

Assignment

Select a capstone project from GitHub and Draw and Explain DFD, Use case and the Object Diagram of that System.

Answer :

Selected Project : [Library Management System (LMS)]

A Library Management System is a common capstone project that handles the borrowing and return of books, user registration, and inventory management. For this example, I will assume a system with the following features:

1. User Registration and Login
2. Search for books
3. Borrow and return books
4. Manage book inventory (add/update/delete books)

1. Data Flow Diagram (DFD)

A DFD represents the flow of data within the system showing how inputs are processed and outputs are generated.

Here's a description of the DFD for LMS:

- Entities :

1. User : A person who interacts with the system
2. Admin : Manages inventory and user accounts.

- Processes :

- i. Login / Registration
- ii. Search Books
- iii. Borrow Books
- iv. Return Books
- v. Manage Inventory

- Data Stores :

- i. User Data
- ii. Book Data
- iii. Transaction Data

2. Use Case Diagram

A use case Diagram describes how different actors (Users) interact with the system and its various functionalities.

• Actors :

- i. User : A person who can search, borrow, and return books.
- ii. Admin : Manages books and user accounts

• Use Cases :

- i. Login / Sign up
- ii. Search Books
- iii. Borrow Book
- iv. Return Book
- v. Manage Inventory

• Relationships :

- Admins have additional privileges.
- Users interact only with search, borrow and return functions.

3. Object Diagram

An object Diagram represents the structure of objects in the system at a particular moment, showing their relationships and attributes.

• Objects :

1. User : Contains - userID, username, password, borrowed Books.
2. Book : Contains bookID, title, author, status
3. Transaction : Tracks borrowing and returning, with attributes like transactionID, userID, bookID, transactionDate.
4. Admin : inherits from User but has additional privileges.

• Relationships :

- User borrows or returns Book through Transaction.
- Admin manages Book objects.