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## College of Informatics and Computing Sciences

### CONTEXT DIAGRAM

#### External Entities:

- Student Organizations (Groups managing inventory and reservations)
- Students (Users accessing the platform for reservations)
- Admin (System administrator overseeing platform functionality)

#### Process:

- Inventory and Reservation Management System

#### Data Stores:

- Inventory Data (CRUD operations for managing available items)
- Reservation Records (CRUD operations for managing reservations)
- User Accounts (CRUD operations for student organization and student profiles)

#### Data Flows:

- **Student Organizations:** Register/Login, Manage Inventory, Manage Reservations, Post Announcements.
- **Students:** Register/Login, Search for Items, Make Reservations, Receive Notifications.
- **Admin:** Verify Data, Manage Inventory, Monitor System Performance.

### Data Flow Diagram (DFD - Level 0)

#### 1. Register/Login (Students)

- **Input:** Student inputs registration details or login credentials.
- **Process:** Inventory and Reservation Management System validates and stores student information.
- **Output:** Access to the student dashboard or an error message for incorrect login.

#### 2. Manage Inventory (Student Organizations)

- **Input:** Organization submits inventory details (add, update, delete).
- **Process:** System updates the Inventory Data store with new item information.
- **Output:** Confirmation of inventory updates and current inventory list.

#### 3. Search for Items (Students)

- **Input:** Student searches for available items.
- **Process:** System queries the Inventory Data store.
- **Output:** Display of matching inventory items.



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### 4. Make Reservations (Students)

- **Input:** Student submits a reservation request.
- **Process:** System records the reservation in the Reservation Records data store.
- **Output:** Reservation confirmation.

### 5. Post Announcements (Student Organizations)

- **Input:** Organization submits announcement details.
- **Process:** System updates the Announcement Data store.
- **Output:** Announcement visible to students.

### 6. Verify Data (Admin)

- **Input:** Admin verifies user information (students and organizations).
- **Process:** System checks data integrity in the User Accounts data store.
- **Output:** Confirmation of data verification.

### 7. Monitor System Performance (Admin)

- **Input:** Admin reviews system metrics and user activity.
- **Process:** System generates performance reports.
- **Output:** Performance analysis for the admin.

### 8. Logout (All Users)

- **Input:** User initiates a logout request.
- **Process:** System ends the session and clears user data from active memory.
- **Output:** Session termination confirmation.



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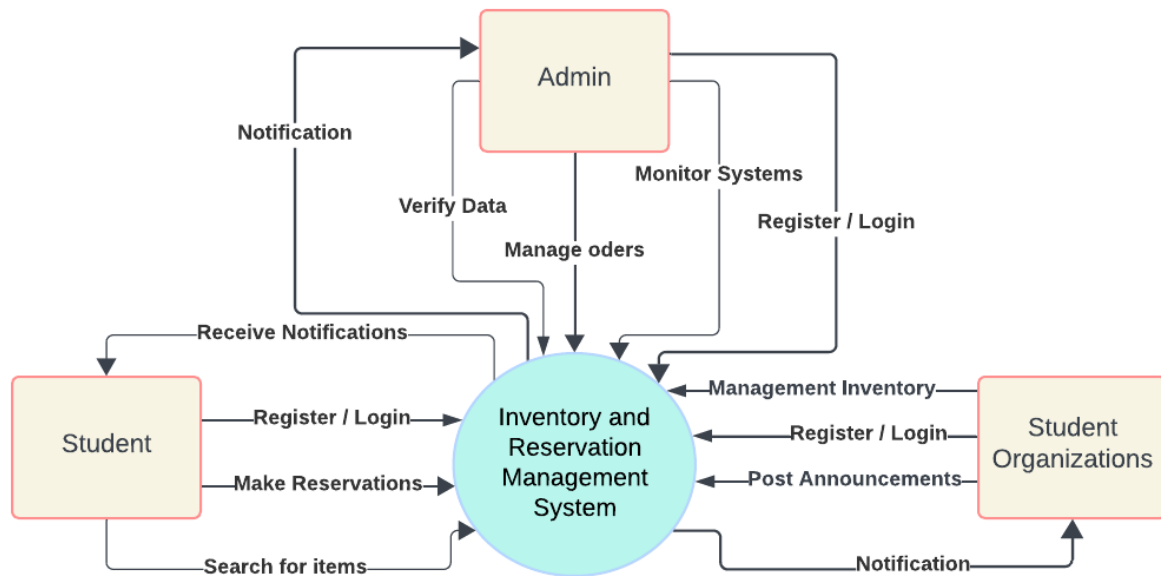
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**Figure 5: Inventory and Reservation Management System Context Diagram**

Figure 5 illustrates the Inventory and Reservation Management System (IRMS) context diagram, showcasing the interactions among key actors: Admins, Student Organizations, and Members (Students). Admins can register and log in to manage inventory orders, verify data, and receive system notifications. Student Organizations also register to post announcements and make reservation requests while receiving updates on their items. Members, or students, can log in to search for available inventory and submit reservation requests, along with receiving notifications regarding their reservations and organizational announcements. This context diagram highlights the IRMS as a central hub that integrates these interactions, ensuring efficient inventory tracking and user communication among all involved parties.