LLM Automated Evaluation Results

Functional Requirement Evaluation Table

Based on your requirements, I first compiled all the data entities involved in the document. Data entities refer to data objects that need to be managed within the system, excluding external data sources or formats mentioned in external interfaces. According to the descriptions in the functional requirements document, I extracted all internally managed data entities and ensured their consistency with the E-R model. The following is the list and count of data entities:

｜Data Entity List｜

1. ｜Customer｜: The customer information entity, including personal details, login credentials, etc.

2. ｜Session｜: The session entity, storing authentication tokens and session status.

3. ｜AuditLog｜: The audit log entity, recording changes such as logins and modifications.

4. ｜Product｜: The product entity, including name, description, price, inventory, etc.

5. ｜InventoryLog｜: The inventory log entity, recording inventory adjustment history (associated with Product).

6. ｜ShoppingCartItem｜: The shopping cart item entity, storing items and quantities in the cart.

7. ｜Order｜: The order entity, including order status, total amount, etc.

8. ｜OrderItem｜: The order item entity, associated with specific products in an order.

9. ｜PaymentMethod｜: The payment method entity, storing customer payment instruments (e.g., credit cards).

10. ｜PaymentTransaction｜: The payment transaction entity, recording transaction processing details.

11. ｜Administrator｜: The administrator entity, storing admin accounts and permissions.

Total number of data entities: ｜11｜. These entities are all derived from functional requirement descriptions and are directly managed within the system. External interfaces (such as external databases or payment gateways) are not included.

Next, I performed consolidation and analysis of the functional requirements based on your instructions:

｜Consolidation Rules｜

• Rule 1: Only consolidate functional requirements that operate on the same data entity and perform the same type of operation (e.g., create or update) with highly similar descriptions. CRUD operations are not consolidated (e.g., creation and update are treated separately).

• Rule 2: Exclude general system settings (e.g., preferences or multilingual support), which are not counted as functional requirements.

｜Consolidation Process｜

• The functional requirement document provides 19 requirements (FR-01 to FR-19).

• FR-19 (System Configuration Function) was identified as a general system setting (modifying global parameters) and therefore ｜excluded｜ from evaluation.

• Among the remaining FR-01 to FR-18, ｜no requirements were merged｜ under Rule 1. Reason: Each requirement targets a different entity or operation (e.g., FR-01 is Customer creation, FR-04 is Customer update, thus not merged; FR-10 is cart modification, FR-11 is cart summary display, not merged). All requirements have clear granularity and well-defined core functions.

• Total number of consolidated functional requirements: ｜18｜.

Now, I proceed to evaluate the hallucinated requirements, complete referencing, and testability for these 18 functional requirements:

• ｜Hallucinated Requirement Criteria｜: A requirement is considered hallucinated only if it introduces data entities that cannot be associated with any existing system entities, resulting in an E-R diagram with weak connectivity (i.e., isolated nodes). Only structural disconnection qualifies as hallucination.

• ｜Evaluation Principle｜: Each requirement is judged strictly but reasonably. Hallucination is based solely on entity connectivity; referencing allows external interfaces; testability is judged based on feasibility, not perfect implementation. Normally, some requirements exhibit deficiencies (e.g., undefined input or unspecified test rules).

Functional Requirement Evaluation Details

｜FR-01 Customer Registration Function｜No｜Uses the Customer entity, with clear input/output definitions. System functionality forms a closed loop, and the entity is connected to core components like Order, ensuring structural connectivity.｜

｜FR-02 Customer Authentication Function｜No｜Uses Customer and Session entities. The authentication flow is complete, the entities are internally connected, and linked to the system’s login mechanism.｜

｜FR-03 Session Termination Function｜No｜Uses Session and AuditLog entities. Session termination is traceable and logged, ensuring a non-isolated structure.｜

｜FR-04 Customer Profile Management Function｜No｜Uses Customer and AuditLog entities. Profile updates are supported, with data backing and clear links to core system operations.｜

｜FR-05 Customer Account Removal Function｜No｜Uses the Customer entity. Account removal is traceable, and the data handling process is clearly defined, with strong structural linkage.｜

｜FR-06 Purchase History Retrieval Function｜No｜Uses Customer, Order, and OrderItem entities. History retrieval is clearly routed, with weak but sufficient connections among entities.｜

｜FR-07 Product Catalog Management Function｜No｜Uses the Product entity. Products are linked to cart and order modules, supporting item information management in a closed functionality loop.｜

｜FR-08 Inventory Adjustment Function｜No｜Uses Product and InventoryLog entities. While it references an attribute “reason” not defined elsewhere, the overall structure remains closed and logically coherent.｜

｜FR-09 Product Information Display Function｜No｜Uses the Product entity. Product detail display forms a complete structure with clearly defined data paths and is not isolated.｜

｜FR-10 Shopping Cart Modification Function｜No｜Uses ShoppingCartItem and Session entities. Cart operations are clearly linked to customer and product, forming a smooth structure.｜

｜FR-11 Cart Summary Display Function｜No｜Uses ShoppingCartItem and Session entities. Data aggregation flows are clear, and the structure is complete in the shopping context.｜

｜FR-12 Order Creation Function｜No｜Uses Order, OrderItem, and InventoryLog entities. Order processing is logically closed, with sustained data connectivity.｜

｜FR-13 Order Status Management Function｜No｜Uses Order and InventoryLog entities. Although status transition rules are not detailed, functional connections are clear and structurally sound.｜

｜FR-14 Order Item Modification Function｜No｜Uses OrderItem and Order entities. Order update operations have a clear path and logical structure, without isolation.｜

｜FR-15 Order Deletion Function｜No｜Uses Order and InventoryLog entities. Order deletion and inventory rollback form a complete business process.｜

｜FR-16 Payment Method Management Function｜No｜Uses the PaymentMethod entity, logically linked to the Customer entity, with actual structural roles in the system.｜

｜FR-17 Payment Processing Function｜No｜Uses PaymentTransaction and Order entities. Transaction flows are clear, with strong relationships between payment and order entities.｜

｜FR-18 Administrator Account Management Function｜No｜Uses the Administrator entity. Management functions span across modules like product management, forming a complete and non-isolated structure.｜

Summary

The document involves ｜11｜ data entities in total.

After merging based on identical functional points and excluding general system requirements, the final count of functional requirements is ｜18｜.

Among them, ｜0｜ hallucinated requirements were identified (all entities involved in the requirements are connected to core components and maintain weak connectivity in the E-R diagram).

There are ｜18｜ non-hallucinated requirements.

The final evaluation shows that the overall quality of the document is high. However, a few requirements (such as FR-08 and FR-13) have minor issues in detail, and it is recommended to improve their input definitions and business rule specifications.