Database Design Documentation

Section 1. ERD Overview

Blue tables represent core records and pink tables represent transaction records.

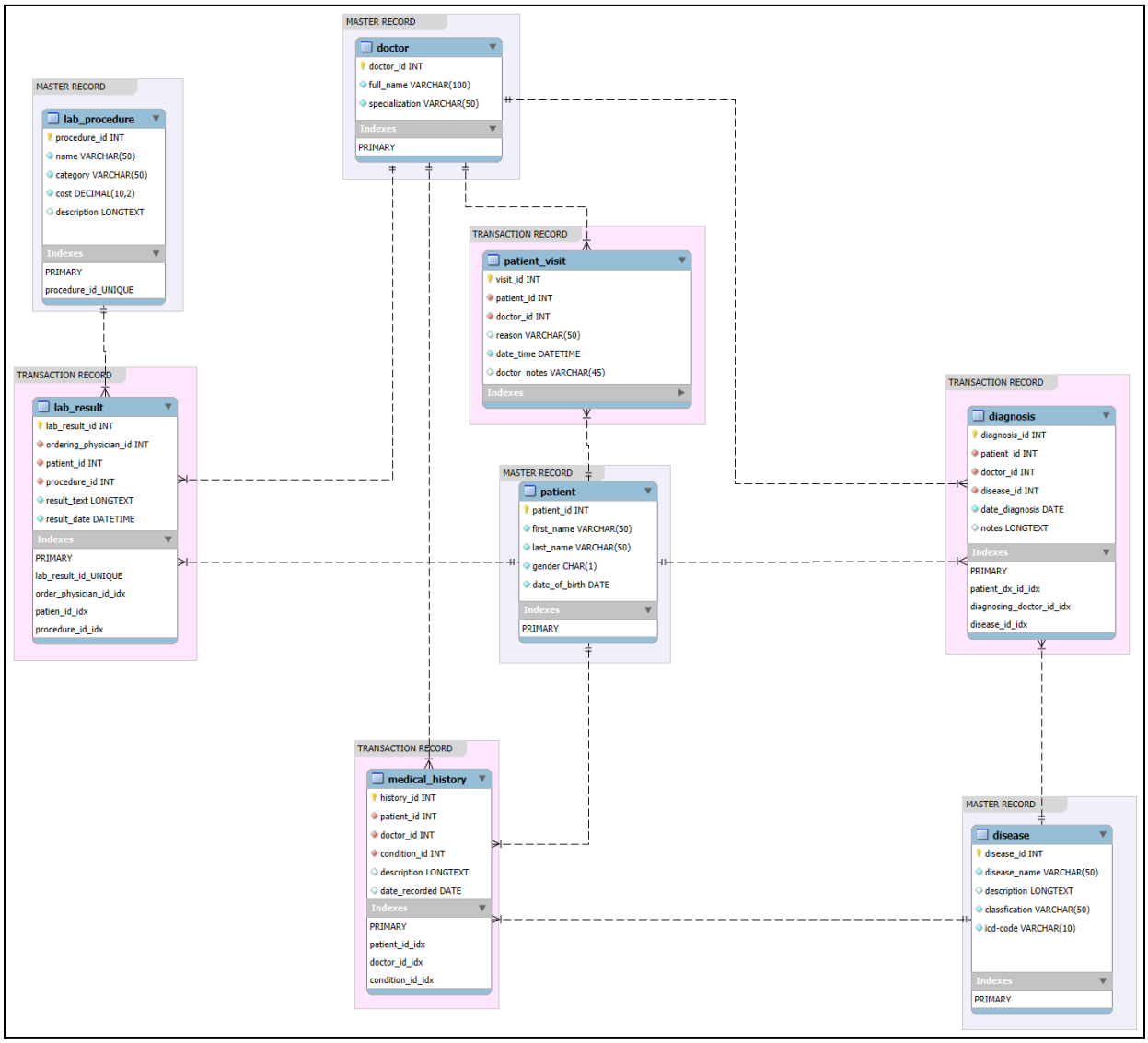

Figure 1.0 Entity Relationship Diagram

The database consists of four core records—patients, doctors, lab procedures, and diseases—and four main transaction records: patient visits, diagnosis assignments, lab test results, and medical history entries. [PNG] [MWB]

Section 2. Table Definitions

The core records and transaction records have the following name, attributes, and data constraints (column flags):

Engine: utf8mb4

Master Record (Core Record)										
Name of Table	**Attributes**		**Column Flags**							
	Name	**Type**	**PK**	**NN**	**UQ**	**B**	**UN**	**ZF**	**AI**	**G**
patient	patient_id	INT	■	■			■		■	
	first_name	VARCHAR(50)		■						
	last_name	VARCHAR(50)		■						
	gender	ENUM('M', 'F', 'O')		■						
	date_of_birth	DATE		■						
doctor	doctor_id	INT	■	■			■		■	
	full_name	VARCHAR(100)		■						
	specialization	VARCHAR(50)		■						
lab_procedure	procedure_id	INT	■	■			■		■	
	name	VARCHAR(50)		■						
	category	VARCHAR(50)		■						
	cost	DECIMAL(10,2)		■						
	description	LONGTEXT								
disease	disease_id	INT	■	■			■		■	
	disease_name	VARCHAR(50)		■						
	description	LONGTEXT								
	classification	VARCHAR(50)		■						
	icd-code	VARCHAR(10)		■						
Transaction Record (Records of Activity)										
Name of Table	**Attributes**		**Column Flags**							
	Name	**Type**	**PK**	**NN**	**UQ**	**B**	**UN**	**ZF**	**AI**	**G**
patient_visit	visit_id	INT	■	■			■		■	
	(FK) patient_id	INT		■			■			
	(FK) doctor_id	INT		■			■			
	reason	VARCHAR(50)		■						
	date_time	DATETIME		■						
	doctor_notes	VARCHAR(255)		■						
diagnosis	diagnosis_id	INT	■	■			■		■	
	(FK) patient_id	INT		■			■			
	(FK) doctor_id	INT		■			■			
	(FK) disease_id	INT		■			■			
	date_diagnosis	DATE		■						
	notes	LONGTEXT								
lab_result	lab_result_id	INT	■	■			■		■	

	(FK) ordering_physician	INT		■			■			
	patient_id	INT		■			■			
	procedure_id	INT		■			■			
	result_text	LONG TEXT		■						
	result_date	DATETIME		■						
medical_history	history_id	INT	■	■			■		■	
	(FK)patient_id	INT		■			■			
	(FK)doctor_id	INT		■			■			
	(FK)condition_id	INT		■			■			
	description	LONGTEXT								
	date_recorded	DATE		■						

Section 3. System Behaviour and Domain Rules

The following rules define the system behavior of the following transaction records:

1. Visit Record Behaviour
   - 1.1. **A patient can have zero or more visit records** representing any form of clinical encounter (e.g., general check-ups, follow-ups, or consultations).
   - 1.2. A visit must be linked to **one patient** and **one doctor.**
   - 1.3. A patient may have **multiple visits** on the same or different dates.
   - 1.4. Visit records may include **optional doctor notes for comments or observations**, but these can be left blank if unnecessary.

2. Diagnosis Record Behaviour
   - 2.1. A diagnosis is always linked to **one patient**, **one doctor**, and **one disease**.
   - 2.2. **A diagnosis can exist without being added to the medical history,** especially for minor or short-term conditions (e.g., common flu). It is the doctor's discretion whether to add it to the medical history or not.
   - 2.3. A patient can accumulate **multiple diagnoses over time**, each reflecting a separate clinical assessment.
   - 2.4. A diagnosis must include a **diagnosis date** and may optionally include notes.

3. Lab Result Record Behaviour
   - 3.1. A lab result must ALWAYS be linked to **one** patient, **one** procedure, and **one** ordering doctor.
   - 3.2. A lab result alone CANNOT **result in a diagnosis;** only a doctor can interpret and assign a diagnosis.
   - 3.3. A patient may have **multiple lab results**, potentially requested by different doctors and for different purposes.

4. Medical History Record Behaviour

4.1. A medical history entry may be added **manually or automatically** from a confirmed diagnosis when designated by a doctor.
4.2. A patient may have **zero or many** medical history records.
4.3. A patient may have condition entries in the Medical History table that are not linked to formal diagnoses (e.g, in-born, chronic, hereditary, or idiopathic conditions).

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—Nothing Follows—