Day 4 – Dynamic Frontend Components – [Furniture]

1. Development Process

1.1 Product Frontend Display

- **Data Fetching**: Integrated **Sanity CMS** to store and manage product data.
- **API Connection**: Used **Sanity's GROQ Queries** in Next.js **server components** to fetch products efficiently.
- **Frontend Rendering**: Implemented product cards using **Tailwind CSS** to ensure a responsive and aesthetically pleasing design.
- **Dynamic Updates**: Used **useState & useEffect** for real-time updates when filters or search inputs change.

1.2 Individual Product Detail Pages

- **Dynamic Routing**: Implemented Next.js **dynamic routes (`[id].tsx`)** to generate product detail pages.
- **Data Fetching**: Used `getStaticPaths` and `getStaticProps` to pre-render product pages for SEO benefits.
- **Accurate Rendering**: Fetched detailed product descriptions, images, and pricing dynamically from **Sanity**

1.3 Category Filters

- **Filtering Logic**: Implemented category filters using **useState** and **useEffect** to update the displayed products.
- **Query Optimization**: Used GROQ queries to fetch only the necessary data from **Sanity**, improving performance.
- **Dynamic UI Update**: Applied **Tailwind CSS components** to display the active filters.

1.4 Search Bar

- **Implementation**: Built a search functionality using **useState** and **onChange events** to filter products in real time.
- **Debouncing**: Used **Lodash debounce** to optimize performance and prevent excessive re-renders.
- **Fuzzy Matching**: Enhanced search results using **case-insensitive string matching**.

1.5 Pagination

- **Client-Side Pagination**: Implemented pagination using **useState** to manage current page state.
- **Efficient Data Handling**: Displayed a fixed number of products per page to enhance performance.
- **Navigation Buttons**: Created Next and Previous buttons with conditional rendering to navigate through product pages.

2. Challenges and Solutions

2.1 Dynamic Data Fetching Issues

- **Problem**: Initially faced inconsistencies in data retrieval from **Sanity**.
- **Solution**: Implemented **server-side rendering (SSR)** using `getServerSideProps` to fetch real-time data when needed.

2.2 Category Filter Performance

- **Problem**: Filtering caused unnecessary re-renders affecting performance.
- **Solution**: Used **memoization (useMemo)** to cache filtered results and reduce re-renders.

2.3 Wishlist Persistence

- **Problem**: Wishlist items were lost on page reload.
- **Solution**: Implemented **local storage** to persist the wishlist across page reloads.

2.4 Search Optimization

- **Problem**: Searching slowed down when the dataset grew.
- **Solution**: Applied **Lodash debounce** and optimized search queries for efficiency.

2.5 Pagination Optimization

- **Problem**: Pagination caused flickering when switching pages.
- **Solution**: Used **lazy loading** and **incremental static regeneration (ISR)** for smoother transitions.

3. Best Practices Followed

- **Next.js Features Utilization**: Leveraged **ISR, SSR, and Static Generation** for optimized performance.
- **Component Reusability**: Created modular and reusable components to reduce redundant code.

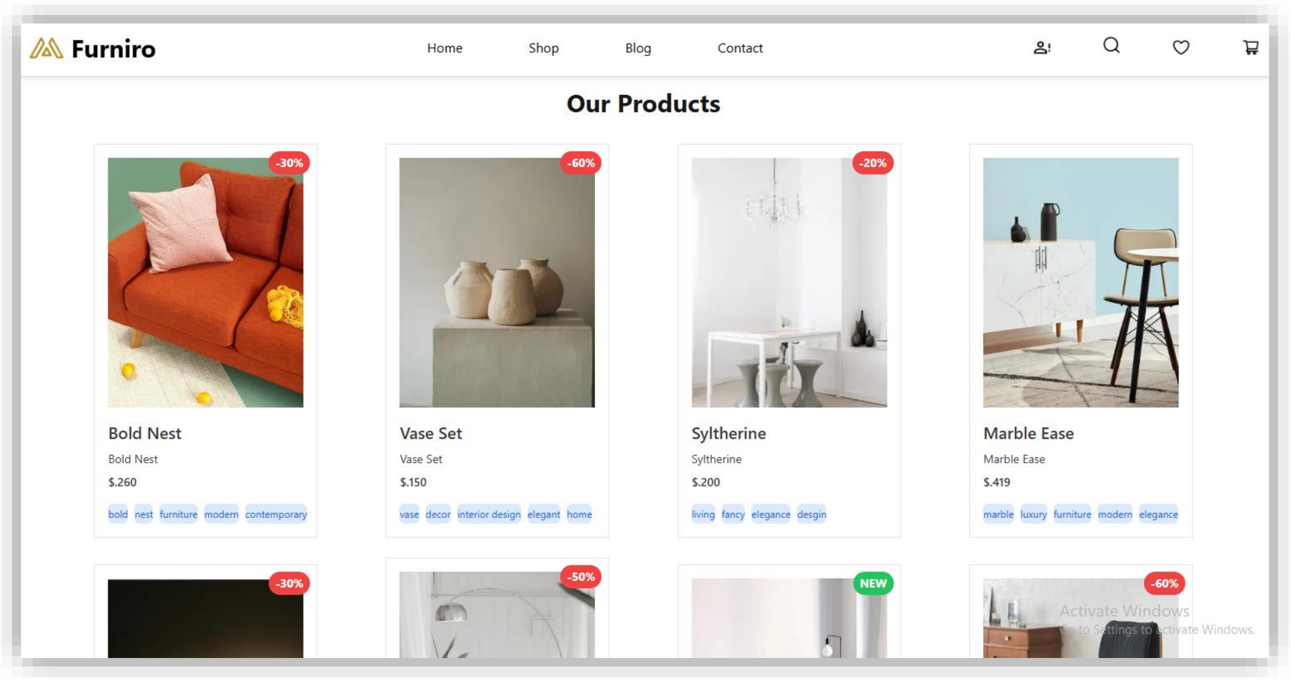
- **Performance Optimization**: Implemented **lazy loading** for images and **code splitting** to improve load time.
- **State Management**: Used **React Context API** for managing cart and wishlist states efficiently.
- **SEO Optimization**: Used **Next.js Metadata API** and **structured data** to improve search rankings.
- **Responsive Design**: Ensured a mobile-friendly UI using **Tailwind CSS grid and flex utilities**.
- **Code Maintainability**: Followed **ESLint and Prettier** for code consistency.

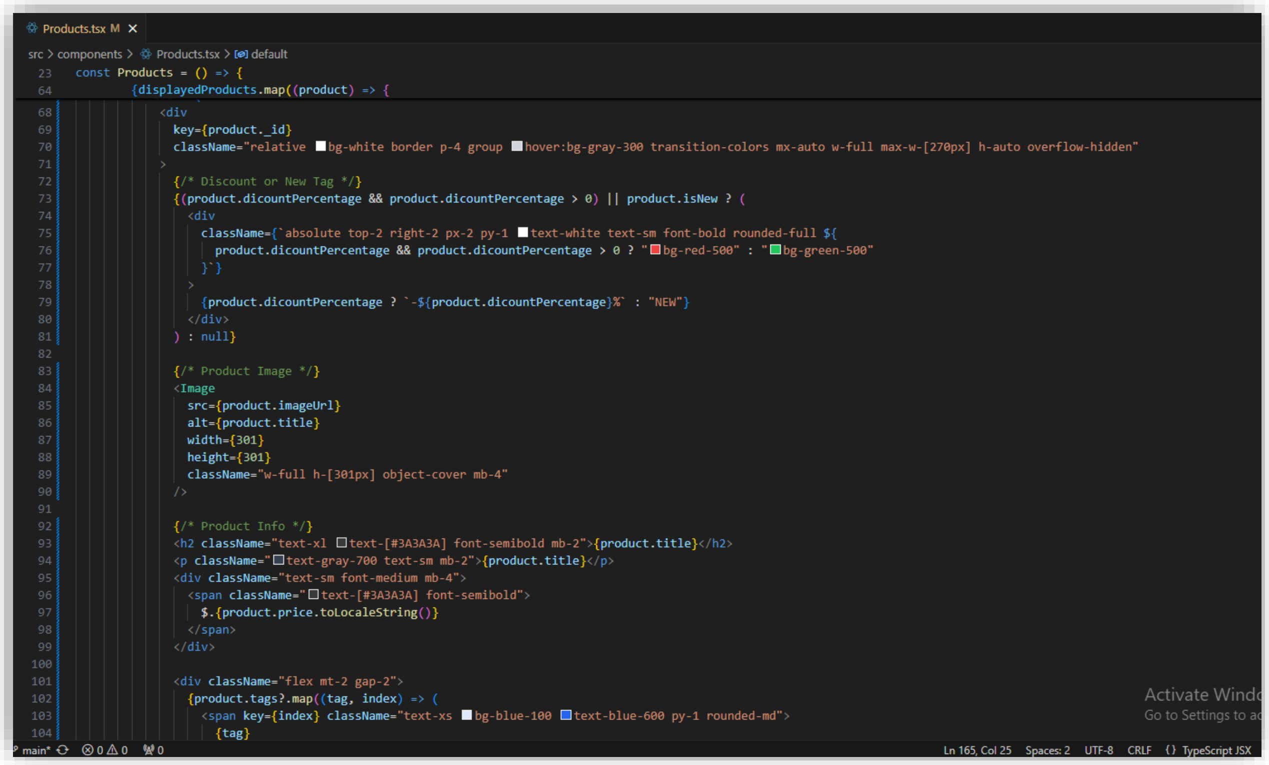
Conclusion

The **Furniture E-Commerce Website** was successfully built with **Next.js, Sanity, and Tailwind CSS**, incorporating dynamic data fetching, category filtering, search functionality, and pagination. Challenges such as performance bottlenecks, filtering inefficiencies, and wishlist persistence were effectively tackled using optimized solutions. By adhering to best practices, the project ensures high performance, maintainability, and an excellent user experience.

SCREENSHOTS:

PRODUCT LIST/CARDS:


Furniro
Home
Shop
Blog
Contact
Our Products
-30%
Bold Nest
Bold Nest
$.260
bold nest furniture modern contemporary
-60%
Vase Set
Vase Set
$.150
vase decor interior design elegant home
-20%
Syltherine
Syltherine
$.200
living fancy elegance desgin
Marble Ease
Marble Ease
$.419
marble luxury furniture modern elegance
-30%
-50%
NEW
-60%
Activate Windows
Go to Settings to activate Windows.



Products.tsx M

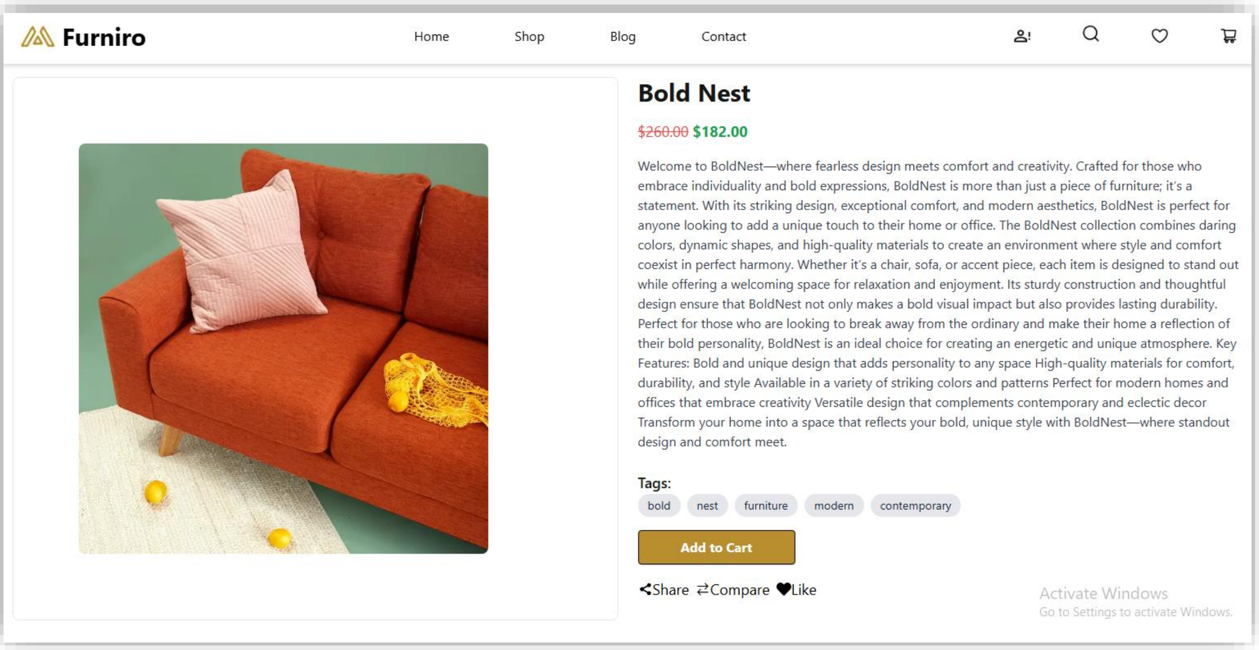
src > components > Products.tsx > default

```tsx
const Products = () => {
        {displayedProducts.map((product) => {
            <div
              key={product._id}
              className="relative bg-white border p-4 group hover:bg-gray-300 transition-colors mx-auto w-full max-w-[270px] h-auto overflow-hidden"
            >
              {/* Discount or New Tag */}
              {(product.dicountPercentage && product.dicountPercentage > 0) || product.isNew ? (
                <div
                  className={`absolute top-2 right-2 px-2 py-1 text-white text-sm font-bold rounded-full ${
                    product.dicountPercentage && product.dicountPercentage > 0 ? "bg-red-500" : "bg-green-500"
                  }`}
                >
                  {product.dicountPercentage ? `-${product.dicountPercentage}%` : "NEW"}
                </div>
              ) : null}

              {/* Product Image */}
              <Image
                src={product.imageUrl}
                alt={product.title}
                width={301}
                height={301}
                className="w-full h-[301px] object-cover mb-4"
              />

              {/* Product Info */}
              <h2 className="text-xl text-[#3A3A3A] font-semibold mb-2">{product.title}</h2>
              <p className="text-gray-700 text-sm mb-2">{product.title}</p>
              <div className="text-sm font-medium mb-4">
                <span className="text-[#3A3A3A] font-semibold">
                  $.{product.price.toLocaleString()}
                </span>
              </div>

              <div className="flex mt-2 gap-2">
                {product.tags?.map((tag, index) => (
                  <span key={index} className="text-xs bg-blue-100 text-blue-600 py-1 rounded-md">
                    {tag}
```

main* 0 0 0 Ln 165, Col 25 Spaces: 2 UTF-8 CRLF TypeScript JSX

Activate Windows
Go to Settings to activate Windows.

PRODUCT DETAIL PAGE



Furniro

Home Shop Blog Contact

Bold Nest

~~$260.00~~ $182.00

Welcome to BoldNest—where fearless design meets comfort and creativity. Crafted for those who embrace individuality and bold expressions, BoldNest is more than just a piece of furniture; it's a statement. With its striking design, exceptional comfort, and modern aesthetics, BoldNest is perfect for anyone looking to add a unique touch to their home or office. The BoldNest collection combines daring colors, dynamic shapes, and high-quality materials to create an environment where style and comfort coexist in perfect harmony. Whether it's a chair, sofa, or accent piece, each item is designed to stand out while offering a welcoming space for relaxation and enjoyment. Its sturdy construction and thoughtful design ensure that BoldNest not only makes a bold visual impact but also provides lasting durability. Perfect for those who are looking to break away from the ordinary and make their home a reflection of their bold personality, BoldNest is an ideal choice for creating an energetic and unique atmosphere. Key Features: Bold and unique design that adds personality to any space High-quality materials for comfort, durability, and style Available in a variety of striking colors and patterns Perfect for modern homes and offices that embrace creativity Versatile design that complements contemporary and eclectic decor Transform your home into a space that reflects your bold, unique style with BoldNest—where standout design and comfort meet.

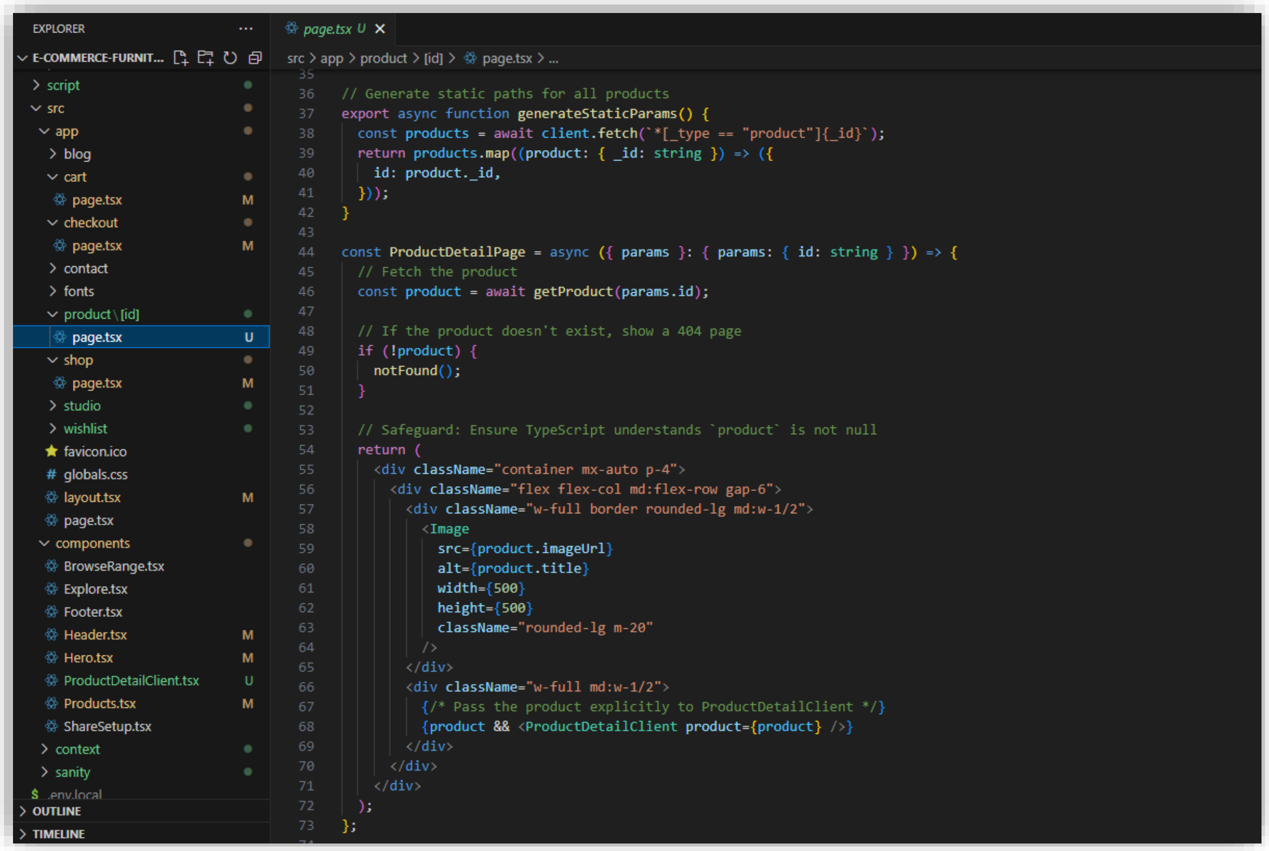
Tags:

bold nest furniture modern contemporary

Add to Cart

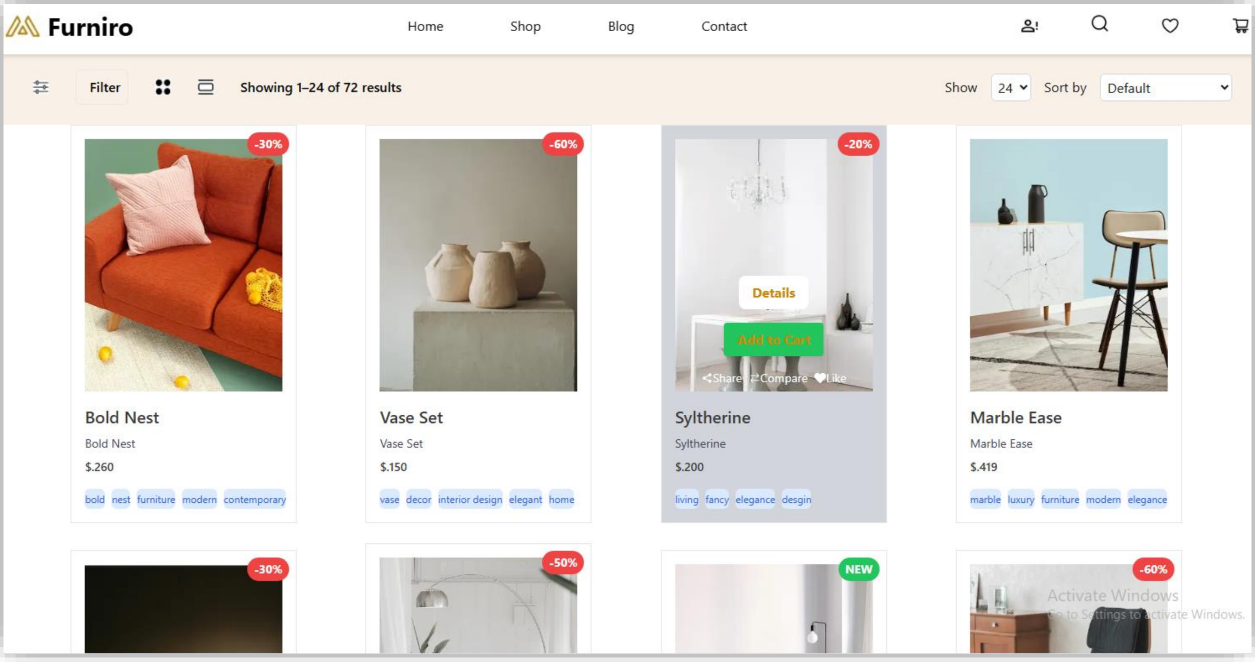
Share Compare Like

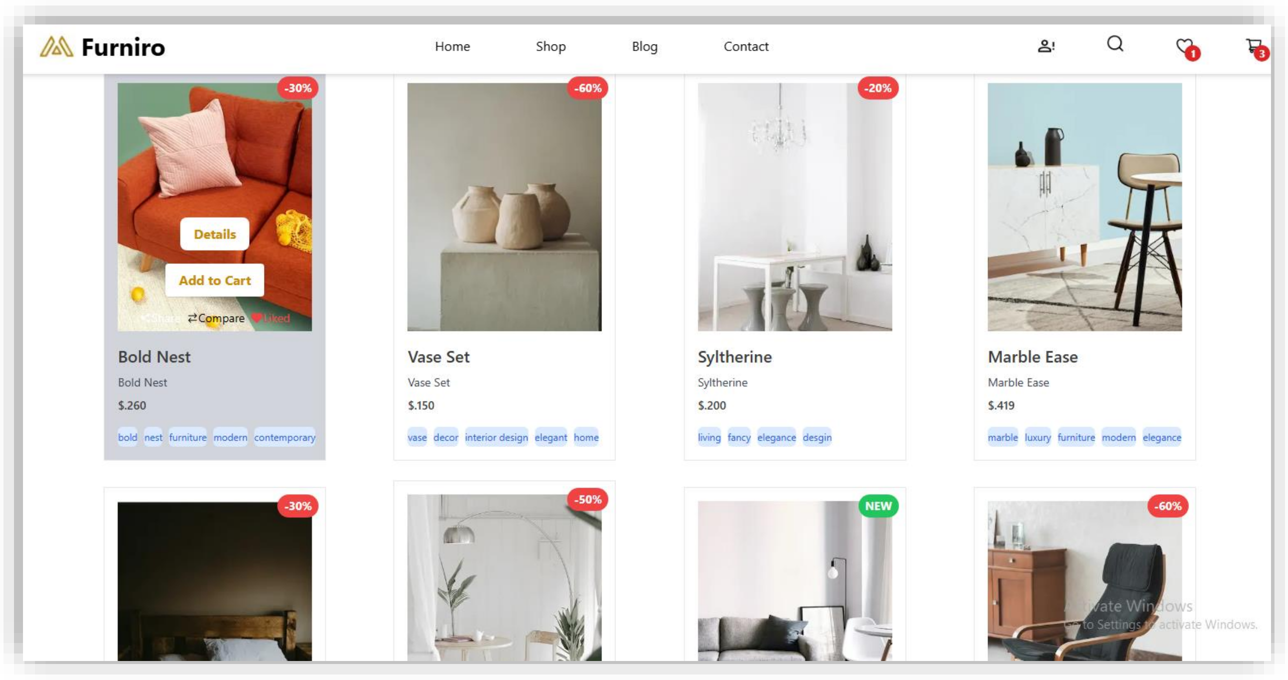
Activate Windows
Go to Settings to activate Windows.



```tsx
// Generate static paths for all products
export async function generateStaticParams() {
  const products = await client.fetch(`*[_type == "product"]{_id}`);
  return products.map((product: { _id: string }) => ({
    id: product._id,
  }));
}

const ProductDetailPage = async ({ params }: { params: { id: string } }) => {
  // Fetch the product
  const product = await getProduct(params.id);

  // If the product doesn't exist, show a 404 page
  if (!product) {
    notFound();
  }

  // Safeguard: Ensure TypeScript understands `product` is not null
  return (
    <div className="container mx-auto p-4">
      <div className="flex flex-col md:flex-row gap-6">
        <div className="w-full border rounded-lg md:w-1/2">
          <Image
            src={product.imageUrl}
            alt={product.title}
            width={500}
            height={500}
            className="rounded-lg m-20"
          />
        </div>
        <div className="w-full md:w-1/2">
          {/* Pass the product explicitly to ProductDetailClient */}
          {product && <ProductDetailClient product={product} />}
        </div>
      </div>
    </div>
  );
};
```

PRODUCT CARDS WITH BUTTONS(ADD TO CART, WISHLIST, COMPARE & SHARE)





Furniro

Home Shop Blog Contact

-30% -60% -20%

Bold Nest
Bold Nest
$.260
bold nest furniture modern contemporary

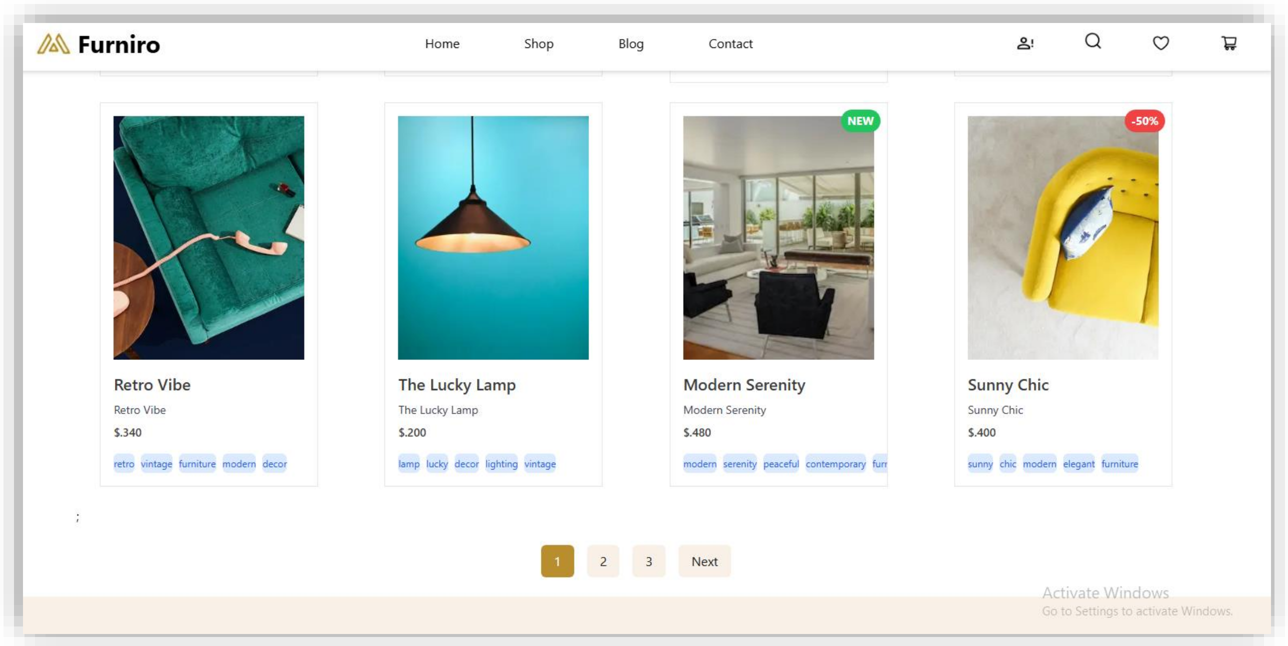
Vase Set
Vase Set
$.150
vase decor interior design elegant home

Syltherine
Syltherine
$.200
living fancy elegance desgin

Marble Ease
Marble Ease
$.419
marble luxury furniture modern elegance

-30% -50% NEW -60%

PAGINATION:



Furniro

Home Shop Blog Contact

NEW -50%

Retro Vibe
Retro Vibe
$.340
retro vintage furniture modern decor

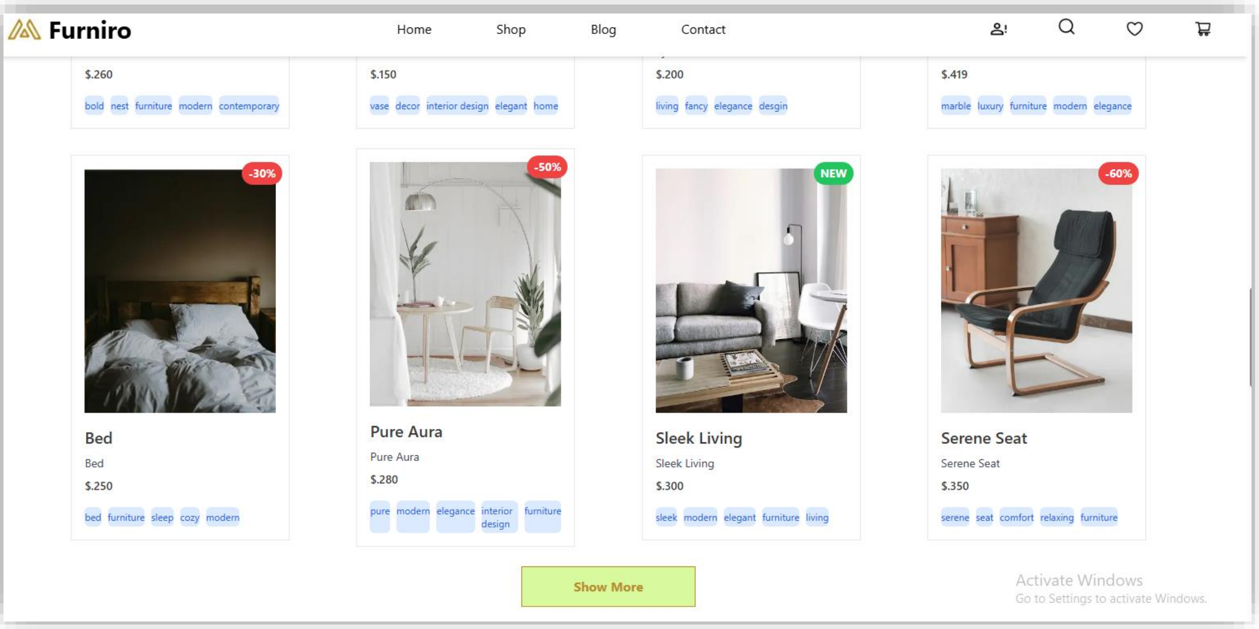
The Lucky Lamp
The Lucky Lamp
$.200
lamp lucky decor lighting vintage

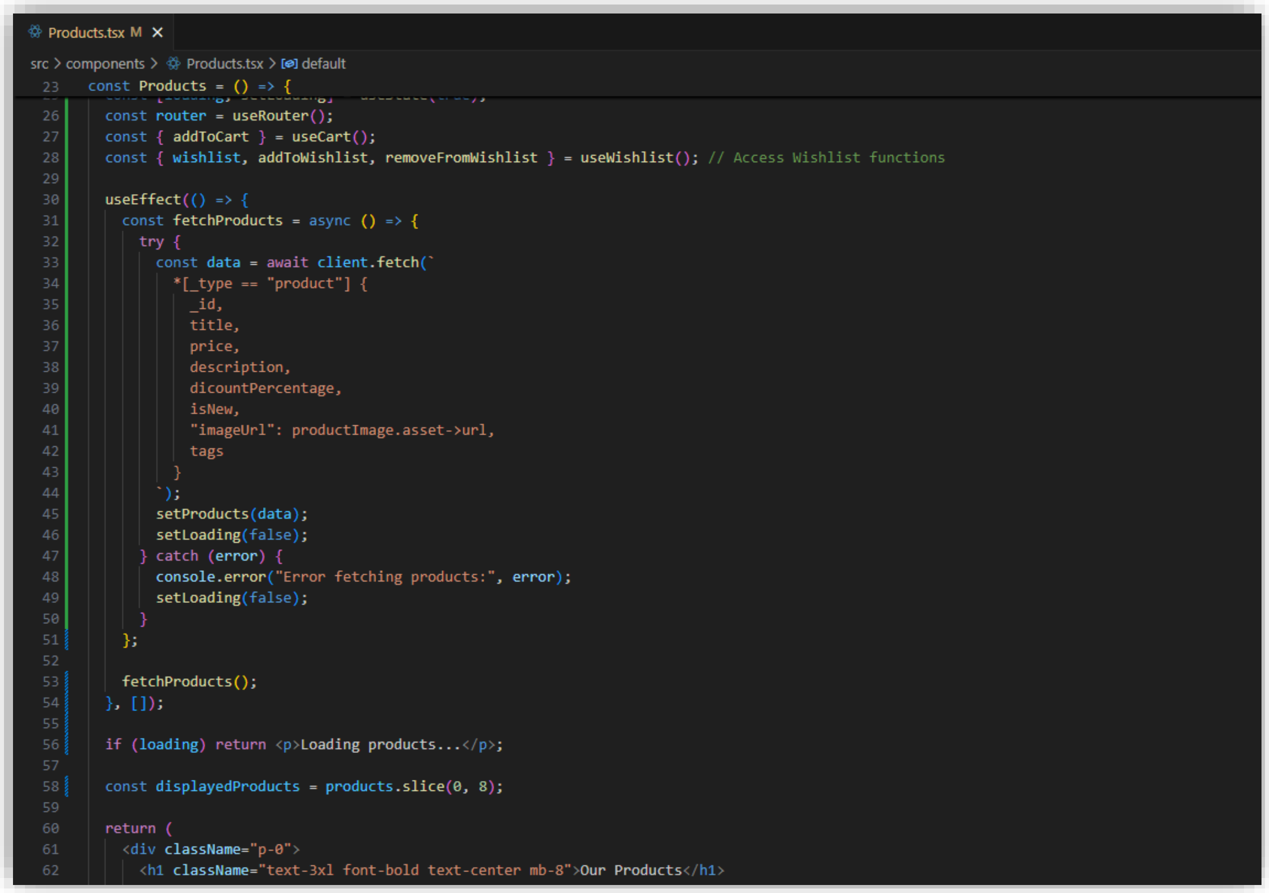
Modern Serenity
Modern Serenity
$.480
modern serenity peaceful contemporary fur

Sunny Chic
Sunny Chic
$.400
sunny chic modern elegant furniture

;

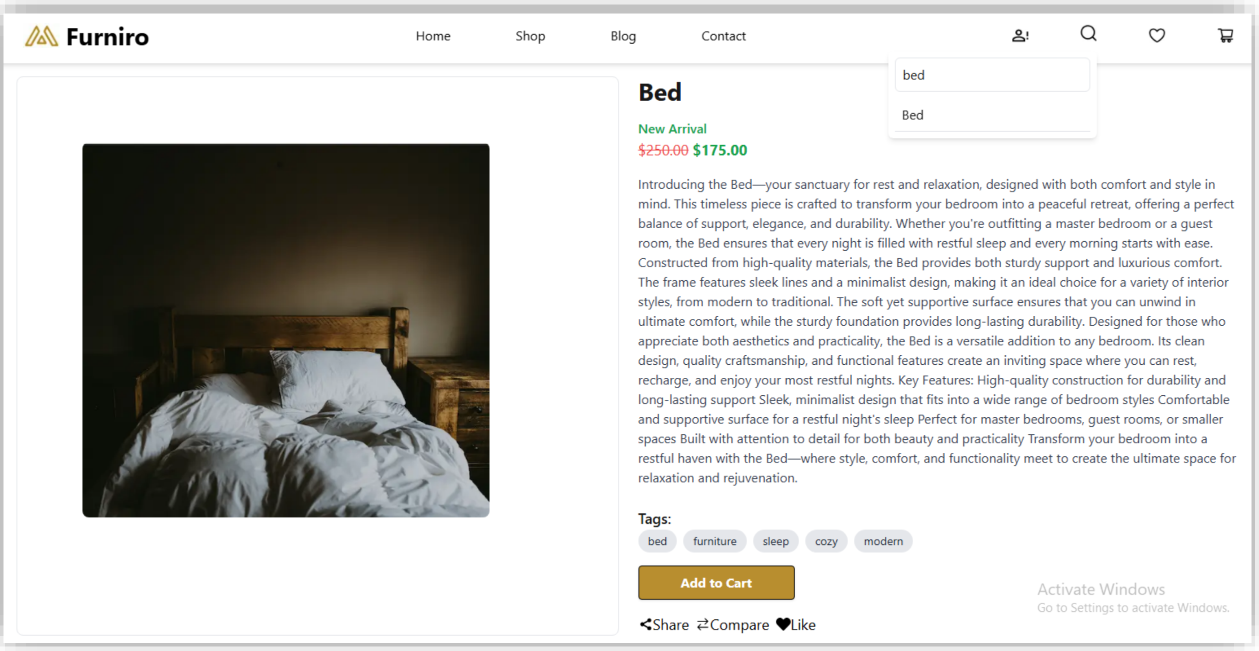
1 2 3 Next


Furniro
Home
Shop
Blog
Contact
$.260
bold nest furniture modern contemporary
$.150
vase decor interior design elegant home
$.200
living fancy elegance desgin
$.419
marble luxury furniture modern elegance
-30%
Bed
Bed
$.250
bed furniture sleep cozy modern
-50%
Pure Aura
Pure Aura
$.280
pure modern elegance interior design furniture
NEW
Sleek Living
Sleek Living
$.300
sleek modern elegant furniture living
-60%
Serene Seat
Serene Seat
$.350
serene seat comfort relaxing furniture
Show More
Activate Windows
Go to Settings to activate Windows.



```tsx
const Products = () => {
  const router = useRouter();
  const { addToCart } = useCart();
  const { wishlist, addToWishlist, removeFromWishlist } = useWishlist(); // Access Wishlist functions

  useEffect(() => {
    const fetchProducts = async () => {
      try {
        const data = await client.fetch(`
          *[_type == "product"] {
            _id,
            title,
            price,
            description,
            dicountPercentage,
            isNew,
            "imageUrl": productImage.asset->url,
            tags
          }
        `);
        setProducts(data);
        setLoading(false);
      } catch (error) {
        console.error("Error fetching products:", error);
        setLoading(false);
      }
    };

    fetchProducts();
  }, []);

  if (loading) return <p>Loading products...</p>;

  const displayedProducts = products.slice(0, 8);

  return (
    <div className="p-0">
      <h1 className="text-3xl font-bold text-center mb-8">Our Products</h1>
```

SEARCHBAR AND FILTER SECTION:


Furniro

Home Shop Blog Contact

bed

Bed

Bed

New Arrival

~~$250.00~~ $175.00

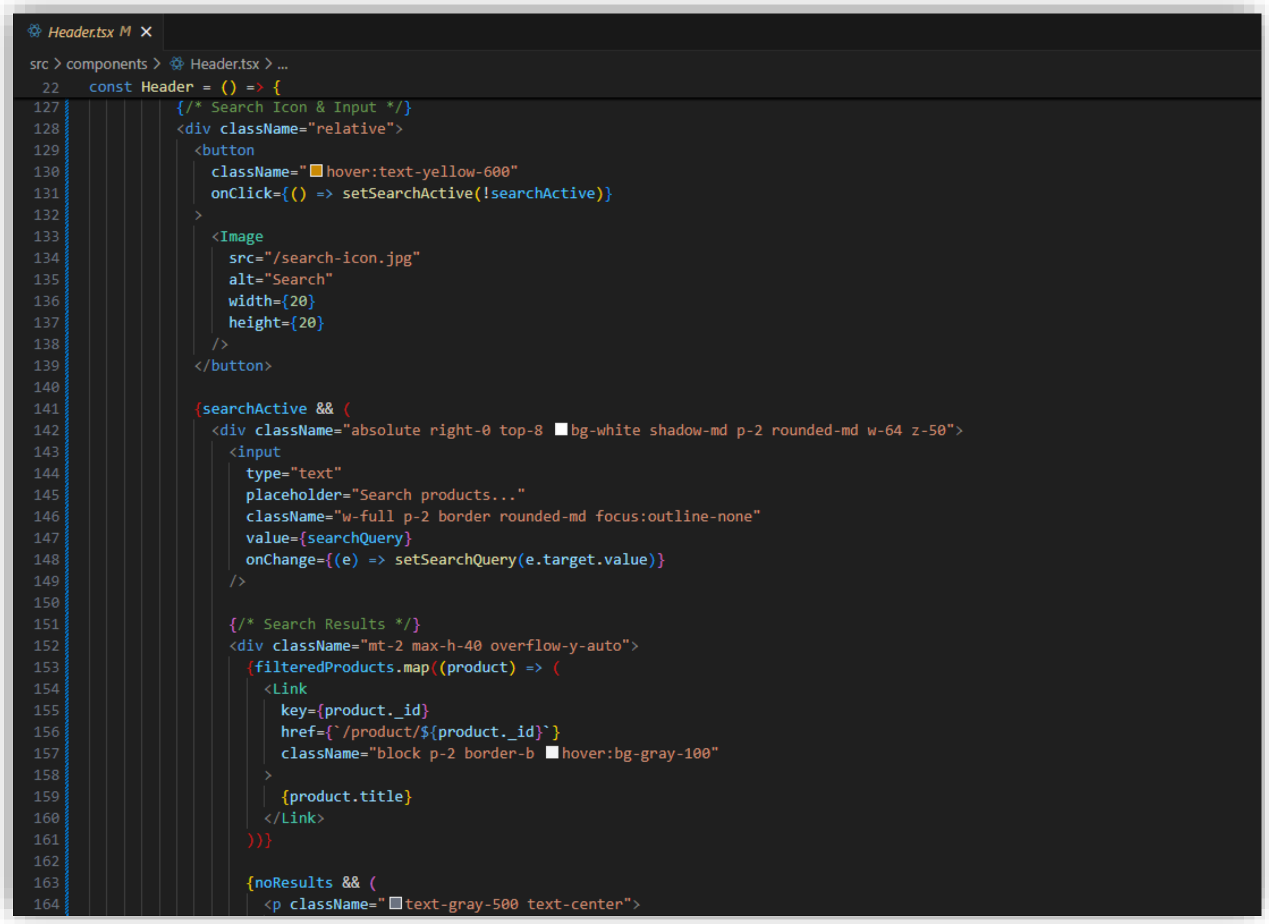
Introducing the Bed—your sanctuary for rest and relaxation, designed with both comfort and style in mind. This timeless piece is crafted to transform your bedroom into a peaceful retreat, offering a perfect balance of support, elegance, and durability. Whether you're outfitting a master bedroom or a guest room, the Bed ensures that every night is filled with restful sleep and every morning starts with ease. Constructed from high-quality materials, the Bed provides both sturdy support and luxurious comfort. The frame features sleek lines and a minimalist design, making it an ideal choice for a variety of interior styles, from modern to traditional. The soft yet supportive surface ensures that you can unwind in ultimate comfort, while the sturdy foundation provides long-lasting durability. Designed for those who appreciate both aesthetics and practicality, the Bed is a versatile addition to any bedroom. Its clean design, quality craftsmanship, and functional features create an inviting space where you can rest, recharge, and enjoy your most restful nights. Key Features: High-quality construction for durability and long-lasting support Sleek, minimalist design that fits into a wide range of bedroom styles Comfortable and supportive surface for a restful night's sleep Perfect for master bedrooms, guest rooms, or smaller spaces Built with attention to detail for both beauty and practicality Transform your bedroom into a restful haven with the Bed—where style, comfort, and functionality meet to create the ultimate space for relaxation and rejuvenation.

Tags:
bed furniture sleep cozy modern

Add to Cart

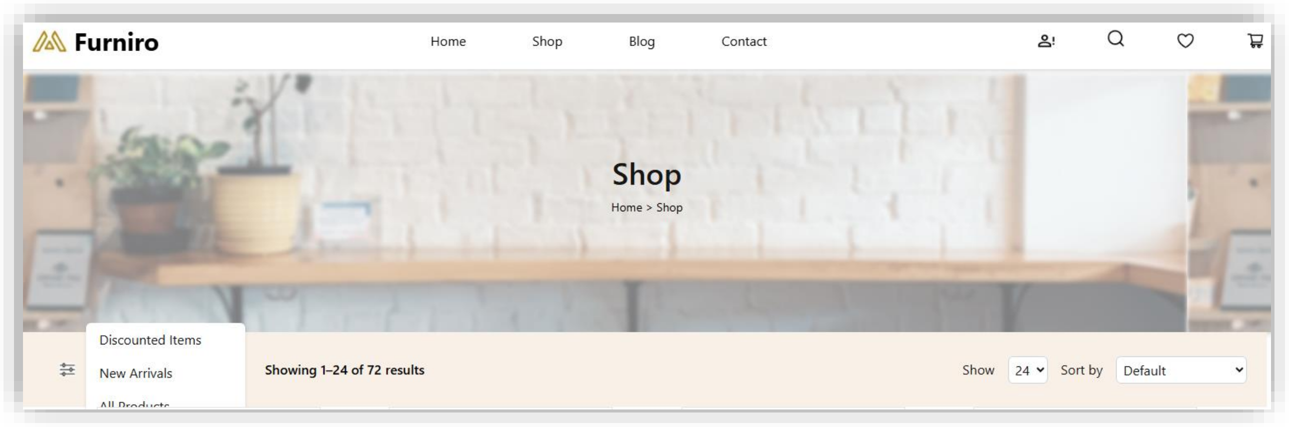
Share Compare Like

Activate Windows
Go to Settings to activate Windows.


Header.tsx M

src > components > Header.tsx > ...

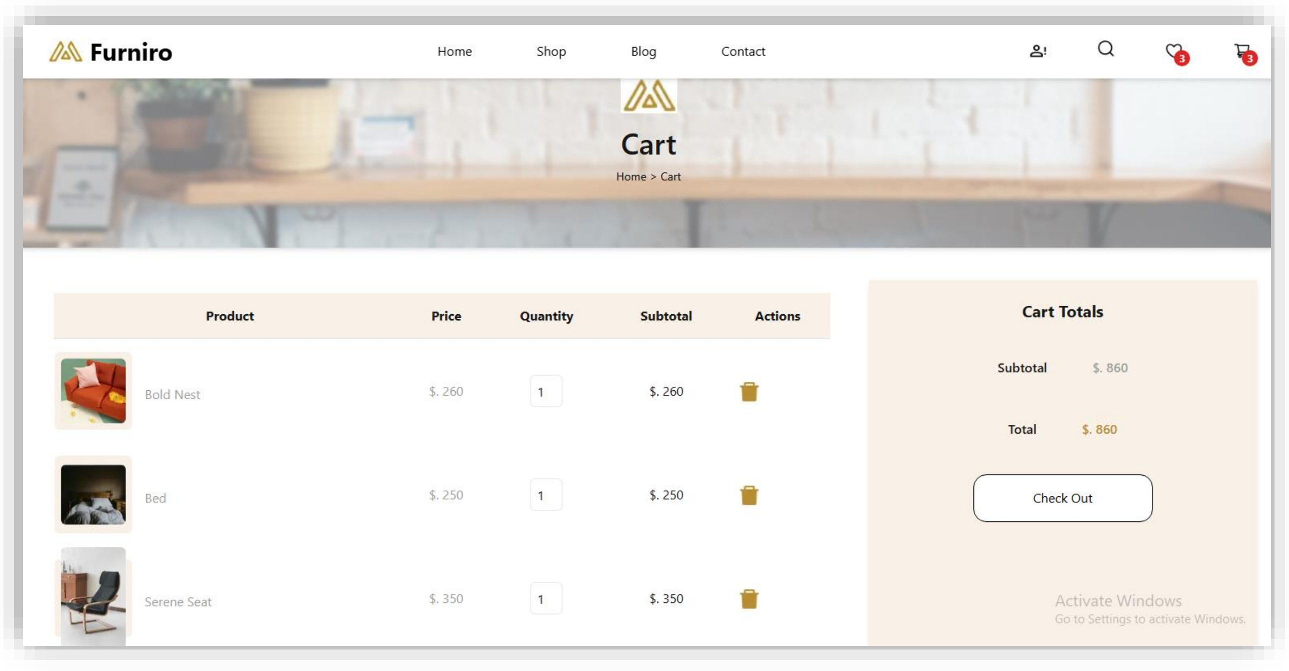
```tsx
const Header = () => {
          {/* Search Icon & Input */}
          <div className="relative">
            <button
              className="hover:text-yellow-600"
              onClick={() => setSearchActive(!searchActive)}
            >
              <Image
                src="/search-icon.jpg"
                alt="Search"
                width={20}
                height={20}
              />
            </button>

            {searchActive && (
              <div className="absolute right-0 top-8 bg-white shadow-md p-2 rounded-md w-64 z-50">
                <input
                  type="text"
                  placeholder="Search products..."
                  className="w-full p-2 border rounded-md focus:outline-none"
                  value={searchQuery}
                  onChange={(e) => setSearchQuery(e.target.value)}
                />

                {/* Search Results */}
                <div className="mt-2 max-h-40 overflow-y-auto">
                  {filteredProducts.map((product) => (
                    <Link
                      key={product._id}
                      href={`/product/${product._id}`}
                      className="block p-2 border-b hover:bg-gray-100"
                    >
                      {product.title}
                    </Link>
                  ))}

                  {noResults && (
                    <p className="text-gray-500 text-center">
```



Showing 1–24 of 72 results

Show 24 Sort by Default

CART PAGE:

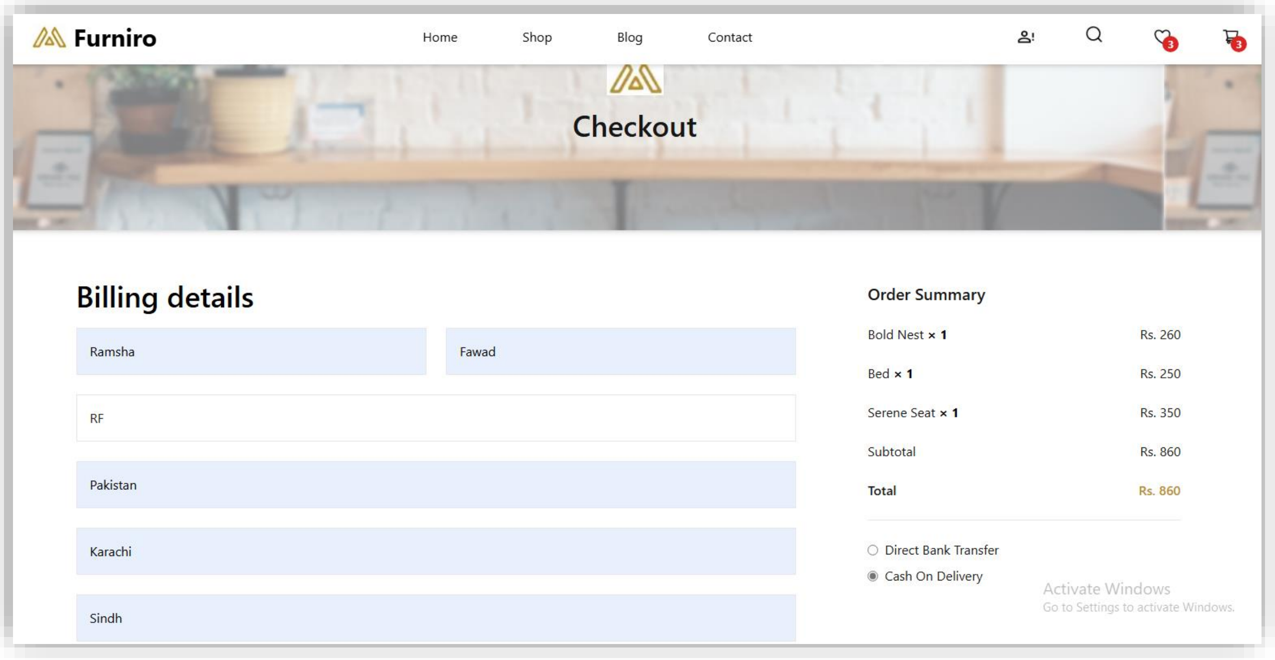


Product	Price	Quantity	Subtotal	Actions
Bold Nest	$. 260	1	$. 260	
Bed	$. 250	1	$. 250	
Serene Seat	$. 350	1	$. 350	

Cart Totals

Subtotal	$. 860
Total	$. 860

CHECKOUT PAGE:



Furniro

Home Shop Blog Contact

Checkout

Billing details

Ramsha

Fawad

RF

Pakistan

Karachi

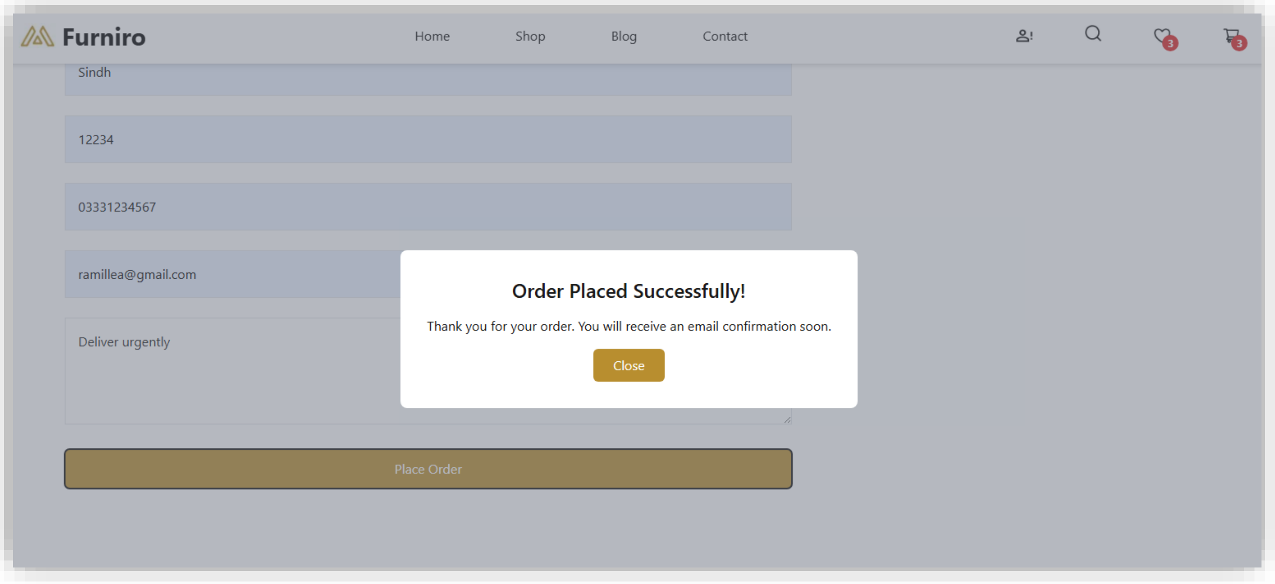
Sindh

Order Summary

Bold Nest × 1	Rs. 260
Bed × 1	Rs. 250
Serene Seat × 1	Rs. 350
Subtotal	Rs. 860
Total	**Rs. 860**

Direct Bank Transfer [✓ Cash On Delivery]

ORDER PLACED POP UP:



Furniro

Home Shop Blog Contact

Sindh

12234

03331234567

ramillea@gmail.com

Deliver urgently

Order Placed Successfully!

Thank you for your order. You will receive an email confirmation soon.

Close

Place Order