项目文档

# 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.

# Use Case

Use Case Name: Asset Registration   
Use Case ID: UC-01   
Actors: Administrator, Email System   
Preconditions:   
1. The Administrator has logged into the system.   
2. The system is accessible and operational.   
3. The Email System is available for sending confirmation notifications.   
  
Postconditions:   
1. A new asset is successfully registered in the system.   
2. A confirmation email is sent to the Administrator.   
3. The asset information is stored in the database.   
  
Main Flow:   
1. The Administrator navigates to the Asset Registration page.   
2. The system displays a form for entering asset details.   
3. The Administrator fills in the required asset information.   
4. The Administrator submits the form.   
5. The system validates the input data.   
6. The system saves the asset information in the database.   
7. The system triggers the Email System to send a confirmation email to the Administrator.   
8. The system displays a success message to the Administrator.   
  
Alternative Flow:   
1. If the system fails to validate the input data in step 5, it displays an error message to the Administrator and prompts them to correct the data.   
2. If the Email System is unavailable in step 7, the system logs the error and displays a warning message to the Administrator indicating that the email could not be sent.  
  
Use Case Name: View Asset Information   
Use Case ID: UC-02   
Actors: Administrator   
Preconditions:   
1. The Administrator has logged into the system.   
2. The system is accessible and operational.   
3. At least one asset exists in the database.   
  
Postconditions:   
1. The Administrator is presented with the details of the selected asset.   
2. The system remains in a stable state without data modifications.   
  
Main Flow:   
1. The Administrator navigates to the Asset Information page.   
2. The system displays a list of available assets.   
3. The Administrator selects an asset from the list.   
4. The system retrieves the asset details from the database.   
5. The system displays the asset information to the Administrator in a structured format.   
  
Alternative Flow:   
1. If no assets exist in the database in step 2, the system displays a message indicating that no assets are available.   
2. If the system fails to retrieve the asset details in step 4, it displays an error message to the Administrator and logs the issue for troubleshooting.  
  
Use Case Name: Update Asset Details   
Use Case ID: UC-03   
Actors: Administrator   
Preconditions:   
1. The Administrator has logged into the system.   
2. The system is accessible and operational.   
3. The asset to be updated exists in the database.   
  
Postconditions:   
1. The asset details are successfully updated in the system.   
2. The updated asset information is stored in the database.   
3. The system displays a confirmation message to the Administrator.   
  
Main Flow:   
1. The Administrator navigates to the Asset Information page.   
2. The system displays a list of available assets.   
3. The Administrator selects an asset to update.   
4. The system retrieves the asset details and displays them in an editable form.   
5. The Administrator modifies the required asset information.   
6. The Administrator submits the updated form.   
7. The system validates the updated input data.   
8. The system updates the asset information in the database.   
9. The system displays a success message confirming the update.   
  
Alternative Flow:   
1. If the system fails to validate the updated data in step 7, it displays an error message to the Administrator and prompts them to correct the data.   
2. If the asset no longer exists in the database at step 3, the system displays an error message indicating that the asset cannot be updated.   
3. If the system fails to update the asset information in step 8, it displays an error message to the Administrator and logs the issue for troubleshooting.  
  
Use Case Name: Delete Asset   
Use Case ID: UC-04   
Actors: Administrator   
Preconditions:   
1. The Administrator has logged into the system.   
2. The system is accessible and operational.   
3. The asset to be deleted exists in the database.   
  
Postconditions:   
1. The selected asset is removed from the system.   
2. The database is updated to reflect the deletion.   
3. A confirmation message is displayed to the Administrator.   
  
Main Flow:   
1. The Administrator navigates to the Asset Information page.   
2. The system displays a list of available assets.   
3. The Administrator selects an asset to delete.   
4. The system confirms the deletion with the Administrator.   
5. The Administrator confirms the deletion action.   
6. The system removes the asset information from the database.   
7. The system displays a success message confirming the deletion.   
  
Alternative Flow:   
1. If the Administrator cancels the deletion confirmation in step 4, the system returns to the Asset Information page without making any changes.   
2. If the system fails to remove the asset information in step 6, it displays an error message to the Administrator and logs the issue for troubleshooting.   
3. If the asset no longer exists in the database at step 3, the system displays an error message indicating that the asset cannot be deleted.  
  
Use Case Name: Register Asset Usage   
Use Case ID: UC-05   
Actors: Administrator   
Preconditions:   
1. The Administrator has logged into the system.   
2. The system is accessible and operational.   
3. At least one asset exists in the database.   
  
Postconditions:   
1. The asset usage is successfully recorded in the system.   
2. The usage information is stored in the database.   
3. The system displays a confirmation message to the Administrator.   
  
Main Flow:   
1. The Administrator navigates to the Asset Usage Registration page.   
2. The system displays a form for selecting an asset and entering usage details.   
3. The Administrator selects an asset from the list.   
4. The Administrator fills in the usage information, including user, date, and purpose.   
5. The Administrator submits the form.   
6. The system validates the input data.   
7. The system saves the asset usage information in the database.   
8. The system displays a success message to the Administrator.   
  
Alternative Flow:   
1. If the system fails to validate the input data in step 6, it displays an error message to the Administrator and prompts them to correct the data.   
2. If the selected asset no longer exists in the database in step 3, the system displays an error message indicating that the asset is not available for usage registration.   
3. If the system fails to save the usage information in step 7, it displays an error message to the Administrator and logs the issue for troubleshooting.  
  
Use Case Name: View Asset Usage History   
Use Case ID: UC-06   
Actors: Administrator   
Preconditions:   
1. The Administrator has logged into the system.   
2. The system is accessible and operational.   
3. At least one asset usage record exists in the database.   
  
Postconditions:   
1. The Administrator is presented with the usage history of the selected asset.   
2. The system remains in a stable state without data modifications.   
  
Main Flow:   
1. The Administrator navigates to the Asset Usage History page.   
2. The system displays a list of assets with recorded usage.   
3. The Administrator selects an asset to view its usage history.   
4. The system retrieves the asset's usage history from the database.   
5. The system displays the usage history in a structured format to the Administrator.   
  
Alternative Flow:   
1. If no asset usage records exist in the database in step 2, the system displays a message indicating that no usage history is available.   
2. If the system fails to retrieve the usage history in step 4, it displays an error message to the Administrator and logs the issue for troubleshooting.  
  
Use Case Name: Modify Asset Usage Record   
Use Case ID: UC-07   
Actors: Administrator   
Preconditions:   
1. The Administrator has logged into the system.   
2. The system is accessible and operational.   
3. An asset usage record exists in the database.   
  
Postconditions:   
1. The selected asset usage record is successfully modified in the system.   
2. The updated usage information is stored in the database.   
3. A confirmation message is displayed to the Administrator.   
  
Main Flow:   
1. The Administrator navigates to the Asset Usage History page.   
2. The system displays a list of assets with recorded usage.   
3. The Administrator selects an asset usage record to modify.   
4. The system retrieves the selected usage record and displays it in an editable form.   
5. The Administrator updates the necessary usage details.   
6. The Administrator submits the updated form.   
7. The system validates the updated input data.   
8. The system updates the asset usage record in the database.   
9. The system displays a success message confirming the modification.   
  
Alternative Flow:   
1. If the system fails to validate the updated data in step 7, it displays an error message to the Administrator and prompts them to correct the data.   
2. If the selected usage record no longer exists in the database in step 3, the system displays an error message indicating that the record cannot be modified.   
3. If the system fails to update the usage record in step 8, it displays an error message to the Administrator and logs the issue for troubleshooting.  
  
Use Case Name: Delete Asset Usage Record   
Use Case ID: UC-08   
Actors: Administrator   
Preconditions:   
1. The Administrator has logged into the system.   
2. The system is accessible and operational.   
3. An asset usage record exists in the database.   
  
Postconditions:   
1. The selected asset usage record is successfully deleted from the system.   
2. The database is updated to reflect the deletion.   
3. A confirmation message is displayed to the Administrator.   
  
Main Flow:   
1. The Administrator navigates to the Asset Usage History page.   
2. The system displays a list of asset usage records.   
3. The Administrator selects a specific usage record to delete.   
4. The system confirms the deletion with the Administrator.   
5. The Administrator confirms the deletion action.   
6. The system removes the selected usage record from the database.   
7. The system displays a success message confirming the deletion.   
  
Alternative Flow:   
1. If the Administrator cancels the deletion confirmation in step 4, the system returns to the Asset Usage History page without making any changes.   
2. If the selected usage record no longer exists in the database in step 3, the system displays an error message indicating that the record cannot be deleted.   
3. If the system fails to remove the usage record in step 6, it displays an error message to the Administrator and logs the issue for troubleshooting.  
  
Use Case Name: Send Asset Notification via Email   
Use Case ID: UC-09   
Actors: Administrator, Email System   
Preconditions:   
1. The Administrator has logged into the system.   
2. The system is accessible and operational.   
3. The Email System is available for sending notifications.   
4. An asset exists in the database.   
  
Postconditions:   
1. An email notification regarding the asset is sent to the designated recipient.   
2. The system logs the notification as sent.   
3. The Administrator receives a confirmation message that the notification was sent.   
  
Main Flow:   
1. The Administrator navigates to the Asset Notification page.   
2. The system displays a list of available assets.   
3. The Administrator selects an asset to send a notification for.   
4. The system prompts the Administrator to enter the recipient email address and notification message.   
5. The Administrator fills in the required information and clicks "Send Notification".   
6. The system validates the email address and message content.   
7. The system triggers the Email System to send the notification.   
8. The system logs the notification as sent.   
9. The system displays a success message to the Administrator.   
  
Alternative Flow:   
1. If the system fails to validate the email address or message in step 6, it displays an error message to the Administrator and prompts them to correct the data.   
2. If the selected asset no longer exists in the database in step 3, the system displays an error message indicating that the asset is not available.   
3. If the Email System is unavailable in step 7, the system logs the error and displays a warning message to the Administrator indicating that the notification could not be sent.  
  
Use Case Name: Update Administrator Profile   
Use Case ID: UC-10   
Actors: Administrator   
Preconditions:   
1. The Administrator has logged into the system.   
2. The system is accessible and operational.   
3. The Administrator profile exists in the database.   
  
Postconditions:   
1. The Administrator profile is successfully updated in the system.   
2. The updated profile information is stored in the database.   
3. A confirmation message is displayed to the Administrator.   
  
Main Flow:   
1. The Administrator navigates to the Profile Management page.   
2. The system displays the current profile information in an editable form.   
3. The Administrator modifies the required profile details.   
4. The Administrator submits the updated form.   
5. The system validates the input data.   
6. The system updates the Administrator profile in the database.   
7. The system displays a success message confirming the update.   
  
Alternative Flow:   
1. If the system fails to validate the input data in step 5, it displays an error message to the Administrator and prompts them to correct the data.   
2. If the Administrator profile no longer exists in the database in step 2, the system displays an error message indicating that the profile cannot be updated.   
3. If the system fails to update the profile in step 6, it displays an error message to the Administrator and logs the issue for troubleshooting.  
  
Use Case Name: Delete Administrator Account   
Use Case ID: UC-11   
Actors: Administrator, Email System   
Preconditions:   
1. The Administrator has logged into the system.   
2. The system is accessible and operational.   
3. The account to be deleted exists in the database.   
4. The Email System is available for sending confirmation notifications.   
  
Postconditions:   
1. The selected Administrator account is successfully deleted from the system.   
2. The database is updated to reflect the deletion.   
3. A confirmation message is displayed to the Administrator.   
4. A confirmation email is sent to the Administrator.   
  
Main Flow:   
1. The Administrator navigates to the Account Management page.   
2. The system displays a list of Administrator accounts.   
3. The Administrator selects an account to delete.   
4. The system confirms the deletion with the Administrator.   
5. The Administrator confirms the deletion action.   
6. The system removes the selected Administrator account from the database.   
7. The system triggers the Email System to send a confirmation email.   
8. The system displays a success message confirming the deletion.   
  
Alternative Flow:   
1. If the Administrator cancels the deletion confirmation in step 4, the system returns to the Account Management page without making any changes.   
2. If the selected account no longer exists in the database in step 3, the system displays an error message indicating that the account cannot be deleted.   
3. If the system fails to remove the account in step 6, it displays an error message to the Administrator and logs the issue for troubleshooting.   
4. If the Email System is unavailable in step 7, the system logs the error and displays a warning message to the Administrator indicating that the email could not be sent.  
  
Use Case Name: Assign Asset to Administrator   
Use Case ID: UC-12   
Actors: Administrator   
Preconditions:   
1. The Administrator has logged into the system.   
2. The system is accessible and operational.   
3. At least one asset exists in the database.   
4. At least one Administrator account is available for assignment.   
  
Postconditions:   
1. The selected asset is assigned to the designated Administrator.   
2. The assignment information is stored in the database.   
3. A confirmation message is displayed to the Administrator.   
  
Main Flow:   
1. The Administrator navigates to the Asset Assignment page.   
2. The system displays a list of available assets and a list of Administrator accounts.   
3. The Administrator selects an asset from the list.   
4. The Administrator selects the target Administrator to assign the asset to.   
5. The Administrator confirms the assignment action.   
6. The system validates the selection and updates the assignment status.   
7. The system saves the asset assignment information in the database.   
8. The system displays a success message to the Administrator.   
  
Alternative Flow:   
1. If the selected asset no longer exists in the database in step 3, the system displays an error message indicating that the asset is not available.   
2. If the selected Administrator account does not exist in the database in step 4, the system displays an error message indicating that the Administrator is not available.   
3. If the system fails to validate the selection or update the assignment status in step 6, it displays an error message to the Administrator and prompts them to review the selections.   
4. If the system fails to save the assignment information in step 7, it displays an error message to the Administrator and logs the issue for troubleshooting.  
  
Use Case Name: View Asset Usage Record   
Use Case ID: UC-13   
Actors: Administrator   
Preconditions:   
1. The Administrator has logged into the system.   
2. The system is accessible and operational.   
3. At least one asset usage record exists in the database.   
  
Postconditions:   
1. The Administrator is presented with the details of the selected asset usage record.   
2. The system remains in a stable state without data modifications.   
  
Main Flow:   
1. The Administrator navigates to the Asset Usage History page.   
2. The system displays a list of asset usage records.   
3. The Administrator selects a specific asset usage record to view.   
4. The system retrieves the selected asset usage record from the database.   
5. The system displays the usage record details to the Administrator in a structured format.   
  
Alternative Flow:   
1. If no asset usage records exist in the database in step 2, the system displays a message indicating that no records are available.   
2. If the system fails to retrieve the selected usage record in step 4, it displays an error message to the Administrator and logs the issue for troubleshooting.  
  
Use Case Name: Delete Asset Usage Record   
Use Case ID: UC-08   
Actors: Administrator   
Preconditions:   
1. The Administrator has logged into the system.   
2. The system is accessible and operational.   
3. An asset usage record exists in the database.   
  
Postconditions:   
1. The selected asset usage record is successfully deleted from the system.   
2. The database is updated to reflect the deletion.   
3. A confirmation message is displayed to the Administrator.   
  
Main Flow:   
1. The Administrator navigates to the Asset Usage History page.   
2. The system displays a list of asset usage records.   
3. The Administrator selects a specific usage record to delete.   
4. The system confirms the deletion with the Administrator.   
5. The Administrator confirms the deletion action.   
6. The system removes the selected usage record from the database.   
7. The system displays a success message confirming the deletion.   
  
Alternative Flow:   
1. If the Administrator cancels the deletion confirmation in step 4, the system returns to the Asset Usage History page without making any changes.   
2. If the selected usage record no longer exists in the database in step 3, the system displays an error message indicating that the record cannot be deleted.   
3. If the system fails to remove the usage record in step 6, it displays an error message to the Administrator and logs the issue for troubleshooting.  
  
Use Case Name: Manage Notification   
Use Case ID: UC-14   
Actors: Administrator, Email System   
  
Preconditions:   
1. The Administrator has logged into the system.   
2. The system is accessible and operational.   
3. The Email System is available for managing notification settings.   
4. The notification management page is accessible.   
  
Postconditions:   
1. The Administrator's notification preferences are successfully updated in the system.   
2. The updated preferences are stored in the database.   
3. A confirmation message is displayed to the Administrator.   
  
Main Flow:   
1. The Administrator navigates to the Notification Management page.   
2. The system displays the current notification preferences in an editable form.   
3. The Administrator modifies the notification settings (e.g., enable/disable email alerts, set frequency, or specify asset-related events to notify about).   
4. The Administrator submits the updated preferences.   
5. The system validates the input data.   
6. The system updates the notification preferences in the database.   
7. The system displays a success message confirming the changes.   
  
Alternative Flow:   
1. If the system fails to validate the input data in step 5, it displays an error message to the Administrator and prompts them to correct the data.   
2. If the system fails to update the notification preferences in step 6, it displays an error message to the Administrator and logs the issue for troubleshooting.  
  
Use Case Name: Create Administrator   
Use Case ID: UC-15   
Actors: System, Administrator (creating another Administrator)   
  
Preconditions:   
1. The Administrator has logged into the system.   
2. The system is accessible and operational.   
3. The Administrator has the necessary permissions to create new administrator accounts.   
4. The Email System is available for sending confirmation notifications.   
  
Postconditions:   
1. A new Administrator account is successfully created in the system.   
2. The new Administrator's information is stored in the database.   
3. A confirmation email is sent to the new Administrator.   
4. A success message is displayed to the creating Administrator.   
  
Main Flow:   
1. The Administrator navigates to the Administrator Management page.   
2. The system displays a form for entering new Administrator details.   
3. The Administrator fills in the required information for the new Administrator (e.g., name, email, role).   
4. The Administrator submits the form.   
5. The system validates the input data.   
6. The system creates the new Administrator account in the database.   
7. The system triggers the Email System to send a confirmation email to the new Administrator.   
8. The system displays a success message to the creating Administrator.   
  
Alternative Flow:   
1. If the system fails to validate the input data in step 5, it displays an error message to the Administrator and prompts them to correct the data.   
2. If the Email System is unavailable in step 7, the system logs the error and displays a warning message to the creating Administrator indicating that the email could not be sent.   
3. If the system fails to create the new Administrator account in step 6, it displays an error message to the Administrator and logs the issue for troubleshooting.  
  
Use Case Name: View Administrator Info   
Use Case ID: UC-16   
Actors: Administrator   
  
Preconditions:   
1. The Administrator has logged into the system.   
2. The system is accessible and operational.   
3. At least one Administrator account exists in the database.   
  
Postconditions:   
1. The Administrator is presented with the details of the selected Administrator.   
2. The system remains in a stable state without data modifications.   
  
Main Flow:   
1. The Administrator navigates to the Administrator Management page.   
2. The system displays a list of existing Administrator accounts.   
3. The Administrator selects an account from the list to view.   
4. The system retrieves the selected Administrator's information from the database.   
5. The system displays the Administrator's details (e.g., name, email, role) in a structured format.   
  
Alternative Flow:   
1. If no Administrator accounts exist in the database in step 2, the system displays a message indicating that no Administrator accounts are available.   
2. If the system fails to retrieve the selected Administrator's information in step 4, it displays an error message to the Administrator and logs the issue for troubleshooting.