Report: Implementing a Dynamic Product Listing Component

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Prepared For: Project Day 4- Building Dynamic Frontend Components

Objective:

The primary objective of Day 4 is to design and develop dynamic frontend components that can display marketplace data fetched from Sanity CMS or external APIs. This process focuses on modularity, reusability, and applying real-world development practices to build scalable and responsive web applications.

Task Overview

Objective:

Build a Product Listing Component for a marketplace.

Requirements:

1. Fetch product data dynamically using Sanity CMS or an extemal APL

2. Display the data in a grid layout of cards with the following details:

- Product Name
- Price
- Image Stock Status

3. Ensure responsiveness across devices.

4. Implement modularity by breaking the component into smaller, reusable parts.

Tools & Technologies:

- Framework: React or Next.js
- CMS: Sanity CMS
- Styling: Tailwind CSS or plain CSS
- State Management: React Hooks

Implementation Plan

1. Set Up Data Fetching:

- Integrate Sanity CMS or API endpoints to fetch the product data dynamically.
- Use React hooks (useErrect) for data fetching and (uaastate) to store and manage the data

2. **Design Reusable Components**

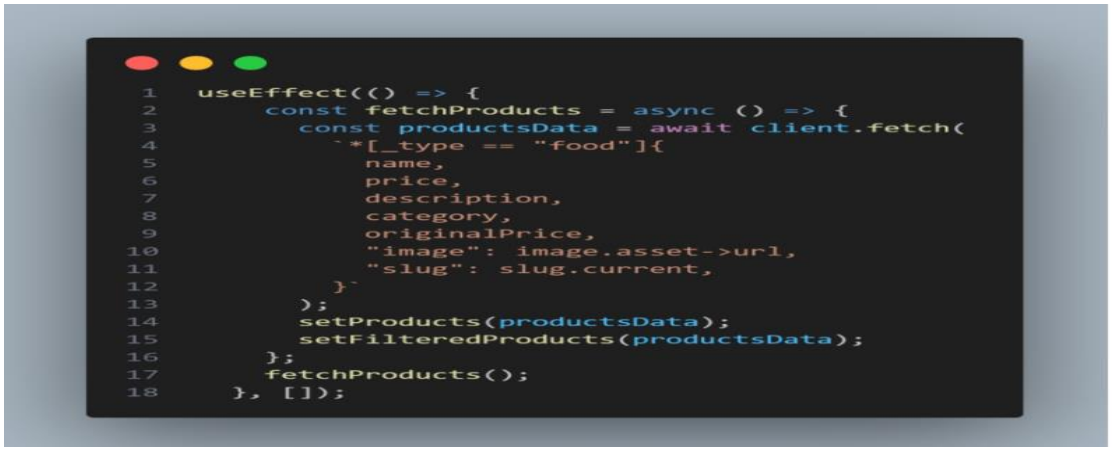
- Break down the Product Listing Component into smaller parts:
    - Product Card Component: Displays individual product details.
    - Grid Layout Component: Amanges the product cards in a responsive grid.

3. Apply Responsive Design:

- Use Tailwind CSS or CSS Grid/Flexbox to ensure the grid layout adapts to all screen sizes.

4. **Enhance User Experience:**

- Highlight important details like stock status with conditional formatting.
- Add hover effects for better interactivity.



```
useEffect(() => {
    const fetchProducts = async () => {
      const productsData = await client.fetch(
        `*[_type == "food"]{
          name,
          price,
          description,
          category,
          originalPrice,
          "image": image.asset->url,
          "slug": slug.current,
        }`
      );
      setProducts(productsData);
      setFilteredProducts(productsData);
    };
    fetchProducts();
  }, []);
```

2. Product Detail Component

Objective:

Develop individual product detail pages using dynamic routing in Next.js. These pages will display detailed information about each product, including:

- Name
- Product Description
- Price
- Category
- Stock Availability

Implementation Plan:

1**. Dynamic Routing:**

- Create dynamic routes using the [id].tsx file in the pages/products directory.
- Fetch product data based on the product ID from a CMS like Sanity or an API.

2. Data Fields:

Each product detail page should include the following fields:

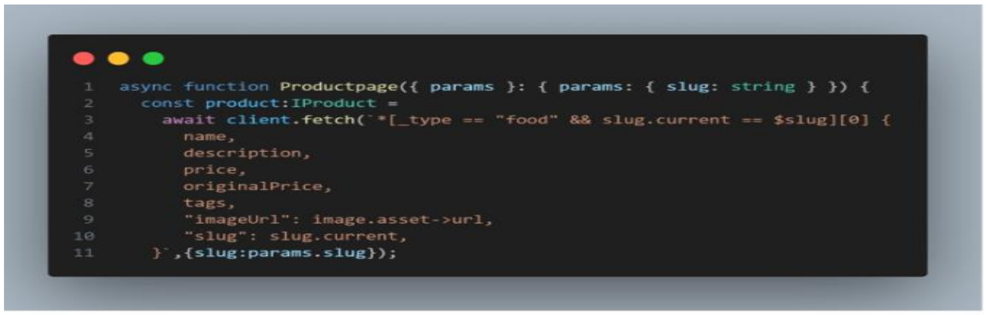
- Product Description: A detailed explanation of the product, fetched from the backend.
- Price: Displayed prominently for clear visibility.

3. Integration with Product Listing:

- Link each product card in the Product Listing Component to its corresponding detail.
- page using the link component in Next.js

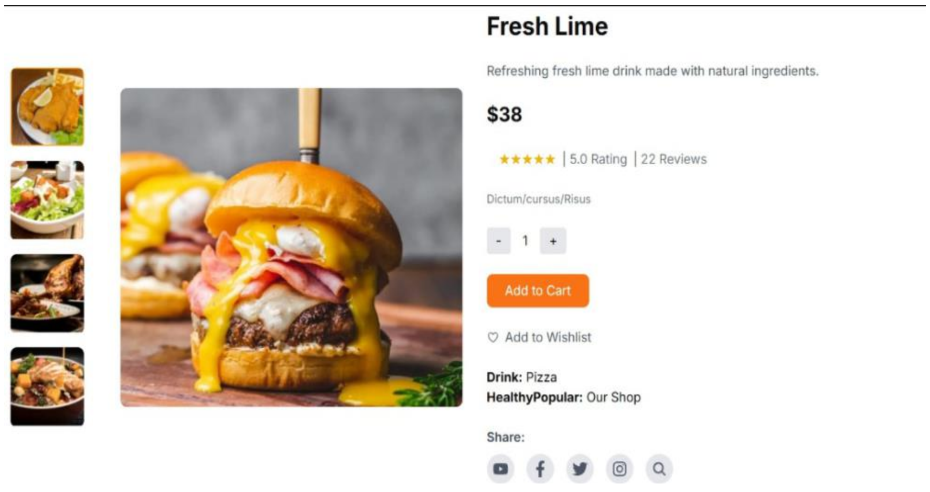
4**. Styling and Layout:**

- Use Tailwind CSS or plain CSS for a clean and responsive design.
- Ensure the layout highlights the product description and price for user clarity.



```
async function Productpage({ params }: { params: { slug: string } }) {
  const product:IProduct =
    await client.fetch(`*[_type == "food" && slug.current == $slug][0] {
      name,
      description,
      price,
      originalPrice,
      tags,
      "imageUrl": image.asset->url,
      "slug": slug.current,
   }`,{slug:params.slug});
```

UI Display OF Product Detail Page:


Fresh Lime

Refreshing fresh lime drink made with natural ingredients.

$38

★★★★★ | 5.0 Rating | 22 Reviews

Dictum/cursus/Risus

- 1 +

Add to Cart

♡ Add to Wishlist

Drink: Pizza
HealthyPopular: Our Shop

Share:

Step 3: Search Bar with Price Filter

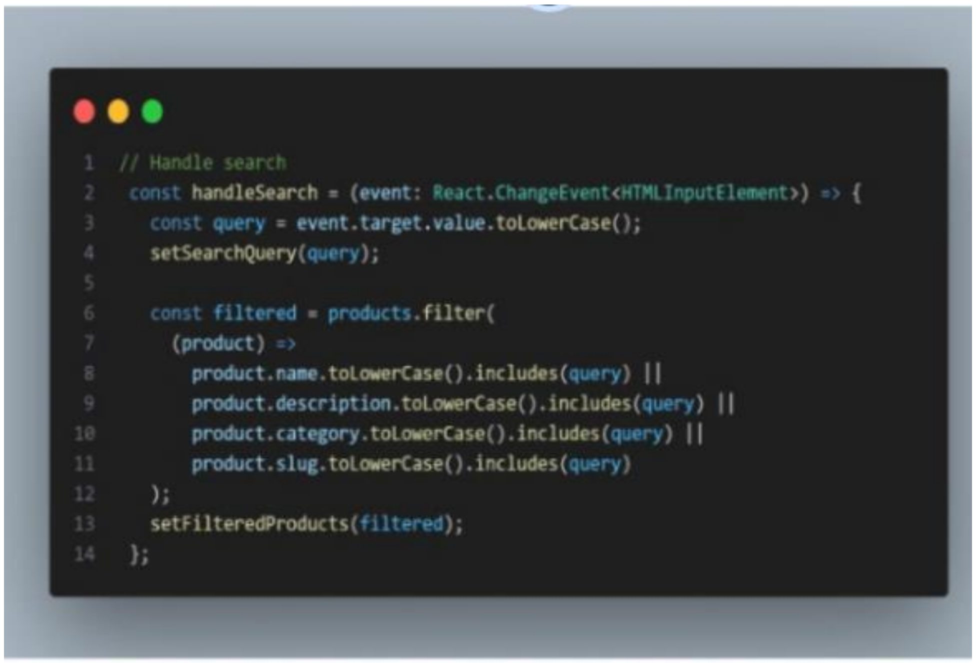
Objective:

To implement a search bar and price filters to enhance the product browsing experience.

Implementation Plan:

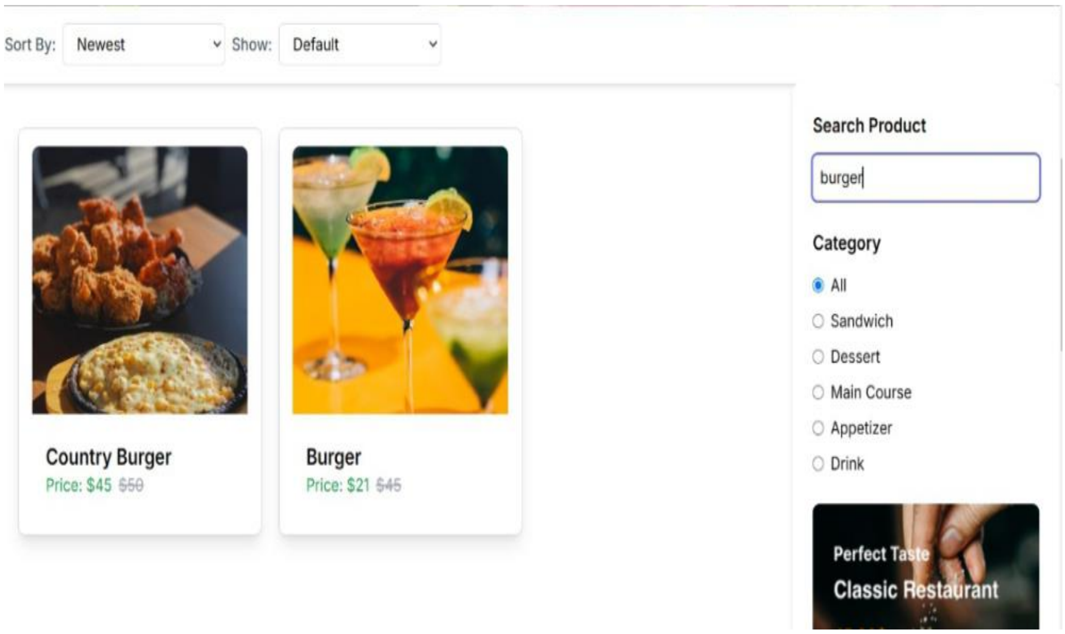
1. Search Bar Functionality:

- **Filter products based on their name or associated tags.**
- **Update the product list in real-time as the user types.**



```
// Handle search
const handleSearch = (event: React.ChangeEvent<HTMLInputElement>) => {
  const query = event.target.value.toLowerCase();
  setSearchQuery(query);

  const filtered = products.filter(
    (product) =>
      product.name.toLowerCase().includes(query) ||
      product.description.toLowerCase().includes(query) ||
      product.category.toLowerCase().includes(query) ||
      product.slug.toLowerCase().includes(query)
  );
  setFilteredProducts(filtered);
};
```



Sort By: Newest Show: Default

Search Product

burger

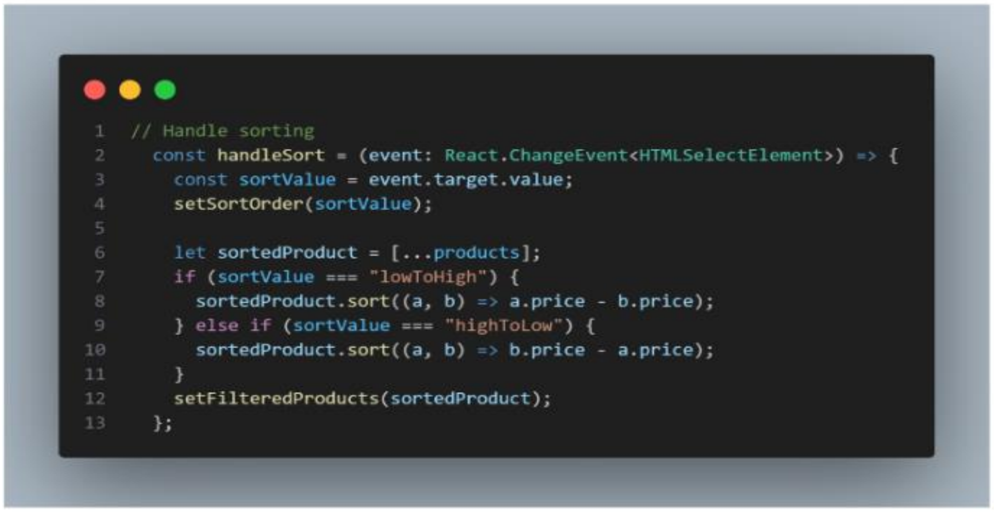
Category

● All
○ Sandwich
○ Dessert
○ Main Course
○ Appetizer
○ Drink

Country Burger
Price: $45 ~~$50~~

Burger
Price: $21 ~~$45~~

2. **Price Filtering:**
    - Add options to sort products by price in **ascending** or **descending** order.
    - Combine the price filter with the search bar and category filter for seamless interaction

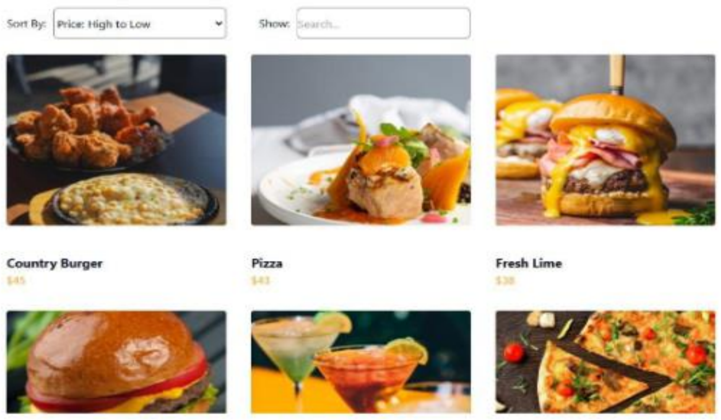


```
// Handle sorting
  const handleSort = (event: React.ChangeEvent<HTMLSelectElement>) => {
    const sortValue = event.target.value;
    setSortOrder(sortValue);

    let sortedProduct = [...products];
    if (sortValue === "lowToHigh") {
      sortedProduct.sort((a, b) => a.price - b.price);
    } else if (sortValue === "highToLow") {
      sortedProduct.sort((a, b) => b.price - a.price);
    }
    setFilteredProducts(sortedProduct);
  };
```

UI Display:

- ***High To Low:***

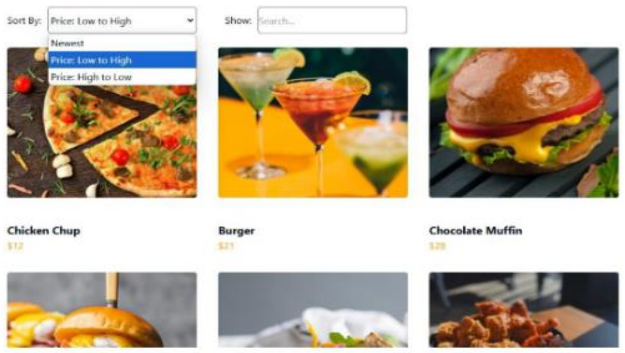


Country Burger
$45

Pizza
$43

Fresh Lime
$38

- ***Low To High:***



Features Implemented:

1. **Search Bar:**
   - Filters products by name or tags in real time.
2. **Price Filter:**
   - Allows sorting products by price (low to high or high to low).

Step 4: Cart Component

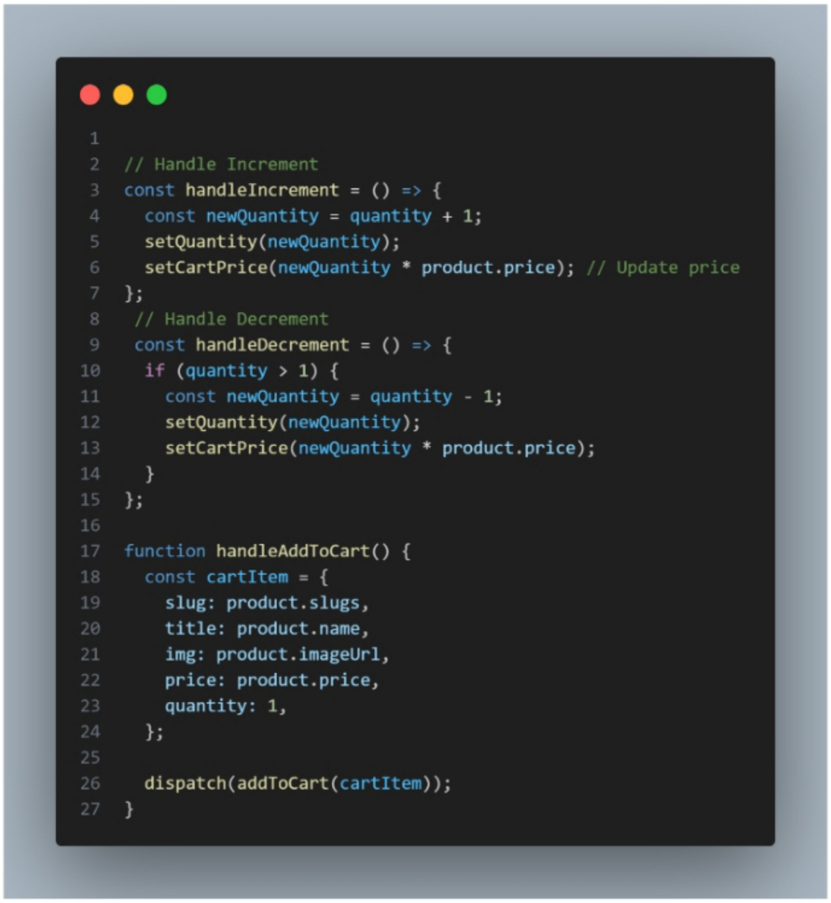
Objective:

To create a **Cart Component** that displays the items added to the cart, their quantity, and the total price of the cart dynamically.

Implementation Plan:

1. **State Management:**
   - Use **React state** or a state management library like Redux for storing cart data.
2. **Cart Data:**
   - Include details for each product in the cart:
     - Product Name
     - Price
     - Quantity
   - Calculate and display the **total price** dynamically based on the items in the cart.

3. **Cart Interactions:**
    - Allow users to **increase or decrease the quantity** of items.
    - Automatically update the total price when the quantity changes.



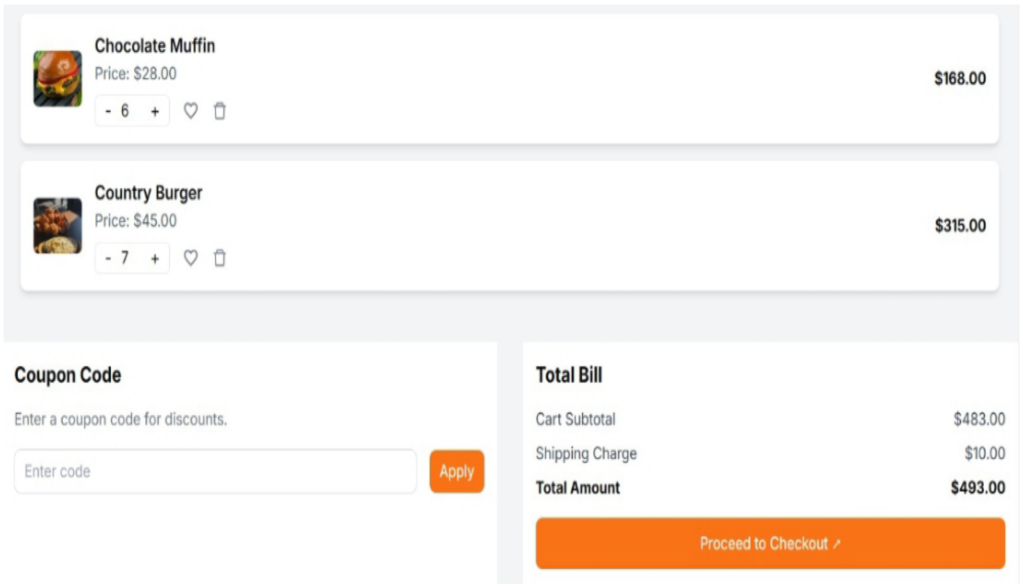
```

// Handle Increment
const handleIncrement = () => {
  const newQuantity = quantity + 1;
  setQuantity(newQuantity);
  setCartPrice(newQuantity * product.price); // Update price
};
 // Handle Decrement
 const handleDecrement = () => {
  if (quantity > 1) {
    const newQuantity = quantity - 1;
    setQuantity(newQuantity);
    setCartPrice(newQuantity * product.price);
  }
};

function handleAddToCart() {
  const cartItem = {
    slug: product.slugs,
    title: product.name,
    img: product.imageUrl,
    price: product.price,
    quantity: 1,
  };

  dispatch(addToCart(cartItem));
}
```

UI Display Of Cart Page:



Chocolate Muffin
Price: $28.00
- 6 +
$168.00

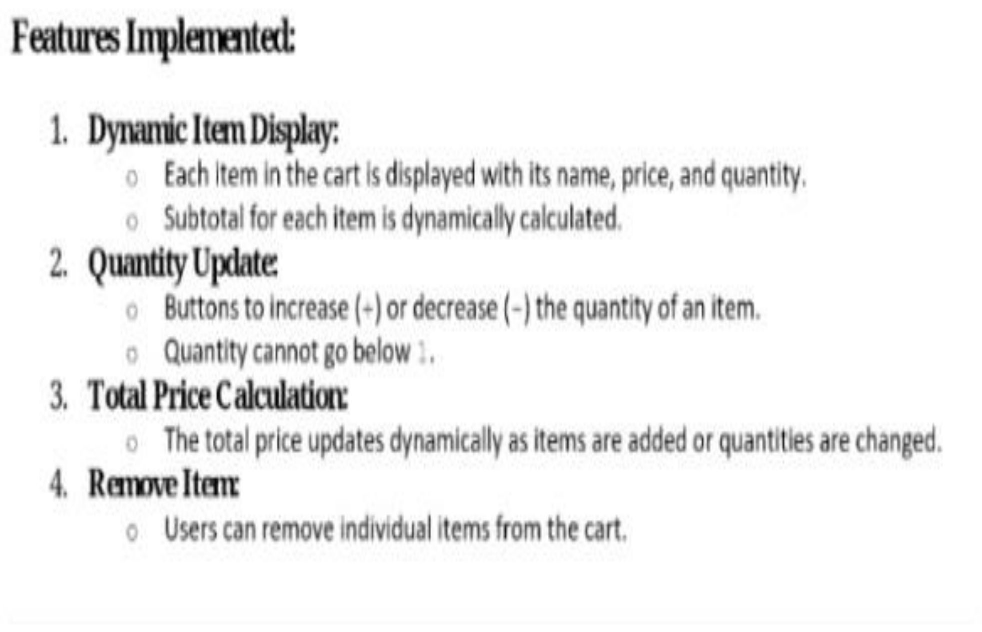
Country Burger
Price: $45.00
- 7 +
$315.00

Coupon Code
Enter a coupon code for discounts.
Enter code
Apply

Total Bill

Cart Subtotal	$483.00
Shipping Charge	$10.00
Total Amount	**$493.00**

Proceed to Checkout ↗

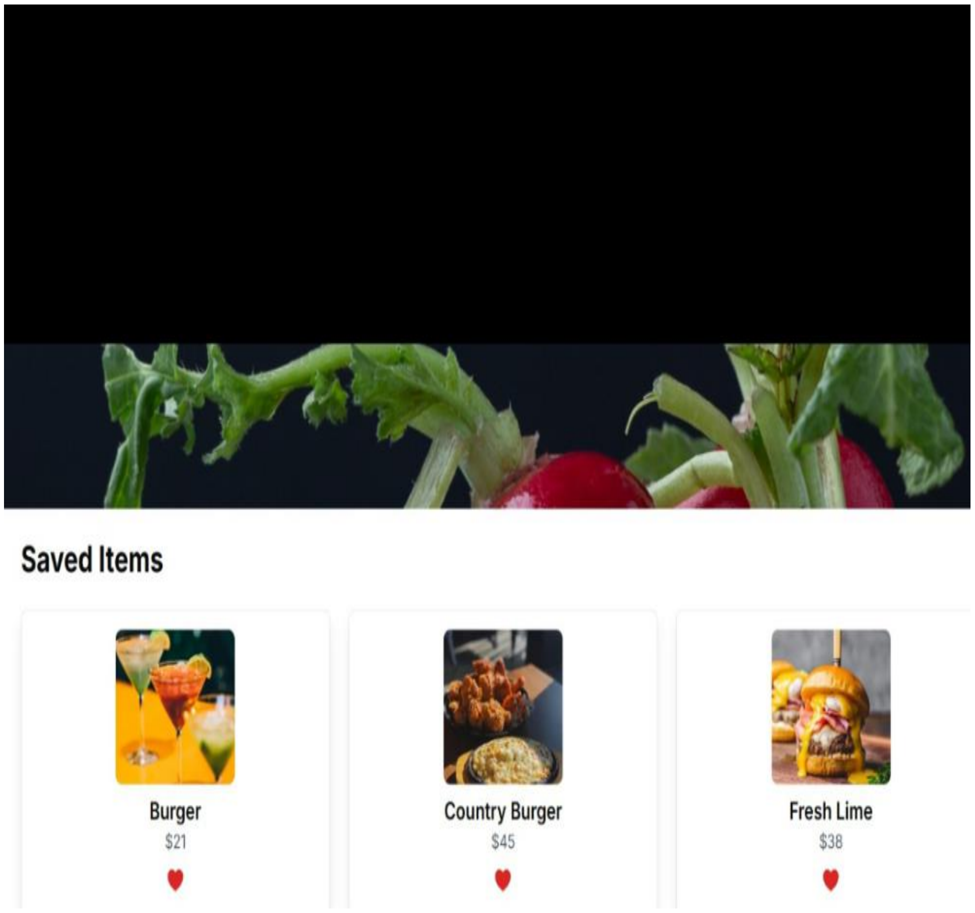


Features Implemented:

1. **Dynamic Item Display:**
   - Each item in the cart is displayed with its name, price, and quantity.
   - Subtotal for each item is dynamically calculated.
2. **Quantity Update:**
   - Buttons to increase (+) or decrease (-) the quantity of an item.
   - Quantity cannot go below 1.
3. **Total Price Calculation:**
   - The total price updates dynamically as items are added or quantities are changed.
4. **Remove Item:**
   - Users can remove individual items from the cart.

Wishlist Page:

The Wishlist Page allows users to save their favorite products for quick access and future purchases. It helps customers keep track of items they frequently buy or plan to order later. Users can easily add or remove products from the wishlist and move them to the cart when ready to purchase. This feature enhances the shopping experience by making it more convenient and personalized**.**



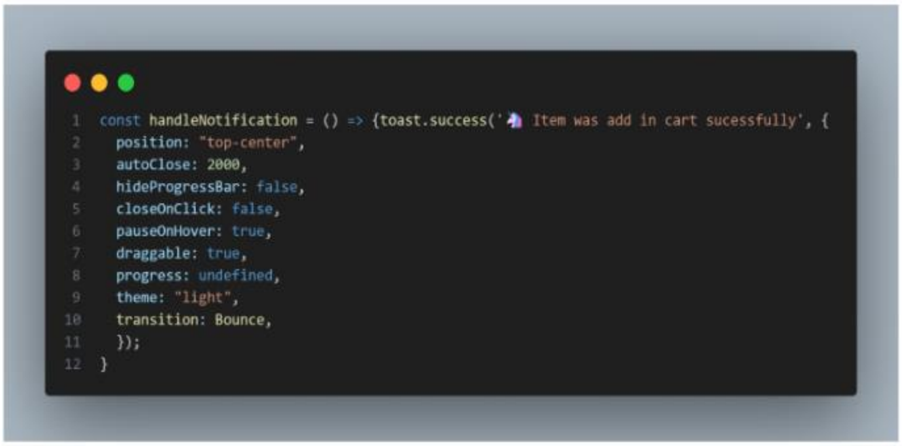
Step 6: Notifications Component

Objective:

To create a **Notifications Component** that displays real-time alerts for user actions, such as adding items to the cart, encountering errors, or completing a successful purchase.

Implementation Plan:

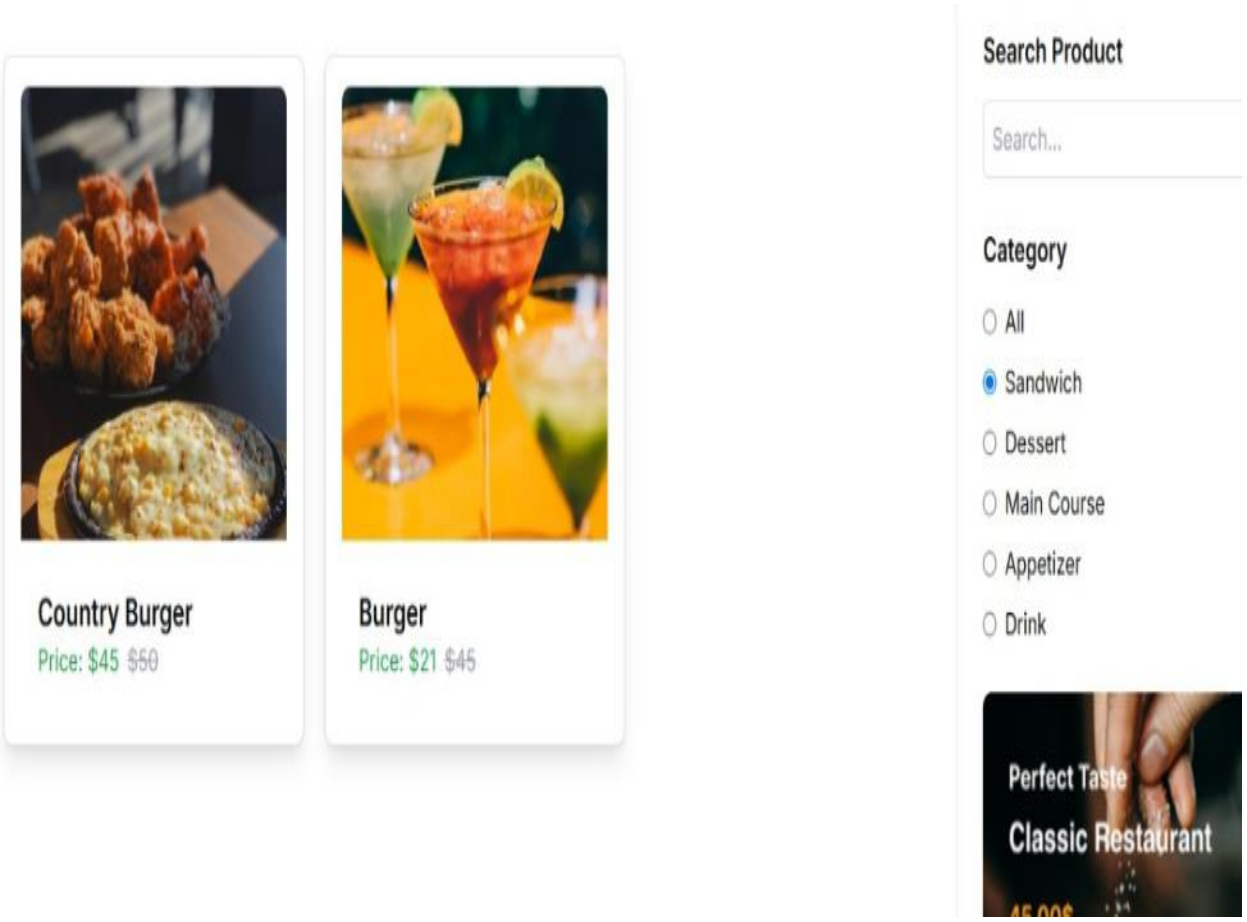
1. **Real-Time Alerts:**
   - Use **toast notifications** or **modal windows** to display alerts.
   - Display notifications for actions like:
     - Item added to the cart
     - Errors (e.g., "Out of stock")
     - Successful actions (e.g., "Purchase complete")
2. **Integration:**
   - Trigger notifications at appropriate moments in the app, such as adding to the cart or completing a transaction.
3. **Libraries:**
   - Use a popular notification library like **react-toastify** or build a custom notification system.



```
const handleNotification = () => {toast.success('🦄 Item was add in cart sucessfully', {
  position: "top-center",
  autoClose: 2000,
  hideProgressBar: false,
  closeOnClick: false,
  pauseOnHover: true,
  draggable: true,
  progress: undefined,
  theme: "light",
  transition: Bounce,
  });
}
```

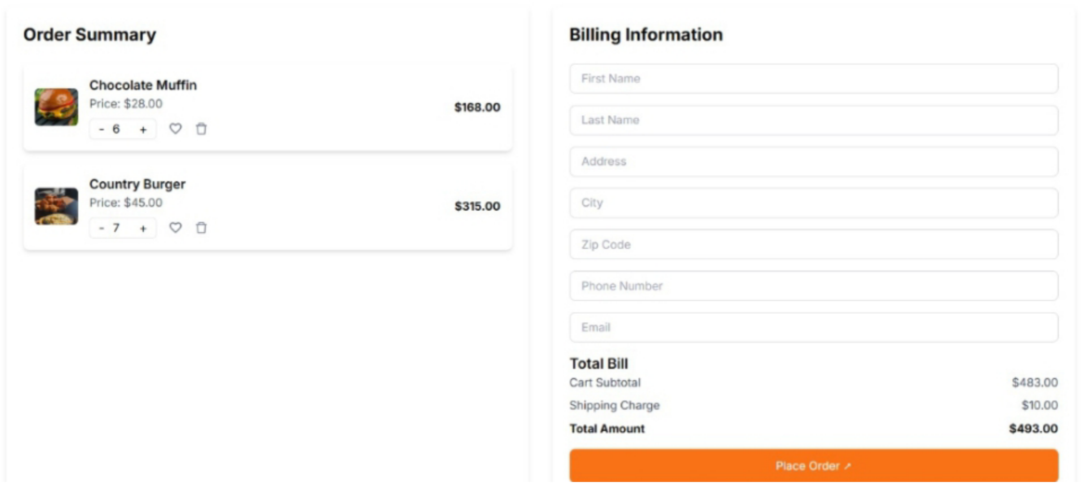
Category Page:

The Category Page is designed to help users easily navigate and find their desired products. It organizes food items into clear sections such as fresh produce, dairy, bakery, beverages, snacks, frozen foods, and meal kits. Each category has detailed product listings with images, descriptions, prices, and availability. The page also includes filters and sorting options to enhance the shopping experience, ensuring quick access to high-quality products.



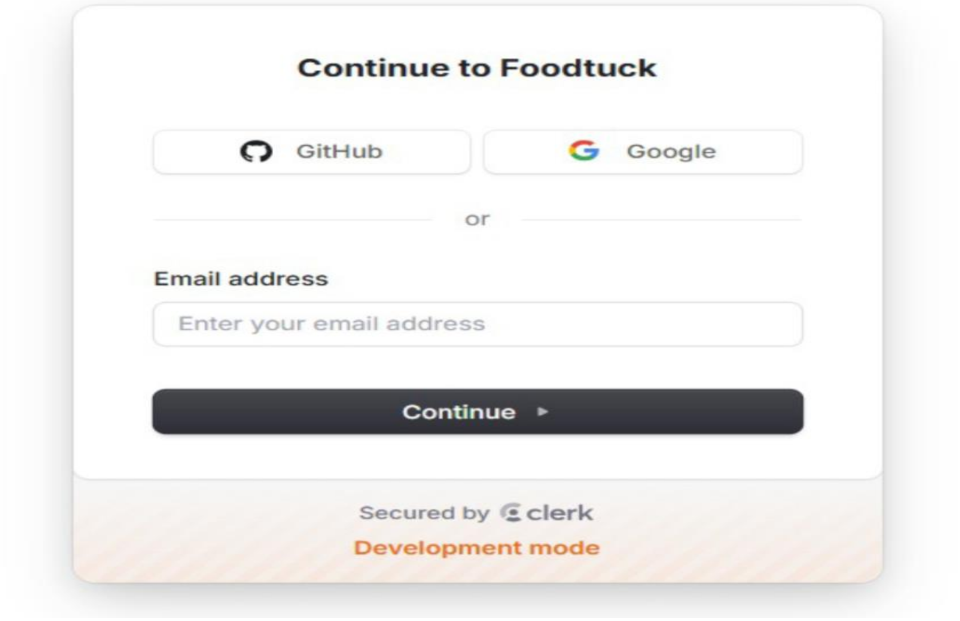
Checkout Component:

The Checkout Component ensures a fast and seamless ordering process in Q-commerce. It includes delivery details, payment options, order summary, and discount application. Users get a clear cost breakdown and can choose express or guest checkout for convenience. Instant order confirmation is provided via email or SMS.



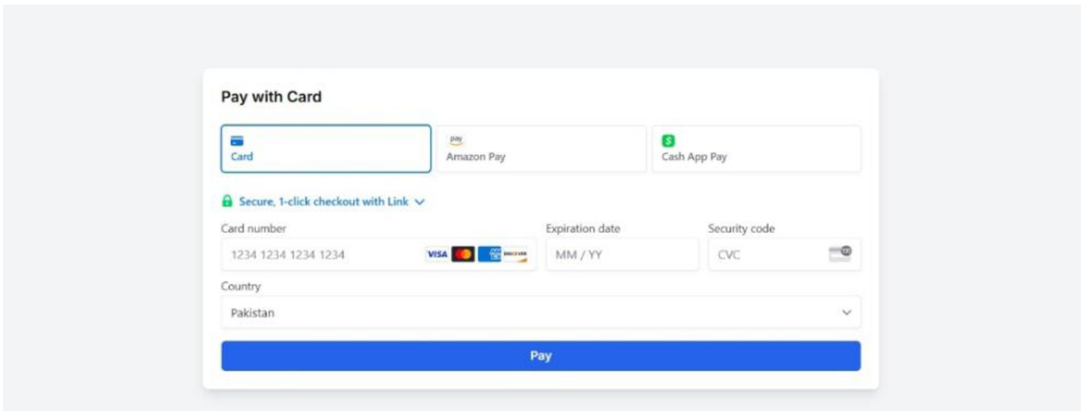
Clerk.js Authentication - Login & Sign-in Page:

Clerk.js is a modern authentication library designed for seamless login and sign-in experiences. It supports various authentication methods, including passwordless login, social sign-ins, and multi-factor authentication (MFA). With easy integration into frameworks like React and Next.js, it simplifies user authentication while providing pre-built UI components for quick customization. Clerk.js also ensures robust security through features like session management and access control, making it a reliable choice for developers building secure and user-friendly applications.



Stripe payment:

Stripe is a versatile payment processing platform that supports cards, digital wallets, and bank transfers. It offers seamless integration through APIs for websites and mobile apps. With built-in fraud protection and security tools, it ensures safe transactions. Stripe also supports subscriptions, one-time payments, and custom billing solutions.



Conclusion

On **Day 4** of building dynamic frontend components for a marketplace, the focus was on creating modular, reusable, and responsive components. The following key components were successfully implemented:

1. **Product Listing Component:**
   - Dynamically displayed products in a grid layout with details such as product name, price, image, and stock status.
2. **Product Detail Component:**
   - Built individual product pages using dynamic routing in Next.js, including fields like product description, price, and image.
3. **Search Bar and Filters:**
   - Implemented functionality to filter products by name or tags and added price filters (high to low and low to high).
4. **Cart Component:**
   - Displayed items added to the cart, quantity management, and total price calculation with dynamic updates.