LLM Automated Evaluation Results

**Functional Requirements Evaluation Table**

As a requirements evaluation expert, I conducted a detailed assessment of the **GAMMA-J Web Store** system requirements document. The evaluation strictly followed your specified rules:

* **Data Entity Extraction**: Only core business objects managed internally by the system were identified from the functional requirements. External data sources or formats mentioned in interfaces were excluded.
* **Functional Requirement Consolidation**:
  + Requirements involving the same function on the same data entity were merged (e.g., FR-15 and FR-22 both describe "Product Information Update").
  + General system configuration requirements (e.g., preferences, multilingual support) were not present in the document and thus not excluded.
  + Over-merging was avoided; distinct operations on the same entity (e.g., adding vs. deleting from the cart) were retained as separate requirements.
* **Hallucinated Requirement Judgment**: A hallucinated requirement introduces a data entity that cannot be linked to any existing system entity, resulting in a non-weakly connected E-R diagram (i.e., isolated node). General configuration requirements, if excluded, were not considered in this judgment.
* Each merged functional requirement was individually and strictly evaluated. A slightly stricter approach was adopted under the assumption that requirements are rarely perfect.

**Data Entity Extraction Results**

The following internal business objects were extracted from the functional requirements:

1. **Customer**
2. **Product**
3. **Cart**
4. **Order**
5. **PaymentMethod**
6. **NotificationPreferences**
7. **Administrator**
8. **Category**

**Total entities: 8**. These entities are all interconnected (e.g., Cart links to Customer, Product links to Category), forming a weakly connected E-R structure.

**Functional Requirement Consolidation Results**

The original 24 functional requirements (FR-01 to FR-24) were consolidated as follows:

* FR-15 (Product Information Update) and FR-22 (Manage Product Info) were merged due to overlapping scope.
* Other requirements remained independent.
* No general system configuration items appeared, so none were removed.

**Total functional requirements after consolidation: 23**  
The consolidated list is:

Consolidated ID | Requirement Name | Original IDs  
1 | Customer Account Registration | FR-01  
2 | Customer Login | FR-02  
3 | Customer Logout | FR-03  
4 | Product Browsing | FR-04  
5 | Product Search | FR-05  
6 | Product Addition to Cart | FR-06  
7 | Cart Viewing | FR-07  
8 | Cart Modification | FR-08  
9 | Cart Deletion | FR-09  
10 | Order Checkout | FR-10  
11 | Order Confirmation | FR-11  
12 | Order History Viewing | FR-12  
13 | Product Inventory Management | FR-13  
14 | Product Categorization | FR-14  
15 | Product Information Update | FR-15/22  
16 | Administrator Login | FR-16  
17 | Administrator Logout | FR-17  
18 | Payment Processing | FR-18  
19 | Payment Method Configuration | FR-19  
20 | Email Notification Setup | FR-20  
21 | Email Confirmation Sending | FR-21  
22 | Manage Order Info | FR-23  
23 | Manage Administrator Info | FR-24

**Functional Requirement Assessment**

Each requirement was assessed for hallucination and justification:

**Requirement | Hallucinated | Evaluation Reason**Customer Account Registration | No | Involves the Customer entity; input/output defined in the documentation.  
Customer Login | No | Involves Customer; input credentials and session logic are clear.  
Customer Logout | No | Involves Customer; logout aligns with session management.  
Product Browsing | No | Involves Product; matches UI and display logic.  
Product Search | No | Involves Product; clearly links search criteria with result display.  
Product Addition to Cart | No | Involves Product and Cart; addition logic defined.  
Cart Viewing | No | Involves Cart; output structure for cart contents is clear.  
Cart Modification | No | Involves Cart; quantity update logic is clearly defined.  
Cart Deletion | No | Involves Cart; clearing logic matches system design.  
Order Checkout | No | Involves Order and Cart; process integrates other related requirements.  
Order Confirmation | No | Involves Order; state updates and follow-up processes are clear.  
Order History Viewing | No | Involves Order; binding to user and history is logical.  
Product Inventory Management | No | Involves Product; inventory operations are well-defined.  
Product Categorization | No | Involves Product and Category; classification change process is complete.  
Product Information Update | No | Involves Product; update logic is standard.  
Administrator Login | No | Involves Administrator; authentication is clearly defined.  
Administrator Logout | No | Involves Administrator; session termination logic is documented.  
Payment Processing | No | Involves PaymentMethod; relies on external payment gateway API, and the output “transaction confirmation” lacks detail, which implies implementation ambiguity.  
Payment Method Configuration | No | Involves PaymentMethod; configuration logic is clear.  
Email Notification Setup | No | Involves NotificationPreferences; setup actions are system-defined.  
Email Confirmation Sending | No | Involves Customer; input action is unclear and output depends on an external email service API, causing ambiguity in input/output definitions.  
Manage Order Info | No | Involves Order; field update logic is complete.  
Manage Administrator Info | No | Involves Administrator; update logic follows system rules.

**Summary**

* **Total data entities involved: 8** (Customer, Product, Cart, Order, PaymentMethod, NotificationPreferences, Administrator, Category)
* **After consolidation, total functional requirements: 23** (FR-15 and FR-22 merged)
* **Hallucinated Requirements: 0** — All requirements involve existing system entities; the E-R diagram remains weakly connected.
* **Non-Hallucinated Requirements: 23**

**Evaluation Notes**:

* This evaluation adopted a slightly strict approach: overall, the document quality is high, and all requirements meet standard expectations.
* Recommendation: revise FR-18 and FR-21 to explicitly define external API input/output, improving completeness and testability.