# Functional Requirement

2. Functional Requirements  
2.1 Asset Registration  
Input: Asset details (name, category, serial number, purchase date, cost, location)  
Output: Confirmation message with assigned asset ID  
Description: A new asset must be registered in the system by an authorized user. The system generates a unique asset ID and stores all relevant metadata.  
2.2 Asset Modification  
Input: Updated asset information (e.g., location, status, owner)  
Output: Confirmation of successful update  
Description: Users can modify existing asset records if they have appropriate permissions.  
2.3 Asset Usage Tracking  
Input: User ID and asset ID  
Output: Log entry of asset usage  
Description: When an asset is used by a user, the system logs the event with timestamp and user identifier.  
2.4 Asset Transfer  
Input: Source user ID, destination user ID, asset ID  
Output: Confirmation of asset transfer and updated ownership log  
Description: Assets can be transferred between users or departments following an approval workflow.  
2.5 Asset Return  
Input: Asset ID, user ID  
Output: Status update indicating asset returned  
Description: An asset currently in use can be marked as returned, updating its availability status.  
2.6 Report Generation  
Input: Report type (e.g., asset utilization, depreciation), filters (date range, department, asset type)  
Output: Exportable report (PDF, Excel, CSV)  
Description: The system provides customizable reports on asset usage, status, and value.  
2.7 Permission Allocation  
Input: User role (e.g., admin, staff, student), associated permissions  
Output: Updated user profile with assigned roles and permissions  
Description: System administrators can assign or revoke user permissions based on predefined roles.  
2.8 Approval Workflow  
Input: Request type (e.g., transfer, return), initiator, asset ID  
Output: Workflow status (pending, approved, denied)  
Description: Certain asset actions require multi-step approvals before execution.  
2.9 Data Import and Export  
Input: File (CSV, Excel) containing asset data  
Output: Imported records or exported file  
Description: The system allows bulk import of asset data and export of current inventory in various formats.  
2.10 Authentication and Authorization  
Input: User credentials (username/password)  
Output: Login success/failure, session token  
Description: The system supports secure login via integrated authentication systems (e.g., LDAP, OAuth).

# External Description

3. External Interfaces  
3.1 Authentication Systems  
Interface Type: API (RESTful)  
Description: The system integrates with external authentication systems such as LDAP or OAuth providers to validate user identities.  
Data Flow:  
User submits credentials  
System sends request to authentication service  
Service returns authentication result  
System grants or denies access accordingly  
3.2 Email Notification System  
Interface Type: SMTP or REST API  
Description: Used to send automated notifications (e.g., approval requests, password reset links).  
Data Flow:  
System triggers an email event  
Sends email content and recipient list  
Email server delivers the message  
3.3 Database  
Interface Type: SQL (MySQL, PostgreSQL, or equivalent)  
Description: Stores all asset records, user profiles, transaction logs, and configuration settings.  
Data Flow:  
Application writes/reads data from database tables  
Queries are executed using SQL statements or ORM