



Business Hub

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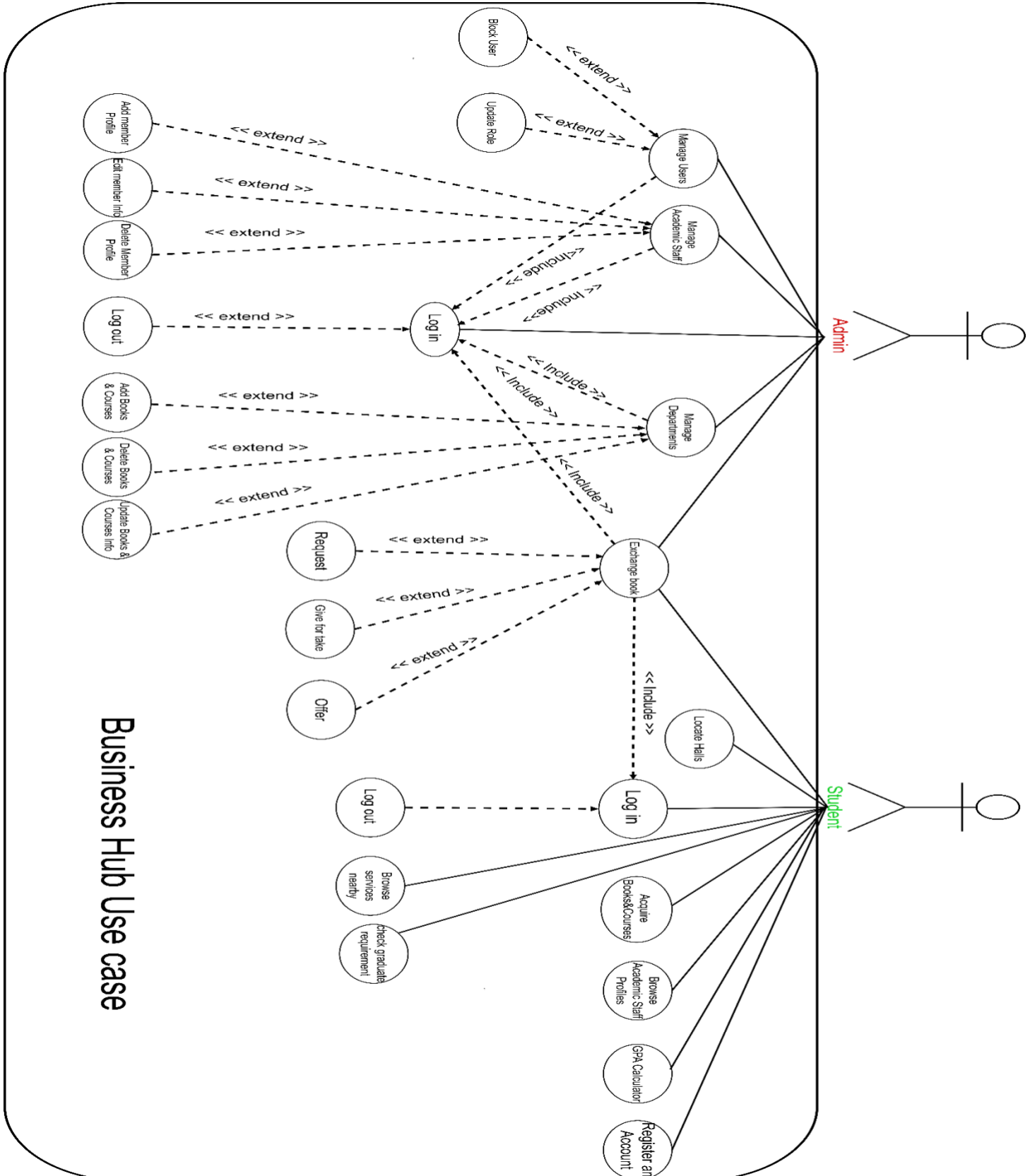
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1. Use Case

A use case is a methodology used in system analysis to identify, clarify and organize system requirements. The use case is made up of a set of possible sequences of interactions between systems and users in a particular environment and related to a particular goal.



2. Flowcharts

A flowchart is a type of diagram that represents a workflow or process. A flowchart can also be defined as a diagrammatic representation of an algorithm, a step-by-step approach to solving a task.

2.1 Student/Admin Login F.C

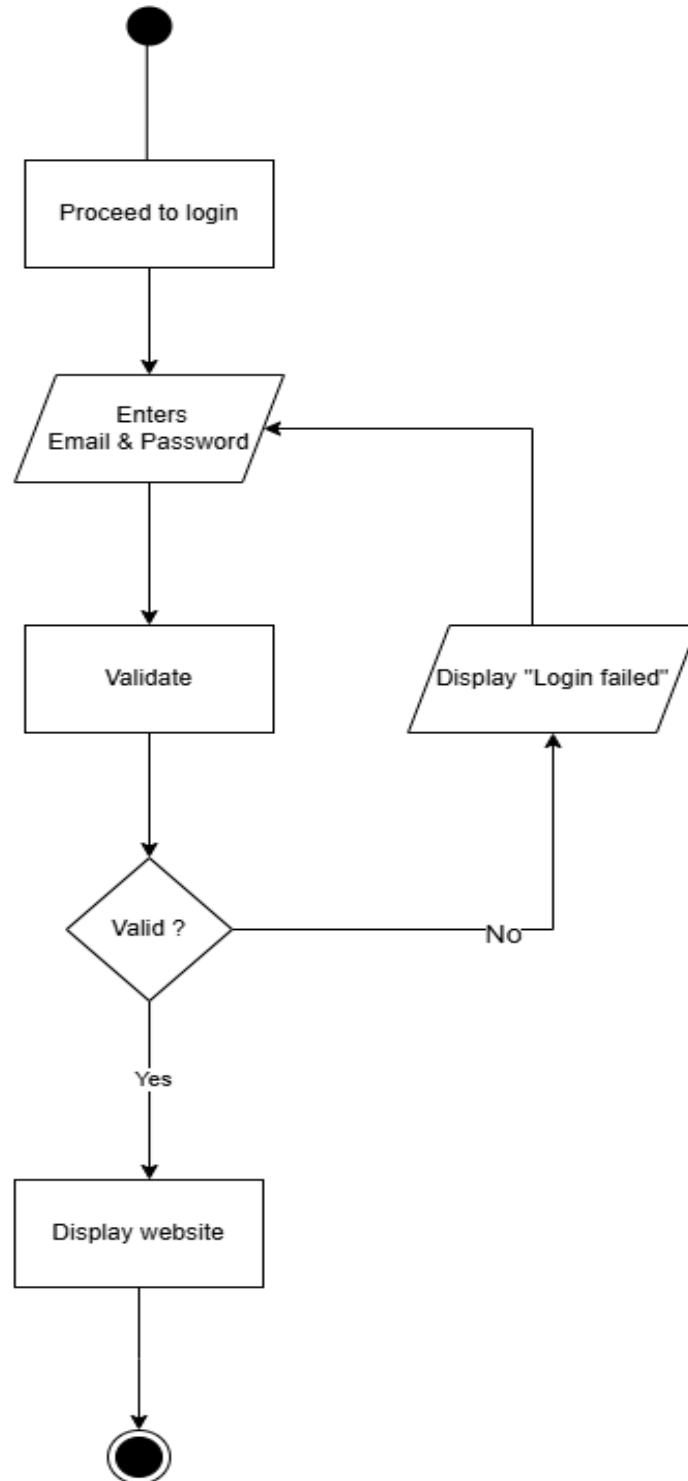


Figure 2.1 : Student and Admin Login FlowChart

2.2 Student Register F.C

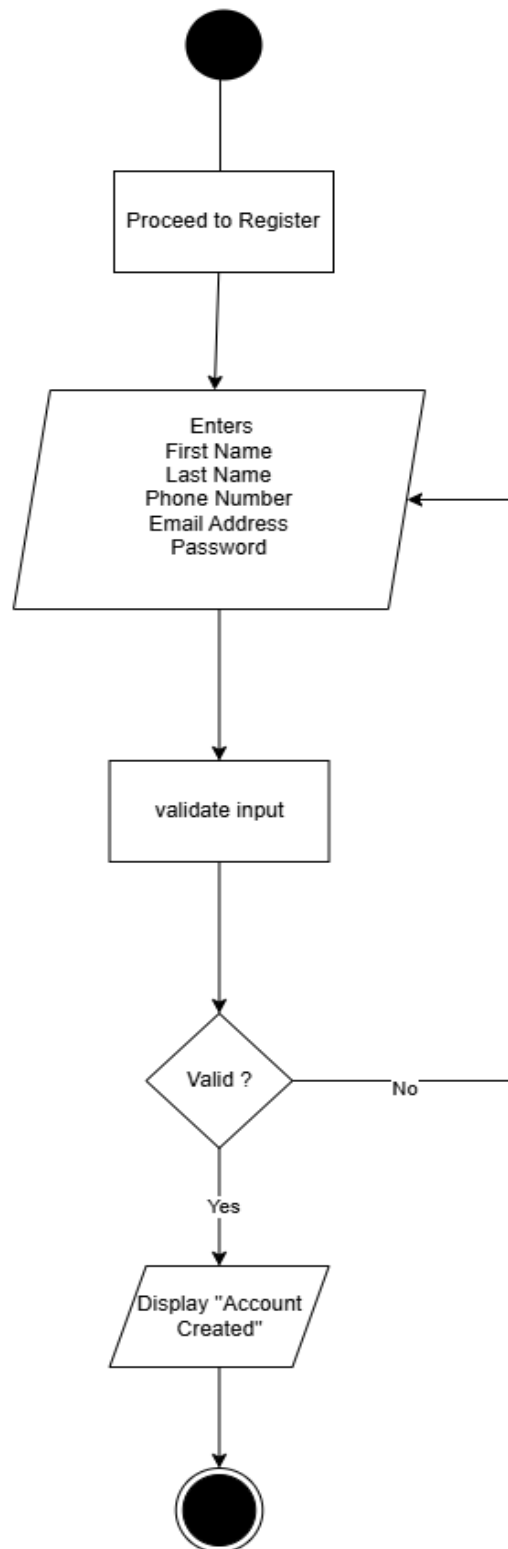


Figure 2.2 Student Registration Flowchart

2.3 Book Exchange F.C

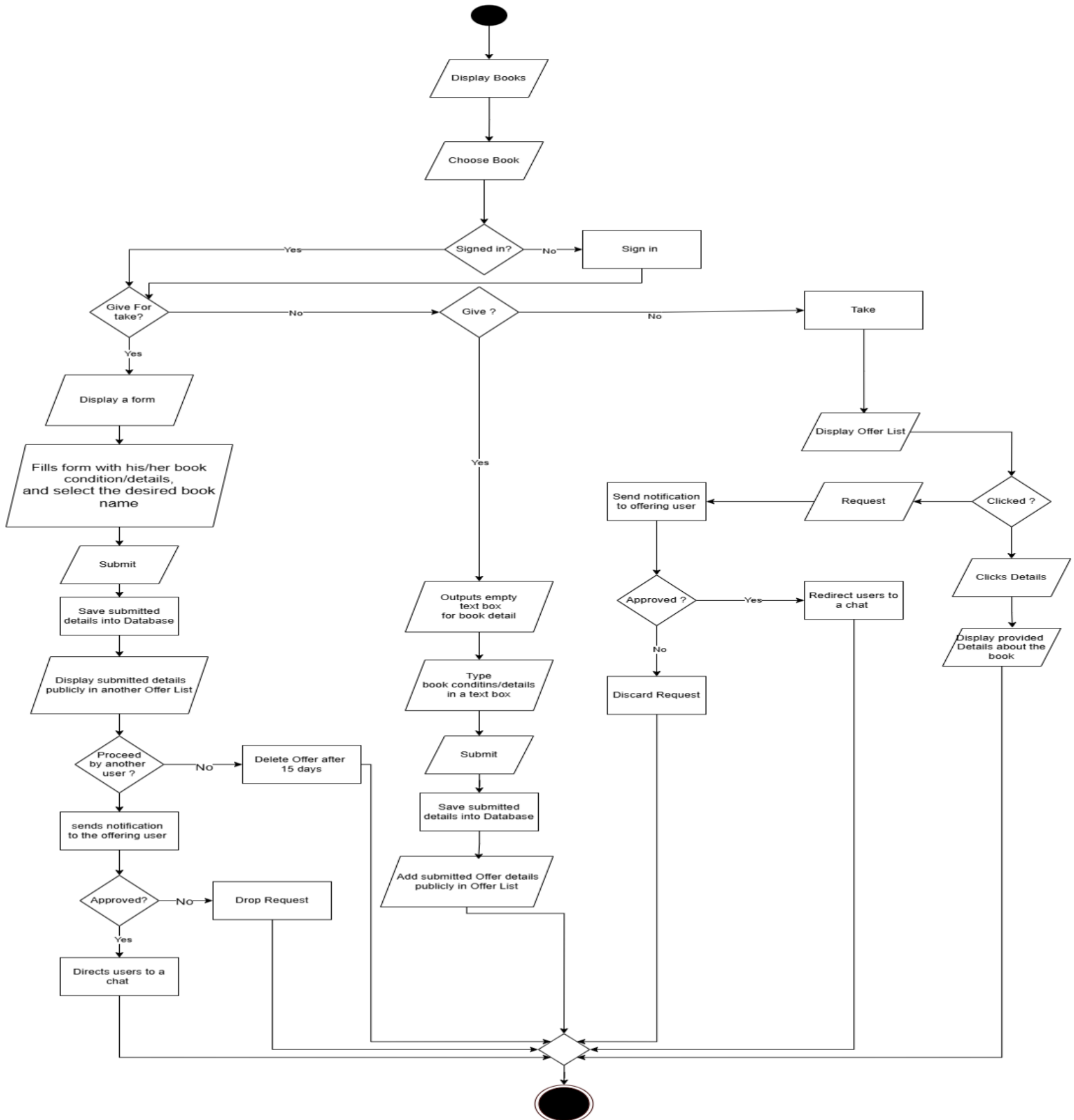


Figure 2.3 Book Exchange FlowChart

2.4 Monitor Book Exchange F.C

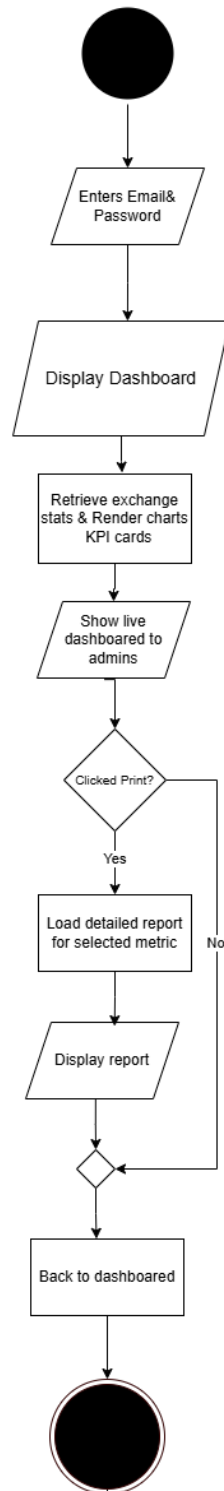


Figure 2.4 Monitor Book exchange Process

2.5 Manage Academic Staff F.C

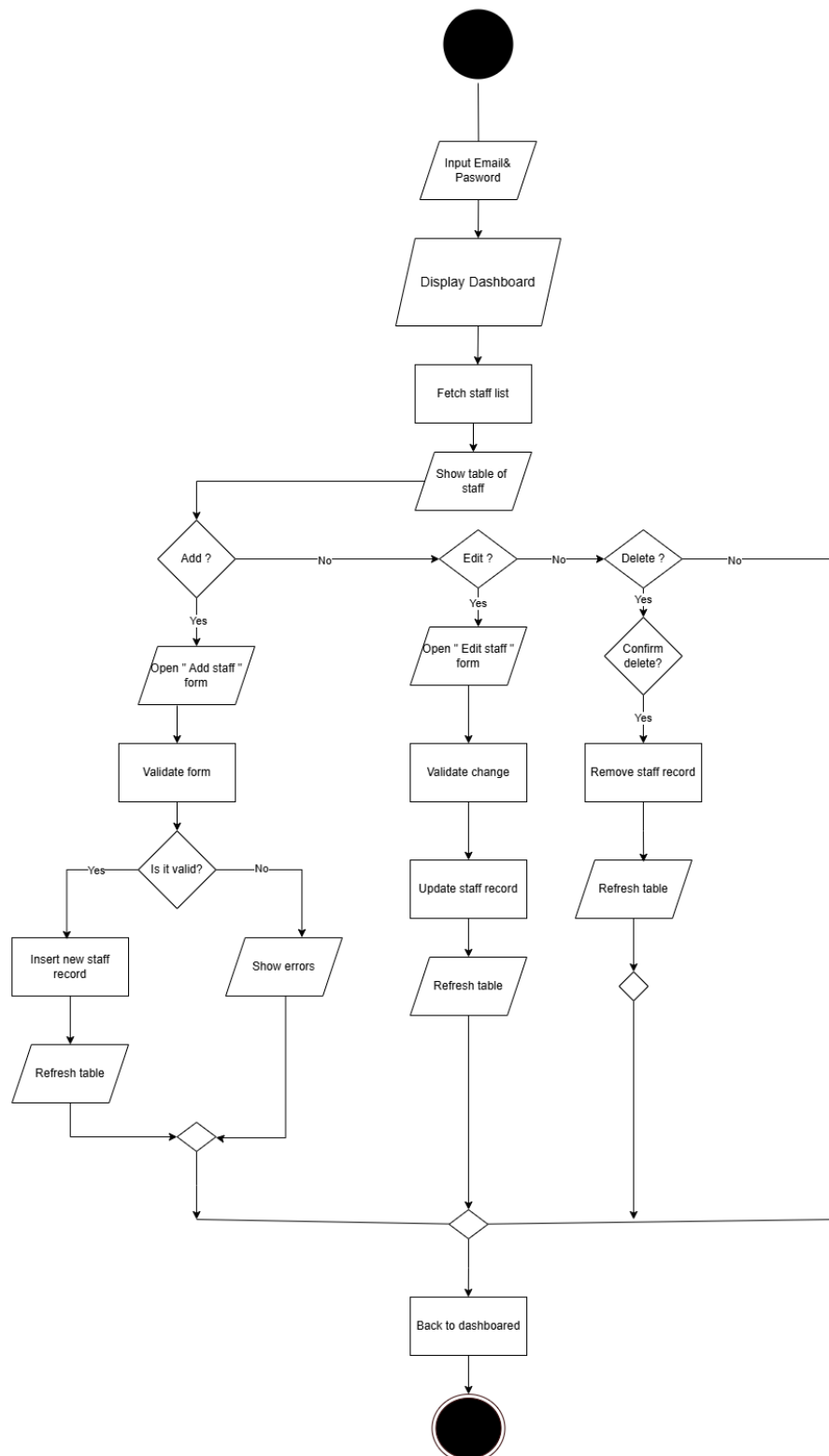


Figure 2.5 Manage Academic staff profiles Flowchart

2.6 Manage Department F.C

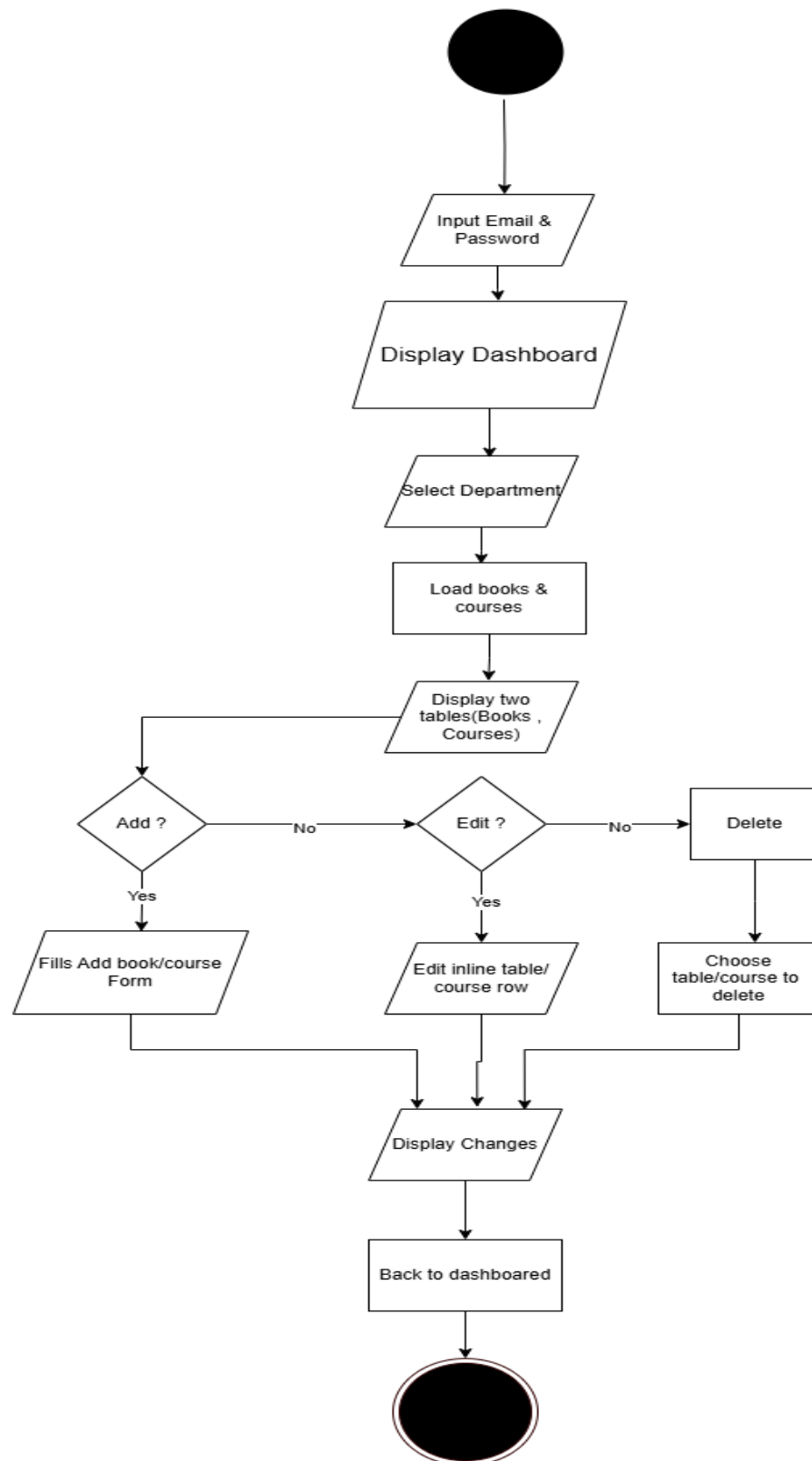


Figure 2.6 Manage Departments books and coursed Flowchart

3. Data Flow Diagram

A data-flow diagram is a way of representing a flow of data through a process or a system. The DFD also provides information about the outputs and inputs of each entity and the process itself.

3.1 Context-Level Diagram

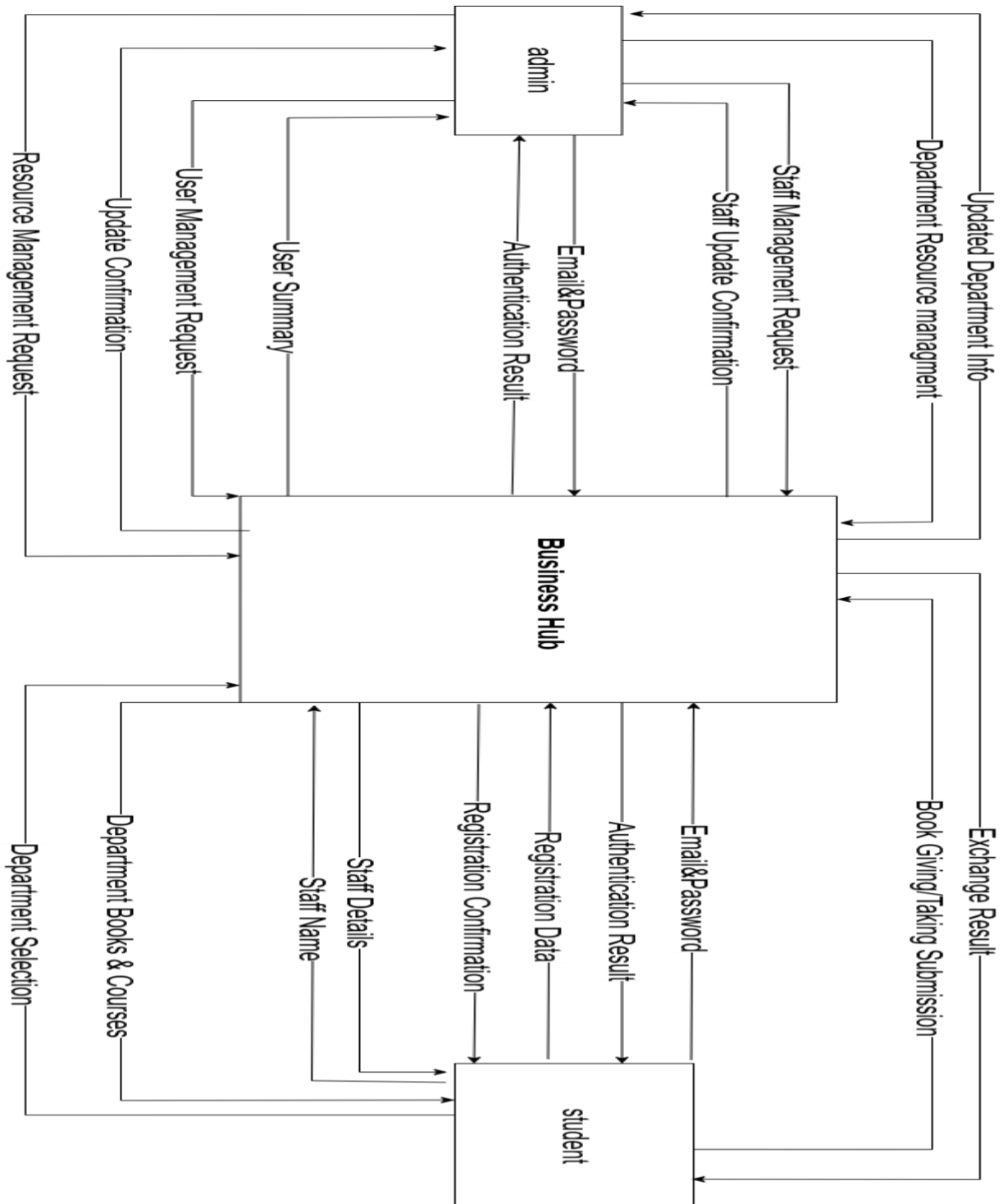
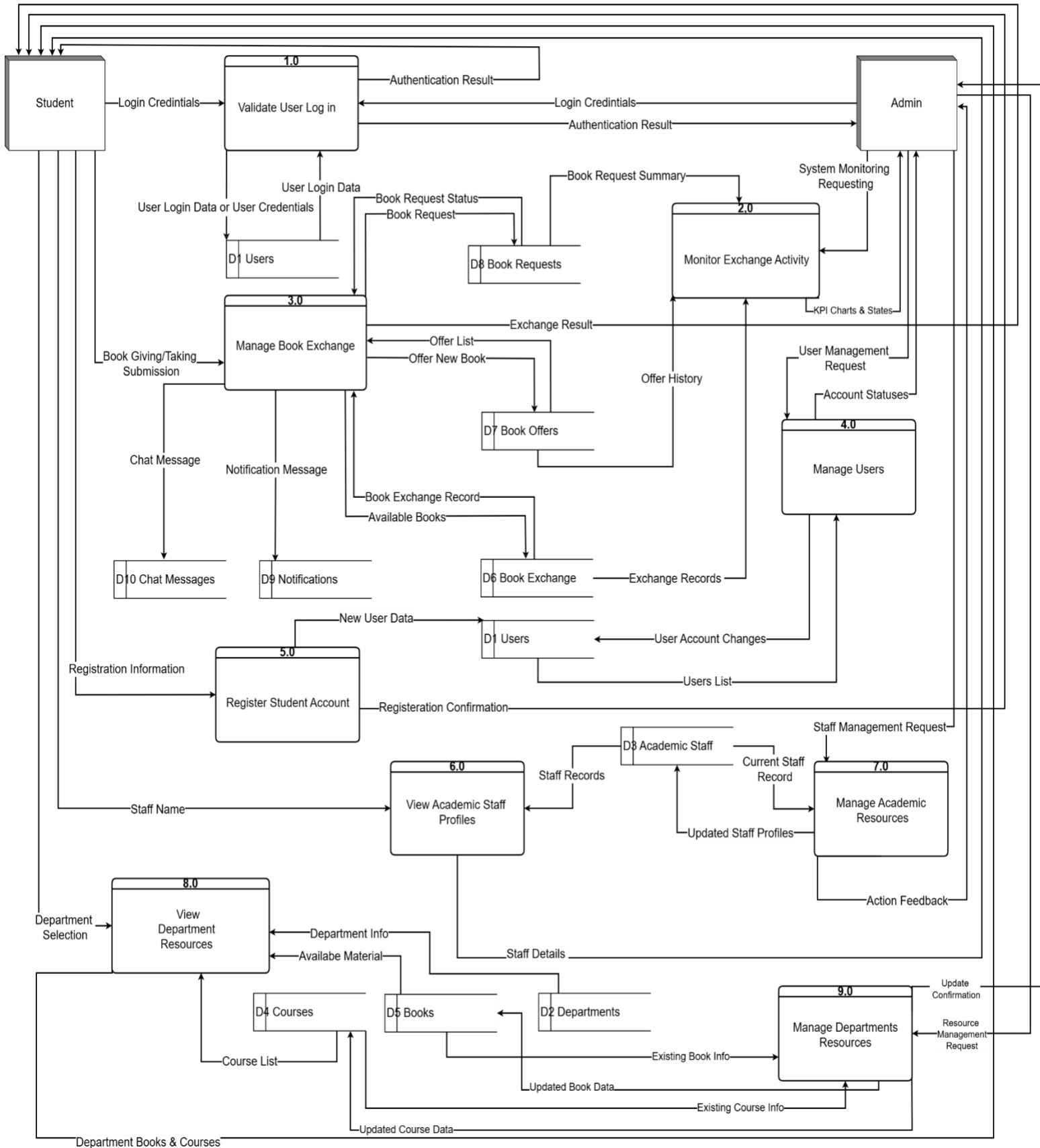


Figure 3.1 :Context Level DFD

3.2 Zero-Level Diagram



3.3 Child-Level Diagram

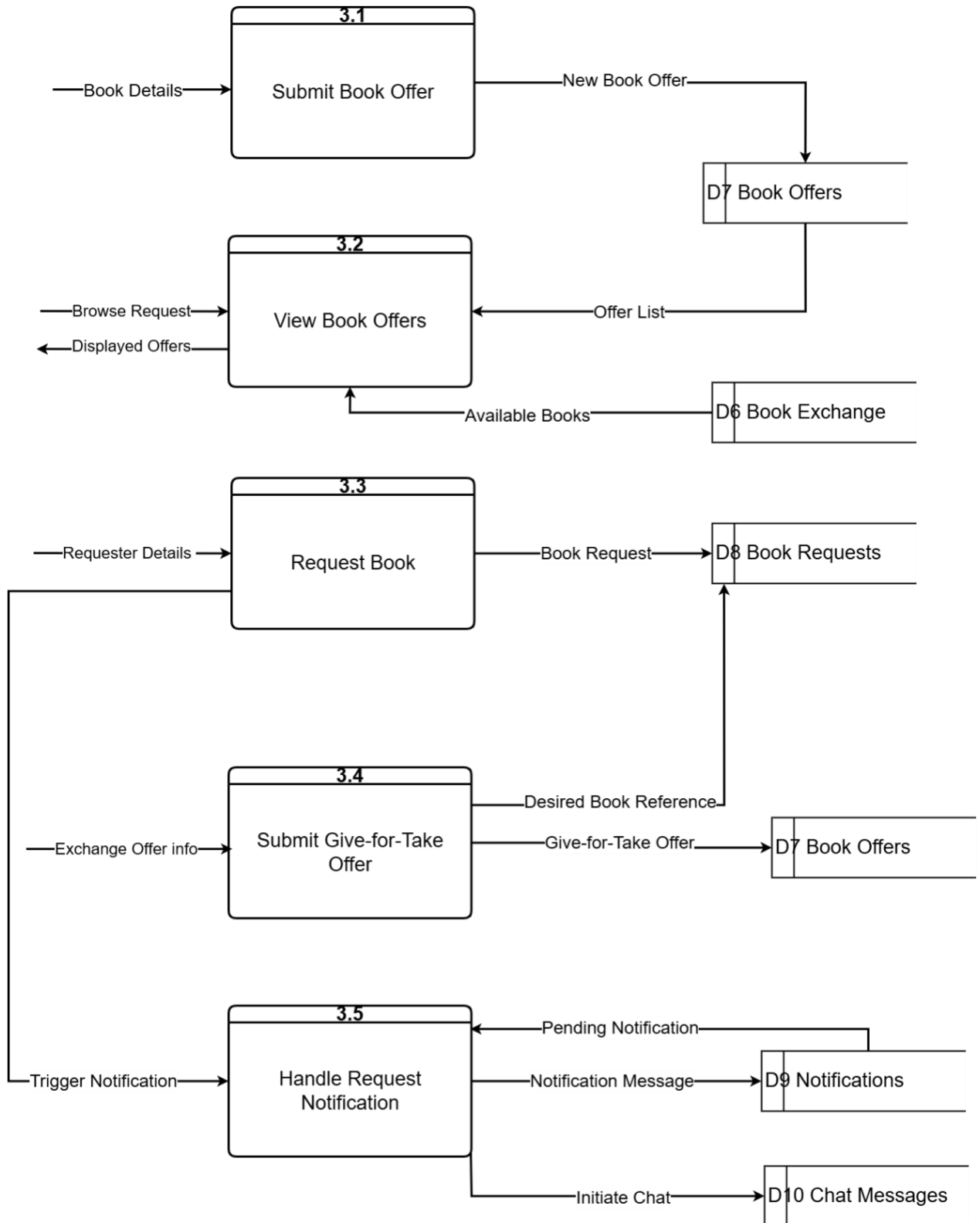


Figure 3.3 : Child Level , Process 3.0

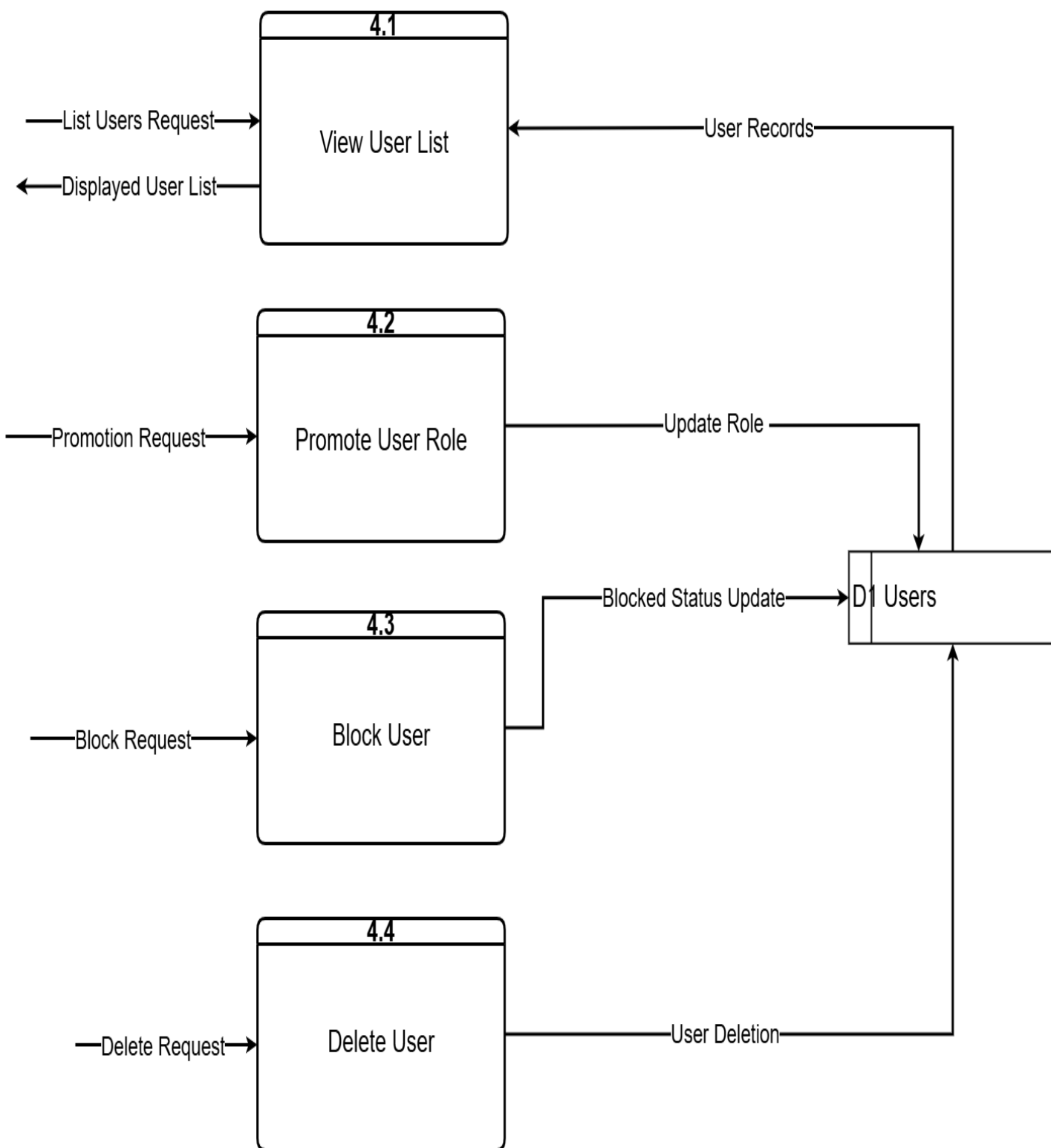


Figure 3.3 : Child Level , Process 4.0

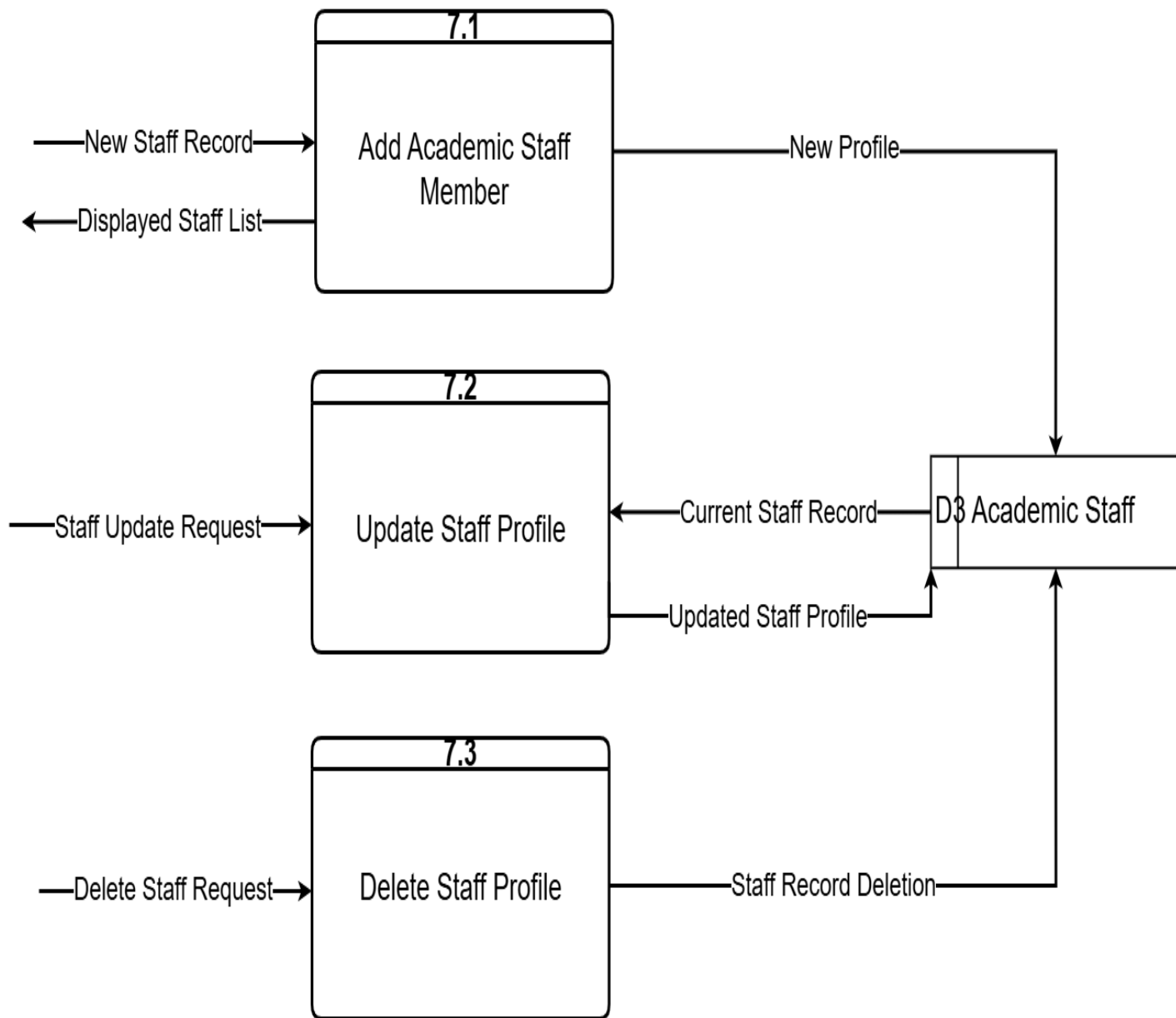


Figure 3.3 : Child Level , Process 7.0

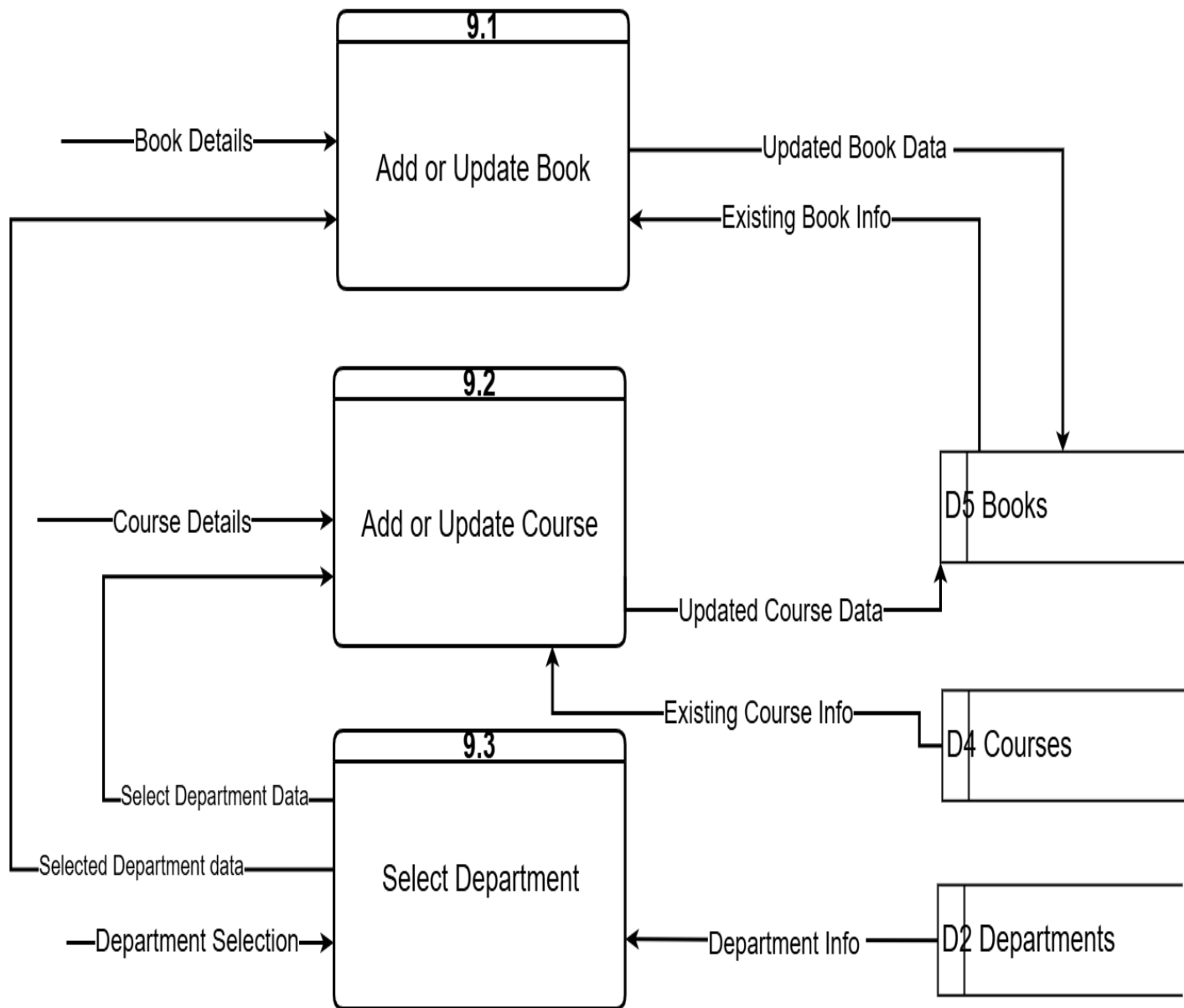
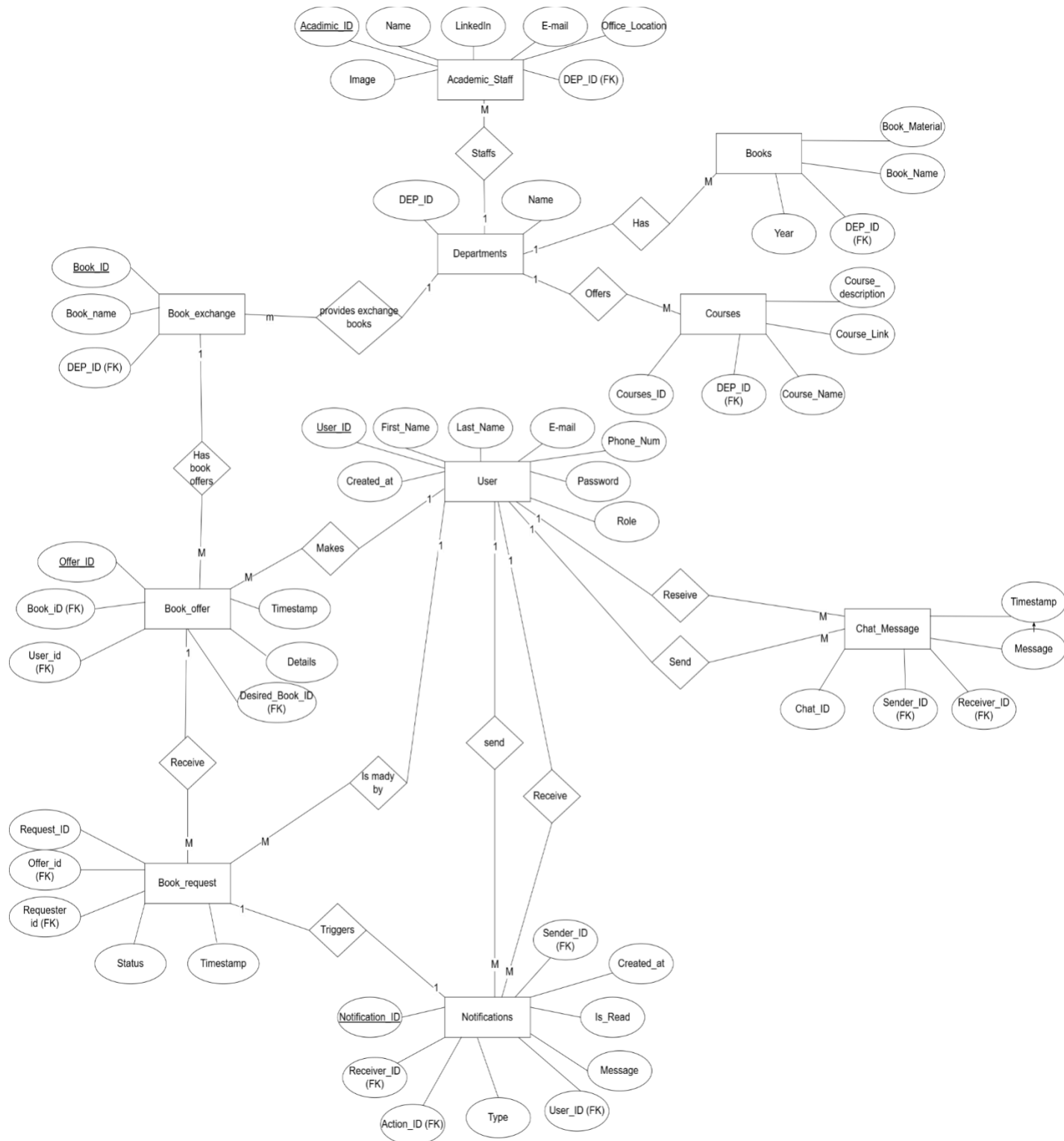


Figure 3.3 : Child Level , Process 9.0

4. ER-Diagram



Business Hub – Entity Relationship Diagram (ERD) Explanation

This ER diagram represents the database structure for the Business Hub platform, designed to support book exchanges, academic resources, and student-staff interactions in a university setting.

Users: Stores all registered users (students or super admins). Each user has personal info like name, email, phone, and a role (user or super_admin) that controls their permissions.

Departments: Represents academic departments (e.g., MIS, Finance). It links to most academic content across the site.

Book_exchange: Lists all available books for exchange, categorized by department.

Book_offers: When a user clicks “Give” on a book, an offer is created and stored here. It includes optional details (e.g., book condition), and may include a desired_book_id if the user is using the "Give for Take" feature.

Book_requests: If another user clicks “Take,” a request is recorded here. It links to the original offer and tracks its status (pending, accepted, or rejected).

Notifications: Generated when a book request is made. This alerts the user who posted the offer and helps facilitate communication.

Chat_messages: Stores real-time messages exchanged between users once a book request has been accepted. This enables them to coordinate the physical exchange.

Courses: Contains downloadable/viewable course resources for each department (e.g., links, descriptions).

Books: Represents static learning materials uploaded for each department, available through department pages (not part of the exchange system).

Academic_staff: A directory of academic staff members, including their office location, university email, and LinkedIn profile. Each is assigned to a department.

5. Data Dictionary

A Data Dictionary is a collection of names, definitions, and attributes about data elements that are being used or captured in a database, information system, or part of a research project.

5.1 Users Table

Column	Type	Description	Constraints
id	INT	Unique user identifier	PK (Not Null)
first name	VARCHAR	User's given name	(100)
last name	VARCHAR	User's family name	(100)
email	VARCHAR	Login email (must be unique)	(255) Unique
phone	VARCHAR	10-digit phone number	(20)
password	VARCHAR	Hashed password	(255)
role	ENUM	Account type / permission level	('user','super_admin')
created at	TIMESTAMP	Account creation timestamp	DEFAULT CURRENT_TIMESTAMP

5.2 Departments Table

Column	Type	Description	Constraints
id	INT	Unique department identifier	PK (Not Null)
name	VARCHAR	Department name (e.g. "MIS", "Finance")	(100)

5.3 Book exchange Table

Column	Type	Description	Constraints
id	INT	Unique book listing identifier	PK (Not Null)
book name	VARCHAR	Title of the book	(255)
department_id	INT	Which department this book belongs to	FK→ departments.id

5.4 Book offers Table

Column	Type	Description	Constraints
id	INT	Unique offer identifier	PK (Not Null)
book_id	INT	The book being offered	FK→ book_exchange.id
user_id	INT	Who is offering the book	FK→ users.id
desired_book_id	INT	(Optional) Book they want in exchange ("Give-for-Take")	FK → book_exchange.id
details	TEXT	Notes on book condition, extras, etc.	
timestamp	DATETIME	When the offer was created	DEFAULT CURRENT_TIMESTAMP

5.5 Book Requests Table

Column	Type	Description	Constraints
id	INT	Unique request identifier	PK (Not Null)
offer_id	INT	Which offer is being requested	FK→ book_offers.id
requester_id	INT	Who is requesting the book	FK→ users.id
status	ENUM	Current request state	('pending','accepted','rejected')
timestamp	DATETIME	When the request was made	DEFAULT CURRENT_TIMESTAMP

5.6 Chat Messages Table

Column	Type	Description	Constraints
id	INT	Unique message identifier	PK (Not Null)
sender_id	INT	Who sent the message	FK→ users.id
receiver_id	INT	Who receives the message	FK→ users.id
message	TEXT	The chat message content	
timestamp	DATETIME	When the message was sent	DEFAULT CURRENT_TIMESTAMP

5.7 Courses Table

Column	Type	Description	Constraints
id	INT	Unique course identifier	PK (Not Null)
department_id	INT	Which department offers this course	FK→ departments.id
course_name	VARCHAR	Course title	(255)
course_link	TEXT	URL or path to download/view course materials	
course_description	TEXT	Summary or syllabus description	

5.8 Books Table (Static Materials) Table

Column	Type	Description	Constraints
id	INT	Unique static-book identifier	PK (Not Null)
department_id	INT	Which department this resource belongs to	FK→ departments.id
book_name	VARCHAR	Title of the static learning material	(255)
book_material	TEXT	URL or path to the file	

5.9 Academic Staff Table

Column	Type	Description	Constraints
id	INT	Unique staff member identifier	PK (Not Null)
name	VARCHAR	Full name	(255)
email	VARCHAR	University email	(255)
linkedin	VARCHAR	Link to LinkedIn profile (optional)	(255)
image	TEXT	Path or URL to profile picture	
office_location	VARCHAR	Office room or building (e.g., “Main 4th Floor”)	(255)
department_id	INT	Department the staff belongs to	FK→ departments.id

5.10 Notification Table

Column	Type	Description	Constraints
id	INT	Unique notification identifier	PK (Not Null)
user_id	INT	Who triggered the notification (e.g. requester)	FK→ users.id (sender)
receiver_id	INT	Who should receive the notification	FK→ users.id
action_id	INT	What action this notification is about (link to request)	FK→ book_requests.id
type	VARCHAR	Notification category (e.g. “book_request”)	(100)
message	TEXT	Human-readable notification text	
is_read	BOOLEAN	Whether the notification has been seen by the receiver	DEFAULT FALSE
created_at	TIMESTAMP	When the notification was created	DEFAULT CURRENT_TIMESTAMP

5.11 Entity Interactions Overview

After identifying and describing each table individually in the ER Dictionary, it is important to highlight how these entities are interconnected to form the core of the Business Hub system.

The *Users* table links to several other entities such as Book_Offers, Book_Requests, Notifications, and Chat_Messages, enabling students to exchange books, request materials, communicate with others, and receive system updates. The Departments table serves as a central hub connecting Academic_Staff, Books, and Courses, ensuring each major field of study is well-structured and its related academic resources are accessible.

Through the Book_Exchange, Book_Offers, and Book_Requests tables, the platform facilitates an organized, role-based book-sharing ecosystem. The Notifications table supports user interaction by alerting users to important events, while the Chat_Messages table enhances user experience through real-time communication.

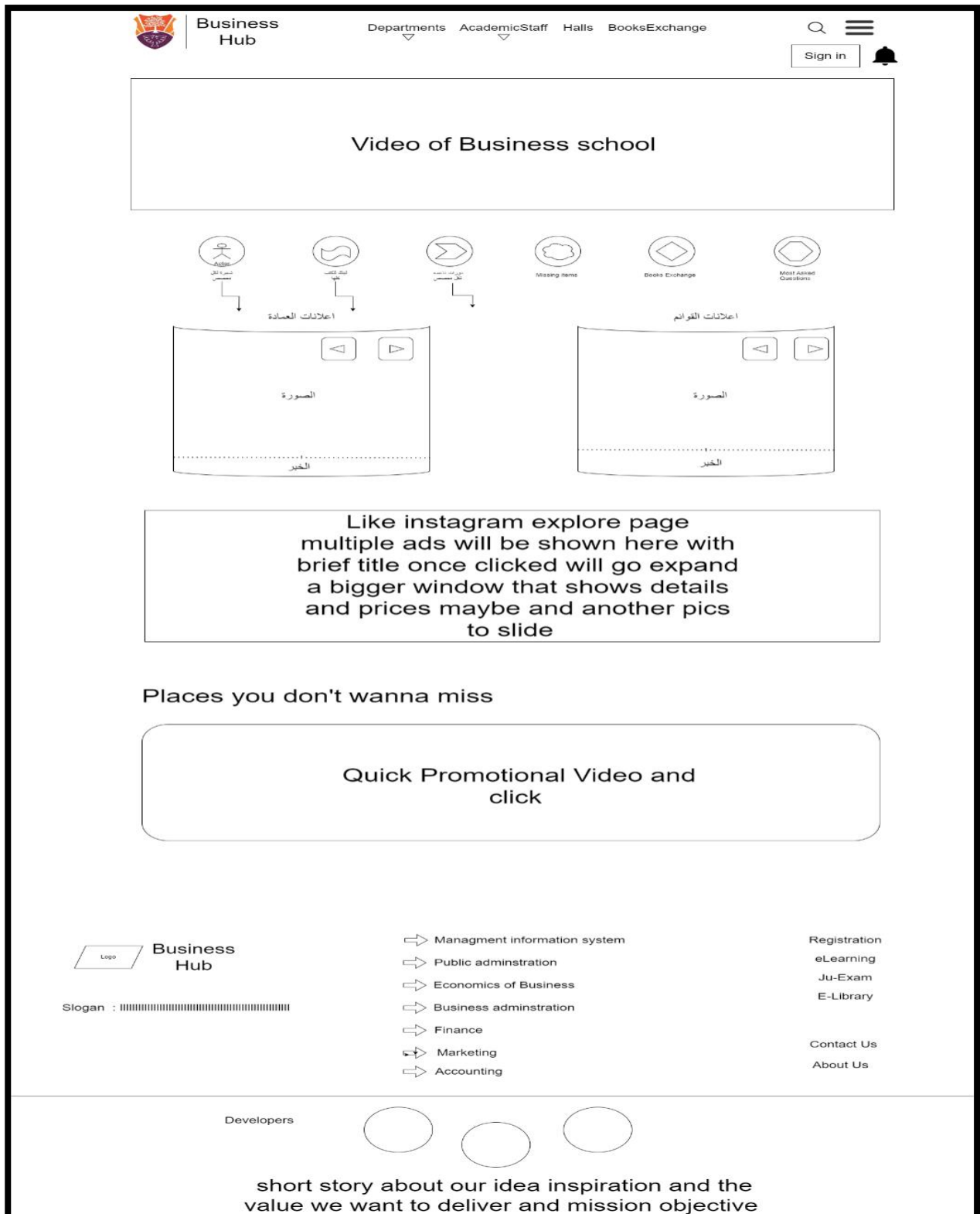
6. Entity-Event Matrix

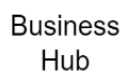
A CRUD matrix is a table showing the actions in an application containing SQL statement affecting parts of a database. CRUD Matrix is an excellent technique to identify the Tables in a Database to be used in any User interaction with a Web Site. CRUD means ‘Create, Read, Update or Delete’, and the CRUD Matrix identifies the Tables involved in any CRUD operation.

Event / Entity	Users	Departments	Book Exge	Book Offers	Book Requests	Notifications	Chat Messages	Courses	Books	Academic Staff
Register Account	C									
Log in	R									
Offer Book	R		R	C,R						
Request a Book	R		R	R	C,R	C				
Give for Take	R		R	C						
Browse Public Services	R	R						R	R	R
Monitor Book Exchange	R		R,U,D	R,U,D	R,U,D	R				
Manage Academic Staff	R,U,D									C,R,U,D
Manage Departments		C,R,U,D						C,R,U,D	C,R,U,D	
Manage Users	R,U,D									
Send Message	R						C,R,U,D			
Send Notification	R					C,R,U,D				

7. Mock Screens

Mock screens are visual drafts that show how a website or application's pages will look and behave, helping to plan layout, design, and user flow before actual development.





ادخل معدلك التراكمي السابق

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ادخل عدد الساعات التراكمية

كم عدد ساعات خطتك الدراسية

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علامة المادة

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هل المادة معادة ؟

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▽ 3 : ساعات المادة

المادة 1

هل المادة معادة ؟

ب ▾

▽ 3 : ساعات المادة

المادة 2

المادة 3 +

احتساب المعدل



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➡ Public administration

➡ Economics of Business

➔ Business administration

➡ Finance

➡ Marketing

➡ Accounting

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Books Exchange

Search For a book

MIS Books

ACC Books

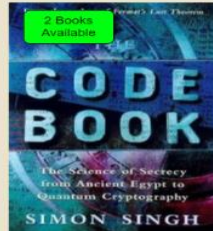
BUS Books

ECO Books

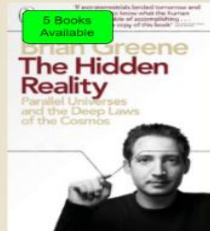
MKT Books

FNC Books

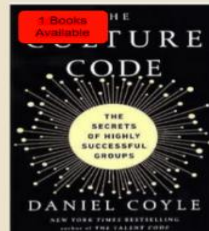
PAS Books



Give or Take



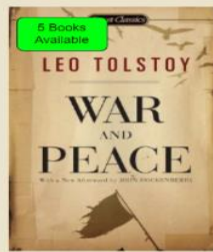
Give or Take



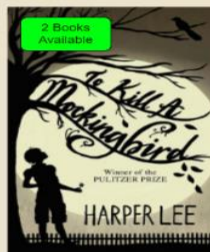
Give or Take



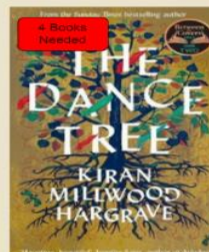
Give or Take



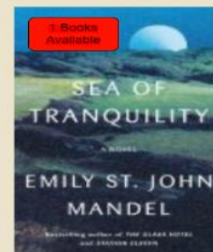
Give or Take



Give or Take



Give or Take



Give or Take



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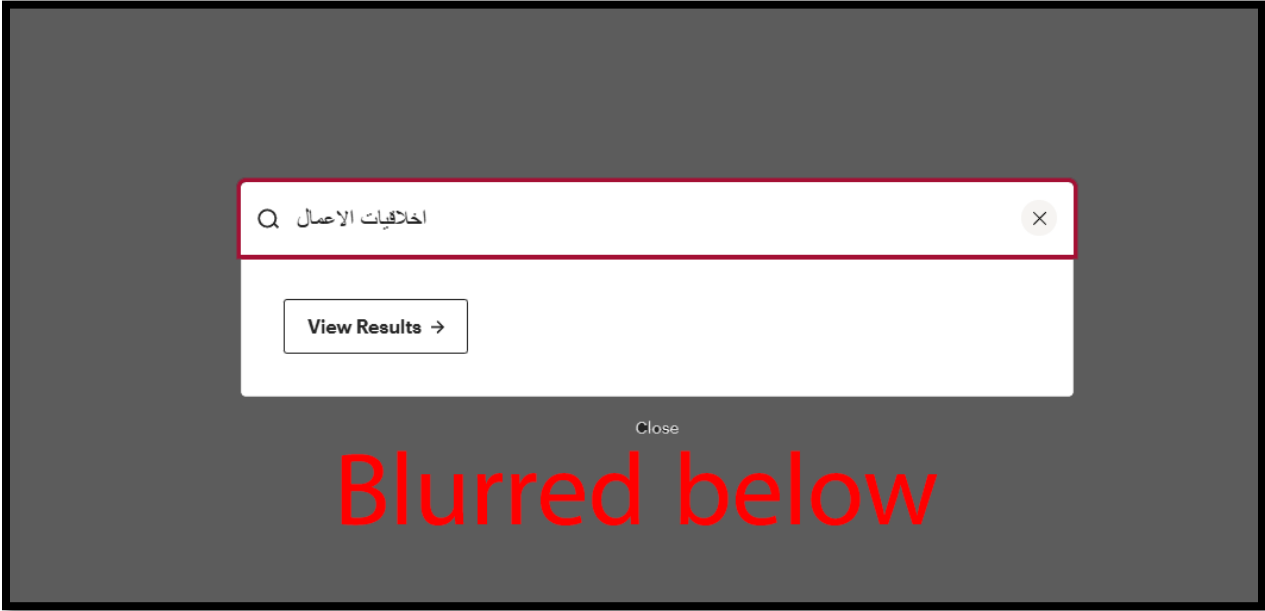
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- ➡ Business administration
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Voluptas perferendis



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Voluptatum dignissimos



Corrupti facilis



Voluptates omnis



Omnis mollitia



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Voluptas consequatur



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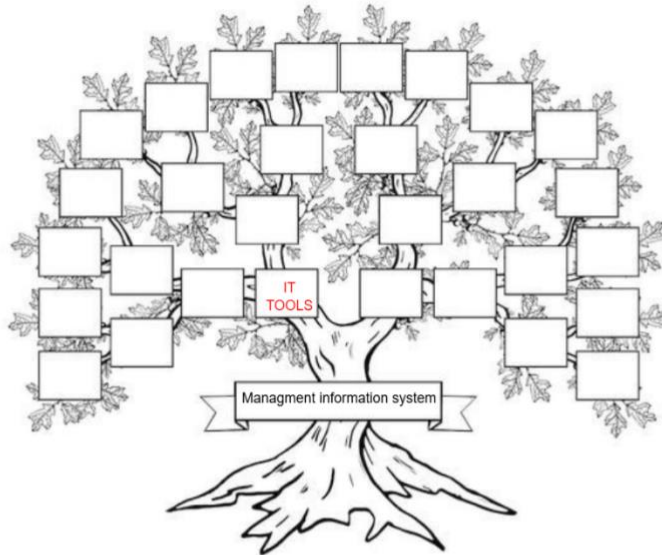
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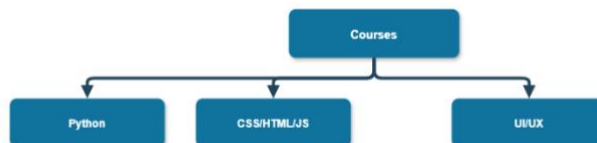


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