Requirements Analysis

Objective:
To develop a functional e-commerce platform facilitating product display, order management, and user interaction, supported by a MongoDB database.

Scope:
The system will focus on showcasing products, enabling users to add items to a cart, proceed to checkout, view orders, and cancel them.

Functional Specification

System Behavior & Features:

1. ***User Interface & Navigation:***
    - ***Homepage: An introductory page (index.html) presenting an overview of the platform and its offerings.***
    - ***Product Pages: Individual pages (Product1.html to Product8.html) displaying detailed product information, including name, price, and description.***
    - ***Navigation Menu: A straightforward menu structure allowing users to navigate between sections and product pages.***
2. ***Order Management & Processing:***
    - ***Cart Functionality: Users can add products to a virtual cart, review items, and proceed to a checkout page.***
    - ***Checkout Process: A checkout page summarizing selected products, allowing users to confirm or modify their orders.***
    - ***Order Storage & Retrieval: Use MongoDB to store and manage order details, including product information, quantities, and timestamps.***
    - ***Order Cancellation: Implement a functionality on the 'Orders' page enabling users to view their orders and cancel them, with the respective orders being removed from the database.***
3. ***User Interaction & Engagement:***
    - ***Feedback & Notifications: Provide users with relevant feedback and notifications regarding order confirmations, cancellations, and errors through intuitive alerts or messages.***

- ***Interactive Elements: Incorporate interactive features like buttons, forms, and links to enhance user engagement and navigation.***

External Interface Specification

User Interface (UI):

- ***Design Principles: Adopt a minimalist and user-friendly design approach focusing on visual clarity, consistency, and ease of navigation.***
- ***Interactive Elements: Incorporate intuitive interactive elements like dropdowns, checkboxes, and radio buttons to enhance user experience and functionality.***

Communication Protocols:

- ***HTTP/HTTPS: Utilize HTTP/HTTPS protocols for data exchange between the client-side and server-side components.***

Hardware Interfaces:

- ***Device Compatibility: Ensure cross-device compatibility, optimizing the website for various screen sizes and resolutions.***
- ***Performance: Enhance website performance by implementing efficient coding practices and optimizing image sizes.***

Database Backend:

- ***Database Management: Employ MongoDB Atlas as the backend database solution for reliable data storage, retrieval, and management.***
- ***Data Modeling: Develop and maintain data schemas for products and orders, facilitating structured and efficient data storage and manipulation.***

Technical Specification

Performance Constraints:

- ***Scalability & Load Handling: Design the system to accommodate increasing user traffic and data volumes, implementing scalable architecture as required.***
- ***Response Time: Aim to achieve optimal response times by optimizing server-side scripts and minimizing database queries.***

Memory/OS/Hardware Requirements:

- ***Platform Independence: Develop a responsive and adaptive website accessible across major operating systems, browsers, and devices.***

- ***Hardware Specifications: Specify basic hardware requirements, focusing on CPU, memory, and storage capabilities, to support seamless website performance and user interactions.***

Development & Deployment Environment:

- ***Development Tools: Utilize industry-standard development tools, frameworks, and libraries to streamline the development process.***
- ***Deployment Strategy: Adopt a structured deployment strategy, leveraging reliable hosting solutions and version control systems to facilitate efficient website deployment and maintenance.***