# Functional Requirement

# 1. Functional Requirements   
  
## 1.1 Email Creation Function   
\*\*Function ID\*\*: FR-01   
\*\*Description\*\*: Administrators can create a new email with specified content and recipients. The email is associated with a specific email account and optionally scheduled via calendar.   
\*\*Input\*\*: Email subject, body, recipient (Contact or Distribution Group), sender (Email Account), optional schedule date/time.   
\*\*Output\*\*: A new Email entity is stored in the server storage and optionally added to a CalendarEvent.   
  
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## 1.2 Email Sending Function   
\*\*Function ID\*\*: FR-02   
\*\*Description\*\*: Administrators can send an email using a specified email account. Recipients must be valid Contacts or members of a Distribution Group.   
\*\*Input\*\*: Email content, sender email account, recipient list (Contact or Distribution Group), optional schedule date/time.   
\*\*Output\*\*: The Email is sent and stored in the server storage, and optionally added to the calendar.   
  
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## 1.3 Email Receiving Function   
\*\*Function ID\*\*: FR-03   
\*\*Description\*\*: The system automatically checks for new emails in configured email accounts and stores them in server storage.   
\*\*Input\*\*: Email account configuration and server connection details.   
\*\*Output\*\*: New Email entity is stored in server storage and optionally archived or logged.   
  
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## 1.4 Email Viewing Function   
\*\*Function ID\*\*: FR-04   
\*\*Description\*\*: Administrators can view the details of an existing email from the server storage.   
\*\*Input\*\*: Selected EmailID and Email Account information.   
\*\*Output\*\*: Email details (Subject, Body, Sender, Recipient, Attachments, Send/Receive date) displayed in the user interface.   
  
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## 1.5 Email Deletion Function   
\*\*Function ID\*\*: FR-05   
\*\*Description\*\*: Administrators can delete an email from the server storage.   
\*\*Input\*\*: Selected EmailID and confirmation to delete.   
\*\*Output\*\*: Email is removed from server storage and the email list is updated.   
  
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## 1.6 Email Archiving Function   
\*\*Function ID\*\*: FR-06   
\*\*Description\*\*: Administrators can move an email from server storage to an archive based on archive policies.   
\*\*Input\*\*: Selected EmailID, confirmation to archive, and policy details.   
\*\*Output\*\*: Email is archived, and the server storage and email list are updated.   
  
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## 1.7 Archived Email Search Function   
\*\*Function ID\*\*: FR-07   
\*\*Description\*\*: Administrators can search for archived emails using filters like subject, sender, date, or keywords.   
\*\*Input\*\*: Search criteria (e.g., subject, sender, date range).   
\*\*Output\*\*: List of matching archived Email entities displayed in the user interface.   
  
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## 1.8 Contact Management Function   
\*\*Function ID\*\*: FR-08   
\*\*Description\*\*: Administrators can add, edit, or delete contact information and associate it with a user.   
\*\*Input\*\*: Contact details (Name, Email, Phone, UserID).   
\*\*Output\*\*: Updated Contact list is stored in the system and available for use in email sending.   
  
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## 1.9 Distribution Group Management Function   
\*\*Function ID\*\*: FR-09   
\*\*Description\*\*: Administrators can create, update, or delete a distribution group and manage its members (Contacts or Email Accounts).   
\*\*Input\*\*: Group name, selected contacts or email accounts.   
\*\*Output\*\*: Updated DistributionGroup entity is stored in the system and available for use in email sending.   
  
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## 1.10 Calendar Management Function   
\*\*Function ID\*\*: FR-10   
\*\*Description\*\*: Administrators can manage calendar events, including creation, updating, and deletion. Events may be associated with scheduled emails.   
\*\*Input\*\*: Event details (Title, Description, Start and End Time, associated EmailID).   
\*\*Output\*\*: Updated CalendarEvent is stored in the system and reflected in the calendar view.   
  
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## 1.11 Calendar Event Participant Management Function   
\*\*Function ID\*\*: FR-11   
\*\*Description\*\*: Administrators can add, remove, or update participants of a calendar event.   
\*\*Input\*\*: Selected CalendarEventID, list of participants (UserIDs or EmailAccountIDs), and participant roles.   
\*\*Output\*\*: Updated CalendarEventParticipant list is stored in the system and reflected in the event details.   
  
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## 1.12 Email Account Management Function   
\*\*Function ID\*\*: FR-12   
\*\*Description\*\*: Administrators can create, update, or delete email accounts and manage their configurations.   
\*\*Input\*\*: Email account details (Username, Password, Creation/LastModified/LastDeleted Dates).   
\*\*Output\*\*: Updated EmailAccount is stored in the system and associated with emails and server storage.   
  
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## 1.13 Server Storage Management Function   
\*\*Function ID\*\*: FR-13   
\*\*Description\*\*: Administrators can configure, expand, or modify server storage settings.   
\*\*Input\*\*: Server name, capacity settings, backup and retention policies.   
\*\*Output\*\*: Updated ServerStorage entity is stored in the system, and changes are applied to the storage.   
  
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## 1.14 Archiving Policy Management Function   
\*\*Function ID\*\*: FR-14   
\*\*Description\*\*: Administrators can create, update, or delete archiving policies to define how and when emails are archived.   
\*\*Input\*\*: Policy name, description, archive criteria, and expiry rules.   
\*\*Output\*\*: Updated Policy is stored in the system and applied to eligible emails.   
  
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## 1.15 Expired Email Management Function   
\*\*Function ID\*\*: FR-15   
\*\*Description\*\*: Administrators can manage expired emails by either recovering or permanently deleting them.   
\*\*Input\*\*: ExpiredEmailID, action (Recover or Delete).   
\*\*Output\*\*: ExpiredEmail is either restored to server storage or removed, and the system logs the activity.   
  
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## 1.16 Expired Email Recovery Function   
\*\*Function ID\*\*: FR-16   
\*\*Description\*\*: Administrators can recover an expired email from its archive or backup location using the recovery policy.   
\*\*Input\*\*: ExpiredEmailID, confirmation to recover.   
\*\*Output\*\*: ExpiredEmail is restored to server storage and associated with the original EmailAccount.   
  
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## 1.17 Email Flow Capture Function   
\*\*Function ID\*\*: FR-17   
\*\*Description\*\*: The system captures and logs the flow of emails based on predefined policies.   
\*\*Input\*\*: Email Account ID, capture criteria (source, destination, conditions), and policy configuration.   
\*\*Output\*\*: EmailFlow entity is created and stored in the system.   
  
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## 1.18 Email Record Audit Function   
\*\*Function ID\*\*: FR-18   
\*\*Description\*\*: Administrators can view and audit logs of email actions (e.g., send, archive, delete) for compliance purposes.   
\*\*Input\*\*: EmailRecordID, filter criteria (e.g., action type, date, user).   
\*\*Output\*\*: EmailRecord details (EmailID, Action, Timestamp, UserID) displayed in the system.   
  
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## 1.19 Email Folder Management Function   
\*\*Function ID\*\*: FR-19   
\*\*Description\*\*: Administrators can create, rename, delete, or move emails between folders.   
\*\*Input\*\*: Folder name, description, and list of emails to be moved.   
\*\*Output\*\*: Updated EmailFolder and Email associations stored in the system.   
  
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## 1.20 Email Attachment Management Function   
\*\*Function ID\*\*: FR-20   
\*\*Description\*\*: Administrators can upload, view, rename, or remove attachments from emails.   
\*\*Input\*\*: EmailID, attachment file (filename, size, upload date), action (Add, Remove, Rename).   
\*\*Output\*\*: Updated EmailAttachment and Email entities stored in the system.   
  
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## 1.21 Administrator Permission Management Function   
\*\*Function ID\*\*: FR-21   
\*\*Description\*\*: Administrators can configure and manage permission levels of other administrator accounts.   
\*\*Input\*\*: AdminID, permission settings (e.g., send email, manage policies, view archive).   
\*\*Output\*\*: Updated Admin entity and associated permissions stored in the system.   
  
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## 1.22 Administrator Account Update Function   
\*\*Function ID\*\*: FR-22   
\*\*Description\*\*: Administrators can modify their own or other admin accounts' settings, including password and access level.   
\*\*Input\*\*: AdminID, updated settings (e.g., password, notification preferences).   
\*\*Output\*\*: Updated Admin entity stored in the system.   
  
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## 1.23 Administrator Account Deletion Function   
\*\*Function ID\*\*: FR-23   
\*\*Description\*\*: Administrators can delete an administrator account, and the system will process all related data (e.g., emails, policies, calendar events).   
\*\*Input\*\*: AdminID, confirmation to delete.   
\*\*Output\*\*: Admin account is removed, and associated data is either deleted or transferred.   
  
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## 1.24 System Logging and Activity Tracking Function   
\*\*Function ID\*\*: FR-24   
\*\*Description\*\*: The system logs all user actions and system events for audit and traceability.   
\*\*Input\*\*: Action type, EmailID, UserID, Timestamp.   
\*\*Output\*\*: EmailRecord or system log entry stored in the server storage.   
  
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These functional requirements are derived directly from the provided use cases and data model. Each function ensures that the system can be used to manage email communication, contact and distribution group handling, calendar scheduling, and long-term email archiving and recovery in a structured and auditable manner.