# Functional Requirement

1. Functional Requirements   
  
1.1 Asset Registration Function   
 Function ID: FR-01   
 Description: Allow authenticated users to register new assets with necessary details, which requires administrator approval before being stored in the database.   
 Input: Asset information (e.g., asset name, type, description, location, owner, and other relevant details).   
 Output: Asset record stored in the database and an audit log entry created.   
  
1.2 Asset Validation Function   
 Function ID: FR-02   
 Description: Validate the input data for completeness and correctness during asset registration or modification.   
 Input: User-submitted asset data.   
 Output: Validation result (success or error message with details to correct).   
  
1.3 Asset Approval Request Function   
 Function ID: FR-03   
 Description: Automatically request administrator approval for asset registration or modification if the system requires it.   
 Input: Validated asset data and action type (register or modify).   
 Output: Approval request sent to the administrator for review.   
  
1.4 Administrator Approval Function   
 Function ID: FR-04   
 Description: Allow administrators to approve or reject asset registration or modification requests.   
 Input: Pending approval request details.   
 Output: Updated approval status in the database.   
  
1.5 Asset Storage Function   
 Function ID: FR-05   
 Description: Store approved asset data in the database and maintain the integrity of the asset records.   
 Input: Approved asset data and its associated metadata.   
 Output: Asset record stored in the database.   
  
1.6 Asset Retrieval Function   
 Function ID: FR-06   
 Description: Retrieve asset records from the database for viewing or modifying.   
 Input: Asset identifier (e.g., asset ID, name, or search criteria).   
 Output: Retrieved asset record with its associated details.   
  
1.7 Asset Modification Function   
 Function ID: FR-07   
 Description: Allow authenticated users to modify existing asset records, which requires administrator approval.   
 Input: Asset identifier and updated asset data.   
 Output: Updated asset record in the database and audit log entry.   
  
1.8 Asset Deletion Function   
 Function ID: FR-08   
 Description: Allow authenticated users to request the deletion of an asset record, which requires administrator approval.   
 Input: Asset identifier and confirmation of deletion.   
 Output: Deleted asset record from the database and audit log entry.   
  
1.9 Asset Usage Recording Function   
 Function ID: FR-09   
 Description: Allow users to record usage of an asset, including time, purpose, and other details, which may require approval depending on configuration.   
 Input: Asset identifier, usage details (start time, end time, quantity, purpose).   
 Output: Usage record stored in the database and audit log entry.   
  
1.10 Usage Approval Request Function   
 Function ID: FR-10   
 Description: Automatically request administrator approval for asset usage if the permission approval workflow is enabled.   
 Input: Usage details and asset identifier.   
 Output: Usage approval request sent to the administrator.   
  
1.11 Usage Approval Decision Function   
 Function ID: FR-11   
 Description: Allow administrators to approve or reject asset usage requests.   
 Input: Pending usage request details.   
 Output: Updated usage record status in the database.   
  
1.12 Asset Report Generation Function   
 Function ID: FR-12   
 Description: Allow authenticated users to generate reports based on asset data, including filters and time ranges.   
 Input: Report type, time range, and optional filters (e.g., asset category, location, status).   
 Output: Generated report in the selected format (e.g., PDF, Excel).   
  
1.13 Report Validation Function   
 Function ID: FR-13   
 Description: Validate the report request to ensure the required data is available and the user has the appropriate permissions.   
 Input: Report request parameters.   
 Output: Validation result (success or error message with details to correct).   
  
1.14 Report Export Function   
 Function ID: FR-14   
 Description: Export the generated report in the selected format for download or email delivery.   
 Input: Generated report data and export format.   
 Output: Export file available for download or sent via email.   
  
1.15 Audit Log Recording Function   
 Function ID: FR-15   
 Description: Log all system actions (e.g., asset registration, modification, deletion, and report generation) in the audit log for traceability.   
 Input: Action details (actor, action type, timestamp, asset identifier, etc.).   
 Output: Audit log entry stored in the database.   
  
1.16 Authentication Log Recording Function   
 Function ID: FR-16   
 Description: Log all authentication-related events (e.g., login, unauthorized access attempts) for security monitoring.   
 Input: Authentication event details (actor, action type, timestamp, status).   
 Output: Authentication log entry stored in the database.   
  
1.17 Email Notification Function   
 Function ID: FR-17   
 Description: Send email notifications to users and administrators for various system events, such as asset registration, approval decisions, and report readiness.   
 Input: Recipient’s email address, message content, and event details.   
 Output: Email notification sent to the recipient or logged as a failure in the audit log.   
  
1.18 Permission Assignment Function   
 Function ID: FR-18   
 Description: Allow administrators to assign or modify user permissions for accessing and managing asset data.   
 Input: User identifier and permission details (e.g., view, modify, delete, report generation).   
 Output: Updated permission record in the database and audit log entry.   
  
1.19 Permission Approval Request Function   
 Function ID: FR-19   
 Description: Automatically request approval for permission assignment or modification if the permission approval workflow is enabled.   
 Input: Permission request details and user identifier.   
 Output: Approval request sent to the administrator for review.   
  
1.20 Permission Approval Decision Function   
 Function ID: FR-20   
 Description: Allow administrators to approve or reject permission assignment or modification requests.   
 Input: Pending permission request details.   
 Output: Updated permission status in the database.   
  
1.21 User Registration Function   
 Function ID: FR-21   
 Description: Allow administrators to register new users in the system with required details such as username, password, and role.   
 Input: User information (e.g., username, password, role, contact details).   
 Output: New user record stored in the database and audit log entry.   
  
1.22 User Account Management Function   
 Function ID: FR-22   
 Description: Allow administrators to create, modify, or delete user accounts in the system.   
 Input: User identifier and account action (create, modify, or delete).   
 Output: Updated user account status in the database and audit log entry.   
  
1.23 Data Import Function   
 Function ID: FR-23   
 Description: Allow users to import asset data from external files (e.g., CSV, Excel) into the system, which may require administrator approval.   
 Input: Source file (e.g., CSV, Excel) with asset data.   
 Output: Asset records stored in the database and audit log entry.   
  
1.24 Data Export Function   
 Function ID: FR-24   
 Description: Allow users to export asset data in various formats (e.g., CSV, Excel, PDF) based on specified criteria.   
 Input: Export format and optional filters (e.g., asset type, location, status).   
 Output: Export file generated and available for download or email delivery.   
  
1.25 Asset Category Management Function   
 Function ID: FR-25   
 Description: Allow administrators to manage asset categories, including creating, modifying, and deleting categories.   
 Input: Asset category identifier and action (create, modify, delete).   
 Output: Updated asset category record in the database and audit log entry.   
  
1.26 Location Management Function   
 Function ID: FR-26   
 Description: Allow administrators to manage asset locations, including creating, modifying, and deleting locations.   
 Input: Location identifier and action (create, modify, delete).   
 Output: Updated location record in the database and audit log entry.   
  
1.27 Asset Transfer Record Management Function   
 Function ID: FR-27   
 Description: Allow administrators or authorized users to create, modify, or delete asset transfer records.   
 Input: Transfer record identifier and action (create, modify, delete).   
 Output: Updated asset transfer record in the database and audit log entry.   
  
1.28 Asset Maintenance Record Management Function   
 Function ID: FR-28   
 Description: Allow administrators or authorized users to create, modify, or delete asset maintenance records.   
 Input: Maintenance record identifier and action (create, modify, delete).   
 Output: Updated asset maintenance record in the database and audit log entry.