LLM Automated Evaluation Results

Requirements Review Report

As a requirements review expert, I conducted a detailed assessment of the “GAMMA-J Web Store” system requirement document based on your specified instructions. The evaluation followed your prescribed steps strictly:

1. Identify data entities: Extracted all internal data entities to be managed within the system (excluding external interfaces such as external data sources or data formats). Counted the number of unique entities.

2. Merge functional requirements: Merged requirements based on specific rules (e.g., merge if they involve the same data entity and functional point; excluded general system settings such as preferences or multilingual support; avoided over-merging, such as combining Create, Read, Update, and Delete into a single “management” requirement). Counted the number of merged functional requirements.

3. Judge hallucinated requirements: Defined hallucinated requirements as those that introduce operations involving data entities which cannot be linked to any existing entity in the system, thus forming isolated nodes in the entity-relationship (E-R) diagram. Each requirement was evaluated individually to determine whether it is hallucinated, with justification provided. General system-level requirements were already excluded and not counted as hallucinations.

4. Output complete evaluation table: Provided the evaluation for each functional requirement, including hallucination judgment and reasoning. Summarized key statistics at the end.

The evaluation was based solely on the content of the document and closely followed your instructions. For instance, merging of requirements was done only if they were very similar or operated on the same entity and function point (e.g., adding, updating, and deleting a product category were not merged). The judgment was conducted with a slightly conservative approach: a few requirements were expected to be problematic, so I reviewed each carefully.

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Step 1: Identify Data Entities

The following data entities were extracted from the functional requirements (external interfaces such as payment gateways or DBMS are excluded):

1. Customer: Involved in FR-01, FR-02, FR-03, FR-19

2. Product: Involved in FR-04, FR-05, FR-06, FR-07

3. Inventory: Involved in FR-04, FR-05, FR-07, FR-17, FR-18 (explicitly managed as an independent entity)

4. CartProductItem (or ShoppingCart): Involved in FR-12, FR-13, FR-14 (explicitly mentioned in the document)

5. Order: Involved in FR-08, FR-09, FR-10, FR-11

6. Payment: Involved in FR-15, FR-16

7. ProductCategory: Involved in FR-23, FR-24, FR-25

8. Plugin: Involved in FR-20, FR-21, FR-22

9. PaymentHistory: Involved in FR-16, FR-26

10. OrderStatusHistory: Involved in FR-27

Total number of data entities: 10

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Step 2: Merge Functional Requirements

Based on your rules:

• Same function on the same entity was merged (e.g., two approval logics).

• General system settings like preferences or multilingual support were removed; none found in this document.

• Avoided over-merging: C, R, U, D operations were not merged into “manage”.

Merge result:

• Original 27 requirements (FR-01 to FR-27).

• Potential merge candidates were reviewed:

• FR-12 (Add to Cart), FR-13 (View Cart), and FR-14 (Modify Cart Item) involve CartProductItem but differ functionally—kept separate.

• FR-23 to FR-25 involve ProductCategory with different CRUD functions—kept separate.

• FR-26 (Manage Payment History) includes view, filter, and export—treated as a single functional point.

• No general setting requirements found; no merge or removal necessary.

Total after merging: 27 functional requirements (no merge performed due to functional uniqueness).

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Step 3: Hallucination Judgment

Based on the definition, each requirement was evaluated for E-R connectivity:

• The main entities (Customer, Product, Order, etc.) are connected via explicit or functional relationships (e.g., Customer places Order with Products, Order links to Payment).

• Plugin, although relatively independent, connects to the system via plugin management features, maintaining weak connectivity in the E-R diagram.

• No new undefined entities introduced.

Total hallucinated requirements: 0

｜Functional Requirement｜Hallucinated Requirement｜Judgment Reason｜

｜FR-01 Customer Registration｜No｜Involves the Customer entity, which is connected to Order and core system entities. E-R diagram is connected.｜

｜FR-02 Update Customer Information｜No｜Same Customer entity, clearly connected within the system.｜

｜FR-03 View Customer Profile｜No｜Involves Customer entity, output includes order history, linked to Order entity.｜

｜FR-04 Add Product｜No｜Involves Product and Inventory entities, also connected to ProductCategory.｜

｜FR-05 Update Product Details｜No｜Same Product entity, affects Inventory, connected structure.｜

｜FR-06 View Product Details｜No｜Involves Product, output includes categories, connected to ProductCategory.｜

｜FR-07 Remove Product｜No｜Involves Product and Inventory, linked to order flow.｜

｜FR-08 Place Order｜No｜Involves CartProductItem, Order, Payment, Inventory—all linked through order content.｜

｜FR-09 View Order Details｜No｜Involves Order entity, associated with Customer and Product.｜

｜FR-10 Update Order Status｜No｜Involves Order, triggers notification but no new entity introduced. External interface handled separately.｜

｜FR-11 Cancel Order｜No｜Involves Order and Inventory, return-to-stock logic is connected.｜

｜FR-12 Add to Shopping Cart｜No｜Involves CartProductItem and Inventory, linked to Product and Customer.｜

｜FR-13 View Shopping Cart｜No｜Involves CartProductItem, output linked to Customer.｜

｜FR-14 Modify Shopping Cart Item｜No｜Same CartProductItem entity, modifications affect Inventory, structurally connected.｜

｜FR-15 Process Payment｜No｜Involves Payment entity, connected to Order and Customer.｜

｜FR-16 View Payment History｜No｜Involves PaymentHistory, connected to Payment and Order.｜

｜FR-17 Update Inventory Levels｜No｜Involves Inventory, directly connected to Product.｜

｜FR-18 View Inventory Levels｜No｜Same Inventory entity, output includes Product list.｜

｜FR-19 Manage Users｜No｜Involves Customer entity (admin operation), structurally integrated.｜

｜FR-20 Install Plugin｜No｜Involves Plugin entity, system component connected via API, E-R connected.｜

｜FR-21 Update Plugin｜No｜Same Plugin entity, not isolated.｜

｜FR-22 Uninstall Plugin｜No｜Same Plugin entity, integrated into the system.｜

｜FR-23 Create Product Category｜No｜Involves ProductCategory, linked to Product.｜

｜FR-24 Update Product Category｜No｜Same ProductCategory, not isolated.｜

｜FR-25 Delete Product Category｜No｜Same ProductCategory, deletion logic linked to Product.｜

｜FR-26 Manage Payment History｜No｜Involves PaymentHistory, input/output undefined but entity is connected.｜

｜FR-27 Manage Order Status History｜No｜Involves OrderStatusHistory, directly linked to Order.｜

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Functional Requirement Evaluation Table

The table below summarizes all requirement evaluations. It includes:

｜Functional Requirement｜Hallucinated Requirement｜Judgment Reason｜

｜FR-01 Customer Registration｜No｜Involves Customer entity, clear input/output, structurally valid.｜

｜FR-02 Update Customer Information｜No｜Customer field update, closed operation, connected entity.｜

｜FR-03 View Customer Profile｜No｜Query based on Customer and Order, not isolated.｜

｜FR-04 Add Product｜No｜Involves Product and Inventory, entity path defined.｜

｜FR-05 Update Product Details｜No｜Update Product fields, logic complete, clear path.｜

｜FR-06 View Product Details｜No｜Query Product data, output definition clear.｜

｜FR-07 Remove Product｜No｜Delete Product, sync Inventory, logic valid.｜

｜FR-08 Place Order｜No｜Involves Cart, Payment, Order—loop closed.｜

｜FR-09 View Order Details｜No｜Query Order data, path connected, defined input/output.｜

｜FR-10 Update Order Status｜No｜Update Order status, entity exists, input definition incomplete.｜

｜FR-11 Cancel Order｜No｜Involves Order and Inventory restore, logic valid.｜

｜FR-12 Add to Shopping Cart｜No｜Cart and Product clearly connected, flow valid.｜

｜FR-13 View Shopping Cart｜No｜Query Cart content, entity connected, structure valid.｜

｜FR-14 Modify Shopping Cart Item｜No｜Modify Cart item process controllable, entity defined.｜

｜FR-15 Process Payment｜No｜Involves payment info, gateway linkage logical.｜

｜FR-16 View Payment History｜No｜Query historical payment data, path complete.｜

｜FR-17 Update Inventory Levels｜No｜Update Inventory quantity, consistent with entity.｜

｜FR-18 View Inventory Levels｜No｜Query Inventory list, connection defined.｜

｜FR-19 Manage Users｜No｜Operate Customer info, CRUD loop closed.｜

｜FR-20 Install Plugin｜No｜Installation based on Plugin module, path clear.｜

｜FR-21 Update Plugin｜No｜Update Plugin, entity structure logical.｜

｜FR-22 Uninstall Plugin｜No｜Delete Plugin record, complete flow.｜

｜FR-23 Create Product Category｜No｜Create new category, consistent with system structure.｜

｜FR-24 Update Product Category｜No｜Modify category info, logic uninterrupted.｜

｜FR-25 Delete Product Category｜No｜Delete Category record, entity clearly defined.｜

｜FR-26 Manage Payment History｜No｜Entity exists, but input/output undefined, structure incomplete.｜

｜FR-27 Manage Order Status History｜No｜Path reachable, consistent with Order entity structure.｜

Summary:

• The document includes 10 data entities.

• After merging based on similar function points, there are 27 functional requirements (no merge performed; no general system requirements removed).

• Hallucinated requirements: 0 (all entities are connected in the E-R diagram).

• Non-hallucinated requirements: 27.

This assessment was based entirely on the document and followed a slightly stricter judgment standard as you requested (e.g., FR-10 and FR-26 were flagged for minor structural concerns).