Name : Bisma Fareed
Roll no 00441800

HACKATHON DAY TWO

TECHNICAL ANALYSIS

Frontend Of Website

1. FRONTEND ARCHITECTURE

- PURPOSE: Using Nextjs, That are compatible with Sanity CMS, using sanity that can serve content through its GraphQL or REST API.
    - using next js as strong candidate for server-side rendering (SSR), static site generation (SSG), and incremental static regeneration (ISR), all of which are beneficial
- ROUTING: Utilizing dynamic routing to handle different product categories, product pages, and other parts of the website (like checkout or order history).

Sanity CMS

2. CONTENT MANAGEMENT (SANITY CMS)

- SCHEMA DESIGN: Sanity uses a schema-driven approach. Ensuring that the content models for products, categories, and variants (like sizes, colors) are well-structured.

- PRODUCT SCHEMA: By includding fields for product name, description, price, images, category, size, color, availability, etc.
- CATEGORY SCHEMA: This is essential for filtering products.

API integeration

3. API Integration: Sanity offers an API that to be used to fetch product and content data efficiently. Alternatively, the REST API can be used depending on requirements.
   - Cache API responses where appropriate to reduce the number of requests and improve load times.
   - Using context API for managing products prices

WEBSITE

- PRODUCT LISTINGS AND FILTERING
- PRODUCT LAYOUT: Making a responsive grid to display products in various categories.Making a flexible layout using tailwind or custom css.
- FILTERING PRODUCTS: Implement filtering (by size, color, price, etc.) and sorting (by price, newest, best sellers) using React or a similar frontend library. Fetching the filtered data from Sanity through API queries.
- LAZY LOADING: Products should be lazily loaded to improve performance, especially for long product lists

- PRODUCT PAGES

- IMAGE : Using images, with support for responsive images to ensure the images load fast on all devices.
    - Consider using sanity image through API quary to serve images based on the user's screen and device.
- PRODUCT DETAILS: Display all relevant product details such as size options, colors, customer reviews, and products.
- ADD TO CART: A carticon with React's Context API or snipcart for user to see selected items.
- PRODUCT VARIANTS: variant selection for different colors and sizes. Use client-side rendering to update product.

3. Shopping Cart

- STATE MANAGEMENT: Using libraries like context API to handle the shopping cart and user logins.
- CART PAGE: Display items in the cart, allowing users to modify quantities, and remove items.
- CHECKOUT: Ensure secure and smooth checkout experience with integration to payment providers (like Stripe, PayPal). This should be implemented in a way that protects sensitive user data.

4. Functionality

- SEARCH ENGINE: Implement a robust search using Sanity's own search capabilities. It should allow for fuzzy search and handle typo tolerance.

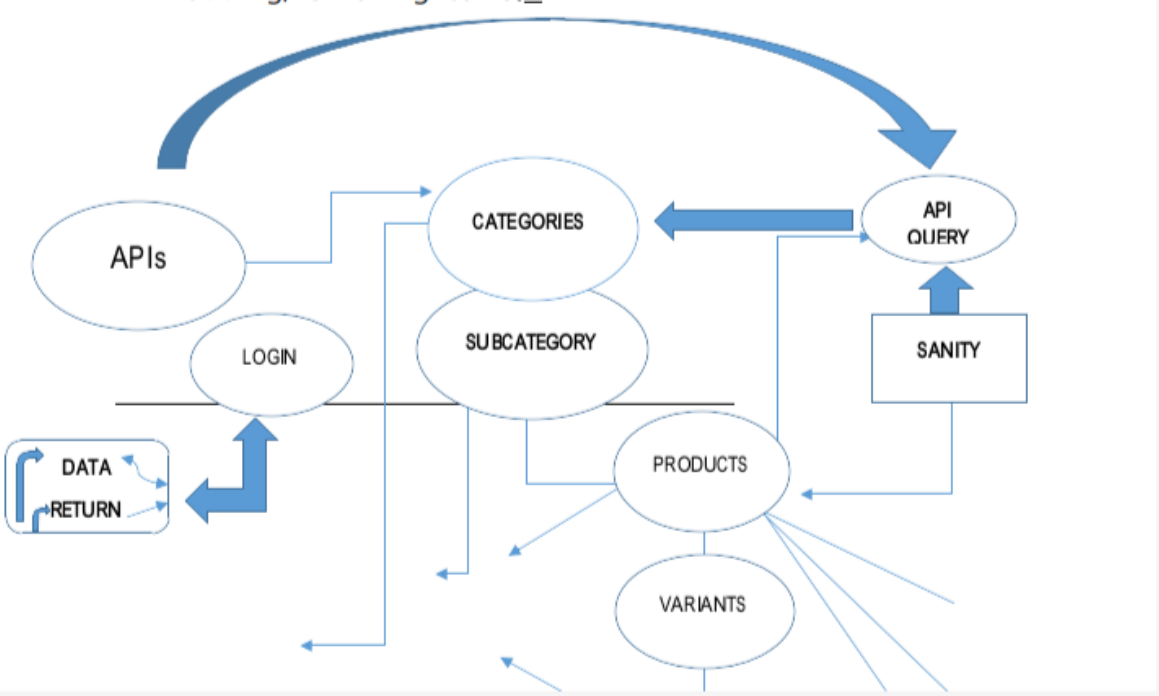
- SEARCH FILTERS: Enable filtering options such as categories, size, and price range to refine search results.

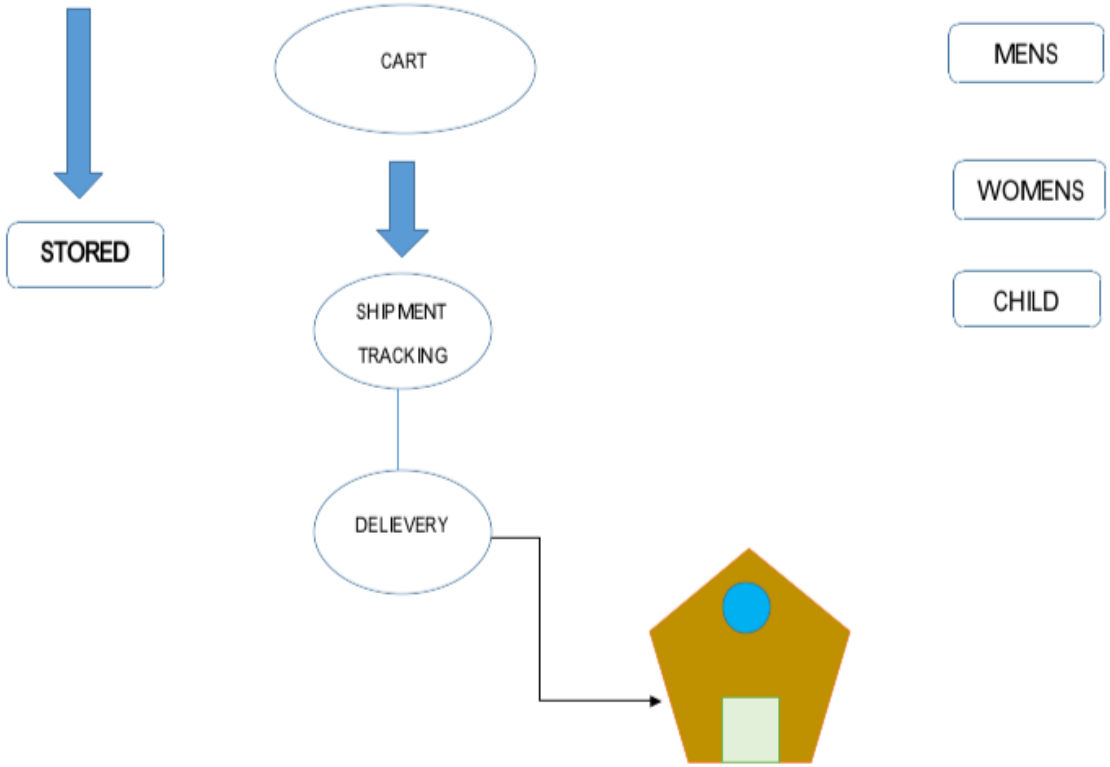
5. User Authentication

- LOGIN & REGISTRATION: Handle user accounts, order history, and saved carts. Authentication can be integrated using APIs, or custom authentication system.
- SOCIAL LOGINS: Allowing users to sign in via Google, Facebook, or other social login providers.

6. Performance

- LAZY LOADING: For images, product details, and large components, using lazy loading.
- CART & CHECKOUT: Provide an easy-to-use and visually clear cart with smooth transitions and feedback when adding/removing items._


APIs
CATEGORIES
API
QUERY
LOGIN
SUBCATEGORY
SANITY
DATA
RETURN
PRODUCTS
VARIANTS


CART
MENS
WOMENS
CHILD
STORED
SHIPMENT
TRACKING
DELIEVERY