# Functional Requirement

1. Functional Requirements  
  
1.1 Asset Registration Function   
Function ID: FR-01   
Description: Administrators can register new assets in the system by providing required asset details. Upon successful registration, the system sends a confirmation email to the Administrator.   
Input: Asset details including Name, Description, Category, PurchaseDate, and Status.   
Output: A new Asset record stored in the database and a confirmation email sent to the Administrator.  
  
1.2 View Asset Information Function   
Function ID: FR-02   
Description: Administrators can view the details of an existing asset in the system. The system retrieves and displays the selected asset’s information without modifying it.   
Input: An AssetID or selection from the asset list.   
Output: Displayed asset information including Name, Description, Category, PurchaseDate, and Status.  
  
1.3 Update Asset Details Function   
Function ID: FR-03   
Description: Administrators can update the details of an existing asset. The system validates the updated input and stores the changes in the database.   
Input: Updated asset information including Name, Description, Category, PurchaseDate, and Status.   
Output: Updated Asset record stored in the database and a success message displayed to the Administrator.  
  
1.4 Delete Asset Function   
Function ID: FR-04   
Description: Administrators can delete an existing asset from the system. The system confirms the deletion and updates the database accordingly.   
Input: An AssetID or selection from the asset list.   
Output: The deleted Asset removed from the database and a confirmation message displayed to the Administrator.  
  
1.5 Register Asset Usage Function   
Function ID: FR-05   
Description: Administrators can register the usage of an asset by selecting the asset and entering the usage details. The system validates and stores the usage information in the database.   
Input: AssetID, UsageDate, UsageType, Duration, and UsageDetails.   
Output: A new AssetUsage record stored in the database and a success message displayed to the Administrator.  
  
1.6 View Asset Usage History Function   
Function ID: FR-06   
Description: Administrators can view the usage history of an asset. The system retrieves and displays all AssetUsage records associated with the selected asset.   
Input: An AssetID or selection from the asset list.   
Output: A list of AssetUsage records with details such as UsageDate, UsageType, and Duration.  
  
1.7 View Asset Usage Record Function   
Function ID: FR-07   
Description: Administrators can view the details of a specific asset usage record. The system retrieves and displays the selected AssetUsageRecord in a structured format.   
Input: A UsageID or selection from the asset usage records list.   
Output: Displayed usage record details including AssetID, UsageDate, UsageType, Duration, and UsageDetails.  
  
1.8 Modify Asset Usage Record Function   
Function ID: FR-08   
Description: Administrators can modify the details of a specific asset usage record. The system validates the updated data and stores the changes in the database.   
Input: Updated usage record details including AssetID, UsageDate, UsageType, Duration, and UsageDetails.   
Output: Updated AssetUsageRecord stored in the database and a success message displayed to the Administrator.  
  
1.9 Delete Asset Usage Record Function   
Function ID: FR-09   
Description: Administrators can delete a specific asset usage record from the system. The system confirms the deletion and updates the database accordingly.   
Input: A UsageID or selection from the asset usage records list.   
Output: The deleted AssetUsageRecord removed from the database and a confirmation message displayed to the Administrator.  
  
1.10 Send Asset Notification via Email Function   
Function ID: FR-10   
Description: Administrators can send notifications about an asset via email. The system validates the recipient email and message, then triggers the Email System to send the notification.   
Input: AssetID, Recipient email address, and notification message content.   
Output: An Email record stored in the database and a confirmation message displayed to the Administrator.  
  
1.11 Update Administrator Profile Function   
Function ID: FR-11   
Description: Administrators can update their own profile information, such as Name, EmailAddress, and Role. The system validates the input and updates the profile in the database.   
Input: Updated Administrator profile details including Name, EmailAddress, and Role.   
Output: Updated Administrator record stored in the database and a success message displayed to the Administrator.  
  
1.12 Delete Administrator Account Function   
Function ID: FR-12   
Description: Administrators can delete their own account from the system. The system confirms the deletion, removes the account from the database, and sends a confirmation email.   
Input: An AdminID or selection from the Administrator account list.   
Output: The deleted Administrator account removed from the database and a confirmation message and email sent to the Administrator.  
  
1.13 Assign Asset to Administrator Function   
Function ID: FR-13   
Description: Administrators can assign an asset to another Administrator. The system validates the selection and updates the assignment relationship in the database.   
Input: AssetID and AdminID of the target Administrator.   
Output: Updated assignment relationship stored in the database and a success message displayed to the Administrator.  
  
1.14 Manage Notification Preferences Function   
Function ID: FR-14   
Description: Administrators can modify their notification preferences, such as enabling or disabling email alerts, setting the frequency, or specifying asset-related events to notify about.   
Input: Updated notification preferences including email alert status, frequency, and event types.   
Output: Updated Notification record stored in the database and a success message displayed to the Administrator.

# External Description

# 2. External Interfaces   
  
This chapter outlines the external interfaces required for the system to interact with its environment, including user interfaces, hardware interfaces, software interfaces, and communication interfaces. These interfaces are crucial for ensuring seamless integration, data flow, and user interaction.   
  
## 2.1 User Interface Output   
  
The system interacts with administrators through a graphical user interface (GUI) that enables them to perform all asset and usage management functions. The interface is designed to be intuitive, user-friendly, and accessible via web browsers.   
  
### 2.1.1 Asset Management UI   
- \*\*Description\*\*: The interface allows administrators to register, view, update, or delete asset records.   
- \*\*Inputs\*\*: Asset details such as Name, Description, Category, PurchaseDate, and Status.   
- \*\*Outputs\*\*:   
 - Display of asset details (Name, Description, Category, PurchaseDate, and Status).   
 - Confirmation messages for successful operations (e.g., registration, deletion, update).   
 - Email confirmation when an asset is successfully registered.   
  
### 2.1.2 Asset Usage Management UI   
- \*\*Description\*\*: This interface supports the registration, viewing, modification, and deletion of asset usage records.   
- \*\*Inputs\*\*: Usage-related data such as AssetID, UsageDate, UsageType, Duration, and UsageDetails.   
- \*\*Outputs\*\*:   
 - Display of usage history (list of AssetUsage records with UsageDate, UsageType, and Duration).   
 - Display of specific usage record details (AssetID, UsageDate, UsageType, Duration, and UsageDetails).   
 - Confirmation messages for successful usage operations (e.g., registration, modification, deletion).   
  
### 2.1.3 Administrator Profile and Assignment UI   
- \*\*Description\*\*: This section of the interface allows administrators to manage their own profiles and assign assets to other administrators.   
- \*\*Inputs\*\*: Profile updates (Name, EmailAddress, Role) and assignment details (AssetID and AdminID).   
- \*\*Outputs\*\*:   
 - Display of updated profile information.   
 - Confirmation message for successful profile updates or asset assignments.   
  
### 2.1.4 Notification Preferences UI   
- \*\*Description\*\*: This interface allows administrators to customize their notification settings.   
- \*\*Inputs\*\*: Notification preferences (email alert status, frequency, and event types).   
- \*\*Outputs\*\*:   
 - Display of current notification preferences.   
 - Confirmation message after successful modification of preferences.   
  
## 2.2 Hardware Interface Output   
  
There are no direct hardware interfaces required for the system as it operates in a software-centric environment. All operations are performed via standard computing hardware such as servers, desktops, and laptops. However, the system must be compatible with standard input/output devices used by administrators, such as keyboards, mice, and monitors.   
  
## 2.3 Software Interface Output   
  
The system interacts with various software components, including a database for storing and retrieving asset, usage, and administrator data, and possibly third-party email systems for sending notifications.   
  
### 2.3.1 Database Interface   
- \*\*Description\*\*: The system interfaces with a relational database to store and retrieve asset-related data, including asset records, usage records, administrator profiles, and notification preferences.   
- \*\*Inputs\*\*:   
 - Asset data (Name, Description, Category, PurchaseDate, Status).   
 - Usage data (AssetID, UsageDate, UsageType, Duration, UsageDetails).   
 - Administrator data (Name, EmailAddress, Role).   
 - Notification preferences (email alert status, frequency, event types).   
- \*\*Outputs\*\*:   
 - Storage of new or updated asset, usage, and administrator records.   
 - Retrieval of asset and usage records for display.   
 - Removal of records upon deletion (assets, usage records, or administrator accounts).   
  
### 2.3.2 Email System Interface   
- \*\*Description\*\*: The system communicates with an external email system to send confirmation emails and asset-related notifications to administrators.   
- \*\*Inputs\*\*:   
 - Recipient email address.   
 - Email message content.   
- \*\*Outputs\*\*:   
 - Email sent to the specified recipient.   
 - Record of the email stored in the system database.   
  
## 2.4 Communication Interface Output   
  
The system utilizes communication interfaces to send email notifications and interact with external systems via network protocols.   
  
### 2.4.1 Email Notification Interface   
- \*\*Description\*\*: The system sends email notifications to administrators for key events such as asset registration confirmation, usage record updates, and account deletion confirmation.   
- \*\*Inputs\*\*:   
 - Recipient email address.   
 - Notification message content.   
- \*\*Outputs\*\*:   
 - Email sent to the administrator via the Email System.   
 - Confirmation message displayed to the user within the system.   
  
### 2.4.2 Web Communication Interface   
- \*\*Description\*\*: The system is accessed via a web browser, enabling administrators to interact with it through HTTP/HTTPS protocols.   
- \*\*Inputs\*\*:   
 - Web requests containing user input (e.g., form data, selections).   
- \*\*Outputs\*\*:   
 - Web responses with system-generated content (e.g., asset records, confirmation messages).   
  
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This chapter has identified and described the external interfaces necessary for the system to function as intended. Each interface is clearly defined and categorized to ensure developers can implement the required integrations and interactions effectively.