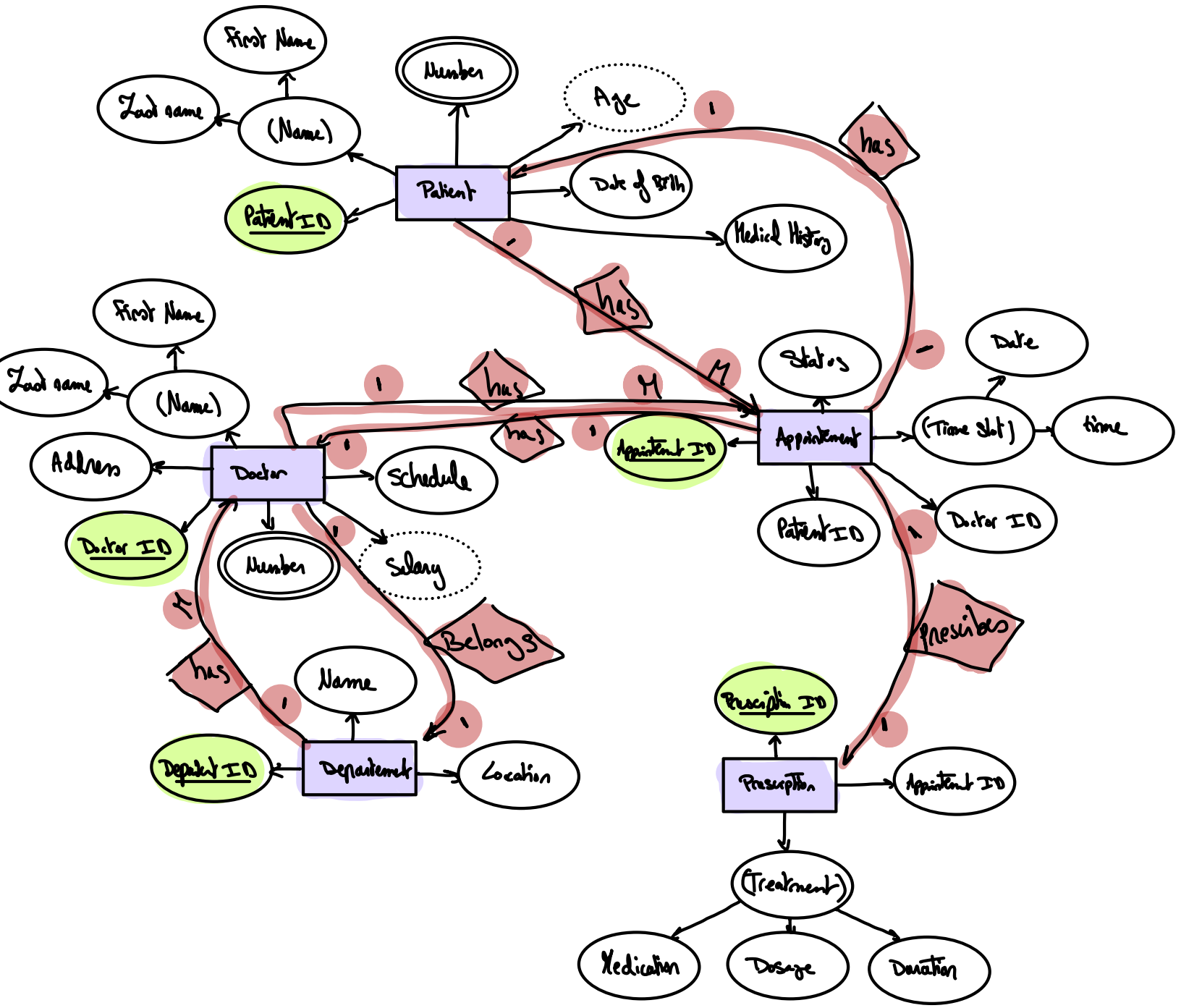
Hospital system



1] Patient

Attribute	Type	Key	Description
Patient_ID	INT	PK	Unique identifier for each patient
First_Name	VARchar	composite attribute of Name	Patient's First Name
Last_Name	VARCHAR	//	// Last
Number	VARCHAR		Contact number (could be multiple)
Date_of_Birth	DATE		Birth date
Age	INT	Deived	Derived from Birth date
Medical_history	TEXT		Summary of Patient's Records

2] Doctor

Attribute	Type	Key	Description
Doctor_ID	INT	PK	Unique identifier for each Dr
First_Name	Varchar	Composite of Name	Dr's First Name
Last_Name	Varchar	//	// Last
Address	Varchar		Dr's address
Number	Varchar		Dr's number/s
schedule	Varchar		Work schedule
Salary	decimal		Monthly salary
Dept_ID	INT	FK	reference Department(Dept_ID)

3) Department

Attribute	Type	Key	Description
Dept_ID	INT	PK	Unique identifier for each Dept
Name	Varchar		Dept Name
Location	Varchar		Dept's physical location

4) Appointment

Attribute	Type	Key	Description
Appoint_ID	INT	PK	Unique identifier for each Appt
Date	DATE	composite attribute of time slot	Appt date
time	TIME	//	Appt time
Status	VARCHAR		Appt status (scheduled / completed...)
Patient_ID	INT	FK	References Patient (Patient_ID)
Doctor_ID	INT	FK	References Doctor (Doctor_ID

5) Prescription.

Attribute	Type	Key	Description
Prescripti_ID	INT	PK	Unique identifier for each prescription
Appoint_ID	INT	FK	References Appointment (Appoint_ID)
Medication	VARCHAR	composite of Treatment	Name of prescribed Medicine
Dosage	VARCHAR	//	Amount and frequency
Duration	VARchar	//	Duration of use

In the ERD, key entities such as Patient, Doctor, Department, Appointment, and Prescription were identified as the main components of the system.
Each entity includes its relevant attributes, and relationships were correctly defined based on real-world hospital interactions:

- Each Doctor belongs to one Department, while a Department can have many Doctors → one-to-many relationship.
- Each Patient can book many Appointments, and each Doctor can attend many Appointments, but each appointment links to only one of each → many-to-one relationships toward Patient and Doctor.
- Each Appointment produces exactly one Prescription, representing a one-to-one relationship.

Additionally, attributes such as Name and Treatment were modeled as composite attributes in the ERD:

- Name is composed of First_Name and Last_Name.
- Treatment is composed of Medication, Dosage, and Duration.

When converting the ERD into the Relational Data Model, these composite attributes were decomposed into their atomic sub-attributes, since the relational model only supports atomic (non-divisible) data fields.

Each table in the relational data model was designed to represent a main real-world entity in the hospital system.
The Patient table stores personal and medical information, while the Doctor table includes professional and contact details, each linked to a Department through a foreign key.
The Appointment table connects patients and doctors, recording the date, time, and status of each visit.
Finally, the Prescription table holds the medical instructions resulting from each appointment, including the medication, dosage, and duration details.