LLM Automated Evaluation Results

Data Entity Statistics

Based on the functional requirements document, the system needs to manage the following data entities (excluding external data sources/formats mentioned in external interfaces):

• User: Involves user ID to identify system users.

• Email: Involves email ID, subject, body, attachments, etc., as core communication objects.

• Contact: Involves contact ID, name, email address, etc., for communication management.

• Distribution Group: Involves group ID, name, member list, for group management.

• Folder: Involves folder ID, including mailbox folders (e.g., inbox, sent) and archive folders, for email organization.

• Mailbox Account: Involves account ID, username, password, etc., managed by administrators.

• Archiving Policy: Involves policy ID for automated archiving rules.

• Backup Location: Involves location ID for specifying backup storage.

• Log: Involves log entries, including backup and recovery logs, for recording operations.

• Mail Flow Data: Involves captured mail flow information for monitoring and analysis.

• Mail Status

• Administrator

Total Data Entities: 13.

Functional Requirements Merged Statistics

Original functional requirements: 29

After merging similar functionalities and removing system settings (none in this case):

• Merged Examples:

• Contact management (FR-06,07,08,09) merged into "Manage Contacts" (CRUD operations).

• Distribution group management (FR-10,11,12) merged into "Manage Distribution Groups".

• Email search (FR-04,18) merged into "Search Emails".

• Total Merged Functional Requirements: 20.

Hallucination Requirements Evaluation

Evaluation Criteria: Requirements introducing data entities not connected to existing system entities (causing isolated nodes in E-R diagram).

Evaluation Results (Functional Requirements vs. Hallucination):

1. Send Email - No - Involves User, Email, Contact (connected to core).

2. Receive Email - No - Involves User, Email (connected via inbox/archive).

3. Format Email - No - Involves User, Email (directly connected).

4. Search Emails - No - Involves User, Email, Folder (connected in system).

5. Organize Email Folders - No - Involves User, Email, Folder (connected).

6. Manage Contacts - No - Involves User, Contact (connected to groups).

7. Manage Distribution Groups - No - Involves User, Distribution Group, Contact (connected).

8. Set Reminder Tasks - Yes - Introduces "Calendar" entity (undefined, isolated).

9. Admin Create Mailbox Account - No - Involves Admin, Mailbox Account (connected).

10. Admin Delete Mailbox Account - No - Involves Admin, Mailbox Account (connected).

11. Admin Set Account Permissions - No - Involves Admin, Mailbox Account (connected).

12. Personal Archive Emails - No - Involves User, Email, Folder (connected).

13. Server Archive Emails - No - Involves Admin, Email, Folder (connected).

14. Archive by Policy - No - Involves User, Email, Archiving Policy (connected).

15. Capture Mail Flow - No - Involves Admin, Mail Flow Data (derived from Email).

16. Process Expired Emails - No - Involves User, Email (lifecycle connected).

17. File-Level Backup - No - Involves User, Email, Backup Location (connected).

18. Full-Database Backup - No - Involves Admin, Backup Location (connected to all).

19. Time-Based Data Recovery - Yes - Introduces "Calendar" entity (undefined, isolated).

20. Record Operation Logs - No - Involves System, Log (connected to all operations).

Total Hallucination Requirements: 2 (Set Reminder Tasks, Time-Based Data Recovery).

Total Non-Hallucination Requirements: 18.

Summary

• Total Data Entities: 13.

• Total Functional Requirements After Merging: 20.

• Total Hallucination Requirements: 2.

• Total Non-Hallucination Requirements: 18.