项目文档

# Functional Requirement

1. Functional Requirements  
  
1.1 Asset Registration Function   
 Function ID: FR-01   
 Description: Administrators can register new assets by entering asset details through a system form. The system validates the input and writes the asset data to the Database System.   
 Input: Asset details including name, category, description, purchase date, location, and owner ID.   
 Output: A new asset record stored in the Database System, and a confirmation message sent to the Administrator.  
  
1.2 Asset Deletion Function   
 Function ID: FR-02   
 Description: Administrators can delete an existing asset after selecting it from the asset list and confirming the deletion. The system ensures no dependencies exist before deletion and updates the Database System accordingly.   
 Input: Selected asset ID and confirmation of deletion.   
 Output: The asset record is removed from the Database System, and a confirmation message is sent to the Administrator.  
  
1.3 View Asset Information Function   
 Function ID: FR-03   
 Description: Administrators can view detailed information of a specific asset by selecting it from the asset list or entering an asset identifier.   
 Input: Asset identifier or selected asset ID.   
 Output: Displayed asset information retrieved from the Database System.  
  
1.4 Modify Asset Details Function   
 Function ID: FR-04   
 Description: Administrators can modify the details of an existing asset after selecting it from the asset list and confirming the changes.   
 Input: Selected asset ID and updated details (e.g., name, location, status).   
 Output: Updated asset record stored in the Database System, and a confirmation message sent to the Administrator.  
  
1.5 Record Asset Usage Function   
 Function ID: FR-05   
 Description: Administrators can record asset usage by selecting an asset and entering usage details such as start and end time, user, and activity type.   
 Input: Selected asset ID and usage details (e.g., use type, use date, use duration).   
 Output: A new usage record stored in the Database System, and the asset's status or usage history is updated.  
  
1.6 Update Asset Usage Status Function   
 Function ID: FR-06   
 Description: Administrators can update the status of an asset's usage (e.g., In Use, Available, Maintenance).   
 Input: Selected asset ID and new usage status.   
 Output: Updated usage status of the asset stored in the Database System, and a confirmation message sent to the Administrator.  
  
1.7 Generate Usage Report Function   
 Function ID: FR-07   
 Description: Administrators can generate a usage report based on specified filters (e.g., time range, asset type, user). The system transmits the data to the Report Analysis System, which generates the report in a requested format.   
 Input: Filters for report generation (e.g., start date, end date, asset type).   
 Output: Generated usage report in the requested format (e.g., PDF, Excel), stored in the system and optionally sent via email.  
  
1.8 View Usage Reports Function   
 Function ID: FR-08   
 Description: Administrators can view existing usage reports or generate new ones with specified filters.   
 Input: Filters for report retrieval (e.g., report ID, time range, asset type) or request to generate a new report.   
 Output: Displayed usage report data retrieved from the Database System, with options to view, download, or send via email.  
  
1.9 Analyze Asset Reports Function   
 Function ID: FR-09   
 Description: Administrators can analyze existing asset usage reports to derive insights such as usage trends, asset efficiency, and recommendations.   
 Input: Selected report ID or request to generate a new report for analysis.   
 Output: Analysis results (e.g., insights, recommendations) stored in the Database System and displayed to the Administrator.  
  
1.10 Export Report Data Function   
 Function ID: FR-10   
 Description: Administrators can export report data in a chosen format (e.g., CSV, Excel, PDF) and optionally send it via email.   
 Input: Selected report ID and export format (e.g., CSV, Excel, PDF).   
 Output: Exported report file available for download or sent via email, and a confirmation message sent to the Administrator.  
  
1.11 Assign Permissions Function   
 Function ID: FR-11   
 Description: Administrators can assign permissions to users or roles by selecting the target and specifying the access level and restrictions.   
 Input: Target user or role ID and permission level or access rights.   
 Output: Permission allocation record stored in the Database System, and an email notification sent to the affected user or group.  
  
1.12 Modify Permission Settings Function   
 Function ID: FR-12   
 Description: Administrators can modify existing permission settings for a user or role, such as changing access levels or restrictions.   
 Input: Target user or role ID and updated permission level or access rights.   
 Output: Updated permission allocation record stored in the Database System, and an email notification sent to the affected user or group.  
  
1.13 Revoke Permissions Function   
 Function ID: FR-13   
 Description: Administrators can revoke permissions assigned to a user or role.   
 Input: Target user or role ID and permission level or access rights to revoke.   
 Output: Permission revocation record stored in the Database System, and an email notification sent to the affected user or group.  
  
1.14 Send Email Notifications Function   
 Function ID: FR-14   
 Description: Administrators can send custom email notifications to users or groups.   
 Input: Recipient email address, subject, and message content.   
 Output: Email notification sent via the Email System, and a confirmation message sent to the Administrator.  
  
1.15 Receive Email Alerts Function   
 Function ID: FR-15   
 Description: The system automatically sends email alerts to the Administrator when predefined events occur (e.g., asset status change, report generation).   
 Input: Event type and details (e.g., asset ID, report ID).   
 Output: Email alert sent to the Administrator via the Email System, and a log of the email delivery stored in the Database System.  
  
1.16 Connect to Database Function   
 Function ID: FR-16   
 Description: The system allows the Administrator to connect to the Database System using valid connection credentials.   
 Input: Database connection details (e.g., host, username, password, database name).   
 Output: Confirmation of a successful database connection, and a log of the connection event stored in the system.  
  
1.17 Update Database Records Function   
 Function ID: FR-17   
 Description: Administrators can update existing database records for assets, usage records, or permissions.   
 Input: Selected record ID and updated data (e.g., asset name, usage details, permission level).   
 Output: Updated record stored in the Database System, and a confirmation message sent to the Administrator.  
  
1.18 View Asset Audit Logs Function   
 Function ID: FR-18   
 Description: Administrators can view audit logs for asset usage to track events such as asset registration, modification, or deletion.   
 Input: Asset ID or selected asset identifier.   
 Output: Audit log data retrieved from the Database System and displayed to the Administrator in an organized format.  
  
1.19 Manage Usage Log Function   
 Function ID: FR-19   
 Description: Administrators can create, modify, or delete usage log records.   
 Input: Selected log ID and action (create, modify, delete) along with relevant details (e.g., asset ID, user ID, event type).   
 Output: Updated or deleted usage log stored in the Database System, and a confirmation message sent to the Administrator.  
  
1.20 Manage Asset Usage Function   
 Function ID: FR-20   
 Description: Administrators can manage asset usage records by adding, modifying, or deleting them.   
 Input: Selected asset ID and usage record action (add, modify, delete) along with relevant details (e.g., user, activity, start and end time).   
 Output: Updated or deleted usage record stored in the Database System, and a confirmation message sent to the Administrator.  
  
1.21 Manage Report Analysis Function   
 Function ID: FR-21   
 Description: Administrators can manage report analysis configurations, including creating, modifying, or deleting them.   
 Input: Selected report analysis ID and action (create, modify, delete) along with analysis parameters (e.g., report type, frequency, filters, recipients).   
 Output: Updated or deleted report analysis configuration stored in the Database System, and a confirmation message sent to the Administrator.  
  
1.22 View Permission Allocation Function   
 Function ID: FR-22   
 Description: Administrators can view the current permission allocation details for a specific user or role.   
 Input: Selected user or role ID.   
 Output: Permission allocation data retrieved from the Database System and displayed to the Administrator in a clear format.

# External Description

2. External Interfaces   
This chapter defines the external interfaces required by the system, including user interfaces, hardware interfaces, software interfaces, and communication interfaces. These interfaces ensure the system can interact with users, external hardware, software components, and communication channels effectively and consistently.   
  
2.1 User Interface   
The system provides a web-based user interface for administrators to manage assets, usage records, reports, and permissions. The interface supports input via forms, buttons, and dropdown menus, and outputs data in tabular, textual, and graphical formats.   
  
- \*\*Asset Management Interface\*\*:   
 - \*\*Description\*\*: A form-based interface for administrators to register, modify, delete, and view asset information.   
 - \*\*Inputs\*\*: Asset details such as name, category, description, purchase date, location, and owner ID.   
 - \*\*Outputs\*\*: Displayed asset information, confirmation messages, and error notifications.   
  
- \*\*Usage Record Management Interface\*\*:   
 - \*\*Description\*\*: A form-based interface for administrators to record, modify, delete, and view asset usage details.   
 - \*\*Inputs\*\*: Asset ID, usage details such as start and end time, user ID, and activity type.   
 - \*\*Outputs\*\*: Displayed usage information, confirmation messages, and error notifications.   
  
- \*\*Report Management Interface\*\*:   
 - \*\*Description\*\*: An interface for administrators to generate, view, analyze, and export usage reports.   
 - \*\*Inputs\*\*: Filters such as time range, asset type, and user ID; export formats (e.g., CSV, Excel, PDF).   
 - \*\*Outputs\*\*: Displayed report data, downloadable files, and confirmation messages.   
  
- \*\*Permission Management Interface\*\*:   
 - \*\*Description\*\*: An interface for administrators to assign, modify, and revoke permissions for users or roles.   
 - \*\*Inputs\*\*: Target user or role ID, permission level or access rights.   
 - \*\*Outputs\*\*: Displayed permission allocation details, confirmation messages, and error notifications.   
  
- \*\*Audit Log Interface\*\*:   
 - \*\*Description\*\*: An interface for administrators to view audit logs for asset-related activities.   
 - \*\*Inputs\*\*: Asset ID or selected asset identifier.   
 - \*\*Outputs\*\*: Displayed audit log data in a clear and organized format.   
  
2.2 Hardware Interface   
The system does not directly interact with hardware devices. However, it supports access to asset data through hardware devices such as barcode scanners or RFID readers that may be used in asset tracking or usage recording scenarios.   
  
- \*\*Barcode/RFID Scanner Interface (Indirect)\*\*:   
 - \*\*Description\*\*: The system may indirectly integrate with barcode or RFID scanners to capture asset identifiers for usage recording.   
 - \*\*Inputs\*\*: Asset identifier via scanner.   
 - \*\*Outputs\*\*: The system processes the scanned asset ID and allows the administrator to record usage or view asset details.   
  
2.3 Software Interface   
The system interacts with several external software components, including the \*\*Database System\*\* and the \*\*Report Analysis System\*\*. These interactions are essential for data storage, retrieval, and report generation.   
  
- \*\*Database System Interface\*\*:   
 - \*\*Description\*\*: The system connects to and interacts with a centralized database to store and retrieve asset records, usage data, permission allocations, and audit logs.   
 - \*\*Inputs\*\*: Connection credentials (e.g., host, username, password, database name); data records (e.g., asset details, usage logs, permission settings).   
 - \*\*Outputs\*\*: Confirmation of successful database operations (e.g., record creation, modification, deletion); stored records and audit logs.   
  
- \*\*Report Analysis System Interface\*\*:   
 - \*\*Description\*\*: The system sends raw data to the Report Analysis System to generate formatted usage reports.   
 - \*\*Inputs\*\*: Filtered asset usage data (e.g., time range, asset type, user ID).   
 - \*\*Outputs\*\*: Generated reports in requested formats (e.g., PDF, Excel); confirmation of report generation.   
  
2.4 Communication Interface   
The system communicates with users and external systems via email notifications and alerts. These interfaces ensure timely delivery of confirmation messages, reports, and alerts to the relevant stakeholders.   
  
- \*\*Email System Interface\*\*:   
 - \*\*Description\*\*: The system sends and receives email notifications and alerts to and from users and administrators.   
 - \*\*Inputs\*\*: Recipient email address, subject, and message content for outgoing emails; event details (e.g., asset status change, report generation) for triggering email alerts.   
 - \*\*Outputs\*\*: Email notification sent to the specified recipient; confirmation of successful delivery or failure to the system.   
  
- \*\*Administrator Alert Interface\*\*:   
 - \*\*Description\*\*: The system automatically sends email alerts to the administrator when predefined events occur, such as asset status changes or report generation.   
 - \*\*Inputs\*\*: Event type and associated data (e.g., asset ID, report ID).   
 - \*\*Outputs\*\*: Email alert sent to the administrator; log entry stored in the database to confirm the delivery.   
  
- \*\*Report Export and Delivery Interface\*\*:   
 - \*\*Description\*\*: The system allows administrators to export report data in various formats and optionally send it via email.   
 - \*\*Inputs\*\*: Report ID and export format (e.g., CSV, Excel, PDF).   
 - \*\*Outputs\*\*: Exported file for download or email delivery; confirmation message to the administrator.   
  
2.5 Summary of External Interfaces   
The system interacts with external interfaces to ensure the efficient and secure management of assets and usage records. These interactions include:   
- \*\*User Interface\*\*: For system navigation, input, and output of asset and usage data.   
- \*\*Hardware Interface (Indirect)\*\*: For capturing asset identifiers via scanners.   
- \*\*Software Interface\*\*: For data storage and retrieval with the Database System and report generation with the Report Analysis System.   
- \*\*Communication Interface\*\*: For sending email notifications and alerts to users and administrators.   
  
All external interfaces are designed to be intuitive, secure, and scalable, ensuring seamless integration with external systems and user-friendly operation for administrators.

# Use Case

Use Case Name: Asset Registration   
Use Case ID: UC-01   
Actors: Administrator, Asset Management System, Email System, Database System   
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and operational.   
3. The Email System is configured and ready to send notifications.   
  
Postconditions:   
1. The asset is successfully registered in the Database System.   
2. The Administrator receives a confirmation message.   
3. An email notification is sent to the relevant user confirming the asset registration.   
  
Main Flow:   
1. The Administrator selects the "Asset Registration" option from the system menu.   
2. The system displays a form for entering asset details.   
3. The Administrator fills in the required fields (e.g., asset name, type, location, etc.).   
4. The Administrator submits the form.   
5. The system validates the input data.   
6. The system writes the asset data to the Database System.   
7. The system sends a confirmation message to the Administrator.   
8. The system triggers the Email System to send a registration confirmation email to the relevant user.   
9. The use case is completed.   
  
Alternative Flow:   
1. If the input data is invalid (e.g., missing required fields), the system displays an error message and prompts the Administrator to correct the data.   
2. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
3. If the Email System fails to send the notification, the system logs the failure and allows the Administrator to manually retry the email sending.  
  
Use Case Name: Asset Deletion   
Use Case ID: UC-02   
Actors: Administrator, Asset Management System, Database System, Email System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and operational.   
3. The Email System is configured and ready to send notifications.   
4. At least one asset exists in the system for deletion.   
  
Postconditions:   
1. The selected asset is successfully removed from the Database System.   
2. The Administrator receives a confirmation message.   
3. An email notification is sent to the relevant user informing them of the asset deletion.   
  
Main Flow:   
1. The Administrator selects the "Asset Deletion" option from the system menu.   
2. The system displays a list of existing assets with details such as name, type, and status.   
3. The Administrator selects the asset to be deleted.   
4. The system prompts the Administrator for confirmation of the deletion.   
5. The Administrator confirms the deletion request.   
6. The system removes the asset data from the Database System.   
7. The system sends a confirmation message to the Administrator.   
8. The system triggers the Email System to send a deletion notification email to the relevant user.   
9. The use case is completed.   
  
Alternative Flow:   
1. If the selected asset is referenced by other system components (e.g., in use or linked to reports), the system displays a warning message and prevents deletion until the references are resolved.   
2. If the deletion confirmation is canceled, the system cancels the deletion and returns to the asset list.   
3. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
4. If the Email System fails to send the notification, the system logs the failure and allows the Administrator to manually retry the email sending.  
  
Use Case Name: View Asset Information   
Use Case ID: UC-03   
Actors: Administrator, Asset Management System, Database System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and operational.   
3. There is at least one asset record in the Database System.   
  
Postconditions:   
1. The Administrator is presented with the requested asset information.   
2. The system maintains the integrity of the asset data during retrieval.   
  
Main Flow:   
1. The Administrator selects the "View Asset Information" option from the system menu.   
2. The system prompts the Administrator to enter the asset identifier or select an asset from a list.   
3. The Administrator provides the asset identifier or selects an asset.   
4. The system queries the Database System for the selected asset's information.   
5. The system retrieves the asset data and displays it to the Administrator.   
6. The use case is completed.   
  
Alternative Flow:   
1. If the asset identifier is invalid or the asset does not exist, the system displays an error message and prompts the Administrator to provide a valid identifier.   
2. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
3. If the asset list is empty, the system informs the Administrator that no assets are available to view.  
  
Use Case Name: Modify Asset Details   
Use Case ID: UC-04   
Actors: Administrator, Asset Management System, Database System, Email System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and operational.   
3. The Email System is configured and ready to send notifications.   
4. The asset to be modified already exists in the Database System.   
  
Postconditions:   
1. The asset details are successfully updated in the Database System.   
2. The Administrator receives a confirmation message.   
3. An email notification is sent to the relevant user informing them of the asset modification.   
  
Main Flow:   
1. The Administrator selects the "Modify Asset Details" option from the system menu.   
2. The system displays a list of existing assets with details such as name, type, and status.   
3. The Administrator selects the asset to be modified.   
4. The system displays the current asset details in an editable form.   
5. The Administrator modifies the required fields (e.g., asset name, location, status, etc.).   
6. The Administrator submits the updated form.   
7. The system validates the input data.   
8. The system updates the asset data in the Database System.   
9. The system sends a confirmation message to the Administrator.   
10. The system triggers the Email System to send a modification notification email to the relevant user.   
11. The use case is completed.   
  
Alternative Flow:   
1. If the input data is invalid (e.g., missing required fields or incorrect format), the system displays an error message and prompts the Administrator to correct the data.   
2. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
3. If the Email System fails to send the notification, the system logs the failure and allows the Administrator to manually retry the email sending.   
4. If the asset list is empty, the system informs the Administrator that no assets are available to modify.  
  
Use Case Name: Record Asset Usage   
Use Case ID: UC-05   
Actors: Administrator, Asset Management System, Database System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and operational.   
3. There is at least one registered asset in the system.   
  
Postconditions:   
1. The asset usage record is successfully stored in the Database System.   
2. The Administrator receives a confirmation message.   
3. The system updates the asset's status or usage history accordingly.   
  
Main Flow:   
1. The Administrator selects the "Record Asset Usage" option from the system menu.   
2. The system displays a list of available assets with details such as name, status, and location.   
3. The Administrator selects the asset for which usage is to be recorded.   
4. The system opens a form to enter usage details (e.g., start time, end time, user, activity type).   
5. The Administrator fills in the required usage information.   
6. The Administrator submits the form.   
7. The system validates the input data.   
8. The system stores the usage record in the Database System.   
9. The system updates the asset's status or usage history in the Database System.   
10. The system sends a confirmation message to the Administrator.   
11. The use case is completed.   
  
Alternative Flow:   
1. If the input data is invalid (e.g., missing required fields or incorrect date format), the system displays an error message and prompts the Administrator to correct the data.   
2. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
3. If the selected asset is not available for usage (e.g., it is already in use or marked as inactive), the system displays a warning message and prevents recording the usage.   
4. If the asset list is empty, the system informs the Administrator that no assets are available to record usage for.  
  
Use Case Name: Update Asset Usage Status   
Use Case ID: UC-06   
Actors: Administrator, Asset Management System, Database System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and operational.   
3. There is at least one asset with recorded usage in the system.   
  
Postconditions:   
1. The asset's usage status is updated in the Database System.   
2. The Administrator receives a confirmation message.   
3. The system reflects the updated usage status in the asset's information.   
  
Main Flow:   
1. The Administrator selects the "Update Asset Usage Status" option from the system menu.   
2. The system displays a list of assets with their current usage status.   
3. The Administrator selects the asset whose usage status needs to be updated.   
4. The system prompts the Administrator to choose a new usage status (e.g., In Use, Available, Maintenance).   
5. The Administrator selects the new status and confirms the change.   
6. The system updates the asset's usage status in the Database System.   
7. The system sends a confirmation message to the Administrator.   
8. The use case is completed.   
  
Alternative Flow:   
1. If the selected asset does not have a valid usage record, the system displays an error message and prompts the Administrator to select an asset with a recorded usage.   
2. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
3. If the Administrator cancels the update request, the system reverts to the asset list without making any changes.  
  
Use Case Name: Generate Usage Report   
Use Case ID: UC-07   
Actors: Administrator, Asset Management System, Database System, Report Analysis System, Email System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and operational.   
3. The Report Analysis System is configured and ready to generate reports.   
4. There are asset usage records available in the Database System.   
5. The Email System is configured and ready to send notifications.   
  
Postconditions:   
1. The usage report is successfully generated and stored in the system.   
2. The Administrator receives a confirmation message.   
3. An email notification is sent to the Administrator or designated users with the report attached.   
4. The report is accessible for viewing or downloading.   
  
Main Flow:   
1. The Administrator selects the "Generate Usage Report" option from the system menu.   
2. The system prompts the Administrator to specify the time range, asset type, or other filters for the report.   
3. The Administrator enters the required parameters and confirms the request.   
4. The system queries the Database System for the relevant asset usage data.   
5. The system transmits the data to the Report Analysis System.   
6. The Report Analysis System generates the report in the requested format (e.g., PDF, Excel).   
7. The system saves the report in the system and provides a download or view option to the Administrator.   
8. The system triggers the Email System to send the report to the Administrator or designated users.   
9. The system sends a confirmation message to the Administrator.   
10. The use case is completed.   
  
Alternative Flow:   
1. If no asset usage data matches the specified criteria, the system displays a warning message and prompts the Administrator to adjust the filters.   
2. If the Report Analysis System fails to generate the report, the system logs the error and displays an error message to the Administrator.   
3. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
4. If the Email System fails to send the notification, the system logs the failure and allows the Administrator to manually retry the email sending.   
5. If the Administrator cancels the report generation, the system returns to the previous menu without generating the report.  
  
Use Case Name: View Usage Reports   
Use Case ID: UC-08   
Actors: Administrator, Asset Management System, Report Analysis System, Database System, Email System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and contains asset usage records.   
3. The Report Analysis System is configured and ready to process report requests.   
4. The Email System is configured and ready to send notifications (if applicable).   
  
Postconditions:   
1. The Administrator is presented with the requested usage report.   
2. The usage report is generated based on the specified filters and criteria.   
3. The system provides options to view, download, or send the report via email.   
4. The report is stored in the system for future access.   
  
Main Flow:   
1. The Administrator selects the "View Usage Reports" option from the system menu.   
2. The system displays a list of available usage reports or prompts the Administrator to generate a new one.   
3. The Administrator chooses to generate a new report or selects an existing one.   
4. If generating a new report, the system prompts the Administrator to specify filters (e.g., time range, asset type, user).   
5. The Administrator enters the required parameters and confirms the request.   
6. The system queries the Database System for the relevant asset usage data.   
7. The system transmits the data to the Report Analysis System for processing.   
8. The Report Analysis System generates the usage report in the requested format (e.g., PDF, Excel).   
9. The system displays the report to the Administrator and provides options to view, download, or send it via email.   
10. The use case is completed.   
  
Alternative Flow:   
1. If the specified filters do not return any usage data, the system displays a warning message and suggests adjusting the criteria.   
2. If the Report Analysis System is unavailable, the system logs the error and displays a message to the Administrator.   
3. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
4. If the Email System fails to send the report, the system logs the failure and allows the Administrator to manually retry the email sending.   
5. If the Administrator cancels the report request, the system returns to the previous menu without generating the report.  
  
Use Case Name: Analyze Asset Reports   
Use Case ID: UC-09   
Actors: Administrator, Asset Management System, Report Analysis System, Database System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and contains asset usage records.   
3. The Report Analysis System is configured and ready to process report data.   
  
Postconditions:   
1. The asset report is analyzed and insights are generated.   
2. The Administrator is presented with the analysis results.   
3. The analysis results are stored in the system for future reference.   
4. The system maintains the integrity and security of the asset data during the analysis process.   
  
Main Flow:   
1. The Administrator selects the "Analyze Asset Reports" option from the system menu.   
2. The system prompts the Administrator to select an existing report or generate a new one for analysis.   
3. The Administrator selects the report to be analyzed.   
4. The system retrieves the report data from the Database System.   
5. The system transmits the report data to the Report Analysis System.   
6. The Report Analysis System processes the data and generates analysis results (e.g., usage trends, asset efficiency, recommendations).   
7. The system displays the analysis results to the Administrator.   
8. The system stores the analysis results in the Database System for future access.   
9. The use case is completed.   
  
Alternative Flow:   
1. If the selected report is missing or corrupted, the system displays an error message and prompts the Administrator to select a valid report.   
2. If the Report Analysis System is unavailable, the system logs the error and displays a message to the Administrator.   
3. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
4. If the Administrator cancels the analysis request, the system returns to the previous menu without performing the analysis.  
  
Use Case Name: Export Report Data   
Use Case ID: UC-10   
Actors: Administrator, Asset Management System, Report Analysis System, Database System, Email System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and contains asset usage records.   
3. The Report Analysis System is configured and ready to process report data.   
4. The Email System is configured and ready to send notifications (if applicable).   
5. There is at least one report available for export.   
  
Postconditions:   
1. The requested report data is successfully exported in the chosen format (e.g., CSV, Excel, PDF).   
2. The export file is made available for download or sent via email.   
3. The Administrator receives a confirmation message.   
4. The system logs the export action for auditing purposes.   
  
Main Flow:   
1. The Administrator selects the "Export Report Data" option from the system menu.   
2. The system displays a list of available reports or prompts the Administrator to generate a new report for export.   
3. The Administrator selects the report to be exported.   
4. The system retrieves the report data from the Database System.   
5. The system prompts the Administrator to choose the export format (e.g., CSV, Excel, PDF).   
6. The Administrator selects the desired format and confirms the request.   
7. The system transmits the data to the Report Analysis System for formatting.   
8. The Report Analysis System prepares the report in the selected format.   
9. The system offers the Administrator options to download the file or send it via email.   
10. If email is selected, the system triggers the Email System to send the report to the designated recipient.   
11. The system sends a confirmation message to the Administrator.   
12. The use case is completed.   
  
Alternative Flow:   
1. If the selected report is missing or corrupted, the system displays an error message and prompts the Administrator to select a valid report.   
2. If the Report Analysis System is unavailable, the system logs the error and displays a message to the Administrator.   
3. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
4. If the Email System fails to send the exported report, the system logs the failure and allows the Administrator to manually retry the email sending.   
5. If the Administrator cancels the export request, the system returns to the previous menu without performing the export.  
  
Use Case Name: Assign Permissions   
Use Case ID: UC-11   
Actors: Administrator, Asset Management System, Permission Allocation System, Database System, Email System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and contains user and role records.   
3. The Permission Allocation System is configured and ready to assign permissions.   
4. The Email System is configured and ready to send notifications.   
  
Postconditions:   
1. The specified permissions are successfully assigned to the user or role in the Database System.   
2. The Administrator receives a confirmation message.   
3. An email notification is sent to the affected user or user group.   
4. The system logs the permission assignment for auditing purposes.   
  
Main Flow:   
1. The Administrator selects the "Assign Permissions" option from the system menu.   
2. The system displays a list of users or roles to which permissions can be assigned.   
3. The Administrator selects the target user or role.   
4. The system shows a list of available permissions or allows the Administrator to search for specific permissions.   
5. The Administrator selects the permissions to be assigned.   
6. The Administrator confirms the permission assignment.   
7. The system writes the permission data to the Database System via the Permission Allocation System.   
8. The system sends a confirmation message to the Administrator.   
9. The system triggers the Email System to notify the affected user or user group.   
10. The use case is completed.   
  
Alternative Flow:   
1. If the selected user or role does not exist, the system displays an error message and prompts the Administrator to select a valid user or role.   
2. If the selected permissions are not available or invalid, the system displays an error message and allows the Administrator to reselect valid permissions.   
3. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
4. If the Email System fails to send the notification, the system logs the failure and allows the Administrator to manually retry the email sending.   
5. If the Administrator cancels the assignment, the system reverts to the user or role list without making any changes.  
  
Use Case Name: Modify Permission Settings   
Use Case ID: UC-12   
Actors: Administrator, Asset Management System, Permission Allocation System, Database System, Email System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and contains user and role records.   
3. The Permission Allocation System is configured and ready to modify permissions.   
4. The Email System is configured and ready to send notifications.   
5. There are existing permissions assigned to users or roles for modification.   
  
Postconditions:   
1. The specified permission settings are successfully updated in the Database System.   
2. The Administrator receives a confirmation message.   
3. An email notification is sent to the affected user or user group informing them of the permission changes.   
4. The system logs the permission modification for auditing purposes.   
  
Main Flow:   
1. The Administrator selects the "Modify Permission Settings" option from the system menu.   
2. The system displays a list of users or roles with their current permission settings.   
3. The Administrator selects the user or role whose permissions need to be modified.   
4. The system shows the current permissions assigned to the selected user or role.   
5. The Administrator selects which permissions to modify (e.g., add, remove, or change access levels).   
6. The Administrator confirms the changes.   
7. The system updates the permission settings in the Database System via the Permission Allocation System.   
8. The system sends a confirmation message to the Administrator.   
9. The system triggers the Email System to send a notification to the affected user or user group.   
10. The use case is completed.   
  
Alternative Flow:   
1. If the selected user or role does not have any permissions to modify, the system displays a warning message and prompts the Administrator to select a valid user or role.   
2. If the selected permissions are invalid or already assigned, the system displays an error message and allows the Administrator to correct the selection.   
3. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
4. If the Email System fails to send the notification, the system logs the failure and allows the Administrator to manually retry the email sending.   
5. If the Administrator cancels the modification request, the system reverts to the user or role list without making any changes.  
  
Use Case Name: Revoke Permissions   
Use Case ID: UC-13   
Actors: Administrator, Asset Management System, Permission Allocation System, Database System, Email System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and contains user and role records.   
3. The Permission Allocation System is configured and ready to revoke permissions.   
4. The Email System is configured and ready to send notifications.   
5. There are existing permissions assigned to users or roles that can be revoked.   
  
Postconditions:   
1. The specified permissions are successfully revoked from the user or role in the Database System.   
2. The Administrator receives a confirmation message.   
3. An email notification is sent to the affected user or user group informing them of the permission revocation.   
4. The system logs the permission revocation for auditing purposes.   
  
Main Flow:   
1. The Administrator selects the "Revoke Permissions" option from the system menu.   
2. The system displays a list of users or roles with their current permission settings.   
3. The Administrator selects the user or role from which permissions are to be revoked.   
4. The system shows the current permissions assigned to the selected user or role.   
5. The Administrator selects the permissions to be revoked.   
6. The Administrator confirms the revocation request.   
7. The system removes the selected permissions from the user or role in the Database System via the Permission Allocation System.   
8. The system sends a confirmation message to the Administrator.   
9. The system triggers the Email System to send a notification to the affected user or user group.   
10. The use case is completed.   
  
Alternative Flow:   
1. If the selected user or role does not have any permissions assigned, the system displays a warning message and prompts the Administrator to select a valid user or role.   
2. If the selected permissions are not currently assigned, the system displays an error message and allows the Administrator to correct the selection.   
3. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
4. If the Email System fails to send the notification, the system logs the failure and allows the Administrator to manually retry the email sending.   
5. If the Administrator cancels the revocation request, the system reverts to the user or role list without making any changes.  
  
Use Case Name: Send Email Notifications   
Use Case ID: UC-14   
Actors: Administrator, Asset Management System, Email System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Email System is configured and operational.   
3. There is a valid recipient (user or group) to whom the email notification is to be sent.   
4. The system has a message or content ready to be sent.   
  
Postconditions:   
1. The email notification is successfully sent to the designated recipient.   
2. The Administrator receives a confirmation message.   
3. The system logs the email sending action for auditing purposes.   
  
Main Flow:   
1. The Administrator selects the "Send Email Notifications" option from the system menu.   
2. The system prompts the Administrator to enter the recipient's email address or select a user/group from a list.   
3. The Administrator enters or selects the recipient.   
4. The system prompts the Administrator to enter the subject and message content of the email.   
5. The Administrator enters the subject and message and confirms the request.   
6. The system validates the email address and message content.   
7. The system triggers the Email System to send the notification.   
8. The system sends a confirmation message to the Administrator.   
9. The use case is completed.   
  
Alternative Flow:   
1. If the email address is invalid, the system displays an error message and prompts the Administrator to correct it.   
2. If the message content is empty or missing, the system displays an error message and prompts the Administrator to provide the message.   
3. If the Email System is unavailable, the system displays an error message and logs the issue for technical review.   
4. If the Administrator cancels the email sending request, the system returns to the previous menu without sending the email.  
  
Use Case Name: Receive Email Alerts   
Use Case ID: UC-15   
Actors: Administrator, Asset Management System, Email System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Email System is configured and operational.   
3. The system has at least one alert or event configured to trigger email notifications.   
4. The Administrator has specified email preferences or alert settings.   
  
Postconditions:   
1. The Administrator receives an email alert for the triggered event.   
2. The system logs the email alert sending action for auditing purposes.   
3. The email is delivered to the correct recipient as per the Administrator's preferences.   
  
Main Flow:   
1. The system detects an event or alert based on predefined conditions (e.g., asset status change, report generation, permission modification).   
2. The system determines that an email notification is required for the detected event.   
3. The system prepares the email content, including details of the event and any relevant actions.   
4. The system triggers the Email System to send the alert notification to the Administrator.   
5. The Email System sends the email to the designated recipient.   
6. The system logs the successful delivery of the email alert.   
7. The use case is completed.   
  
Alternative Flow:   
1. If the Email System is unavailable, the system logs the failure and displays an error message to the Administrator.   
2. If the Administrator's email preferences are not configured or are invalid, the system displays a warning and prompts the Administrator to update their preferences.   
3. If the email sending fails due to invalid recipient address or system error, the system logs the failure and allows the Administrator to manually retry sending the email.   
4. If no alert conditions are met, the system takes no action and the use case is terminated.  
  
Use Case Name: Connect to Database   
Use Case ID: UC-01   
Actors: Administrator, Asset Management System, Database System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and operational.   
3. The system is configured to connect to the Database System using valid credentials.   
  
Postconditions:   
1. A successful connection is established with the Database System.   
2. The Administrator receives a confirmation message.   
3. The system logs the connection event for auditing purposes.   
  
Main Flow:   
1. The Administrator selects the "Connect to Database" option from the system menu.   
2. The system prompts the Administrator to enter the database connection details (e.g., host, username, password, database name).   
3. The Administrator enters the required connection information and confirms the request.   
4. The system validates the connection details.   
5. The system attempts to establish a connection with the Database System using the provided credentials.   
6. The system confirms the successful connection and displays a message to the Administrator.   
7. The use case is completed.   
  
Alternative Flow:   
1. If the connection details are invalid or incomplete, the system displays an error message and prompts the Administrator to correct the information.   
2. If the Database System is unreachable or the connection fails, the system displays an error message and logs the issue for technical review.   
3. If the Administrator cancels the connection request, the system returns to the previous menu without attempting to connect.  
  
Use Case Name: Update Database Records   
Use Case ID: UC-16   
Actors: Administrator, Asset Management System, Database System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and operational.   
3. There are existing records in the Database System that need to be updated.   
  
Postconditions:   
1. The specified database records are successfully updated.   
2. The Administrator receives a confirmation message.   
3. The system logs the update action for auditing purposes.   
  
Main Flow:   
1. The Administrator selects the "Update Database Records" option from the system menu.   
2. The system displays a list of database records or allows the Administrator to search for specific records.   
3. The Administrator selects the record to be updated.   
4. The system shows the current data of the selected record in an editable form.   
5. The Administrator modifies the required fields and submits the form.   
6. The system validates the updated data.   
7. The system updates the record in the Database System.   
8. The system sends a confirmation message to the Administrator.   
9. The use case is completed.   
  
Alternative Flow:   
1. If the selected record does not exist, the system displays an error message and prompts the Administrator to select a valid record.   
2. If the updated data is invalid (e.g., incorrect format or missing required fields), the system displays an error message and prompts the Administrator to correct the data.   
3. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
4. If the Administrator cancels the update request, the system reverts to the record list without making any changes.  
  
Use Case Name: View Asset Audit Logs   
Use Case ID: UC-17   
Actors: Administrator, Asset Management System, Database System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and operational.   
3. Audit logs for assets exist in the Database System.   
  
Postconditions:   
1. The Administrator is presented with the requested asset audit logs.   
2. The system maintains the integrity and security of the audit data during retrieval.   
3. The audit logs are displayed in a clear and organized format.   
  
Main Flow:   
1. The Administrator selects the "View Asset Audit Logs" option from the system menu.   
2. The system prompts the Administrator to enter an asset identifier or select an asset from a list.   
3. The Administrator provides the asset identifier or selects an asset.   
4. The system queries the Database System for the audit logs associated with the selected asset.   
5. The system retrieves the audit log data and displays it to the Administrator.   
6. The use case is completed.   
  
Alternative Flow:   
1. If the asset identifier is invalid or the asset does not exist, the system displays an error message and prompts the Administrator to provide a valid identifier.   
2. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
3. If no audit logs exist for the selected asset, the system informs the Administrator and suggests generating logs or selecting another asset.   
4. If the Administrator cancels the request, the system returns to the previous menu without retrieving the audit logs.  
  
Use Case Name: Manage Administrator Accounts   
Use Case ID: UC-18   
Actors: Administrator, Asset Management System, Database System, Email System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and operational.   
3. The Email System is configured and ready to send notifications.   
4. The system contains at least one administrator account for management.   
  
Postconditions:   
1. The administrator account is successfully created, modified, or deleted in the Database System.   
2. The Administrator receives a confirmation message for the performed action.   
3. An email notification is sent to the affected administrator (if applicable).   
4. The system logs the account management action for auditing purposes.   
  
Main Flow:   
1. The Administrator selects the "Manage Administrator Accounts" option from the system menu.   
2. The system displays a list of existing administrator accounts with basic details (e.g., username, role, status).   
3. The Administrator selects an action (e.g., create, modify, delete) for an account.   
4. If creating, the system prompts the Administrator to enter new account details (e.g., username, password, role).   
5. If modifying or deleting, the system shows the current account details and prompts for confirmation.   
6. The Administrator confirms the selected action.   
7. The system validates the input data (if applicable).   
8. The system updates the Database System with the new or modified account information.   
9. If the action is a deletion, the system removes the account record from the Database System.   
10. The system sends a confirmation message to the Administrator.   
11. If the action involves a new or modified account, the system triggers the Email System to notify the affected administrator.   
12. The use case is completed.   
  
Alternative Flow:   
1. If the input data is invalid (e.g., missing fields or duplicate username), the system displays an error message and prompts the Administrator to correct the data.   
2. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
3. If the Email System fails to send the notification, the system logs the failure and allows the Administrator to manually retry the email sending.   
4. If the Administrator cancels the account management action, the system reverts to the account list without making any changes.  
  
Use Case Name: View Asset Audit Logs   
Use Case ID: UC-17   
Actors: Administrator, Asset Management System, Database System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and operational.   
3. Audit logs for assets exist in the Database System.   
  
Postconditions:   
1. The Administrator is presented with the requested asset audit logs.   
2. The system maintains the integrity and security of the audit data during retrieval.   
3. The audit logs are displayed in a clear and organized format.   
  
Main Flow:   
1. The Administrator selects the "View Asset Audit Logs" option from the system menu.   
2. The system prompts the Administrator to enter an asset identifier or select an asset from a list.   
3. The Administrator provides the asset identifier or selects an asset.   
4. The system queries the Database System for the audit logs associated with the selected asset.   
5. The system retrieves the audit log data and displays it to the Administrator.   
6. The use case is completed.   
  
Alternative Flow:   
1. If the asset identifier is invalid or the asset does not exist, the system displays an error message and prompts the Administrator to provide a valid identifier.   
2. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
3. If no audit logs exist for the selected asset, the system informs the Administrator and suggests generating logs or selecting another asset.   
4. If the Administrator cancels the request, the system returns to the previous menu without retrieving the audit logs.  
  
Use Case Name: Manage Usage Log   
Use Case ID: UC-19   
Actors: Administrator, Asset Management System, Database System, Email System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and contains usage log records.   
3. The Email System is configured and ready to send notifications (if applicable).   
  
Postconditions:   
1. The usage log records are successfully created, modified, or deleted in the Database System.   
2. The Administrator receives a confirmation message for the performed action.   
3. An email notification is sent to the affected user or user group (if applicable).   
4. The system logs the usage log management action for auditing purposes.   
  
Main Flow:   
1. The Administrator selects the "Manage Usage Log" option from the system menu.   
2. The system displays a list of available actions: create usage log, modify usage log, or delete usage log.   
3. The Administrator selects an action to perform.   
4. If creating a usage log:   
 a. The system prompts the Administrator to enter relevant details (e.g., asset identifier, user, activity, timestamp).   
 b. The Administrator enters the required information and confirms the request.   
 c. The system validates the input data.   
 d. The system writes the usage log record to the Database System.   
 e. The system sends a confirmation message to the Administrator.   
 f. The system optionally triggers the Email System to notify the relevant user or group.   
5. If modifying a usage log:   
 a. The system displays a list of existing usage logs.   
 b. The Administrator selects the log to be modified.   
 c. The system shows the current log details in an editable form.   
 d. The Administrator modifies the required fields and submits the form.   
 e. The system validates the updated data.   
 f. The system updates the usage log in the Database System.   
 g. The system sends a confirmation message to the Administrator.   
 h. The system optionally triggers the Email System to notify the relevant user or group.   
6. If deleting a usage log:   
 a. The system displays a list of existing usage logs.   
 b. The Administrator selects the log to be deleted.   
 c. The system prompts the Administrator for confirmation of the deletion.   
 d. The Administrator confirms the deletion request.   
 e. The system removes the selected usage log from the Database System.   
 f. The system sends a confirmation message to the Administrator.   
 g. The system optionally triggers the Email System to notify the relevant user or group.   
7. The use case is completed.   
  
Alternative Flow:   
1. If the input data is invalid (e.g., missing required fields or incorrect format), the system displays an error message and prompts the Administrator to correct the data.   
2. If the selected usage log does not exist, the system displays an error message and prompts the Administrator to select a valid log.   
3. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
4. If the Email System fails to send the notification, the system logs the failure and allows the Administrator to manually retry the email sending.   
5. If the Administrator cancels the action, the system reverts to the usage log list without making any changes.  
  
Use Case Name: Manage Asset Usage   
Use Case ID: UC-20   
Actors: Administrator, Asset Management System, Database System, Email System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and operational.   
3. The Email System is configured and ready to send notifications.   
4. There is at least one asset in the system with usage records.   
  
Postconditions:   
1. The asset usage is effectively managed (e.g., added, modified, or removed) in the Database System.   
2. The Administrator receives a confirmation message for the performed action.   
3. An email notification is sent to the relevant user or user group (if applicable) informing them of the change in asset usage.   
4. The system logs the usage management action for auditing purposes.   
  
Main Flow:   
1. The Administrator selects the "Manage Asset Usage" option from the system menu.   
2. The system displays a list of assets along with their current usage status and history.   
3. The Administrator selects an asset for which usage management is required.   
4. The system presents options to add a new usage record, modify an existing one, or delete a usage record.   
5. The Administrator selects the desired action.   
6. If adding a new usage record:   
 a. The system opens a form for entering usage details (e.g., user, activity, start and end time).   
 b. The Administrator fills in the form and submits it.   
 c. The system validates the input data.   
 d. The system writes the new usage record to the Database System.   
 e. The system sends a confirmation message to the Administrator.   
 f. The system optionally triggers the Email System to notify the relevant user or group.   
7. If modifying an existing usage record:   
 a. The system displays the selected usage record in an editable form.   
 b. The Administrator updates the necessary details and confirms the change.   
 c. The system validates the updated data.   
 d. The system updates the usage record in the Database System.   
 e. The system sends a confirmation message to the Administrator.   
 f. The system optionally triggers the Email System to notify the relevant user or group.   
8. If deleting a usage record:   
 a. The system displays the selected usage record and prompts the Administrator for confirmation.   
 b. The Administrator confirms the deletion.   
 c. The system removes the usage record from the Database System.   
 d. The system sends a confirmation message to the Administrator.   
 e. The system optionally triggers the Email System to notify the relevant user or group.   
9. The use case is completed.   
  
Alternative Flow:   
1. If the selected asset does not have any usage records, the system displays a warning message and prompts the Administrator to select an asset with usage data.   
2. If the input data is invalid (e.g., missing fields or incorrect format), the system displays an error message and prompts the Administrator to correct the data.   
3. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
4. If the Email System fails to send the notification, the system logs the failure and allows the Administrator to manually retry the email sending.   
5. If the Administrator cancels the action, the system returns to the asset usage list without making any changes.  
  
Use Case Name: Manage Report Analysis   
Use Case ID: UC-21   
Actors: Administrator, Asset Management System, Report Analysis System, Database System, Email System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and contains asset usage or management reports.   
3. The Report Analysis System is configured and ready to process report data.   
4. The Email System is configured and ready to send notifications (if applicable).   
5. The system has at least one report available for analysis or modification.   
  
Postconditions:   
1. The report analysis configuration is successfully created, modified, or deleted in the Database System.   
2. The Administrator receives a confirmation message for the performed action.   
3. An email notification is sent to the affected user or user group (if applicable) informing them of the changes in report analysis settings.   
4. The system logs the report analysis management action for auditing purposes.   
  
Main Flow:   
1. The Administrator selects the "Manage Report Analysis" option from the system menu.   
2. The system displays a list of existing report analysis configurations (e.g., report types, analysis parameters, frequency, recipients).   
3. The Administrator selects an action to perform: create, modify, or delete a report analysis configuration.   
4. If creating a report analysis configuration:   
 a. The system prompts the Administrator to select a report type (e.g., daily usage report, asset efficiency report).   
 b. The Administrator enters analysis parameters (e.g., frequency, filters, recipients).   
 c. The Administrator confirms the new configuration.   
 d. The system validates the input data.   
 e. The system writes the new report analysis configuration to the Database System.   
 f. The system sends a confirmation message to the Administrator.   
 g. The system optionally triggers the Email System to notify the relevant user or group.   
5. If modifying a report analysis configuration:   
 a. The system displays the selected report analysis configuration in an editable form.   
 b. The Administrator modifies the necessary parameters (e.g., frequency, filters, recipients).   
 c. The Administrator confirms the changes.   
 d. The system validates the updated data.   
 e. The system updates the report analysis configuration in the Database System.   
 f. The system sends a confirmation message to the Administrator.   
 g. The system optionally triggers the Email System to notify the relevant user or group.   
6. If deleting a report analysis configuration:   
 a. The system displays the selected configuration and prompts the Administrator for confirmation.   
 b. The Administrator confirms the deletion request.   
 c. The system removes the report analysis configuration from the Database System.   
 d. The system sends a confirmation message to the Administrator.   
 e. The system optionally triggers the Email System to notify the relevant user or group.   
7. The use case is completed.   
  
Alternative Flow:   
1. If the selected report analysis configuration does not exist, the system displays an error message and prompts the Administrator to select a valid configuration.   
2. If the input data is invalid (e.g., missing required fields or incorrect format), the system displays an error message and prompts the Administrator to correct the data.   
3. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
4. If the Email System fails to send the notification, the system logs the failure and allows the Administrator to manually retry the email sending.   
5. If the Administrator cancels the action, the system reverts to the report analysis configuration list without making any changes.  
  
Use Case Name: View Permission Allocation   
Use Case ID: UC-22   
Actors: Administrator, Asset Management System, Permission Allocation System, Database System   
  
Preconditions:   
1. The Administrator is authenticated and logged into the system.   
2. The Database System is accessible and operational.   
3. The Permission Allocation System is configured and ready to retrieve permission data.   
4. There are existing permission allocation records in the Database System.   
  
Postconditions:   
1. The Administrator is presented with the current permission allocation details for users or roles.   
2. The system maintains the integrity and security of the permission data during retrieval.   
3. The permission allocation data is displayed in a clear and organized format.   
4. The system logs the retrieval action for auditing purposes.   
  
Main Flow:   
1. The Administrator selects the "View Permission Allocation" option from the system menu.   
2. The system displays a list of users or roles for which permission allocations can be viewed.   
3. The Administrator selects a user or role to review their permissions.   
4. The system queries the Database System for the permission allocation data associated with the selected user or role.   
5. The system retrieves the data and transmits it to the Permission Allocation System for processing.   
6. The Permission Allocation System formats and presents the permission details (e.g., access levels, assigned functions, restrictions).   
7. The system displays the permission allocation information to the Administrator.   
8. The use case is completed.   
  
Alternative Flow:   
1. If the selected user or role does not exist, the system displays an error message and prompts the Administrator to select a valid user or role.   
2. If the Database System is unavailable, the system displays an error message and logs the issue for technical review.   
3. If no permission allocation records are found for the selected user or role, the system informs the Administrator and suggests checking other users or roles.   
4. If the Administrator cancels the request, the system returns to the previous menu without retrieving the permission allocation data.