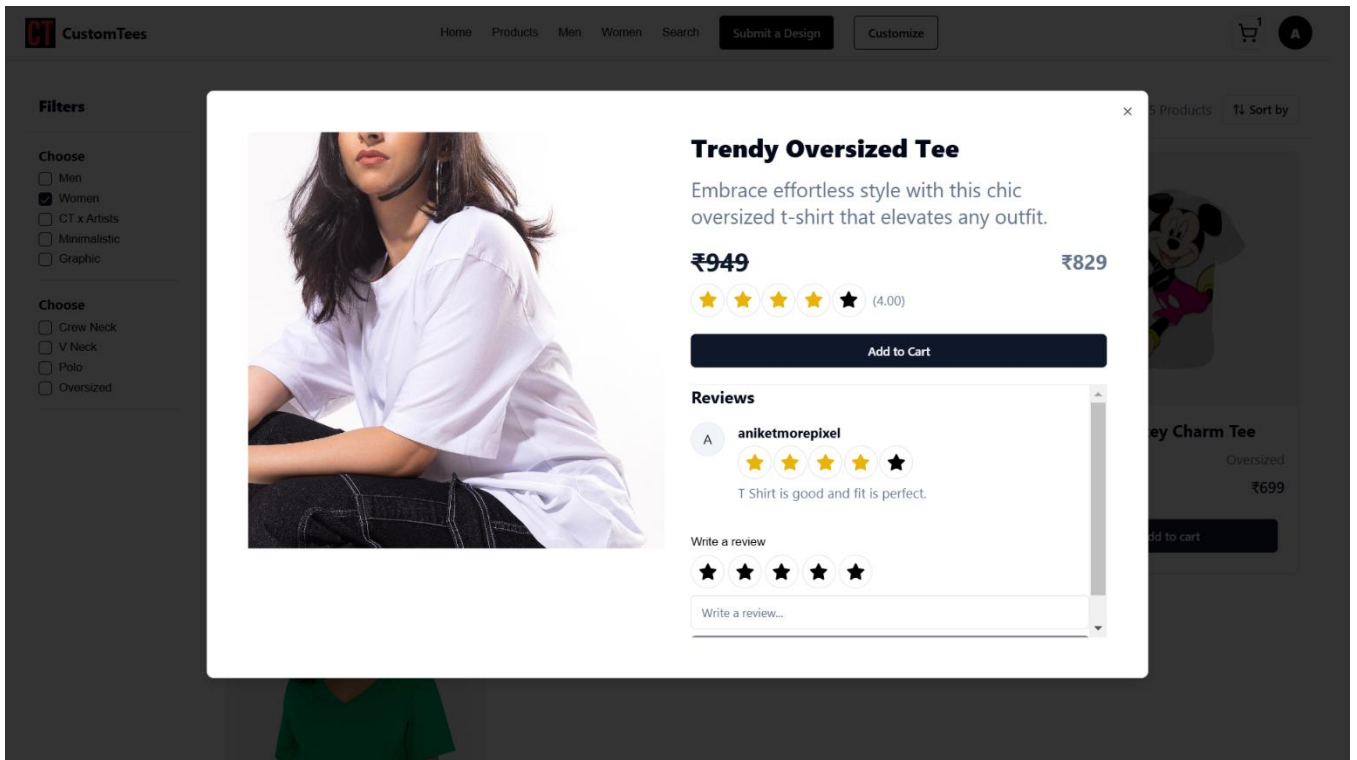
3.5.2 Product Page

Fig 3.5.2 describes Product Page. This page displays all products with advance filtering options



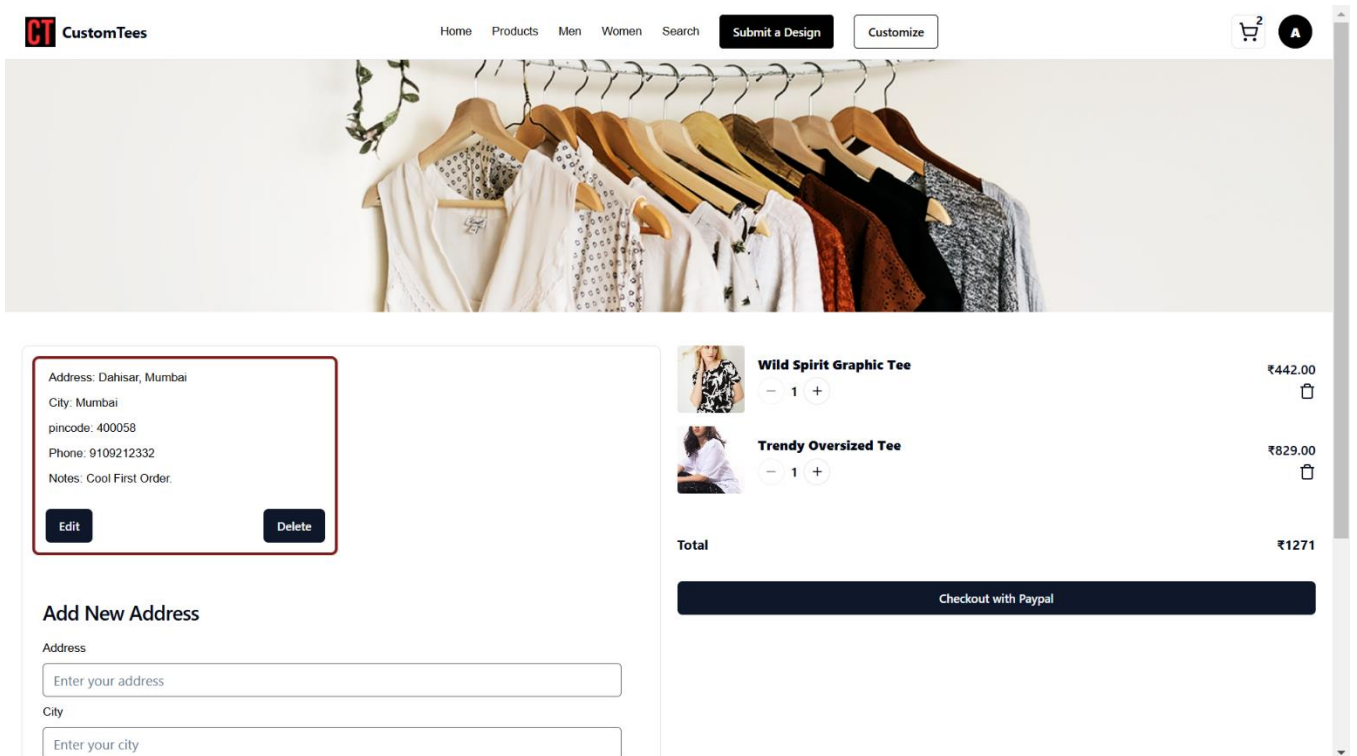
3.5.3 Product Page (Filtering)

Fig 3.5.3 describes Product Page. Here we have used a filter to optimize the search.



3.5.4 Product Details

Fig 3.5.4 describes Product Details. This page displays product's details and customer review and an option to add it to the cart.



3.5.5 Cart and Checkout Page

Fig 3.5.5 describes Cart and Checkout Page. Here, user can add and update his cart along with shipping address and proceed to payment

The screenshot displays the PayPal checkout interface. At the top, a header bar contains the user's initials 'JD', the PayPal logo, and the total amount '\$ 15.25 USD'. Below this, the delivery address is listed as 'Deliver to John Doe' with a 'Change' link. The address details are: 'Flat no. 507 Wing A Raheja Residency, Film City Road, Goregaon East, Mumbai, Maharashtra, 400097'. The payment method section, titled 'Pay with', shows a Visa credit card ending in '4310' with a balance of '₹ 1,321.37 INR'. There is a checkbox to 'Make this my preferred way to pay' and a note about the conversion rate: 'PayPal's conversion rate: 1 INR = 0.01154 USD' with a link to 'See currency options'. A '+ Link debit or credit card' option is also available. A large blue button labeled 'Continue to Review Order' is prominently displayed. At the bottom, there is a disclaimer about PayPal Services in India and a link to 'Cancel and return to Test Store'.

JD \$ 15.25 USD

Deliver to John Doe [Change](#)

Flat no. 507 Wing A Raheja Residency, Film City Road, Goregaon East,
Mumbai, Maharashtra, 400097

Pay with

Visa ₹ 1,321.37
Credit ****4310 INR

☐ Make this my preferred way to pay

PayPal's conversion rate: 1 INR = 0.01154 USD
[See currency options](#)

[+ Link debit or credit card](#)

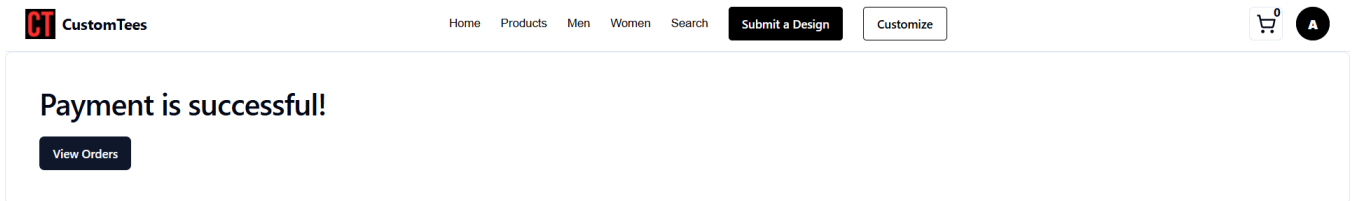
Continue to Review Order

PayPal Services in India are provided by PayPal Payments Private Limited (CIN U74990MH2009PTC194653). Users are advised to read the [Terms and Conditions](#) carefully.

[Cancel and return to Test Store](#)

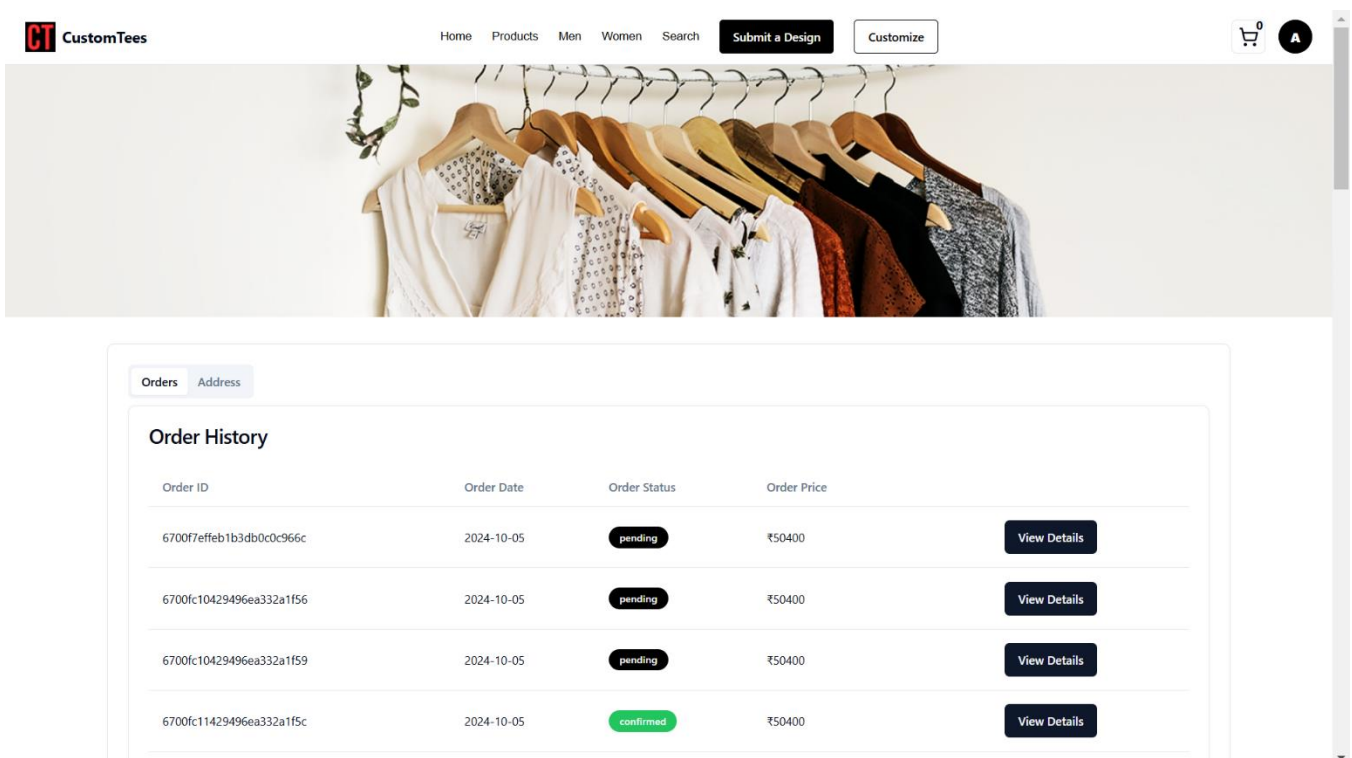
3.5.6 Payment Gateway

Fig 3.5.6 describes Payment Gateway. User can select mode of payment and proceed.



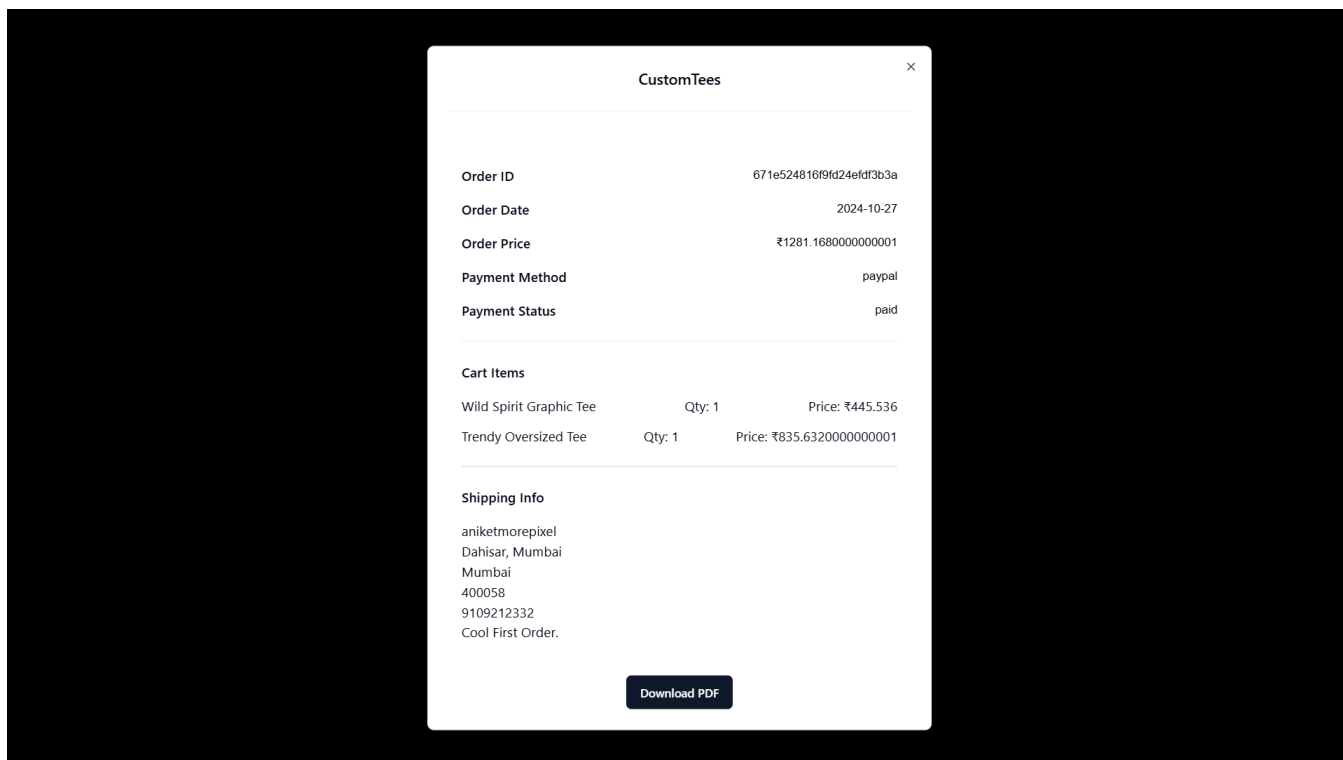
3.5.7 Success Page

Fig 3.5.7 describes Payment Success Page. This page displays successful payment of order.



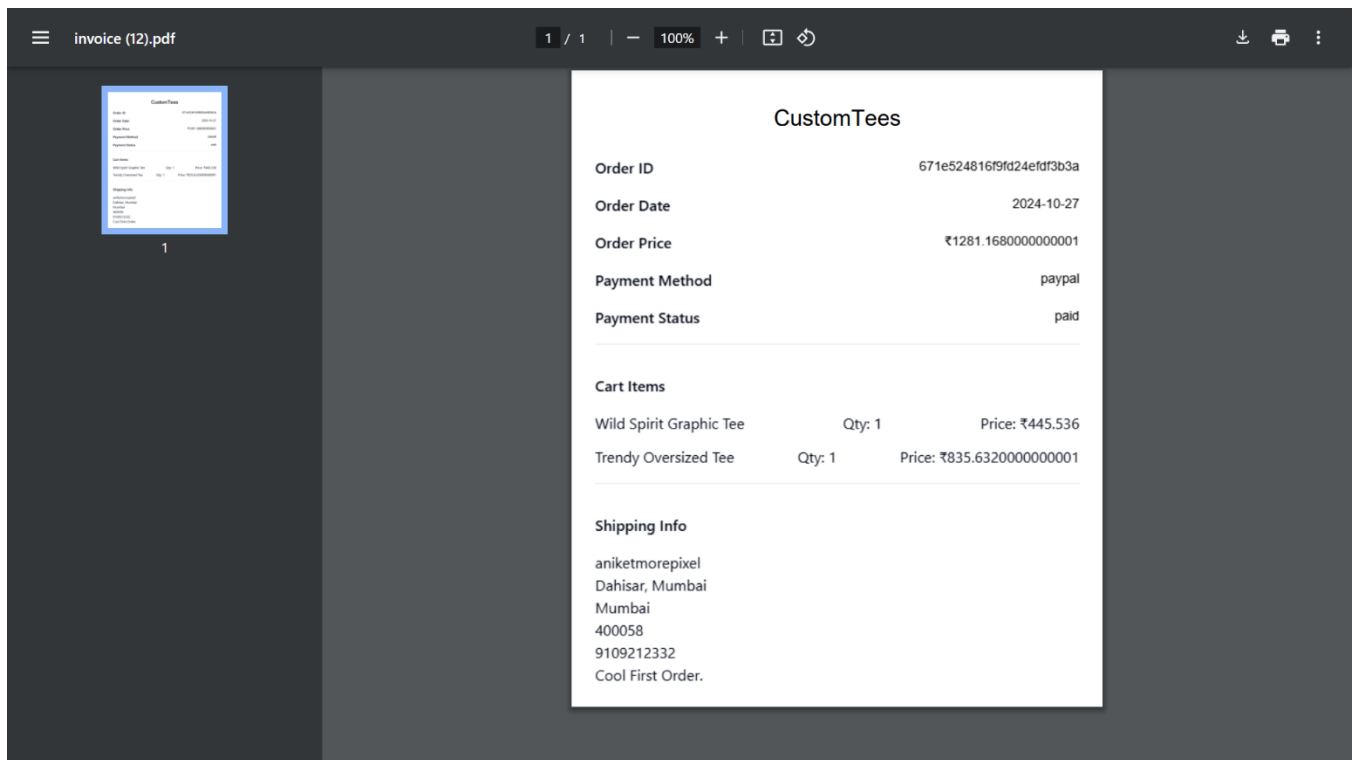
3.5.8 Order History

Fig 3.5.8 describes Order History. User can view and track his orders along with previous orders. Option to view bill is present too.



3.5.9 Bill Page

Fig 3.5.9 describes Bill Page. This page displays all the necessary order details. It comes along with an option to download the Invoice.



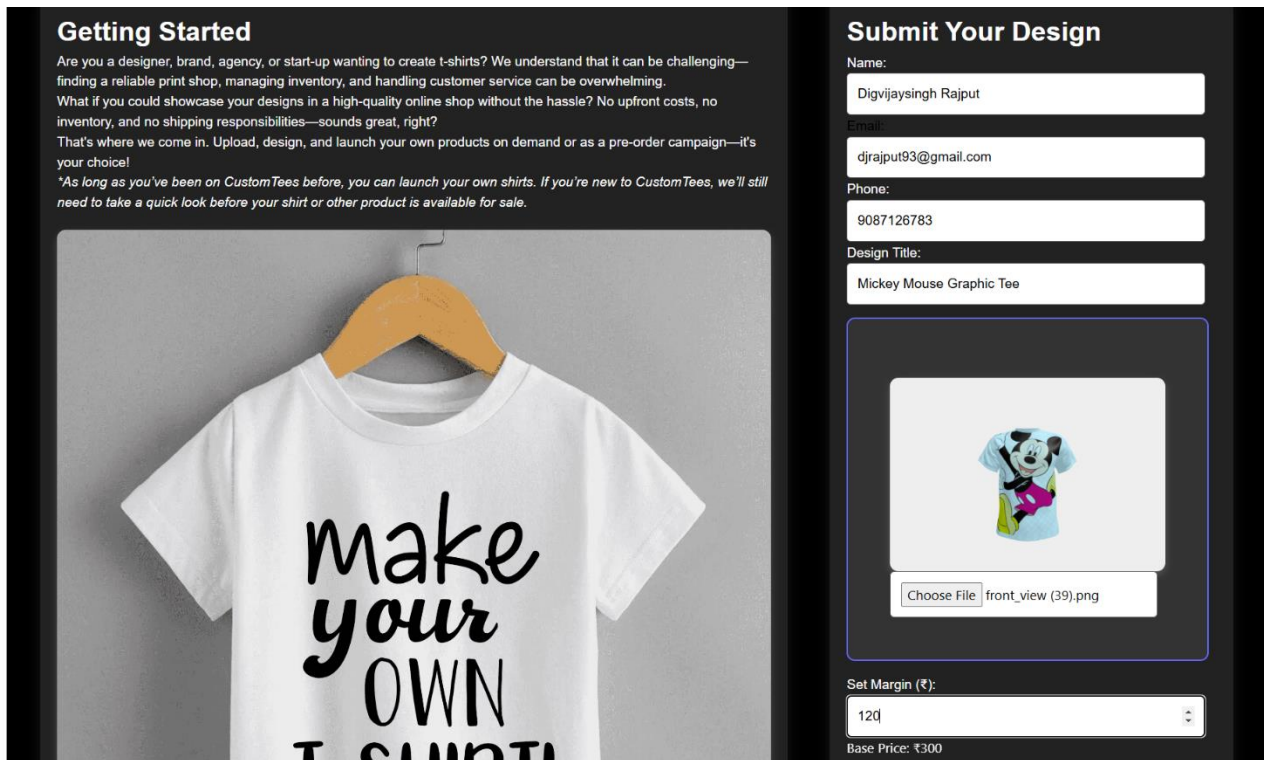
3.5.10 Downloaded Invoice

Fig 3.5.10 describes Downloaded Invoice. Thus the invoice has been saved on the user's end.



3.5.11 3D Customization Tool

Fig 3.5.11 describes 3D Customization Tool. This page gives the users an option to create their own unique tshirts by working on a 3d tshirt model utilizing available options.



Getting Started

Are you a designer, brand, agency, or start-up wanting to create t-shirts? We understand that it can be challenging—finding a reliable print shop, managing inventory, and handling customer service can be overwhelming. What if you could showcase your designs in a high-quality online shop without the hassle? No upfront costs, no inventory, and no shipping responsibilities—sounds great, right?

That's where we come in. Upload, design, and launch your own products on demand or as a pre-order campaign—it's your choice!

**As long as you've been on CustomTees before, you can launch your own shirts. If you're new to CustomTees, we'll still need to take a quick look before your shirt or other product is available for sale.*

Submit Your Design

Name: Digvijaysingh Rajput

Email: djrajput93@gmail.com

Phone: 9087126783

Design Title: Mickey Mouse Graphic Tee

Choose File front_view (39).png

Set Margin (₹): 120

Base Price: ₹300

3.5.12 Design Submission Page

Fig 3.5.12 describes Design Submission Page. User can fill the form, submit design and set their expected price margin.

Welcome to CustomTees

Sign in to your account

Don't have an account [Register](#)

Email

Password

[Sign In](#)

3.5.13 Sign In Page

Fig 3.5.12 describes Sign In page. User and Admin can sign in to their accounts. Admin can only login through authorized credentials.

Admin Panel

Dashboard

Products


Orders

Design Submissions


Logout


Upload Image

Choose File No file chosen


Drag & drop or click to upload image

Upload

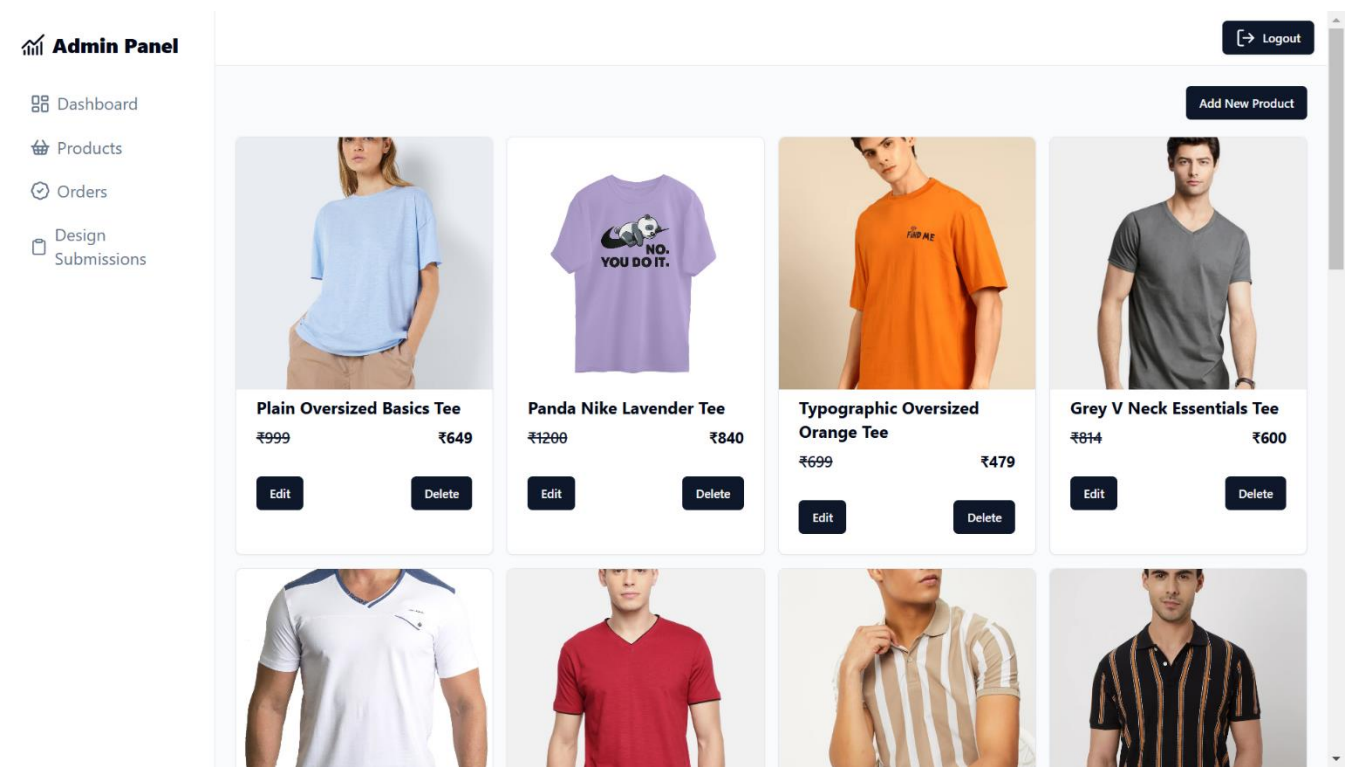




3.5.14 Admin Dashboard

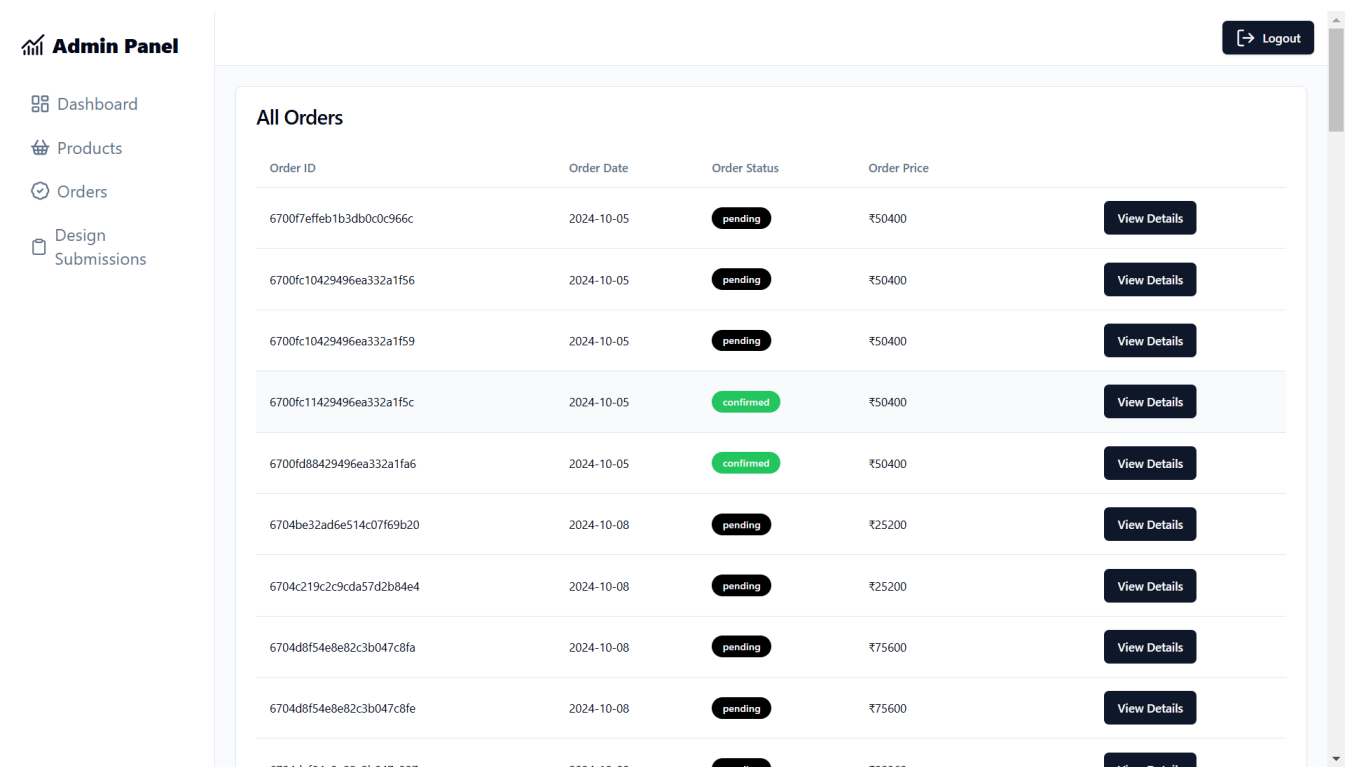
18

Fig 3.5.14 describes Admin Dashboard. Admin can add and delete the display banners to advertise products.



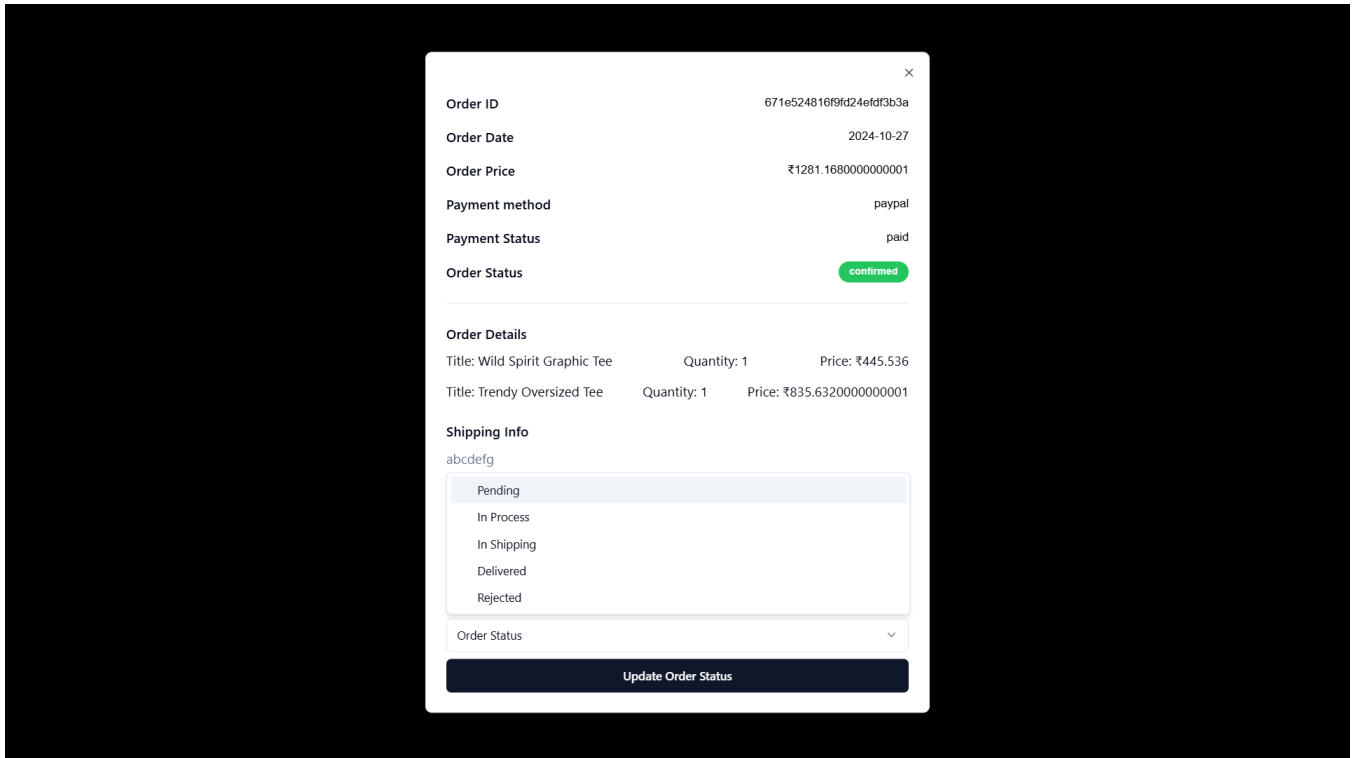
3.5.15 Admin Product Page

Fig 3.5.15 describes Admin Product Page. Admin can add, update and delete products.



3.5.16 Orders Page

Fig 3.5.16 describes Orders Page. Admin can view orders here.



3.5.17 Order Details Page

Fig 3.5.17 describes Order Details Page. Admin can update the order status.

Design Submissions

Young Bear Graphic Printed Tee

Name: Kunal Singh
Email: kunalsingh94@gmail.com



Phone: 9088712345
Margin: 24

Create Product

Reject

Panda Print Graphic Tee

Name: Satvik More
Email: satvik93@gmail.com



Phone: 9088712762
Margin: 24

Create Product

Reject

Serenity Mountain Print Tee

Name: Tanmay Patil
Email: tanmaypatil94@gmail.com



Phone: 9287190887
Margin: 34

Create Product

Reject

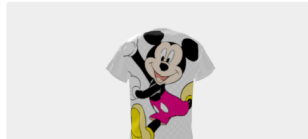
Abstract Art Tee White

Name: Pankaj Joshi
Email: pankaj94@gmail.com



Classic Mickey Charm Tee

Name: Aarya Mickey
Email: aaryamickey93@gmail.com



Passive Simple Tee

Name: Aniket More
Email: aniketmore.personal@gmail.com



3.5.18 Design Submission Page

Fig 3.5.18 describes Design Submission Page. Admin can approve or reject product designs.

Admin Panel

Dashboard

Products

Orders

Design Submissions

Design Submissions

Young Bear Graphic Printed Tee

Name: Kunal Singh
Email: kunalsingh94@gmail.com

Phone: 9088712345
Margin: 24

Create Product

Reject

Panda Print Graphic Tee

Name: Satvik More
Email: satvik93@gmail.com

Phone: 9088712762
Margin: 24

Create Product

Reject

Abstract Art Tee White

Name: Pankaj Joshi
Email: pankaj94@gmail.com

Classic Mickey Charm Tee

Name: Aarya Mickey
Email: aaryamickey93@gmail.com

Choose File: No file chosen

Title
Young Bear Graphic Printed Tee

Description
Bear Printed Tee

Category
Women

Type
Oversized

Price
899

Sale Price
799

Total Stock
Enter total stock

Add

3.5.19 Add Design Page

Fig 3.5.19 describes Add Design Page. After approving the design, Admin can add a new product.

3.6 CONCLUSION AND FUTURE WORK

Conclusion:

In conclusion, CustomTees embodies a transformative approach to personalized fashion, setting a new standard in custom T-shirt design and business management. This platform serves as a cohesive solution for customers, artists, and business owners, bringing seamless interaction and customization to the forefront. With features such as real-time design previews, artist collaboration, and robust inventory and order management, CustomTees stands out as an innovative tool that empowers users to create, connect, and manage their unique apparel visions.

The user-centric design and comprehensive analytics not only streamline operations but also provide valuable insights for growing the custom fashion business. CustomTees fosters a vibrant creative community while enhancing customer satisfaction, establishing a model for modern, user-driven commerce. By embracing CustomTees, businesses and customers alike are stepping into a future of personalization, efficiency, and creativity in the world of custom apparel.

Future Work:

CustomTees holds significant potential for further growth and enhancement across several areas:

1. **Product Range Expansion:** We plan to expand our product catalog, adding a wider variety of customizable apparel items, ensuring that CustomTees can meet diverse customer preferences and demands.
2. **UI Refinements:** Future development will focus on enhancing the platform's interface to improve visual appeal and ease of use, creating a more engaging and seamless experience for all users.
3. **Usability Enhancements:** CustomTees aims to become a more versatile platform, enabling users to connect and share designs with a wider community, fostering creativity and collaborative engagement.
4. **Sales Dashboard Integration:** Adding a comprehensive Sales Dashboard will enable insights into daily revenue, monthly sales trends, and performance comparisons, empowering data-driven decision-making for business growth.

3.7 REFERENCES

- [1] <https://www.yourdesignstore.in>
- [2] <https://threejs.org/docs/>
- [3] <https://lucide.dev/guide/packages/lucide-react>
- [4] <https://www.mongodb.com/lp/cloud/atlas>