LLM Automated Evaluation Results

Functional Requirement Evaluation Report

Based on your request, I have performed the following tasks step by step:

1. Count all data entities mentioned in the document.

2. Merge and count functional requirements (based on consistent granularity, merge similar requirements, and eliminate general configuration-related requirements).

3. Determine whether each functional requirement constitutes a “hallucinated requirement” (based on structural criteria).

4. Output the complete evaluation table, including the summary.

The following outlines my analysis and evaluation process. The evaluation is based on strict standards, while avoiding unnecessary rigidity (for example, testability allows dependency on external interfaces; full referencing is satisfied if input/output is defined either in the requirement or external interface section). A hallucinated requirement is defined as one that introduces functional operations involving data entities that cannot be associated with any existing entities in the system, thereby breaking weak connectivity in the E-R diagram (i.e., the entity becomes isolated). Full referencing and testability are also judged according to the rules you defined.

Step 1: Data Entity Statistics

From the functional requirement section of the document, system-managed data entities were extracted (excluding those from external interfaces such as hardware devices or external formats). A data entity is defined as the core object being manipulated in a functional requirement. Based on the descriptions, the following unique entities were identified:

• Mail: FR-01, FR-02, FR-03, FR-04, FR-05, FR-14, FR-31, FR-36

• Contact: FR-06

• Distribution Group: FR-07, FR-30

• Calendar: FR-08

• Calendar Event: FR-09

• Reminder Task: FR-10, FR-24

• User Account: FR-11, FR-12, FR-13, FR-35, FR-38

• Archiving Policy: FR-15

• Backup Copy: FR-16, FR-17, FR-39

• Operation Log: FR-21 (general operation logs)

• Backup Log: FR-18 (a subtype of operation log)

• Restore Log: FR-19, FR-34 (a subtype of operation log)

• Tag: FR-23

• Security Audit Log: FR-25

• System Status Report: FR-26, FR-27

• Encryption Key: FR-28

• Data Version: FR-29

• Attachment: FR-31

• Storage Quota: FR-22

Total unique data entities: 19

List of entities: Mail, Contact, Distribution Group, Calendar, Calendar Event, Reminder Task, User Account, Archiving Policy, Backup Copy, Operation Log (including Backup and Restore subtypes), Tag, Security Audit Log, System Status Report, Encryption Key, Data Version, Attachment, Storage Quota.

Note: Data entities mentioned only in the external interface section (e.g., hardware or formats) are not counted.

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Step 2: Merged Functional Requirement Statistics

According to your rules:

• Merging Rule: Requirements are merged only if they target the same operation on the same data entity. General configuration requirements (e.g., preferences, multilingual support) are excluded.

• Result: 40 original functional requirements. After merging:

• FR-19 (Restore Log Management) and FR-34 (Data Restore Log) are merged into a single requirement (“Restore Log Management”) since both refer to managing restore logs (viewing, analyzing, recording).

• All other requirements remain unmerged, as they involve different entities or different functional points (e.g., sending vs receiving mail).

• No configuration-type requirements were found.

Total functional requirements after merging: 39

Merge detail:

• FR-19 and FR-34 merged into FR-19/34: Restore Log Management.

• All other requirements are retained individually.

Merged requirement list:

FR-01, FR-02, FR-03, FR-04, FR-05, FR-06, FR-07, FR-08, FR-09, FR-10, FR-11, FR-12, FR-13, FR-14, FR-15, FR-16, FR-17, FR-18, FR-19/34, FR-20, FR-21, FR-22, FR-23, FR-24, FR-25, FR-26, FR-27, FR-28, FR-29, FR-30, FR-31, FR-32, FR-33, FR-35, FR-36, FR-37, FR-38, FR-39, FR-40

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Step 3: Hallucination Determination

• Criterion: A requirement is hallucinated if its data entity cannot be associated with any existing entity, resulting in a disconnected E-R diagram. Extended descriptions of existing requirements are not considered hallucinations.

• Result: All 39 requirements are not hallucinated, as each is linked to at least one existing data entity (e.g., Mail, User Account). All entities are connected via operational paths (E-R graph is weakly connected). See table for detailed justifications.

Functional Requirement Evaluation Table

Each row includes:

• Functional Requirement: ID and simplified feature description.

• Hallucination: Yes/No.

• Evaluation Justification: Reason for hallucination determination.

| Functional Requirement | Hallucination | Evaluation Justification |

| FR-01: Email Sending Function | No | Involves Mail entity, system-defined input/output, functionality clear and executable. |

| FR-02: Email Receiving Function | No | Involves Mail entity, clear input/output mapping, system can support. |

| FR-03: Email Management Function | No | Basic mail functions such as marking are supported; entity is valid. |

| FR-04: Email Search Function | No | Involves Mail entity, searchable conditions defined, requirement is reasonable. |

| FR-05: Mail Folder Management Function | No | Involves folder attributes within Mail; structure updates are clearly defined. |

| FR-06: Contact Management Function | No | Contact is a core entity; CRUD operations supported by system. |

| FR-07: Distribution Group Management Function | No | Clear data entity; management actions are valid and structured. |

| FR-08: Calendar Creation Function | No | Involves Calendar entity; create operation is well-defined. |

| FR-09: Calendar Event Management Function | No | Calendar Event entity is defined, functional path is clear. |

| FR-10: Reminder Task Management Function | No | Core system function, entity exists, operations are valid. |

| FR-11: User Login Function | No | Classic authentication scenario involving User Account; logic valid. |

| FR-12: User Logout Function | No | Involves session control on User Account; clear and standard. |

| FR-13: User Account Management Function | No | Includes account creation and modification; supported by structure. |

| FR-14: Archiving Management Function | No | Involves Mail archiving linked to lifecycle; logically sound. |

| FR-15: Archiving Policy Management Function | No | Policy entity governs archiving; requirement is valid. |

| FR-16: Data Backup Function | No | Backup Copy entity involved; standard data protection scenario. |

| FR-17: Data Recovery Function | No | Involves restoration using backup; structurally defined. |

| FR-18: Backup Log Management Function | No | Logging backup operations is consistent with audit needs. |

| FR-19/34: Restore Log Management Function | No | Restore logs support audit trail; system functionality justified. |

| FR-20: Data Integrity Check Function | No | Multiple entities involved; validation logic enhances data quality. |

| FR-21: Operation Log Recording Function | No | Core audit entity; functional logic is consistent with system design. |

| FR-22: Storage Quota Management Function | No | Involves quota entity; operations are clear and structural. |

| FR-23: Data Tagging and Classification Function | No | Tag entity valid; classification is reasonable but rule definition lacking. |

| FR-24: Notification and Reminder Service Function | No | Functional logic sound, but external notification channels lack interface definition. |

| FR-25: Security Auditing and Compliance Function | No | Security Audit Log entity defined; requirement is valid. |

| FR-26: System Maintenance and Health Check Function | No | System Status Report entity valid; aligns with maintenance logic. |

| FR-27: Monitoring and Alerting Function | No | Monitoring involves system state; entity and logic clearly defined. |

| FR-28: Data Encryption and Decryption Function | No | Involves key management and encryption logic; function is clear. |

| FR-29: Data Version Control Function | No | Versioning entity is valid; rollback scenario is logically defined. |

| FR-30: Bulk Group Management Function | No | Involves Distribution Group; batch operations clearly defined. |

| FR-31: Attachment Management Function | No | Attachment is part of Mail entity; standard operation logic. |

| FR-32: Timezone and Time Sync Function | No | Involves Mail and Calendar; timezone logic matches system use. |

| FR-33: Data Export Function | No | Involves multiple entities; export actions are clear and complete. |

| FR-35: User Permission Management Function | No | Standard account control logic; role definition needs completion. |

| FR-36: Email Classification and Filtering Function | No | Mail and filter logic clearly stated; common use case. |

| FR-37: Automatic Data Cleanup Function | No | Involves data lifecycle; cleanup policy is valid and defined. |

| FR-38: User Login Security Check Function | No | Security logic tied to User Account; function well-grounded. |

| FR-39: Backup and Restore Consistency Check Function | No | Involves validation logic for backups; integrity path is closed-loop. |

| FR-40: Exception Handling Function | No | Affects global flow; exception capture and processing defined. |

Summary:

Total data entities involved in the document: 19

Total functional requirements after merging: 39

Hallucinated requirements: 0 (all requirements are associated with existing entities; E-R graph is weakly connected)

Non-hallucinated requirements: 39

The evaluation is based on a strict yet reasonable standard:

No hallucinations were identified; FR-23 and FR-35 are not fully referenced due to missing input definition; FR-24 is not testable due to reliance on undefined external notification interfaces. All other requirements meet the specified evaluation criteria.