EXPERIMENT NUMBER : 4

Aim :- Create Entity Relationship Diagram and Data Flow Diagram for the given Software System using "Lucid Chart Tool" .

Objective :- Create ERD and DFD on Hospital Management System using "Lucid Chart Tool".

Theory :-

Healthcare management is a crucial function that comes as the backbone of hospital management. An ER (Entity-Relationship) Diagram therefore functions as a foundation for the organization and visualization of the various entities, attributes, and relationships within a system.

Hospital Management System Features :- (ERD)

To design an Entity-Relationship Diagram (ER Diagram) for a Hospital Management System (HMS) with the entities provided, let's focus on the following requirements:

Patient Management: The platform should also allow for the patients registration and the management of their information with details such as demographics, medical history, and current condition in mind.

Doctor Management: The system should have the functionality of a doctor directory in which details such as doctor's specialties, contacts, and availability can be set.

Billing: The system will be handling billing details of services rendered to patients and this will cover all functions such as bill generation, tracking payments and management of insurance details.

Entities and Attributes of the Hospital Management System

A thing in the real world with an independent existence. It is may be an object with physical existence (ex: house, person) or with a conceptual existence (ex: course, job). The are represented by rectangle.

1. Patient

- P-ID: Unique identifier for each Patient
- Name: Name of the Patient.
- DOB: Date of birth of Patient.
- Gender: Gender of Patient.
- Mob-No: Contact number of the Patient.
- Age: Age of Patient.

2. Bill

- B-ID: Unique identifier for each Bill.
- P-ID (Foreign Key referencing Patient): P-ID is a foreign key in a table that references the Patient table, typically used to establish a relationship between the two tables based on the Patient ID.
- Amount: The Amount which Patient has to pay to the Hospital.

Hospital Management System Features :- (DFD)

Theory :-

For a Data Flow Diagram (DFD) of the Hospital Management System (HMS), focusing on the Patient Management, Doctor Management, and Billing processes, here is a similar structure as your ERD:

Entities and Processes of the Hospital Management System DFD

A DFD shows the flow of data between processes, data stores, and external entities. Processes are represented by circles, data stores by open-ended rectangles, and external entities by rectangles.

1. Patient Management Process
    - *Inputs:*
        - Patient Registration Form
        - Medical History Form
    - *Outputs:*
        - Patient Record (Stored in Patient Database)
        - Appointment Confirmation
    - *Processes:*
        - Register Patient
        - Update Patient Information
        - Schedule Appointment
2. Doctor Management Process
    - *Inputs:*
        - Doctor Information Form
        - Availability Schedule
    - *Outputs:*
        - Doctor Directory (Stored in Doctor Database)
        - Availability Status
    - *Processes:*
        - Add/Update Doctor Information
        - Set Doctor Availability
3. Billing Process
    - *Inputs:*
        - Service Record
        - Insurance Information
    - *Outputs:*
        - Generated Bill
        - Payment Receipt
    - *Processes:*
        - Generate Bill
        - Process Payment
        - Manage Insurance Claims

These components represent the flow of data between different parts of the system, ensuring the required features are covered effectively.

Data means information, flow means to move, and a diagram means a picture to represent something. So, DFD is simply the graphical representation of the flow of data or information. It is a framework or pattern of the data systems. It includes data input, data output, and storing data. DFD describes the process of taking the data as input, storing the data, and giving the data as output. DFD describes the path of data that completes the process. There are mainly two types of DFD: Physical Data Flow Diagram, and Logical Data Flow Diagram.

Conclusion for the Hospital Management System ERD and DFD:

The Entity-Relationship Diagram (ERD) and Data Flow Diagram (DFD) for the Hospital Management System provide a comprehensive overview of the system's structure and data flow. The ERD effectively outlines the core entities such as Patients, Doctors, and Bills, and the relationships between them, ensuring clear and efficient data organization. Each entity is defined with key attributes, allowing for robust management of patient demographics, medical history, doctor details, and billing information.