



Capstone Project I

Academic Year- 2023-24

PROJECT ID: 19

FurniHub: Used Furniture E-Commerce Portal

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Faculty Mentor: Mr. Manish Hurkat



CERTIFICATE BY SUPERVISOR

This is to certify that the present Capstone Project I entitled “Used Furniture E-Commerce Portal” being submitted to NIIT University, Neemrana, in partial fulfillment of the requirements for the award of the Degree of Bachelor of Technology, in the area of CSE, embodies faithful original work carried out by Name, Name and Name. They have worked under my guidance and supervision and this work has not been submitted, in part or full, for any other degree or diploma of NIIT or any other University.

Place: NIIT University

Faculty Mentor’s Name: Mr. Manish Hurkat

Date: 5/8/2024



DECLARATION BY STUDENT(S)

We hereby declare that the project report entitled “Used Furniture E-Commerce Portal” which is being submitted for the partial fulfilment of the Degree of Bachelor of Technology, at NIIT University, Neemrana, is an authentic record of our original work under the guidance of Mr. Manish Hurkat and reviewed by Prof. Eswaran Narasimhan and Prof. Debashis Sengupta. Due acknowledgements have been given in the project report for all related work used. This has previously not formed the basis for the award of any degree, diploma, associate/fellowship or any other similar title or recognition at NIIT University or elsewhere.

Place: NIIT University

Date: 5/8/2024

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1. Problem Statement:

In today's fast-paced world, the demand for sustainable and affordable furniture solutions is on the rise. However, traditional furniture shopping experiences often come with limitations such as high prices, limited choices, and environmental concerns associated with manufacturing new items. Additionally, selling pre-owned furniture can be challenging due to the lack of a centralized platform and trust issues between buyers and sellers.

2. Requirements:

2.1 Introduction:

The FurniHub project aims to develop a user-friendly online marketplace for buying and selling pre-owned furniture.

2.2 Scope:

The scope of FurniHub includes the development of a web application leveraging the MERN Stack (MongoDB, Express.js, React.js, Node.js). The platform will facilitate user authentication, furniture listing management, online ordering, seller and buyer panel functionalities, and more.

2.4 Functional Requirements:

- a. Authentication System: Implement Firebase authentication for secure user authentication. Utilize JWT tokens for maintaining user sessions and role-based access.
- b. User-friendly Features: Enhance user experience with features like image uploads, furniture listing management, and a modern UI using Tailwind CSS.
- c. Online Ordering System: Establish an intuitive online furniture ordering system with efficient cart management and order placement.
- d. Seller Panel(Listing Management): Sellers can create, edit, and delete furniture listings. They can upload images, add descriptions, set prices, and manage listings.
- e. Buyer Panel(Order Management): Buyers can view order history and they can communicate with sellers about orders and leave feedback and ratings.

- f. CRUD Operations: Enable CRUD operations for furniture listings using MongoDB, including creation, reading, updating, and deletion.
- g. Payment Processing: Integrate a payment gateway for secure online transactions.
- h. Search Functionality: Implement search features for easy discovery of furniture items.
- i. Sorting Functionality: Sort by prices
- j. Email Notifications: Design and send emails to users when they subscribe to newsletters, list any product and for order confirmation.
- k. AI Chat Feature: Include the AI chat feature to enable real-time user interaction, personalized recommendations, and assistance.

2.5 Non-functional Requirements:

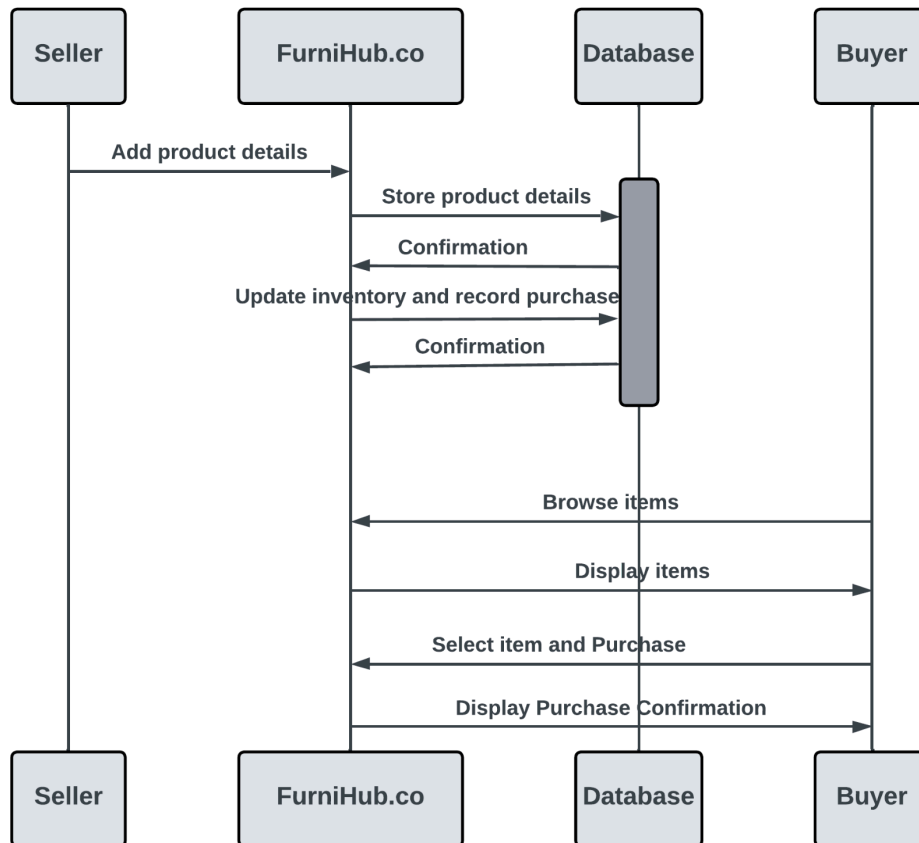
- a. Low Latency (Recommendation and Search): Search results and product recommendations should be delivered with minimal latency, ensuring a responsive user experience.
- b. Reliability (High Consistency - Placing Order, Order Status, and Payments): The system must consistently process orders, update order status, and handle payments in real-time across all components.

2.6 Use Cases:

- a. User Registration: Users can sign up for a new account by providing the necessary details.
- b. Furniture Listing: Sellers can create listings for furniture items, including images and descriptions.
- c. Order Placement: Users can add items to their cart, proceed to checkout, and place orders securely.

3. Design (SDD)

3.1 Sequence Diagram (HLD):



[Figure 1: Sequence Diagram, HLD]

Here's a breakdown of the flow:

Seller Adds Product:

- The Seller initiates the interaction by clicking "Add Product" on FurniHub.co (the e-commerce website).
- The Seller provides product details including description and photos.
- FurniHub.co stores the product details in the database.

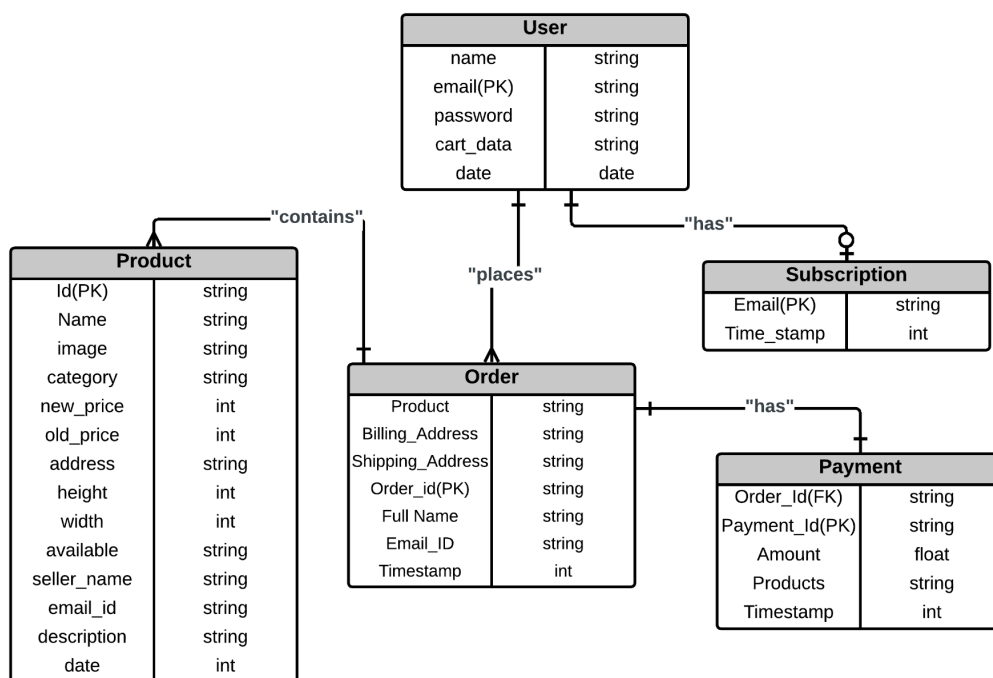
Buyer Browses Products:

- The Buyer activates by visiting the FurniHub.co homepage.
- FurniHub.co retrieves product information from the database and displays it for the Buyer.

Buyer Purchases Product:

The Buyer selects a product to purchase and FurniHub.co confirms the purchase with the Buyer.

3.2 Database Design (ER Diagram):



[Figure 2: Database Design]

Relationships:

- **User:** Users can place many orders, but each order belongs to only one user. Also, each user can have just one subscription.
- **Order:** An order is made by a user. It can include multiple products, but it's tied to only one user. Each order also has a single payment associated with it.
- **Subscription:** Each user can have a subscription, but it's unique to that user.
- **Product:** Products can be part of multiple orders.

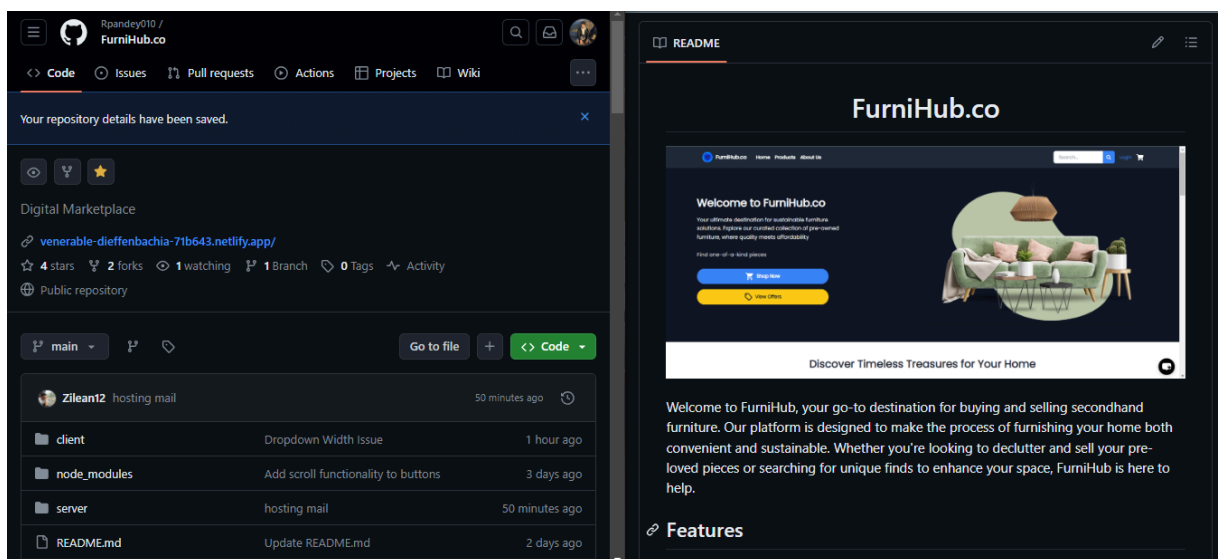
4. Technical Landscape

4.1 Technology Stack:

- Frontend: React.js, Tailwind CSS
- Backend: Node.js, Express.js
- Database: MongoDB
- Authentication: Firebase Authentication, JWT tokens
- Payment Gateway: Razorpay
- Hosting Platform: Render and Netlify

4.2 Development Environment:

- IDE: Visual Studio Code
- Version Control: Git
- Collaboration Tools: GitHub

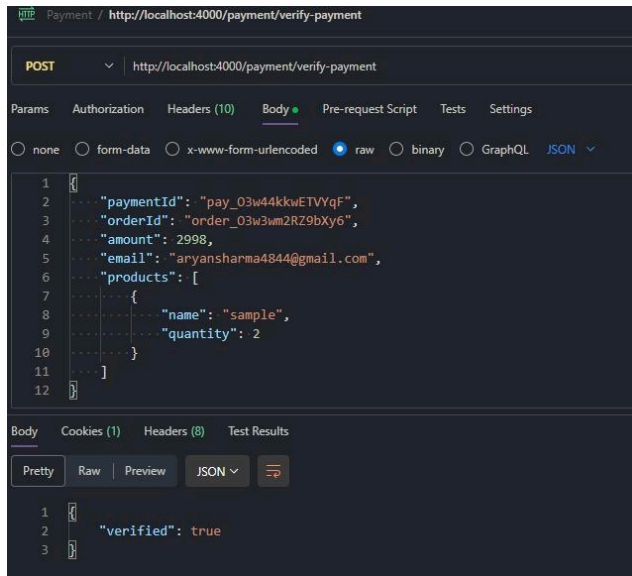


[img 1: Github Repository and readme file]

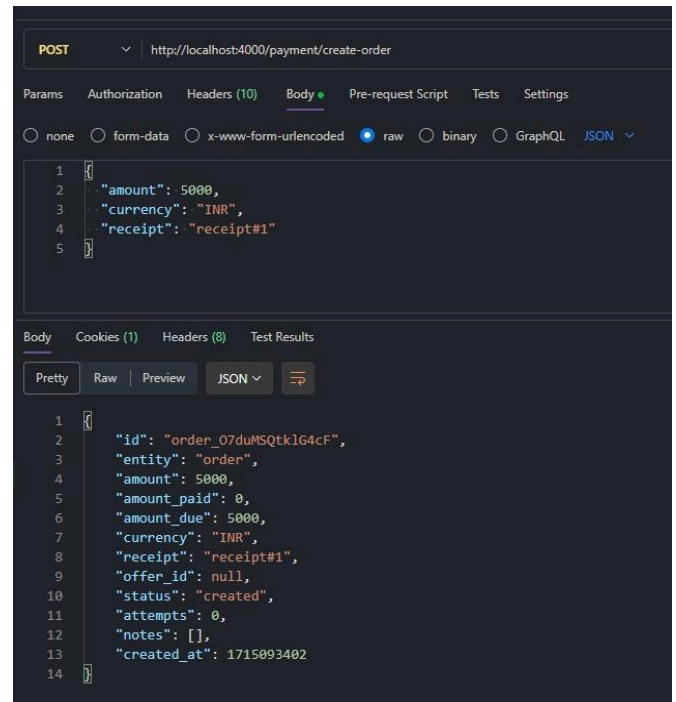
4.3 Security Considerations: Secure authentication mechanisms using JWT tokens

5. Test Results

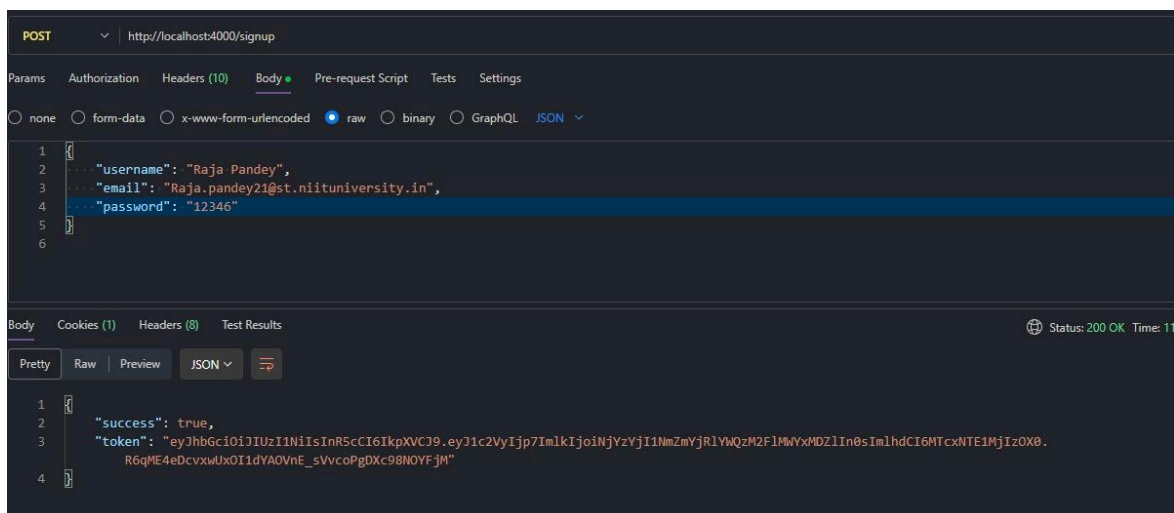
5.1 Integration Testing: Backend APIs were tested using Postman to ensure accurate request handling



[img 2: Payment Verification testing]



[img 3: Create order testing]



[img 4: Sign up testing]

5.2 UAT:

Users were able to navigate the deployed platform seamlessly, perform common tasks such as browsing listings, placing orders, and leaving feedback without encountering any critical issues.

5.3 Defects and Issues:

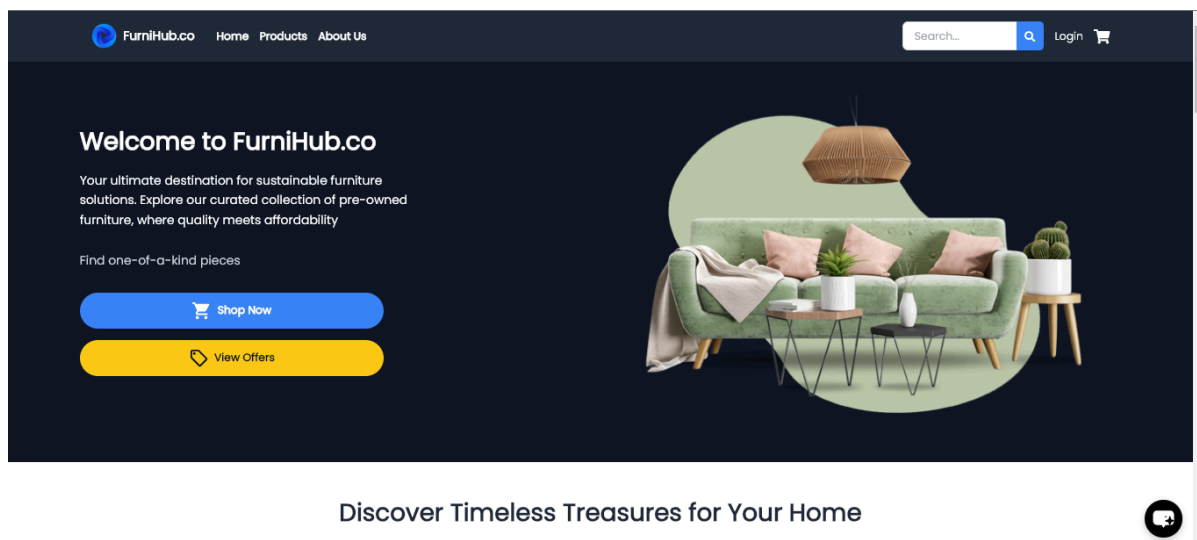
A few minor UI glitches and display inconsistencies were identified during UAT, which were promptly addressed and fixed by the development team.

5.4 Performance Issues:

No significant performance issues were observed during testing. However, some areas for optimization were identified, such as database query optimization and image loading times.

6. Outputs

6.1 Home page



6.2 Login Functionality with Google OAuth

FurniHub.co
Home
Products
About Us
Search...
Login

Login

Continue

Create an account? [Click here](#)

Login with Google

☐ By continuing, I agree to the terms of use & privacy policy.

6.3 Add Product Page

FurniHub.co
Home
Products
About Us
Search...
Raja Pandey

Add Product
List Product
Order History
Logout

Product title

Price (INR)

Offer Price (INR)

Product category

Height

Width




Description
Comfy king Size Bed for your family, good condition

6.4 Product Listing Page (list all the products added by the seller)

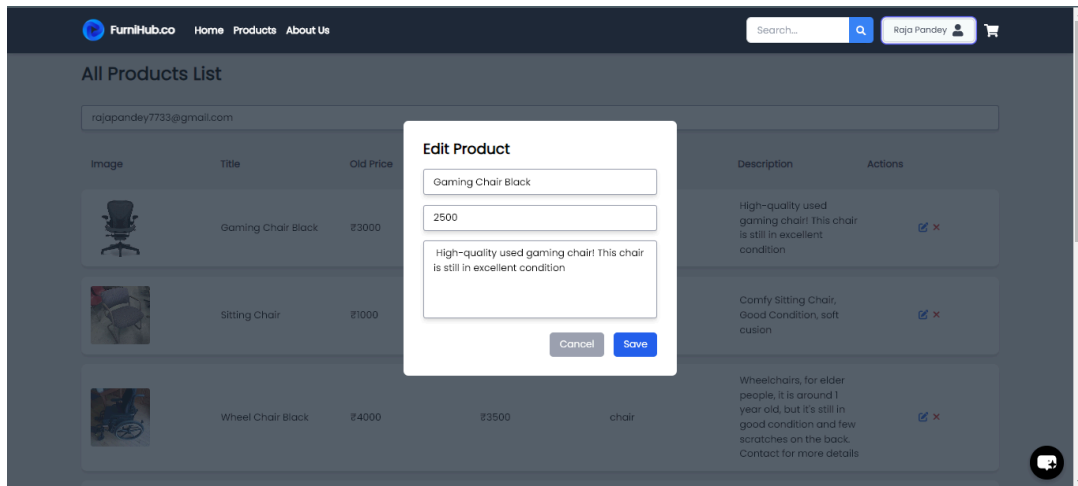
FurniHub.co
Home
Products
About Us
Search...
Raja Pandey

All Products List

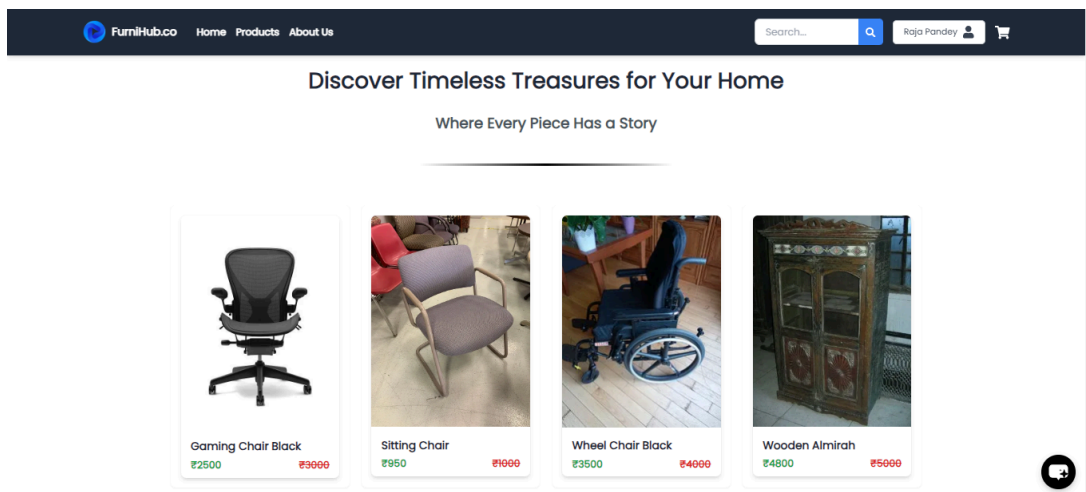
rajapandey7733@gmail.com

Image	Title	Old Price	New Price	Category	Description	Actions
	Gaming Chair Black	₹3000	₹2500	chair	High-quality used gaming chair! This chair is still in excellent condition	🔗 ✕
	Sitting Chair	₹1000	₹950	chair	Comfy Sitting Chair, Good Condition, soft cushion	🔗 ✕
	Wheel Chair Black	₹4000	₹3500	chair	Wheelchairs, for elder people, it is around 1 year old, but it's still in good condition and few scratches on the back. Contact for more details	🔗 ✕

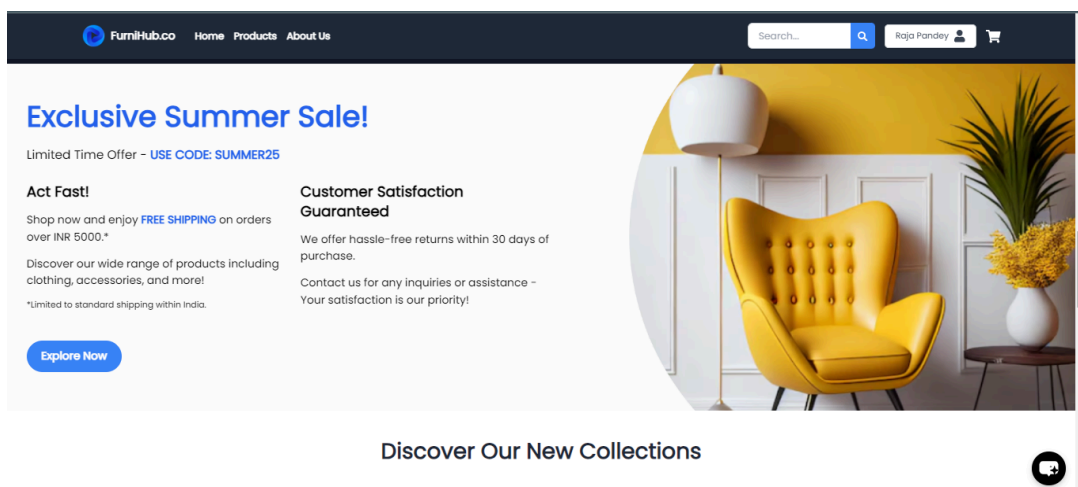
6.5 Update Product details



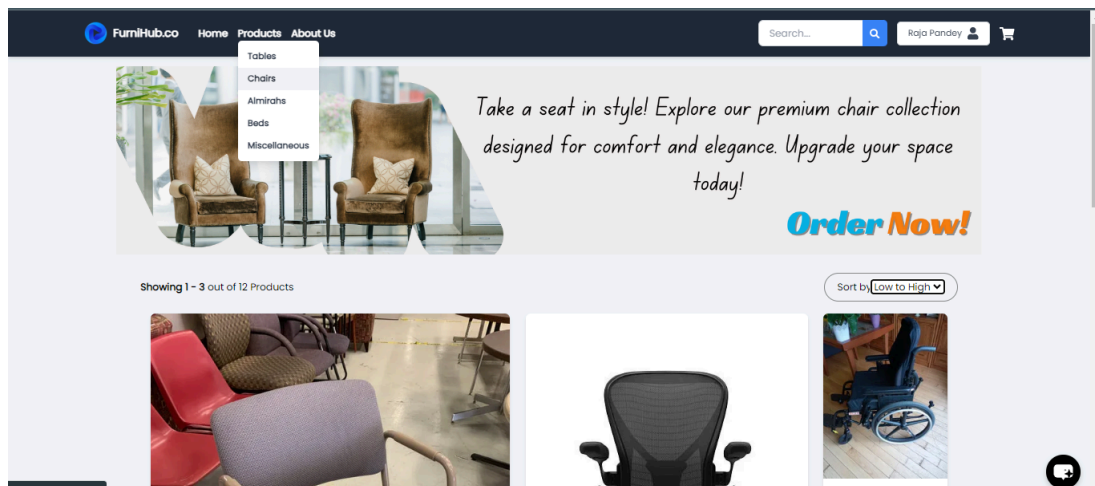
6.6 Discover Page (All products listed by the seller will be visible here)



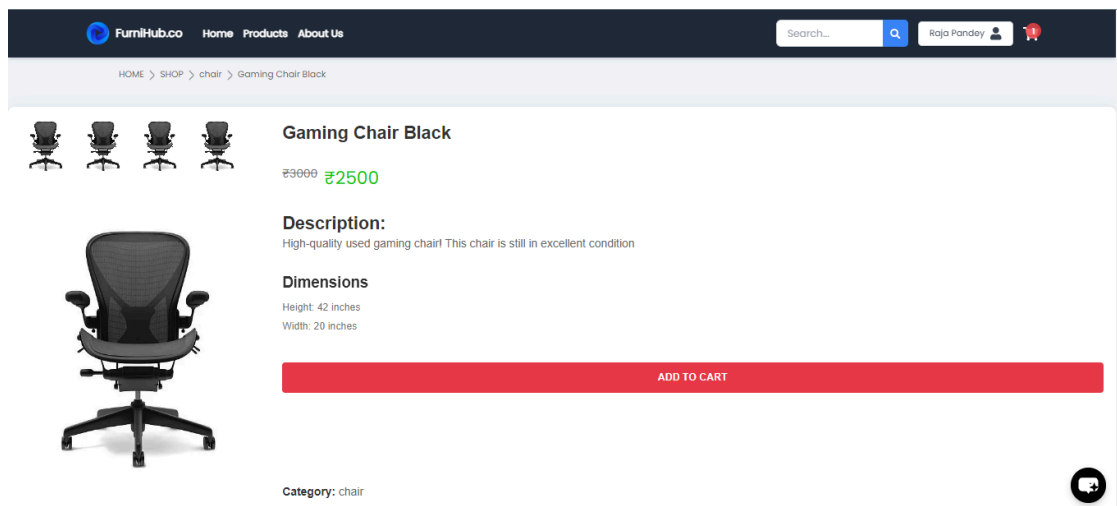
6.7 Offers Section (by FurniHub)



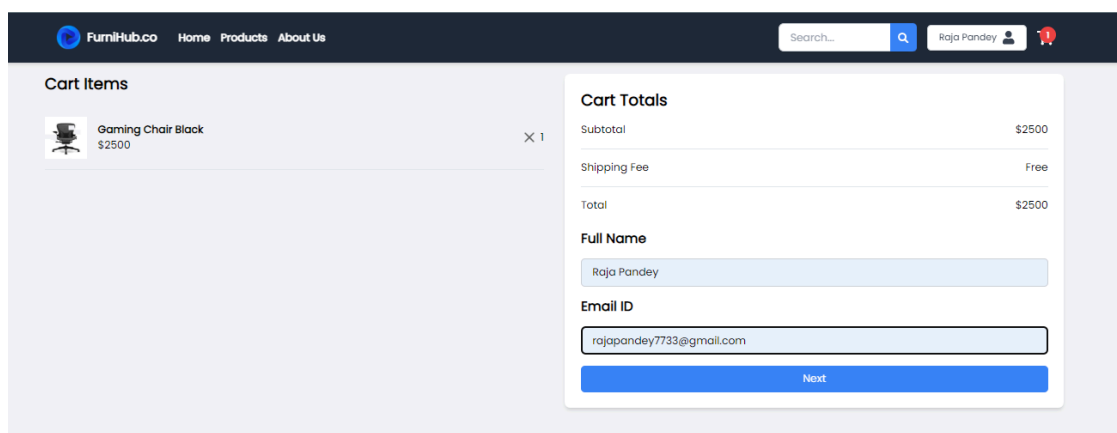
6.8 Search Products by Category, apply the Price Filter



6.9 Add to Cart



6.10 Proceed to Checkout (add details)



Cart Totals

Subtotal	\$2500
Shipping Fee	Free
Total	\$2500

Shipping Address

Niit University

Neemrana

Ajmer

Rajasthan

India

301705

Proceed to Payment

Checkout

Name

Raja Pandey

Email

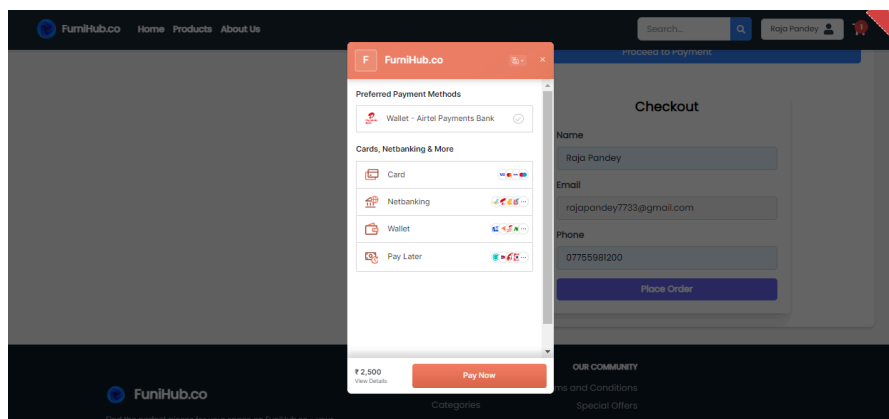
rajapandey7733@gmail.com

Phone

07755981200

Place Order

6.11 Payment Gateway (select from options)



6.12 Receipt Generation

Order Receipt

Your order has been placed!
Date: May 7, 2024

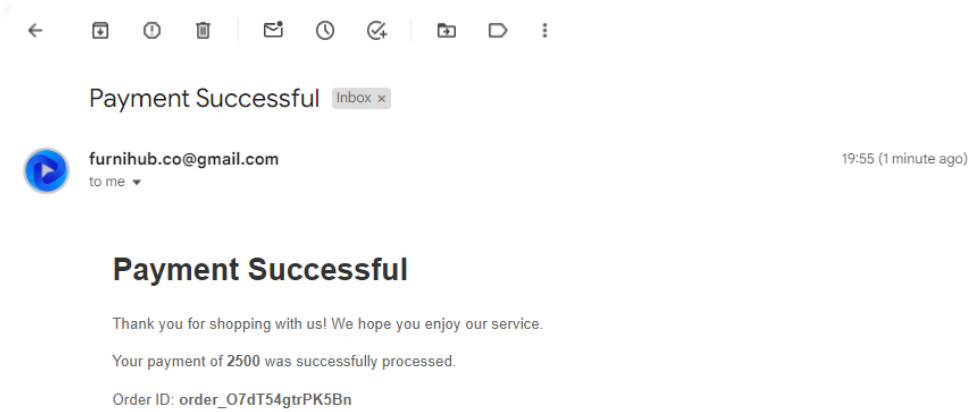
Order ID: order_07d154gtrPK58n
Product Name: Sitting Chair
Price: ₹2500

Billing Address:
Neemrana
Neemrana
Neemrana, Rajasthan, India - 301705

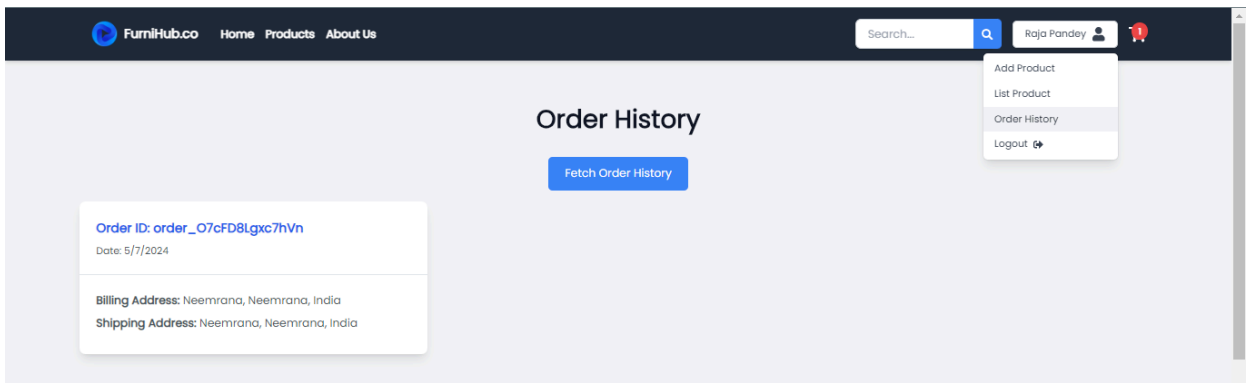
Shipping Address:
Niit University
Neemrana
Ajmer, Rajasthan, India - 301705

FuniHub - Your Home, Your Style

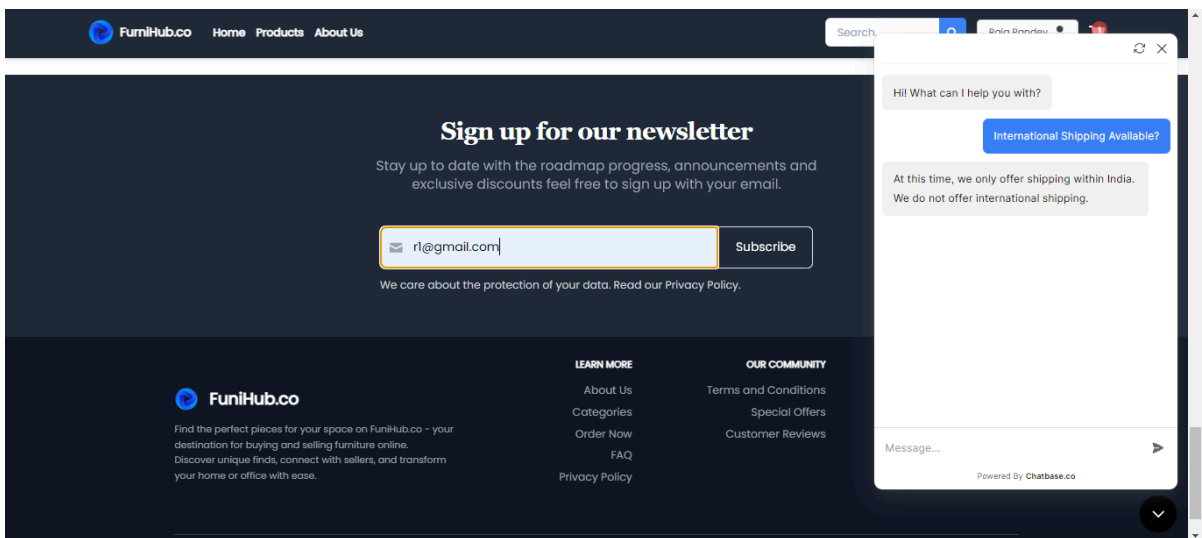
6.13 Email Confirmation



6.14 Order History



6.15 AI Chat Feature and Newsletter Subscription



6.16 Databases (stores order, payments, products, subscriptions and user's details)

a. product database

products					
	_id ObjectId	id Int32	name String	image String	category String
1	ObjectId('663a2e0d1e37b2c90e1...')	1	"Gaming Chair Black"	"http://localhost:4000/images_..."	"chair"
2	ObjectId('663a2ee41e37b2c90e1...')	2	"Sitting Chair"	"http://localhost:4000/images_..."	"chair"
3	ObjectId('663a300c1e37b2c90e1...')	3	"Wheel Chair Black"	"http://localhost:4000/images_..."	"chair"
4	ObjectId('663a307d1e37b2c90e1...')	4	"Wooden AlmiraH"	"http://localhost:4000/images_..."	"almiraH"
5	ObjectId('663a31951e37b2c90e1...')	5	"Study Table"	"http://localhost:4000/images_..."	"table"
6	ObjectId('663a331d7ab46400f20...')	6	"DINNER TABLE"	"http://localhost:4000/images_..."	"table"
7	ObjectId('663a33541e37b2c90e1...')	7	"Plastic Desk "	"http://localhost:4000/images_..."	"table"
8	ObjectId('663a347901b558df190...')	8	"Wooden sofa cum bed"	"http://localhost:4000/images_..."	"bed"

b. Subscription database

subscriptions				
	_id ObjectId	email String	createdAt Date	_v Int32
1	ObjectId('66384eaf3105fbc7c4b...')	"aryansharma4844@gmail.com"	2024-05-06T03:29:51.163+00:00	0
2	ObjectId('66385025c56d499fca9...')	"aryansharma4844@gmail.com"	2024-05-06T03:36:05.476+00:00	0
3	ObjectId('663a24eafe0e9ffbeaf...')	"raja.pandey21@st.niitunivers_..."	2024-05-07T12:56:10.962+00:00	0











c. Payment database

payments					
	_id objectId	orderId String	paymentId String	amount Int32	products Array
1	ObjectId('66377b4e20cd9f78fbc...')	"order_060P27fsg0Tu6A"	"pay_060PgBYnzwCew"	25	[] 0 elements
2	ObjectId('6637849e20cd9f78fbc...')	"order_06p5Zyok358geg"	"pay_06p5gWuiMa8MT"	40	[] 0 elements
3	ObjectId('6637860f20cd9f78fbc...')	"order_06pC4YV1vIVfii"	"pay_06pCBP5QyJach"	40	[] 0 elements
4	ObjectId('6637872420cd9f78fbc...')	"order_06pGqFdbNCdHe2"	"pay_06pGxTKE5OCi1l"	25	[] 0 elements
5	ObjectId('6637885b20cd9f78fbc...')	"order_06pMPaM47MggBT"	"pay_06pMWG2Hf4ttXg"	15	[] 0 elements

d. Order database

orders					
	_id ObjectId	products Array	billingAddress Object	shippingAddress Object	orderId String
1	ObjectId('66377b5020cd9f78fbc...')	[] 1 elements	{ } 6 fields	{ } 6 fields	"order_060P27fsg0Tui..."
2	ObjectId('6637849f20cd9f78fbc...')	[] 2 elements	{ } 6 fields	{ } 6 fields	"order_06p5Zyok358g..."
3	ObjectId('6637861120cd9f78fbc...')	[] 2 elements	{ } 6 fields	{ } 6 fields	"order_06pC4YV1vIVf..."
4	ObjectId('6637872620cd9f78fbc...')	[] 1 elements	{ } 6 fields	{ } 6 fields	"order_06pGqFdbNCdH..."
5	ObjectId('6637885c20cd9f78fbc...')	[] 1 elements	{ } 6 fields	{ } 6 fields	"order_06pMPaM47Mgg..."
6	ObjectId('6638fc2fb9159b52bd7...')	[] 0 elements	{ } 6 fields	{ } 6 fields	"order_07G0Cv1vSeNz..."
7	ObjectId('6639a868a61d1957b63...')	[] 0 elements	{ } 6 fields	{ } 6 fields	"order_075uQYNPHVcm..."

e. User database

Search by email address, phone number, or user UID					Add user		
Identifier	Providers	Created ↓	Signed In	User UID			
abc96.abc.12@gmail.c...		May 7, 2024	May 7, 2024	6i04b4EylXRgyDwPdACTpC1d...			
rajapandey7733@gmail...		May 7, 2024	May 7, 2024	fw1PLnAQk9aboEXKClgUZQQ...			
ranjeev.singh21@st.niit...		May 6, 2024	May 6, 2024	E3RUUUSDbygZ2FLSIWvhrYtc...			
rajapandey773@gmail...		May 6, 2024	May 7, 2024	uZ1NxY0gUvcg8PdhoalT2aNF...			
rishabh.gupta21@st.niit...		May 1, 2024	May 1, 2024	FzjYpKxelfFexCupySfJwZdvrO...			
raja.pandey21@st.niit...		May 1, 2024	May 7, 2024	bC7ORoD0VTsOUSLYK15arJ...			
xyz06042004@gmail.c...		Apr 30, 2024	Apr 30, 2024	qSasXhR9AdSoN6ryD6B1CCF...			
furniHub.co@gmail.com		Apr 27, 2024	May 6, 2024	MzjTDMhw02iUZ7SagQM4pxZ...			
aryan.sharma21@st.niit...		Apr 26, 2024	May 6, 2024	9DrGE5QG1DUyFDjRsKeGCj3L...			
aryansharma4844@gm...		Apr 26, 2024	May 6, 2024	ON7gh27jTORp8h1ID6Lp1PQ...			
Rows per page: 50					1 - 10 of 10	<	>

f. Razorpay database (transaction history)

Payment Id	Razorpay Order Id	Amount	Email	Contact	Created At	Status
pay_07dUDHAYLcdULO	order_07d154gtrPK58n	₹ 2,500.00	rajapandey7733@gmail.com	+91 7755 981200	07 May 2024, 07:55:17 pm	Captured
pay_07cF1UguithNI0	order_07cFD8Lgxc7hVn	₹ 180.00	rajapandey773@gmail.com	+91 7755 981200	07 May 2024, 06:42:55 pm	Captured
pay_07Y8ZumXZqbAL5	order_07Y8RhEvmQMckNl	₹ 32,444.00	aryansharma4844@gmail.com	+91 9960 765259	07 May 2024, 02:44:10 pm	Captured
pay_07Y8NRSjnITht	order_07Y7xKqvZ1fYX6	₹ 50.00	aryansharma4844@gmail.com	+91 9960 765259	07 May 2024, 02:40:55 pm	Captured
pay_07mPRUa8erAgfA	order_07mPKqoNY68jw	₹ 1,998.00	aryan.sharma21@st.niituniversity.in	+91 9960 765259	07 May 2024, 12:59:54 pm	Captured
pay_07mKBy9uJ6NLI4	order_07mK416J560ZCw	₹ 3,996.00	furniHub.co@gmail.com	+91 9960 765259	07 May 2024, 12:54:56 pm	Captured
pay_07m8mPRLJgzxiq	order_07m8X4Pdc5zi1mh	₹ 50.00	aryansharma4844@gmail.com	+91 7742 885259	07 May 2024, 12:44:08 pm	Captured
pay_07m4nieIKfG1wc	order_07m4f8xKZ6w4nn	₹ 50.00	aryansharma4844@gmail.com	+91 7774 885259	07 May 2024, 12:40:22 pm	Captured
pay_07Vy9VlFIP2D4	order_07Vy9Vl1a02ZyJ1	₹ 200.00	aryansharma4844@gmail.com	+91 7774 885259	07 May 2024, 12:34:32 pm	Captured
pay_07VwEr7m5hwM1T	order_07VvxsArggA2k	₹ 200.00	aryansharma4844@gmail.com	+91 7774 885259	07 May 2024, 12:32:13 pm	Captured

7. Conclusion

In conclusion, the FurniHub project successfully delivers a comprehensive web application for buying and selling pre-owned furniture. Built on the MERN stack (MongoDB, Express.js, React.js, Node.js), FurniHub offers user-friendly features like secure authentication, intuitive furniture listing management, and a streamlined online ordering system. This platform empowers both sellers and buyers, fostering a dynamic marketplace for pre-owned furniture.

8. Future Scope

8.1 Integration of "Chat with Seller" Option:

Future iterations of FurniHub will include the integration of a "Chat with Seller" feature, allowing buyers to communicate directly with sellers for inquiries, negotiations, and additional product information.

8.2 Implementation of User Feedback Mechanisms:

FurniHub will implement user feedback mechanisms to gather insights and suggestions for further improvements. This feedback will enable continuous refinement of the platform based on user preferences and needs, ensuring ongoing relevance and satisfaction.