LLM Automated Evaluation Results

Functional Requirement Evaluation Table

As requested by the user, I conducted a comprehensive assessment of the functional requirements document for the GAMMA-J Web Store system, acting as a requirements review expert. The evaluation process strictly followed the specified rules:

• Data Entity Extraction: Only core data entities that the system needs to manage were extracted from the functional requirements. External data sources or formats mentioned in the external interfaces were excluded.

• Functional Requirement Consolidation: Functional requirements were consolidated only when they referred to the same operation on the same data entity and exhibited high similarity. General system configuration requirements (e.g., preferences or multilingual support) were removed. However, no such general requirements were present in this document, so none were removed. Excessive merging (e.g., merging CRUD operations) was avoided.

• Hallucinated Requirement Judgment: A hallucinated requirement is defined as one that introduces a data entity which cannot be linked to any existing system entity, causing the E-R diagram to lose weak connectivity (i.e., introducing isolated nodes). A relatively strict standard was applied.

• Evaluation Coverage: Each functional requirement was assessed without omission.

Data Entity Statistics

The data entities extracted from the functional requirements (i.e., data objects managed within the system) are as follows:

1. Customer

2. ShoppingCart

3. CartItem

4. Product

5. Category

6. ProductCategory

7. Order

8. OrderItem

9. Payment

10. PaymentMethod

11. Session (including customer and admin sessions)

12. Admin (treated as a separate entity)

Conclusion: A total of 12 data entities are involved in the entire document. These entities originate from functional requirement descriptions and do not include those mentioned only in external interfaces.

Functional Requirement Consolidation Statistics

• Application of Consolidation Rules:

• Consolidation occurred only when requirements targeted the same data entity and operation with highly similar descriptions (e.g., variants of the same operation).

• All functional requirements in this document are atomic CRUD operations (e.g., create, update, retrieve, delete); no highly similar requirements were eligible for consolidation. For instance, FR-09 Product Creation and FR-10 Product Update both involve the Product entity, but represent distinct operations and thus were not merged.

• No general system configuration requirements needed removal.

• Functional Requirements After Consolidation: The original requirements FR-01 to FR-32 remained unchanged. The total number of functional requirements after consolidation is 32.

Functional Requirement Evaluation Details

The table below presents the evaluation results of each functional requirement. Evaluation reasons are based on strict analysis:

｜Functional Requirement｜Hallucinated Requirement｜Evaluation Reason｜

｜FR-01 Customer Account Registration｜No｜Involves Customer and ShoppingCart entities; the process is clear, input/output is complete, and email dependency is defined in the external interface.｜

｜FR-02 Customer Authentication｜No｜Involves Customer and Session entities; verification mechanisms are clear, and session token logic is appropriate.｜

｜FR-03 Session Termination｜No｜Involves the Session entity; logout behavior is well-defined, and system supports redirection flow.｜

｜FR-04 Profile Retrieval｜No｜Customer and Order entities are defined; retrieval path is clear, and data manipulation logic is complete.｜

｜FR-05 Profile Modification｜No｜Involves only the Customer entity; update operation aligns with system structure.｜

｜FR-06 Account Deletion｜No｜Although the Customer entity exists, the handling rules for “anonymized data” are undefined, making output uncontrollable.｜

｜FR-07 Administrator Authentication｜No｜Involves Admin Account entity; login logic aligns with access control requirements.｜

｜FR-08 Admin Session Termination｜No｜Similar to FR-03; involves admin session management with reasonable behavior.｜

｜FR-09 Product Creation｜No｜Product and ProductCategory entities are clearly defined; product addition logic is feasible.｜

｜FR-10 Product Update｜No｜Involves the Product entity; update path is reasonable and meets operational expectations.｜

｜FR-11 Product Removal｜No｜Deletion logic is clear; the prerequisite of “no active order references” is defined elsewhere.｜

｜FR-12 Product Display｜No｜Product information display requirement is standard and achievable with existing entities.｜

｜FR-13 Category Creation｜No｜Involves the Category entity; creation logic is clear, and input/output is complete.｜

｜FR-14 Category Modification｜No｜Update process for category information is standard; entity path is connected.｜

｜FR-15 Category Removal｜No｜”No product associations” condition in deletion logic is defined; path is controllable.｜

｜FR-16 Category Display｜No｜Both Category and Product entities exist; displaying related information is logical.｜

｜FR-17 Cart Item Addition｜No｜CartItem and Product entities are defined; stock validation dependency is clear.｜

｜FR-18 Cart Contents Retrieval｜No｜Involves the CartItem entity; aggregation logic can be implemented by the system.｜

｜FR-19 Cart Modification｜No｜Update and delete operations for CartItem quantities are reasonable and follow system standards.｜

｜FR-20 Order Placement｜No｜Although multiple entities are involved, some field definitions are unclear, and output conventions are incomplete.｜

｜FR-21 Order Retrieval｜No｜Order and OrderItem entity structures are clear; retrieval operations are standardized.｜

｜FR-22 Order Cancellation｜No｜Order cancellation relies on stock rollback, which is supported by system structure.｜

｜FR-23 Order Confirmation Delivery｜No｜Email templates and status logs are undefined, making output uncontrollable.｜

｜FR-24 Order Status Update｜No｜Notification mechanism is vague; delivery method and format are not specified, resulting in indeterminate output.｜

｜FR-25 Payment Method Addition｜No｜Involves PaymentMethod entity; addition logic aligns with payment setup requirements.｜

｜FR-26 Payment Method Update｜No｜Update path for payment methods is reasonable and operational behavior is standard.｜

｜FR-27 Payment Method Removal｜No｜Removal process for payment methods is standard; input/output is complete.｜

｜FR-28 Payment Method Display｜No｜Display operation for payment methods is clear with no dependency issues.｜

｜FR-29 Payment Details Retrieval｜No｜Payment entity is defined; data is traceable.｜

｜FR-30 Payment Status Update｜No｜Involves synchronization of payment status and order; process is controllable.｜

｜FR-31 Category Assignment｜No｜ProductCategory entity exists; category assignment path is clear.｜

｜FR-32 Category Removal from Product｜No｜Category removal logic is reasonable; system structure supports the behavior.｜

Conclusion:

• A total of 12 data entities are involved in the entire document.

• After applying the consolidation rule, there are 32 functional requirements (no consolidation).

• 0 hallucinated requirements were identified.