Day 4 - Dynamic Frontend Components – EcoFurnish

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1. Functional Deliverables:

Video Demonstration:

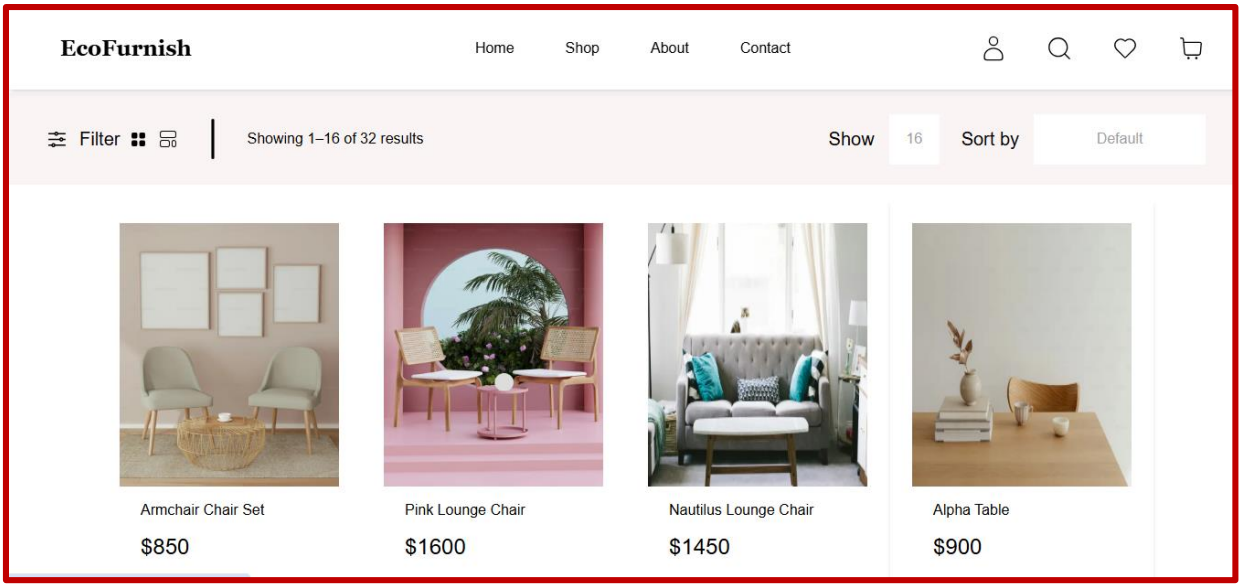
To see these features in action, watch the video demonstration: Click the Link below:

https://res.cloudinary.com/destuyewf/video/upload/v1738165470/Day-4-_sjvd1t.mp4

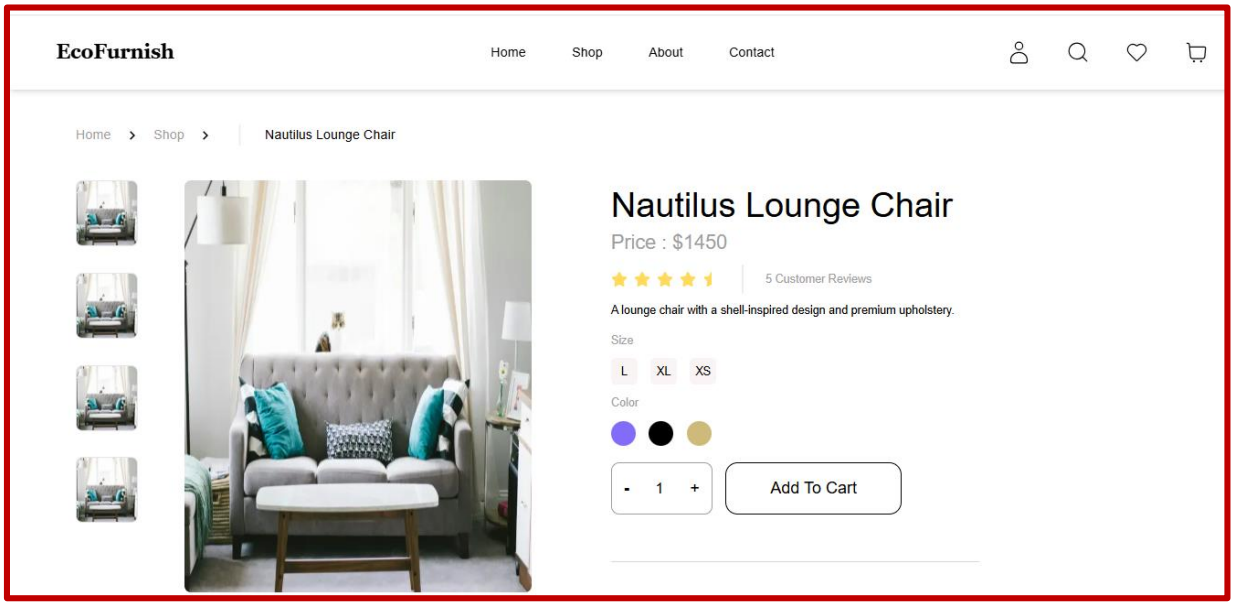
Screenshots:

Below are the screenshots showcasing the implemented features:

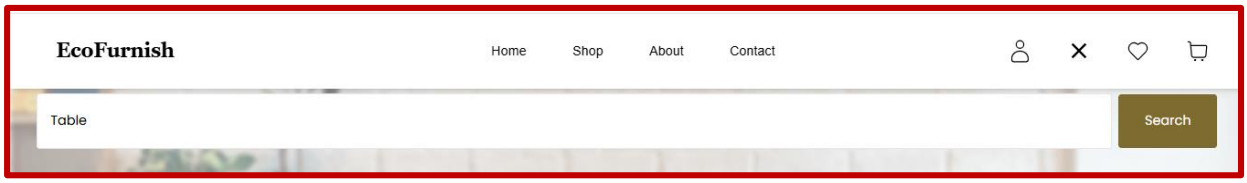
- **Product Listing Page:** Displaying dynamically fetched product data.

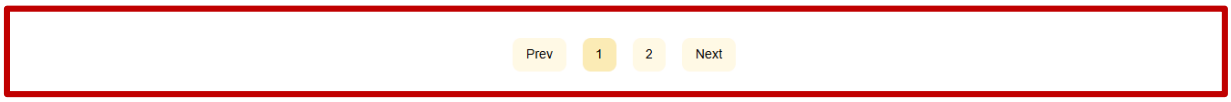


- **Individual Product Detail Pages:** Proper routing and data rendering for selected products.



- **Category Filters, Search Bar, and Pagination:** Demonstrating functionality.





2. Code Deliverables:

Key Component Code Snippets

- **ProductList.tsx**

```
"use client"

import React, { useEffect, useState } from 'react';
import { UseAppSelector, UseAppDispatch } from '@/redux/hooks';
import { fetchAllProducts, selectPaginatedProducts } from '@/redux/Search/searchActions';
import Image from 'next/image';
import Link from 'next/link';
import { IProduct } from '@/data';

const ProductsList: React.FC = () => {
  const paginatedProducts: IProduct[] = UseAppSelector(selectPaginatedProducts);
  const [loading, setLoading] = useState(true);
  const [error, setError] = useState<string | null>(null);

  const dispatch = UseAppDispatch();

  useEffect(() => {
    const fetchProducts = async () => {
      try {
        setLoading(true);
        setError(null); // Reset any previous error
        if (paginatedProducts.length === 0) {
          await dispatch(fetchAllProducts());
        }
      } catch (err) {
        setError('Failed to load products. Please try again later.');
      } finally {
        setLoading(false);
      }
    };

    fetchProducts();
  }, [dispatch, paginatedProducts.length]);

  if (loading) {
    return (
      <div>
```

```
      <h1 className="flex justify-center items-center h-[300px] mt-14 font-bold text-
2xl">Loading...</h1>
    </div>
   );
  }

  if (error) {
   return (
    <div className="flex justify-center items-center h-[300px] mt-14 font-bold text-2xl text-
red-500">
      {error}
    </div>
   );
  }

  return (
   <div className="grid grid-cols-2 md:grid-cols-4 py-4 place-items-center px-6 md:px-16 lg:px-
28 gap-[31px]">
    {paginatedProducts.map((product) => (
     <Link href={`Shop/${product._id}`} key={product._id}>
      <div className="w-36 md:w-72 h-auto md:h-[422px] hover:shadow-md flex flex-col
justify-center mx-auto">
       <Image
        src={product.imagePath}
        alt={product.name}
        width={600}
        height={600}
        className="w-52 h-32 md:w-60 md:h-72 flex flex-col justify-center mx-auto"
       />
       <div className="w-[130px] md:w-[194px] flex-col justify-center mx-auto">
        <p className="font-semibold text-sm md:text-base mt-2 md:mt-[14px] flex-col justify-
center mx-auto">
         {product.name}
        </p>
        <h3 className="font-medium text-base md:text-xl mt-2 md:mt-3 flex-col justify-center
mx-auto">
         Price: <span className="font-medium text-lg md:text-2xl">${product.price}</span>
        </h3>
       </div>
      </div>
     </Link>
    ))}
   </div>
```

```
  );
};

export default ProductsList;
```

- **Pagination.tsx**

```
"use client"

import React from 'react';
import { UseAppSelector, UseAppDispatch } from '@/redux/hooks';
import { setCurrentPage } from '@/redux/Search/searchSlice';

const Pagination = () => {
  const dispatch = UseAppDispatch();
  const { currentPage, itemsPerPage, filteredProducts } = UseAppSelector((state) =>
state.search);

  const totalPages = Math.ceil(filteredProducts.length / itemsPerPage);

  const handlePageClick = (page: number) => {
    if (page >= 1 && page <= totalPages) {
      dispatch(setCurrentPage(page));
    }
  };

  return (
    <div className="flex items-center justify-center gap-[20px] my-10">
      <button
        className={`px-4 py-2 rounded-[10px] ${currentPage === 1 ? 'cursor-not-allowed bg-
[#FFF9E5]' : 'hover:bg-[#FBEBB5] bg-[#FFF9E5]'}`}
        onClick={() => handlePageClick(currentPage - 1)}
        disabled={currentPage === 1}
      >
```

```
      Prev
    </button>
    {Array.from({ length: totalPages }, (_, i) => (
      <button
        key={i + 1}
        className={`px-4 py-2 rounded-[10px] ${currentPage === i + 1 ? 'bg-[#FBEBB5]' : 'bg-
[#FFF9E5]'}`}
        onClick={() => handlePageClick(i + 1)}
      >
        {i + 1}
      </button>
    ))}
    <button
      className={`px-4 py-2 rounded-[10px] ${currentPage === totalPages ? 'cursor-not-allowed
bg-[#FFF9E5]' : 'hover:bg-[#FBEBB5] bg-[#FFF9E5]'}`}
      onClick={() => handlePageClick(currentPage + 1)}
      disabled={currentPage === totalPages}
    >
      Next
    </button>
  </div>
 );
};

export default Pagination;
```

- **SearchBar.tsx**

```
"use client";

import React, { useState } from "react";
import { UseAppDispatch } from "@/redux/hooks";
import { performSearch } from "@/redux/Search/searchActions";
import { useRouter } from "next/navigation"; // Correct useRouter import for App Directory
import { MdClose } from "react-icons/md";
import { CiSearch } from "react-icons/ci";

const SearchBar: React.FC = () => {
  const [searchOpen, setSearchOpen] = useState(false);
  const [searchTerm, setSearchTerm] = useState("");
```

```
  const dispatch = UseAppDispatch();
  const router = useRouter(); // Ensure it's imported from next/navigation
  console.log(router);


  const handleSearch = () => {
   if (searchTerm.trim() === "") {
    alert("Please enter a search term!");
    return;
   }
   dispatch(performSearch(searchTerm));
   router.push("/Shop"); // Redirect user to the Shop page
  };

  return (
   <div>
    <div className="block z-50 cursor-pointer">
     {searchOpen ? (
      <MdClose
       size={28}
       className="cursor-pointer w-6 h-6 lg:w-8 lg:h-8"
       onClick={() => setSearchOpen(false)}
      />
     ) : (
      <CiSearch
       size={28}
       className="cursor-pointer w-6 h-6 lg:w-8 lg:h-8"
       onClick={() => setSearchOpen(true)}
      />
     )}
    </div>
    {searchOpen && (
     <div className="fixed z-10 md:top-24 top-16 left-4 right-4 md:right-8 md:left-8  max-w-
[1440vw]">
      <div className="flex items-center gap-2 w-full">
      <input
       type="text"
       value={searchTerm}
       onChange={(e) => setSearchTerm(e.target.value)}
       placeholder="Search products..."
       className="border px-4 py-2 md:py-5 rounded w-full focus:outline-none" />
      <button onClick={handleSearch} className="px-4 md:px-8 py-2 md:py-5 bg-[#7e6b2f]
hover:bg-[#b1a067] text-white rounded">
```

```
          Search
        </button>
      </div>
      </div>
    )}
  </div>
 );
};

export default SearchBar;
```

3. Scripts And Logic For API Integration & Dynamic Routing:

Global State Management (Redux):

- Redux is used for global state management.
- The productSlice stores fetched product data.
- The cartSlice manages the user's cart and checkout process.
- Redux Toolkit's createAsyncThunk is used for handling asynchronous API calls.

API Integration with Sanity:

- Product data is stored in Sanity CMS.
- API calls are made using Redux middleware.
- Data is structured according to the Sanity schema and fetched using axios.

Pagination and Search Functionality:

- currentPage and itemsPerPage are stored in Redux state.
- Pagination logic is applied to API responses.

- Search functionality updates the Redux state and filters the displayed results dynamically.

Dynamic Routing in Product Pages:

- Next.js dynamic routing ([id].tsx) is implemented.
- The useRouter() hook fetches the product ID from the URL.
- Product details are dynamically fetched via Redux state or API calls.

Cart & Checkout System:

- Products can be added/removed from the cart using Redux state.
- cartSlice defines actions to update the cart.
- The checkout process calculates the total price and processes the order based on Redux state.

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3. Documentation

Steps Taken

- **Designed Components:** Created reusable components like ProductCard, ProductList, and SearchBar.
- **Implemented Routing:** Used Next.js dynamic routes for individual product pages.
- **Integrated API:** Connected frontend to backend for fetching product data.
- **Added Filters & Pagination:** Implemented search, category filters, and pagination for better user experience.

Challenges & Solutions:

- **Challenge:** Handling dynamic data fetching delays.
    - **Solution:** Implemented loading states and error handling.
- **Challenge:** Ensuring proper routing for individual products.
    - **Solution:** Used Next.js useRouter for dynamic paths.
- **Challenge:** Styling the components for responsiveness.
    - **Solution:** Used Tailwind CSS for a responsive layout.

Best Practices Followed:

- **Component Reusability:** Broke down UI into modular and reusable components.
- **State Management:** Used useState and API calls efficiently.
- **Error Handling:** Implemented error handling for API requests.
- **Performance Optimization:** Used lazy loading for images and optimized rendering.

Submission Format:

- **Document Title:** "Day 4 - Dynamic Frontend Components - EcoFurnish"
- **Format:** PDF
- **Contents:**
    1. Screenshots/Recordings
    2. Code Snippets
    3. Technical Documentation
