**D597 Scenario 2**

EcoMart is an emerging online marketplace dedicated to fostering sustainability and environmental consciousness. Their platform serves as a hub for consumers seeking ethically sourced, sustainable, and eco-friendly products across various categories such as groceries, apparel, home goods, and personal care items. With a commitment to promoting eco-friendly practices, EcoMart aims to connect environmentally conscious consumers with brands and products that align with their values.

As EcoMart grows its product catalog and user base, they encounter challenges inherent to traditional relational databases:

* EcoMart's inventory is diverse and constantly evolving, with new products being added, existing products updated, and seasonal offerings changing regularly. They require a database capable of handling the dynamic nature of their data efficiently.
* To accommodate their expanding product range and increasing user traffic, EcoMart needs a database solution that can scale horizontally to support growing data volumes and ensure optimal performance.
* Traditional relational databases may not provide the flexibility required to manage unstructured or semi-structured data effectively, hindering EcoMart's ability to adapt to changing business needs and data types.

EcoMart decided to adopt a non-relational database to better accommodate the dynamic nature of their data and provide flexibility in scaling their platform. Recognizing the limitations of relational databases, EcoMart has decided to transition to a non-relational database to address their unique requirements. They are seeking a database design tailored to their eco-friendly marketplace, and they have outlined the following objectives for the database consultant:

* The consultant will design a flexible and scalable data model that can accommodate the diverse range of products and associated attributes, such as product descriptions, pricing, availability, sustainability certifications, and user reviews.
* Given the variability and complexity of product data, the consultant will recommend a document-based database solution, which allows for the storage of JSON-like documents and supports nested structures. This approach enables EcoMart to store product information in a format that mirrors its real-world complexity and variability.
* The database design will prioritize horizontal scalability and performance optimization to ensure that EcoMart's platform can handle increasing data volumes and user traffic without sacrificing speed or reliability. The consultant will explore techniques such as sharding, replication, and caching to enhance scalability and performance.
* The consultant will implement robust security measures, such as encryption, access controls, and audit logging, to protect sensitive customer data and ensure compliance with data privacy regulations, such as GDPR and CCPA.
* Monitoring and Maintenance: The consultant will design monitoring and maintenance workflows to proactively identify and address performance bottlenecks, security vulnerabilities, and data inconsistencies, ensuring the long-term stability and reliability of EcoMart's database infrastructure.