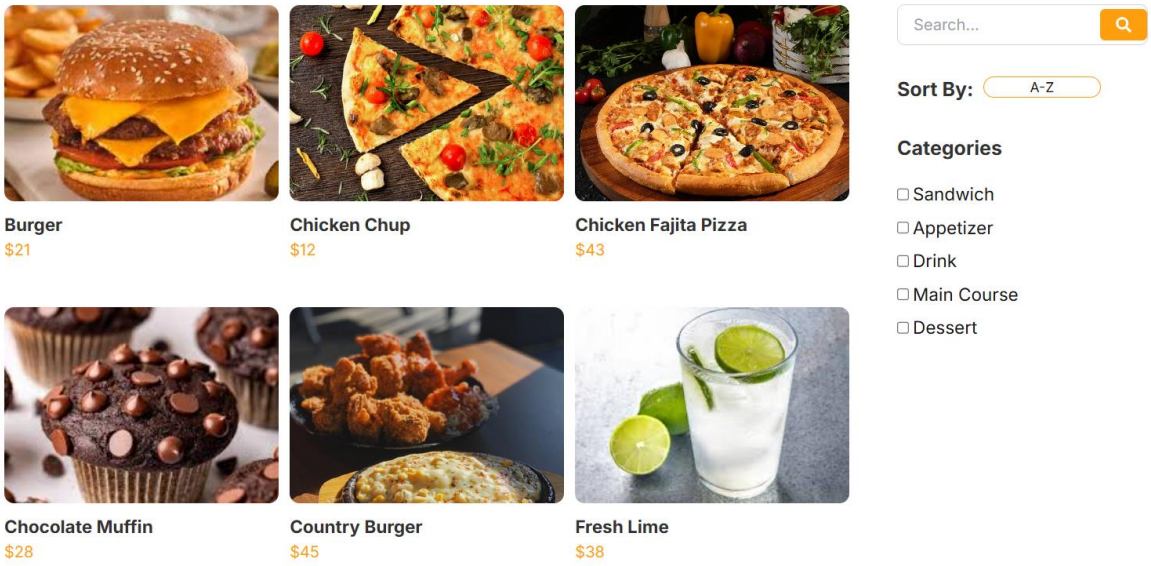
Day 4 - Dynamic Frontend Components – Fusion Filling

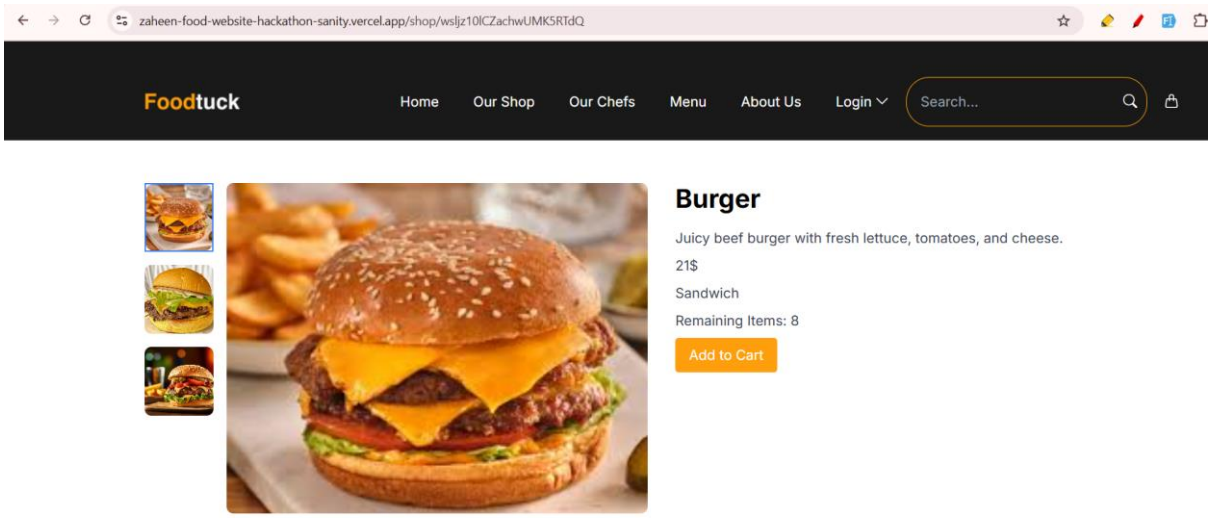
Functional Deliverables:

- Food Items Listing Page:



Food items are dynamically fetched from Sanity Studio.

- Individual Food Item Detail Page:



Food item detail page dynamically fetched from Sanity Studio.

- Category filters, Search Bar, and Pagination:

  - Pagination on Food Items Listing Page:

Pizza
$43

Search...

Sort By: A-Z

Categories

- Sandwich
- Appetizer
- Drink
- Main Course
- Dessert

Previous 1 2 Next

  - Search using food item name:

Chicken Chup
$12

Chicken Fajita Pizza
$43

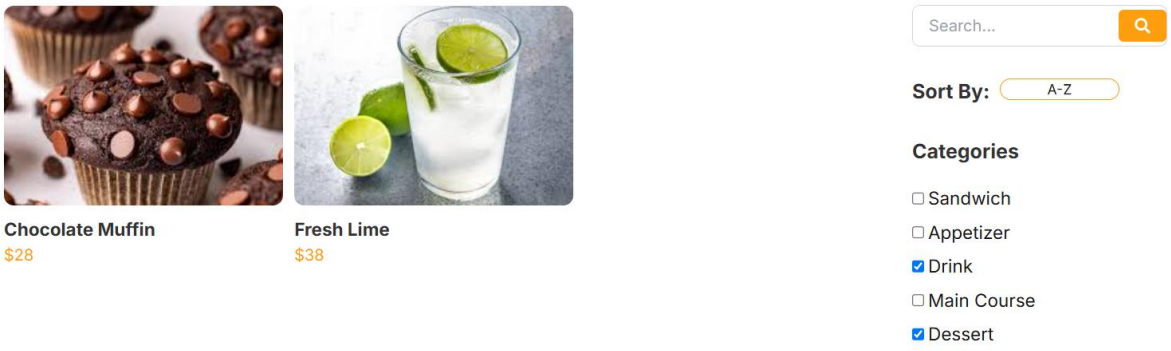
chicken

Sort By: A-Z

Categories

- Sandwich
- Appetizer
- Drink
- Main Course
- Dessert

  - Filter using food item categories:



Code Deliverables:

- Food Item Listing Page:

```
"use client"
import { Checkbox } from "@heroui/checkbox";
import {
  Dropdown,
  DropdownTrigger,
  DropdownMenu,
  DropdownItem,
  Button,
} from "@heroui/react";
import Image from "next/image";
import React, { useState, useEffect } from "react";
import { getCategoriesWithFoods } from "@/sanity/lib/data";
import { ICategoryWithFoods } from "@/sanity/lib/interfaces";
import CustomPagination from "../components/pagination";
import SearchBar from "../components/searchBar";
import { useSearchParams } from "next/navigation";

export function ShopContent() {
  const [categoriesWithFoods, setCategoriesWithFoods] = useState<
    ICategoryWithFoods[]
  >([]);
  const [selectedCategories, setSelectedCategories] = useState<string[]>([]);
  const [sortOption, setSortOption] = useState<string>("az");
  // const [searchQuery, setSearchQuery] = useState<string>(""); // State for
search query

  const [currentPage, setCurrentPage] = useState(1);
  const itemsPerPage = 6;

  const searchParams = useSearchParams();
  const searchQueryFromURL = searchParams.get("search") || "";
  const [searchQuery, setSearchQuery] = useState<string>(searchQueryFromURL);
```

```
  useEffect(() => {
    const fetchCategoriesWithFoods = async () => {
      try {
        const data = await getCategoriesWithFoods();
        setCategoriesWithFoods(data);
      } catch (error) {
        console.error("Error fetching categories and foods:", error);
      }
    };

    fetchCategoriesWithFoods();
  }, []);

  const handleCategorySelection = (categoryName: string) => {
    setSelectedCategories((prevSelected) => {
      if (prevSelected.includes(categoryName)) {
        return prevSelected.filter((name) => name !== categoryName);
      } else {
        return [...prevSelected, categoryName];
      }
    });
  };

  const handleSortChange = (option: string) => {
    setSortOption(option);
  };

  const filteredFoods = categoriesWithFoods
    .filter(
      (category) =>
        selectedCategories.includes(category.name) ||
        selectedCategories.length === 0
    )
    .flatMap((category) => category.foods)
    .filter((food) =>
      food.name.toLowerCase().includes(searchQuery.toLowerCase())
    );

  useEffect(() => {
    setSearchQuery(searchQueryFromURL); // Update search query if the URL
changes
  }, [searchQueryFromURL]);

  filteredFoods.sort((a, b) => {
    if (sortOption === "az") {
```

```
      return a.name.localeCompare(b.name);
    } else if (sortOption === "za") {
      return b.name.localeCompare(a.name);
    } else if (sortOption === "lowhigh") {
      return a.price - b.price;
    } else if (sortOption === "highlow") {
      return b.price - a.price;
    }
    return 0;
  });

  const startIndex = (currentPage - 1) * itemsPerPage;
  const currentFoods = filteredFoods.slice(
    startIndex,
    startIndex + itemsPerPage
  );

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

  const handlePageChange = (page: number) => {
    setCurrentPage(page);
  };

  return (
    <>
      <div>
        <div
          className=" pt-[150px] lg:pt-0 w-full bg-no-repeat bg-center flex
justify-center  "
          style={{
            backgroundImage: "url('/unsplash.png')",
            backgroundSize: "cover",
            backgroundPosition: "center top",
            height: "300px",
          }}
        >
          <div className="w-full max-w-5xl flex flex-col justify-center items-
center text-white text-center py-16">
            <p className="text-4xl sm:text-5xl md:text-6xl font-bold mb-4">
              Our Shop
            </p>
            <div className="flex flex-col sm:flex-row items-center justify-
center space-y-4 sm:space-y-0 sm:space-x-4">
              <a href="/" className="text-xl sm:text-2xl md:text-3xl">
                Home
              </a>
              <div className="flex items-center">
```

```
                <Image
                  src="/Vector.png"
                  width={10}
                  height={10}
                  alt="Vector Icon"
                />
                <a
                  href="/shop"
                  className="ml-2 text-xl sm:text-2xl md:text-3xl text-
[#FF9F0D]"
                >
                  Our Shop
                </a>
              </div>
            </div>
          </div>
        </div>

        <section className="max-w-[1320px] mx-auto py-[20px] lg:py-[50px] px-
[20px] lg:px-[60px] text-black body-font bg-white">
          <div className="md:grid md:grid-cols-4 gap-4 flex flex-col-reverse">
            <div className="col-span-full md:col-span-3 p-4">
              <div className="grid grid-cols-1 sm:grid-cols-2 lg:grid-cols-3
gap-x-[10px] gap-y-4 min-h-[600px]">
                {currentFoods.length > 0 ? (
                  currentFoods.map((food) => (
                    <a
                      href={`/shop/${food._id}`}
                      className="flex flex-col items-center md:items-start
gap-y-[10px] border border-transparent hover:border-[#FF9F0D] rounded-lg
transition duration-300"
                      key={food._id}
                    >
                      <div className="w-[100%] h-[200px]">
                        <img
                          src={food.imageUrl}
                          className="w-[100%] h-[100%] object-cover rounded-
[10px]"
                          alt={food.name}
                        />
                      </div>
                      <div className="flex flex-col items-center md:items-
start w-full">
                        <h4 className="text-[18px] font-bold text-[#333333]">
                          {food.name}
                        </h4>
                        <div className="flex">
```

```
                        <p className="text-[16px] font-normal text-
[#FF9F0D]">
                          ${food.price}
                        </p>
                      </div>
                    </div>
                  </a>
                ))
              ) : (
                <div className="col-span-full text-center text-gray-500">
                  No food items found.
                </div>
              )}
            </div>

            <div className="flex gap-4 justify-center items-center mt-
[50px]">
              <CustomPagination
                currentPage={currentPage}
                totalPages={totalPages}
                onChange={handlePageChange}
              />
            </div>
          </div>

          <div className="flex gap-y-[30px] flex-col items-center md:items-
start col-span-full md:col-span-1 p-4 text-[#333333]">
            <div className="w-full max-w-md">
              <SearchBar query={searchQuery} setQuery={setSearchQuery} />
            </div>
            <div className="flex gap-[10px] items-center md:items-start">
              <h3 className="font-bold text-[20px] p-0 m-0">Sort By:</h3>
              <div className="sort-dropdown">
                <Dropdown className="">
                  <DropdownTrigger className="min-w-[120px] hover:bg-
[#FF9F0D] hover:text-white border border-[#FF9F0D]">
                    <Button variant="bordered">
                      {sortOption === "az" && "A-Z"}
                      {sortOption === "za" && "Z-A"}
                      {sortOption === "lowhigh" && "Low-High"}
                      {sortOption === "highlow" && "High-Low"}
                    </Button>
                  </DropdownTrigger>
                  <DropdownMenu
                    aria-label="Static Actions"
                    className="bg-white text-[#FF9F0D] border border-
[#FF9F0D] min-w-[120px]"
```

```
                    >
                      <DropdownItem
                        key="az"
                        onPress={() => handleSortChange("az")}
                        className="hover:bg-[#FF9F0D] hover:text-white"
                      >
                        A-Z
                      </DropdownItem>
                      <DropdownItem
                        key="za"
                        onPress={() => handleSortChange("za")}
                        className="hover:bg-[#FF9F0D] hover:text-white"
                      >
                        Z-A
                      </DropdownItem>
                      <DropdownItem
                        key="lowhigh"
                        onPress={() => handleSortChange("lowhigh")}
                        className="hover:bg-[#FF9F0D] hover:text-white"
                      >
                        Low-High
                      </DropdownItem>
                      <DropdownItem
                        key="highlow"
                        onPress={() => handleSortChange("highlow")}
                        className="hover:bg-[#FF9F0D] hover:text-white"
                      >
                        High-Low
                      </DropdownItem>
                    </DropdownMenu>
                  </Dropdown>
                </div>
              </div>
              <div className="flex flex-col items-center md:items-start w-
full">
                <h3 className="font-bold text-[20px] ">Categories</h3>
                <div className="flex flex-col sm:flex-row md:flex-col justify-
around md:justify-start my-[15px] w-unset sm:w-full">
                  {categoriesWithFoods.map((category) => (
                    <Checkbox
                      key={category._id}
                      checked={selectedCategories.includes(category.name)}
                      onChange={() => handleCategorySelection(category.name)}
                    >
                      <p className="m-0 p-0 py-[5px] text-[18px] font-normal">
                        {category.name}
                      </p>
```

```
                    </Checkbox>
                  ))}
                </div>
              </div>
            </div>
          </div>
        </section>
      </div>
      ;
    </>
  );
}
```

- Food item Detail Page:

```
import { getFoodItemById } from "@/sanity/lib/data";
import ImageGallery from "@/app/components/imageGallery";
import { IFoodItem } from "@/sanity/lib/interfaces";
import AddToCartButton from "@/app/components/addToCartButton";

interface ProductPageProps {
  params: {
    slug: string;
  };
}

export default async function FoodDetail({ params }: ProductPageProps) {
  const { slug } = params; // Get the slug from the URL
  const foodItem: IFoodItem = await getFoodItemById(slug);
  if (!foodItem) {
    return <div>Product not found</div>; // Handle invalid slug
  }

  return (
    <div className="max-w-[1320px] pt-[150px]  mx-auto py-[20px] lg:py-[50px]
px-[20px] lg:px-[60px] text-black body-font bg-white">
      <div className="grid grid-cols-1 md:grid-cols-2 gap-8">
        {/* Image Gallery */}
        <div>
          <ImageGallery
            mainImageUrl={foodItem.mainImageUrl}
            images={foodItem.images}
          />
        </div>

        {/* Product Details */}
```

```
        <div>
          <h1 className="text-3xl font-bold mb-4">{foodItem.name}</h1>
          <p className="text-gray-700 mb-2"> {foodItem.description}</p>
          <p className="text-gray-700 mb-2"> {foodItem.price}$</p>
          <p className="text-gray-700 mb-2"> {foodItem.category}</p>
          <p className="text-gray-700 mb-2">
            Remaining Items: {foodItem.stock}
          </p>
          {/* <button className="bg-[#FF9F0D] text-white px-4 py-2 rounded">
            Add to Cart
          </button> */}
          <AddToCartButton product={foodItem} />
        </div>
      </div>
    </div>
  );
}
```

- Data Fetching Scripts:
  - Get all categories of food items:

```
export const getAllCategories = async () => {
  try {
    const getAllCategoriesQuery = `*[_type == "category" && available == true]
{
            _id,
            name,
            "imageUrl": image.asset->url,
            available
          }
          `;

    const categories: ICategory[] = await client.fetch(getAllCategoriesQuery,
{}, { next: { revalidate: 1800 } });
    return categories;
  } catch (error) {
    console.log(error);
    throw new Error("Failed to fetch categories. Please try again later.");
  }
};
```

  - Get all categories with all food items:

```
export const getCategoriesWithFoods = async (): Promise<ICategoryWithFoods[]>
=> {
  try {
```

```
    const query = `*[_type == "category" && available == true] {
      _id,
      name,
      "imageUrl": image.asset->url,
      available,
      "foods": *[_type == "food" && references(^._id) && available == true] {
        _id,
        name,
        price,
        "imageUrl": image.asset->url,
        description,
        available
      }
    }`;

    const categoriesWithFoods: ICategoryWithFoods[] = await
client.fetch(query, {}, { next: { revalidate: 1800 } });
    return categoriesWithFoods;
  } catch (error) {
    console.error("Error fetching categories with foods:", error);
    throw new Error("Failed to fetch categories with foods. Please try again
later.");
  }
};
```

- Get food item by its id:

```
export const getFoodItemById = async (slug: string) => {
  const query = `*[_type == "food" && _id == $slug][0] {
    _id,
    name,
    price,
    "category": category->name,
    stock,
    description,
    "mainImageUrl": image.asset->url, // Resolve the main image URL
    "images": images[].asset->url         // Resolve the array of image URLs
  }`;

  const foodItem:IFoodItem = await client.fetch(query, { slug }, { next:
{ revalidate: 0 } });
  if (foodItem) {
    const mainImageUrl = foodItem.mainImageUrl || '/default-image.jpg';
    foodItem.images = [mainImageUrl, ...(foodItem.images || [])];
  }
  return foodItem;
};
```

Documentation:

1. Steps Taken to Build and Integrate Components:

The development of the food e-commerce website involved several key steps to build and integrate components effectively. Below is a summary of the process:

a. Setting Up the Project

- **Next.js Framework**: The project was built using Next.js for server-side rendering (SSR), static site generation (SSG), and client-side rendering (CSR). This ensured optimal performance and SEO.
- **Sanity CMS**: Sanity was used as the headless CMS to manage food items, categories, and orders. The sanity/client library was used to fetch data from Sanity.

b. Building the Shop Page

- **Dynamic Data Fetching**: The getCategoriesWithFoods function was created to fetch food categories and their associated items from Sanity. This data was used to populate the shop page.
- **Search and Filter Functionality**:
  - A SearchBar component was implemented to allow users to search for food items by name.
  - Filters for sorting (A-Z, Z-A, Low-High, High-Low) and category selection were added using checkboxes and a dropdown menu.
- **Pagination**: A CustomPagination component was built to handle pagination for the food items, ensuring a smooth user experience.

c. Implementing the Checkout Process

- **Cart Management**: Redux was used to manage the cart state. Actions like adding items, removing items, and clearing the cart were implemented.
- **Checkout API**: A /api/checkout route was created to handle order creation in Sanity. The API validates the order data, creates the order, and updates the stock of each product.
- **Order Confirmation**: After a successful checkout, the user is redirected to a /checkout-success page, where the order ID is displayed.

d. Integrating `useSearchParams`

- The useSearchParams hook was used to handle search queries in the shop page. To avoid static rendering issues, the component was wrapped in a Suspense boundary.

e. Styling and UI Components

- **Component Library**: The project used a custom component library (@heroui) for UI elements like checkboxes, dropdowns, and buttons.
- **Responsive Design**: The layout was designed to be responsive, ensuring a seamless experience across multiple devices.

2. Challenges Faced and Solutions Implemented:

During the development process, several challenges were encountered and addressed:

a. Static Rendering Issues with `useSearchParams`

- **Challenge**: The useSearchParams hook caused errors during static rendering because it relies on client-side data.
- **Solution**: The component using useSearchParams was wrapped in a Suspense boundary with a fallback (e.g., Loading...). This deferred rendering until the necessary data was available.

b. Dynamic Order ID Display

- **Challenge**: After checkout, the order ID needed to be displayed on the /checkout-success page. However, the order ID was only available after the API call.
- **Solution**: The /api/checkout route was updated to return the order ID in the response. The order ID was then passed to the /checkout-success page as a query parameter.

c. Managing Cart State

- **Challenge**: Managing the cart state across different pages (e.g., shop, checkout) required a centralized state management solution.
- **Solution**: Redux was implemented to manage the cart state. Actions like addToCart, removeFromCart, and clearCart were created to handle cart updates.

d. Fetching Data from Sanity

- **Challenge**: Fetching nested data (e.g., food items within categories) from Sanity required complex GROQ queries.

- **Solution**: The getCategoriesWithFoods function was created to fetch categories and their associated food items in a single query. This reduced the number of API calls and improved performance.

e. Handling Stock Updates

- **Challenge**: After an order was placed, the stock of each product needed to be updated in Sanity.
- **Solution**: A separate /api/updateStock route was created to handle stock updates. This route was called for each item in the order after the order was successfully created.

3. Best Practices Followed During Development:

To ensure a maintainable and scalable codebase, the following best practices were followed:

a. Modular Component Design

- Components like SearchBar, CustomPagination, and CountryDropdown were built as reusable, modular components. This promoted code reusability and made the codebase easier to maintain.

b. TypeScript for Type Safety

- TypeScript was used throughout the project to enforce type safety. Interfaces like ICategoryWithFoods were defined to ensure consistent data structures.

c. Separation of Concerns

- Logic for data fetching, state management, and UI rendering was separated into distinct modules. For example:
    - Data fetching was handled in the getCategoriesWithFoods function.
    - State management was handled by Redux.
    - UI rendering was handled by React components.

d. Error Handling

- Robust error handling was implemented at every level:
    - API routes included try-catch blocks to handle errors gracefully.
    - User-friendly error messages were displayed using toast notifications.

e. Performance Optimization

- **Pagination**: The shop page implemented pagination to limit the number of items rendered at once, improving performance.

- **Lazy Loading**: Images were lazy-loaded using the next/image component to reduce initial page load time.