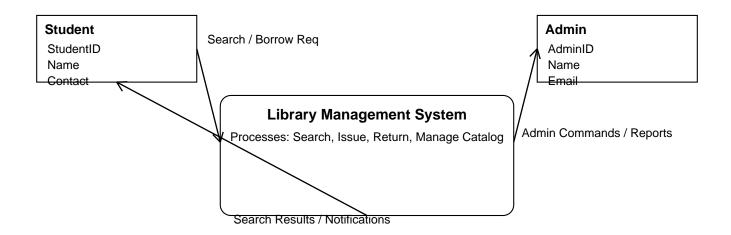
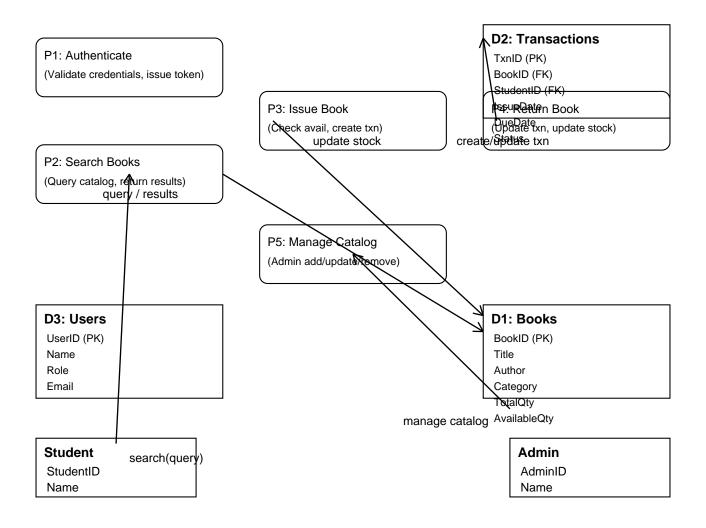
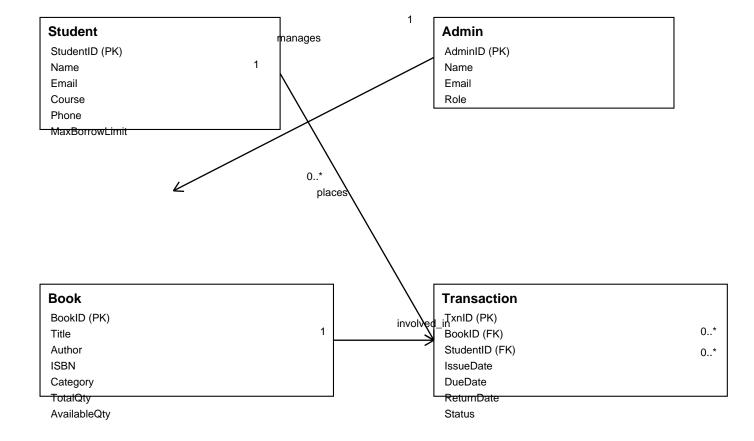
## **DFD - Level 0 (Context Diagram)**



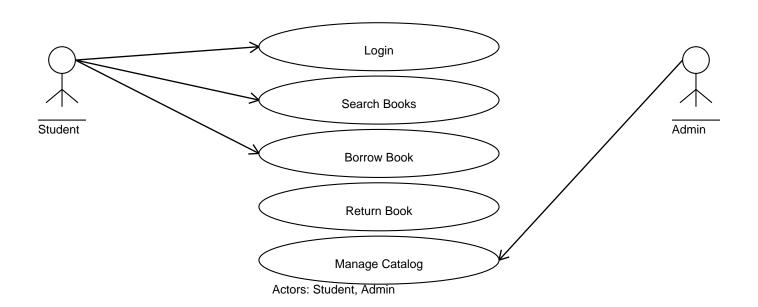
#### **DFD - Level 1 (Detailed Processes)**



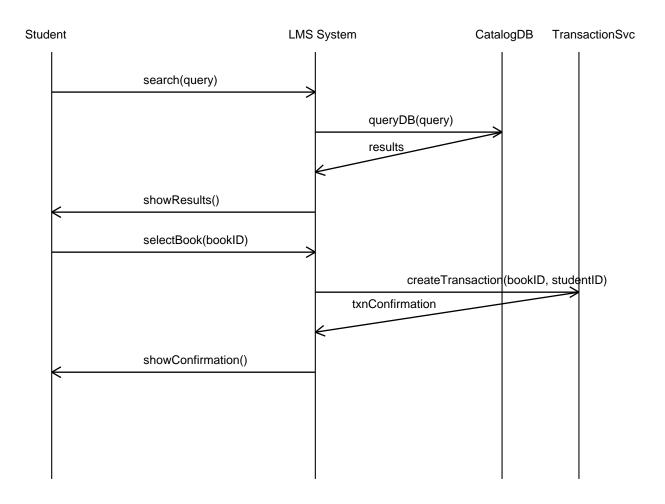
## **ER Diagram - Entities & Relationships**



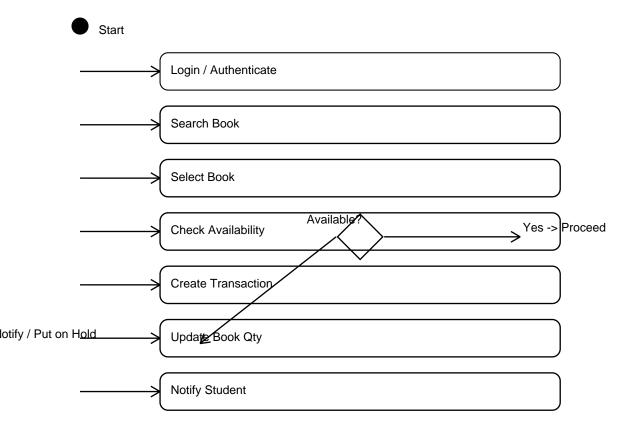
# **UML Use Case Diagram**



### **UML Sequence Diagram - Search & Borrow**



# **UML Activity Diagram - Borrow Flow**



### **UML Class Diagram - Core Classes**

#### Student Book - studentID: String - bookID: String - name: String - title: String - author: String - email: String Student 1..\* ---- \*..1 Book (via Transaction) - course: String - phone: String - category: String - totalQty: int + login(): boolean - availableQty: int + borrow(bookID): Transaction + isAvailable(): boolean + return(bookID): boolean + viewBorrowed(): List[Transaction] + decrementQty() + incrementQty()

Transaction
<ul> <li>txnID: String</li> <li>bookID: String</li> <li>studentID: String</li> <li>issueDate: Date</li> <li>dueDate: Date</li> <li>returnDate: Date</li> <li>status: String</li> </ul>
+ createTxn() + closeTxn() + calculateFine(): float

Admin
- adminID: String
- name: String
- email: String
- role: String
+ addBook()
+ removeBook()
+ updateBook()
+ generateReport()