“Hospital Management System “

“Structure and Data flow of Hospital Management System “

Here's the **structure and data flow diagram** for your **Hospital Management System**:

**📌 System Overview**

Your system has **six main entities**:

1. **Patients** – Registers, logs in, books appointments, and views bills.
2. **Doctors** – Registers, logs in, views patients and insurers, and manages billing.
3. **Insurers** – Registers, logs in, and views insurance details of patients.
4. **Appointments** – Patients book appointments with doctors.
5. **Billing** – Doctors generate bills for insurance team.
6. **Contact Us** – Handles inquiries from patients/users.

**📂 Data Flow Diagram (DFD)**

The **DFD** describes how data moves between entities.

**🏥 Level 0: Context Diagram**

* **Users** (Patients, Doctors, Insurers) interact with the **Hospital Management System**.
* The system manages authentication, appointment booking, billing, and data retrieval.

**📊 Level 1: High-Level Data Flow**

Patient → (register/login) → System → (store in DB)

Doctor → (register/login) → System → (store in DB)

Doctor → (generate bill) → Billing System

Insurer → (register/login) → System → (store in DB)

Patient → (register/login) → (book appointment) → Doctor (schedule)

Insurer → (retrieve patient policies) → System

**📌 Data Structure & Relationships**

* **Patients**, **Doctors**, and **Insurers** have **separate collections**.
* **Appointments** reference **patients** and **doctors**.
* **Billing** references **patients**.

**📂 MongoDB Relationships**

* **Patient → Appointments** (One-to-Many)
* **Doctor → Appointments** (One-to-Many)
* **Patient → Billing** (One-to-One)
* **Doctor → Billing** (One-to-Many)

**📌 System Flow (Step-by-Step)**

**1️⃣ User Authentication**

* Patients, doctors, and insurers register and log in.
* JWT authentication ensures secure access.

**2️⃣ Booking Appointments**

* A patient books an appointment.
* The system checks doctor availability before confirming.

**3️⃣ Doctor Management**

* Doctors can access patient records and manage bills.

**4️⃣ Billing & Insurance**

* Doctors generate bills.
* Patients can retrieve bills.
* Insurers verify patient policy details.

**5️⃣ Contact Us**

* Users submit queries that are stored in the database.

**📌 Final Data Flow Diagram (DFD)**

I'll generate a **visual representation** of your **Data Flow Diagram (DFD)** for better understanding. Stay tuned! 🎨

Here is the **Data Flow Diagram (DFD)** for your **Hospital Management System**. It visually represents how patients, doctors, insurers, appointments, and billing interact within the system. Let me know if you need any modifications or further details! 🚀

