# Functional Requirement

### 1.1 Asset Registration Function

\*\*Function Number: FR-01\*\*

\*\*Description:\*\* Users or administrators can register new asset information. The system needs to verify the data format and completeness, update the asset status to "Registered," and record the operation log.

\*\*Input:\*\* Asset name, asset type (AssetCategory), affiliated department (Department), purchase date, value, supplier (Supplier), status (AssetStatus), tag information (AssetTag), and other fields.

\*\*Output:\*\* Asset entity record in the database, operation log record (OperationLog), asset status updated to "Registered."

### 1.2 Asset Transfer Function

\*\*Function Number: FR-02\*\*

\*\*Description:\*\* Users or administrators can transfer registered assets from one department to another. The system needs to verify permissions and data integrity, and submit an approval process according to the configuration. After approval, the asset status is updated to "Transferred."

\*\*Input:\*\* Target asset ID, current affiliated department, target department, reason for transfer, and other fields.

\*\*Output:\*\* Update of the department field in the Asset entity in the database, operation log record (OperationLog), submission or status update of the approval task (ApprovalTask).

### 1.3 Asset Return Function

\*\*Function Number: FR-03\*\*

\*\*Description:\*\* Users or administrators can return borrowed assets. The system needs to verify permissions and data integrity, and submit an approval process according to the configuration. After approval, the asset status is updated to "Returned."

\*\*Input:\*\* Target asset ID, return time, returner, receiver, reason for return, and other fields.

\*\*Output:\*\* Update of the Asset entity status in the database to "Returned," operation log record (OperationLog), submission or status update of the approval task (ApprovalTask).

### 1.4 Asset Status Change Function

\*\*Function Number: FR-04\*\*

\*\*Description:\*\* Users or administrators can change the status of assets. The system needs to verify permissions and data integrity, and submit an approval process according to the configuration. After approval, the asset status is updated.

\*\*Input:\*\* Target asset ID, current status, target status (e.g., "Scrapped," "Locked," "Available"), reason for change, and other fields.

\*\*Output:\*\* Update of the Asset entity status in the database, operation log record (OperationLog), submission or status update of the approval task (ApprovalTask).

### 1.5 Asset Scrapping Approval Function

\*\*Function Number: FR-05\*\*

\*\*Description:\*\* Users or administrators can apply for asset scrapping. The system needs to verify permissions and data integrity, and submit an approval process according to the configuration. After approval, the asset status is updated to "Scrapped."

\*\*Input:\*\* Target asset ID, reason for scrapping, applicant, approval process (ApprovalFlow) configuration, and other fields.

\*\*Output:\*\* Update of the Asset entity status in the database to "Scrapped," operation log record (OperationLog), submission or status update of the approval task (ApprovalTask).

### 1.6 User Registration Function

\*\*Function Number: FR-06\*\*

\*\*Description:\*\* Users can register new accounts. The system needs to verify the uniqueness of the username and data format, and submit an approval process according to the configuration. After approval, the user status is updated to "Registered."

\*\*Input:\*\* Username, password, confirm password, name, affiliated department (Department), contact information, and other fields.

\*\*Output:\*\* User entity record in the database, operation log record (OperationLog), submission or status update of the approval task (ApprovalTask).

### 1.7 User Permission Allocation Function

\*\*Function Number: FR-07\*\*

\*\*Description:\*\* Administrators can allocate or modify user permissions. The system needs to verify administrator permissions and submit an approval process according to the configuration. After approval, user permissions are updated.

\*\*Input:\*\* Target user ID, permission (Permission) set, data access permissions, department permissions, and other fields.

\*\*Output:\*\* Update of the permission fields in the User entity in the database, operation log record (OperationLog), submission or status update of the approval task (ApprovalTask).

### 1.8 User Information Modification Function

\*\*Function Number: FR-08\*\*

\*\*Description:\*\* Users or administrators can modify basic user information. The system needs to verify permissions and data integrity, and save the updated user information.

\*\*Input:\*\* User ID, name, affiliated department (Department), contact information, and other fields.

\*\*Output:\*\* Update of the User entity information in the database, operation log record (OperationLog).

### 1.9 Department Creation Function

\*\*Function Number: FR-09\*\*

\*\*Description:\*\* Administrators can create new departments. The system needs to verify the uniqueness of the department ID and data integrity, and save the new department information.

\*\*Input:\*\* Department name, department ID, parent department (Department), head, contact information, and other fields.

\*\*Output:\*\* Department entity record in the database, operation log record (OperationLog).

### 1.10 Department Information Maintenance Function

\*\*Function Number: FR-10\*\*

\*\*Description:\*\* Administrators can edit or delete department information. The system needs to verify permissions and whether the department is referenced by assets or other data, and update the department information.

\*\*Input:\*\* Target department ID, department name, department ID, parent department (Department), head, contact information, and other fields.

\*\*Output:\*\* Update or deletion of the Department entity information in the database, operation log record (OperationLog).

### 1.11 Asset Query Function

\*\*Function Number: FR-11\*\*

\*\*Description:\*\* Users or administrators can query asset information. The system needs to verify permissions and display the asset information list according to the filtering conditions.

\*\*Input:\*\* Asset name, asset type (AssetCategory), affiliated department (Department), asset status (AssetStatus), and other filtering conditions.

\*\*Output:\*\* Query result list of Asset entities in the database, operation log record (OperationLog).

### 1.12 Asset Report Generation Function

\*\*Function Number: FR-12\*\*

\*\*Description:\*\* Users or administrators can generate asset reports based on filtering conditions. The system needs to verify permissions and filtering conditions, and export the report file.

\*\*Input:\*\* Asset type (AssetCategory), affiliated department (Department), status (AssetStatus), time range, and other filtering conditions.

\*\*Output:\*\* Report file (Excel/PDF format), operation log record (OperationLog).

### 1.13 Operation Log Query Function

\*\*Function Number: FR-13\*\*

\*\*Description:\*\* Users or administrators can query system operation logs. The system needs to verify permissions and filtering conditions, and display the log records that meet the conditions.

\*\*Input:\*\* Operator (User), operation time, operation type, asset ID, and other filtering conditions.

\*\*Output:\*\* Query result list of OperationLog entities in the database, operation log record (OperationLog).

### 1.14 Approval Process Initiation Function

\*\*Function Number: FR-14\*\*

\*\*Description:\*\* Users or administrators can initiate approval processes. The system needs to verify permissions and data integrity, and submit the approval task.

\*\*Input:\*\* Approval business type, asset ID, reason for approval, applicant, and other fields.

\*\*Output:\*\* ApprovalTask entity record in the database, operation log record (OperationLog), approval task (ApprovalTask) status updated to "Pending Approval."

### 1.15 Approval Task Processing Function

\*\*Function Number: FR-15\*\*

\*\*Description:\*\* Users or administrators can process approval tasks. The system needs to verify permissions and approval information, and update the approval status.

\*\*Input:\*\* Approval task ID, approval result (approve/reject), approval comments (e.g., reason for rejection), and other fields.

\*\*Output:\*\* Update of the ApprovalTask entity status in the database, operation log record (OperationLog), update of related asset information.

### 1.16 Asset Import and Export Function

\*\*Function Number: FR-16\*\*

\*\*Description:\*\* Administrators can import or export asset data. The system needs to verify permissions and data format, and generate or download the report file.

\*\*Input:\*\* Excel file (format: .xlsx), including fields such as asset ID, name, type, status, affiliated department, etc.

\*\*Output:\*\* Update or creation of Asset entity records in the database, report file (Excel/PDF format), operation log record (OperationLog).

### 1.17 Permission Application and Approval Function

\*\*Function Number: FR-17\*\*

\*\*Description:\*\* Users can apply for permissions, and administrators can approve permission applications. The system needs to verify permissions and approval information, and update the permission status.

\*\*Input:\*\* User ID, permission type (Permission), application reason, affiliated department (Department), and other fields.

\*\*Output:\*\* Update of permissions in the User entity in the database, operation log record (OperationLog), submission or status update of the approval task (ApprovalTask).

### 1.18 Department Asset Statistics Function

\*\*Function Number: FR-18\*\*

\*\*Description:\*\* Users or administrators can perform asset statistics by department. The system needs to verify permissions and filtering conditions, and generate a statistical report.

\*\*Input:\*\* Department name (Department), statistical time range, asset type (AssetCategory), and other filtering conditions.

\*\*Output:\*\* Statistical report (Excel/PDF format), operation log record (OperationLog).

### 1.19 Asset Usage Record Viewing Function

\*\*Function Number: FR-19\*\*

\*\*Description:\*\* Users or administrators can view the usage records of assets. The system needs to verify permissions and display the borrowing, returning, and other historical records of assets.

\*\*Input:\*\* Asset ID, user (User), usage time, return time, and other fields.

\*\*Output:\*\* Query result list of asset usage records in the database, operation log record (OperationLog).

### 1.20 Asset Maintenance Registration Function

\*\*Function Number: FR-20\*\*

\*\*Description:\*\* Users or administrators can register asset maintenance information. The system needs to verify permissions and data integrity, and submit an approval process according to the configuration. After approval, the asset status is updated to "Under Maintenance."

\*\*Input:\*\* Asset ID, reason for maintenance, maintenance time, applicant, and other fields.

\*\*Output:\*\* MaintenanceRecord entity record in the database, Asset status updated to "Under Maintenance," operation log record (OperationLog), submission or status update of the approval task (ApprovalTask).

### 1.21 Asset Depreciation Calculation Function

\*\*Function Number: FR-21\*\*

\*\*Description:\*\* Users or administrators can calculate asset depreciation information. The system needs to verify permissions and data integrity, and submit an approval process according to the configuration. After approval, the asset value is updated.

\*\*Input:\*\* Asset ID, depreciation method, depreciation period, reason for depreciation, and other fields.

\*\*Output:\*\* Update of the value field in the Asset entity in the database, depreciation record (OperationLog), submission or status update of the approval task (ApprovalTask).

### 1.22 Asset Allocation Confirmation Function

\*\*Function Number: FR-22\*\*

\*\*Description:\*\* Users or administrators can confirm asset allocation. The system needs to verify permissions and data integrity, and submit an approval process according to the configuration. After approval, the asset status is updated to "Allocated."

\*\*Input:\*\* Asset ID, allocator (User), allocation time, reason for allocation, and other fields.

\*\*Output:\*\* Update of the Asset entity status in the database to "Allocated," operation log record (OperationLog), submission or status update of the approval task (ApprovalTask).

### 1.23 Asset Inventory Management Function

\*\*Function Number: FR-23\*\*

\*\*Description:\*\* Users or administrators can perform asset inventory. The system needs to verify permissions and filtering conditions, record the inventory results, and generate an inventory report.

\*\*Input:\*\* Asset ID, inventory time, inventory status (e.g., "Verified," "Missing," "Abnormal"), filtering conditions (e.g., department, asset type), and other fields.

\*\*Output:\*\* Update of the Asset entity status in the database, inventory record (OperationLog), inventory report (Excel/PDF format).

### 1.24 Asset History Traceability Function

\*\*Function Number: FR-24\*\*

\*\*Description:\*\* Users or administrators can view the historical operation records of assets. The system needs to verify permissions and display the registration, status change, maintenance, borrowing, returning, and other operation records of assets.

\*\*Input:\*\* Asset ID, operation type, operation time range, and other filtering conditions.

\*\*Output:\*\* Query result list of OperationLog entities in the database, operation log record (OperationLog).

### 1.25 Asset Category Maintenance Function

\*\*Function Number: FR-25\*\*

\*\*Description:\*\* Administrators can maintain asset category information. The system needs to verify permissions and update or create asset category records.

\*\*Input:\*\* Category name (AssetCategory), category ID, parent category, description, depreciation rules, maintenance cycle, and other fields.

\*\*Output:\*\* Update or creation of AssetCategory entity records in the database, operation log record (OperationLog).

### 1.26 Asset Tag Management Function

\*\*Function Number: FR-26\*\*

\*\*Description:\*\* Users or administrators can manage asset tags. The system needs to verify permissions and support tag binding and unbinding operations, while recording the operation log.

\*\*Input:\*\* Asset ID, tag type (AssetTag), tag content, operation type (bind/unbind), and other fields.

\*\*Output:\*\* Update or creation of AssetTag entity records in the database, operation log record (OperationLog), update of Asset status.

### 1.27 Asset Allocation Approval Function

\*\*Function Number: FR-27\*\*

\*\*Description:\*\* Users or administrators can apply for asset allocation. The system needs to verify permissions and data integrity, and submit an approval process according to the configuration. After approval, the asset's affiliated department is updated.

\*\*Input:\*\* Asset ID, reason for allocation, allocation time, applicant, target department (Department), and other fields.

\*\*Output:\*\* Update of the affiliated department in the Asset entity in the database, operation log record (OperationLog), submission or status update of the approval task (ApprovalTask).

### 1.28 Asset Value Assessment Function

\*\*Function Number: FR-28\*\*

\*\*Description:\*\* Users or administrators can perform asset value assessments. The system needs to verify permissions and data integrity, and submit an approval process according to the configuration. After approval, the asset value is updated.

\*\*Input:\*\* Asset ID, assessment method, assessment time, current value, reason for assessment, and other fields.

\*\*Output:\*\* Update of the value field in the Asset entity in the database, operation log record (OperationLog), submission or status update of the approval task (ApprovalTask).

### 1.29 Asset Damage Reporting Function

\*\*Function Number: FR-29\*\*

\*\*Description:\*\* Users or administrators can apply for asset damage reporting. The system needs to verify permissions and data integrity, and submit an approval process according to the configuration. After approval, the asset status is updated to "Reported as Damaged."

\*\*Input:\*\* Asset ID, reason for damage, damage time, applicant, and other fields.

\*\*Output:\*\* Update of the Asset entity status in the database to "Reported as Damaged," operation log record (OperationLog), submission or status update of the approval task (ApprovalTask).

### 1.30 System Permission Audit Function

\*\*Function Number: FR-30\*\*

\*\*Description:\*\* Administrators can audit the system permission allocation. The system needs to verify permissions and generate an audit report.

\*\*Input:\*\* User name, role name, permission type, department, and other filtering conditions.

\*\*Output:\*\* Permission audit report (Excel/PDF format), operation log record (OperationLog).

### 1.31 Multi-Dimensional Report Export Function

\*\*Function Number: FR-31\*\*

\*\*Description:\*\* Users or administrators can export asset reports based on multiple filtering conditions. The system needs to verify permissions and generate the report file.

\*\*Input:\*\* Asset type (AssetCategory), affiliated department (Department), status (AssetStatus), user (User), time range, and other fields.

\*\*Output:\*\* Report file (Excel/PDF format), operation log record (OperationLog).

### 1.32 Custom Approval Flow Configuration Function

\*\*Function Number: FR-32\*\*

\*\*Description:\*\* Administrators can configure custom approval processes. The system needs to verify permissions and save the approval flow configuration information.

\*\*Input:\*\* Approval flow name (ApprovalFlow), approval type, approval level, approval role or user (Role or User), approval rules, and other fields.

\*\*Output:\*\* ApprovalFlow entity record in the database, operation log record (OperationLog).

### 1.33 Department Merger and Split Function

\*\*Function Number: FR-33\*\*

\*\*Description:\*\* Administrators can merge or split departments. The system needs to verify permissions and update the affiliation information of departments and assets.

\*\*Input:\*\* Department ID, merger or split operation type, reason for operation, target department information, and other fields.

\*\*Output:\*\* Update of the Department entity in the database, update of the affiliated department in the Asset entity, operation log record (OperationLog), submission or status update of the approval task (ApprovalTask).

### 1.34 Batch Permission Grant Function

\*\*Function Number: FR-34\*\*

\*\*Description:\*\* Administrators can grant permissions to users in batches. The system needs to verify permissions and update user permission information.

\*\*Input:\*\* User filtering conditions (e.g., username, affiliated department, role), permission set (Permission), department permissions, and other fields.

\*\*Output:\*\* Update of permissions in the User entity in the database, operation log record (OperationLog).

### 1.35 Asset Borrowing Approval Function

\*\*Function Number: FR-35\*\*

\*\*Description:\*\* Users or administrators can apply for asset borrowing. The system needs to verify permissions and data integrity, and submit an approval process according to the configuration. After approval, the asset status is updated to "Borrowed."

\*\*Input:\*\* Asset ID, borrowing time, expected return time, reason for borrowing, borrowing applicant, and other fields.

\*\*Output:\*\* Update of the Asset entity status in the database to "Borrowed," operation log record (OperationLog), submission or status update of the approval task (ApprovalTask).

### 1.36 Asset Return Confirmation Function

\*\*Function Number: FR-36\*\*

\*\*Description:\*\* Users or administrators can confirm asset return. The system needs to verify permissions and data integrity, and submit an approval process according to the configuration. After approval, the asset status is updated to "Returned."

\*\*Input:\*\* Asset ID, return time, returner, receiver, reason for return, and other fields.

\*\*Output:\*\* Update of the Asset entity status in the database to "Returned," operation log record (OperationLog), submission or status update of the approval task (ApprovalTask).

### 1.37 Supplier Management Function

\*\*Function Number: FR-37\*\*

\*\*Description:\*\* Administrators can maintain supplier information. The system needs to verify permissions and save the supplier information.

\*\*Input:\*\* Supplier name (Supplier), ID, affiliated department (Department), contact person, contact information, supplier status, and other fields.

\*\*Output:\*\* Update or creation of Supplier entity records in the database, operation log record (OperationLog).