# 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 details such as name, description, category, and department. The system generates a unique asset ID and stores the asset record.   
Input: Asset details including name, description, category, and department.   
Output: New asset record with a unique AssetID stored in the database.  
  
## 1.2 Asset Categorization Function   
Function ID: FR-02   
Description: Administrators can create and manage asset categories to classify assets. A unique category ID is generated and stored.   
Input: Category details including name, description, and relevant attributes.   
Output: New or updated AssetCategory record with a unique CategoryID stored in the database.  
  
## 1.3 Asset Allocation Function   
Function ID: FR-03   
Description: Administrators can allocate an asset to a specific user, specifying the allocation date and any additional notes. A record is stored in the system.   
Input: Asset and user selection, allocation date, and notes.   
Output: Updated Asset and UsageRecord entries, along with a PermissionAssignment record in the database.  
  
## 1.4 Asset Usage Tracking Function   
Function ID: FR-04   
Description: Administrators can record the usage of an asset by a user, including usage dates, activity type, and notes.   
Input: Selected asset and user, usage start and end times, activity type, and notes.   
Output: New UsageRecord entry stored in the database, with an AuditLog generated.  
  
## 1.5 Asset Return Function   
Function ID: FR-05   
Description: Administrators can process the return of an allocated asset. The system updates the asset status and closes or updates the usage record.   
Input: Selected asset and return confirmation with notes.   
Output: Updated Asset and UsageRecord entries, with an AuditLog generated.  
  
## 1.6 Asset Disposal Function   
Function ID: FR-06   
Description: Administrators can mark an asset as disposed, updating its status and recording the disposal action.   
Input: Selected asset and disposal confirmation with notes.   
Output: Updated Asset record with a Disposed status and an AuditLog generated.  
  
## 1.7 View Asset Information Function   
Function ID: FR-07   
Description: Administrators can view the details of a registered asset, including its category, department, status, and usage history.   
Input: Selected asset ID or name.   
Output: Displayed asset details retrieved from the database.  
  
## 1.8 Modify Asset Details Function   
Function ID: FR-08   
Description: Administrators can update the information of an asset, such as name, description, or department.   
Input: Selected asset and updated information fields.   
Output: Updated Asset record in the database, with an AuditLog generated.  
  
## 1.9 Manage Asset Inventory Function   
Function ID: FR-09   
Description: Administrators can manage the inventory of assets by adding, removing, or modifying quantity, location, and last updated time.   
Input: Selected asset and inventory action (add, remove, or modify).   
Output: Updated AssetInventory record in the database, with an AuditLog generated.  
  
## 1.10 View Usage Records Function   
Function ID: FR-10   
Description: Administrators can view the usage history of an asset, including all associated UsageRecord entries.   
Input: Selected asset ID or name.   
Output: Displayed list of usage records retrieved from the database.  
  
## 1.11 Generate Usage Report Function   
Function ID: FR-11   
Description: Administrators can generate reports based on usage records, filtered by date range, user, or asset category.   
Input: Date range, user, or asset category for report filtering.   
Output: Formatted usage report displayed or downloaded by the Administrator.  
  
## 1.12 View Audit Logs Function   
Function ID: FR-12   
Description: Administrators can view all audit logs, including timestamp, action, and affected entity.   
Input: Filtering criteria such as date range, user, or action type.   
Output: Displayed list of audit logs retrieved from the database.  
  
## 1.13 Export Audit Logs Function   
Function ID: FR-13   
Description: Administrators can export audit logs in a selected format (e.g., CSV, PDF) based on filtering criteria.   
Input: Filtering criteria and selected export format.   
Output: Exported audit logs in the selected format, with an AuditLog entry for the export action.  
  
## 1.14 Send Email Notifications Function   
Function ID: FR-14   
Description: The system automatically sends email notifications to users and administrators based on predefined events.   
Input: Event details (e.g., asset allocation, return, or disposal) and recipient email address.   
Output: EmailNotification record stored in the database, and an email sent to the recipient.  
  
## 1.15 Configure Email Settings Function   
Function ID: FR-15   
Description: Administrators can configure the system's email notification settings, including SMTP host, port, and sender email.   
Input: Email server configuration details (e.g., SMTP host, port, authentication credentials, and sender email).   
Output: Updated EmailNotification settings stored in the database, with an AuditLog generated.  
  
## 1.16 Assign Permissions Function   
Function ID: FR-16   
Description: Administrators can assign specific permissions to users for managing assets.   
Input: Selected user and one or more permissions to assign.   
Output: Updated PermissionAssignment record in the database, with an AuditLog generated.  
  
## 1.17 Revoke Permissions Function   
Function ID: FR-17   
Description: Administrators can revoke previously assigned permissions from users.   
Input: Selected user and one or more permissions to revoke.   
Output: Updated PermissionAssignment record in the database, with an AuditLog generated.  
  
## 1.18 View Permission Settings Function   
Function ID: FR-18   
Description: Administrators can view the permission assignments for a selected user.   
Input: Selected user ID or name.   
Output: Displayed list of assigned permissions retrieved from the database.  
  
## 1.19 Manage Permission Assignment Function   
Function ID: FR-19   
Description: Administrators can manage permission assignments, including assigning, revoking, or modifying permissions for users.   
Input: Selected user and action (assign, revoke, or modify).   
Output: Updated PermissionAssignment record in the database, with an AuditLog generated.  
  
## 1.20 User Registration Function   
Function ID: FR-20   
Description: Administrators can register new users in the system by providing details such as name, email, department, and role.   
Input: User details including name, email, department, and role.   
Output: New User record with a unique UserID stored in the database.  
  
## 1.21 User Login Function   
Function ID: FR-21   
Description: Users can log in to the system using their username and password. The system verifies credentials and creates a session.   
Input: Username and password.   
Output: Authenticated session for the user with a redirect to the appropriate dashboard.  
  
## 1.22 Department Setup Function   
Function ID: FR-22   
Description: Administrators can create new departments in the system by providing details such as name, description, and manager.   
Input: Department details including name, description, and manager information.   
Output: New Department record with a unique DepartmentID stored in the database.  
  
## 1.23 Update Department Information Function   
Function ID: FR-23   
Description: Administrators can update the information of an existing department, including name, description, and manager.   
Input: Selected department and updated information fields.   
Output: Updated Department record in the database, with an AuditLog generated.  
  
## 1.24 Delete Department Function   
Function ID: FR-24   
Description: Administrators can delete a department from the system, provided it has no associated assets or users.   
Input: Selected department and deletion confirmation.   
Output: Deleted Department record from the database, with an AuditLog generated.  
  
## 1.25 Manage Asset Status Function   
Function ID: FR-25   
Description: Administrators can update the status of an asset (e.g., Active, Inactive, Maintenance, Disposed, Allocated).   
Input: Selected asset and new status.   
Output: Updated Asset and AssetStatus records in the database, with an AuditLog generated.  
  
## 1.26 View Asset Status Function   
Function ID: FR-26   
Description: Administrators can view the current status of an asset, including the timestamp of the last status change and any related notes.   
Input: Selected asset ID or name.   
Output: Displayed asset status and related information retrieved from the database.  
  
## 1.27 Manage Usage Record Function   
Function ID: FR-27   
Description: Administrators can update or delete an existing usage record.   
Input: Selected usage record and modification or deletion request.   
Output: Updated or deleted UsageRecord entry in the database, with an AuditLog generated.