Hospital Database Project

Introduction:

Why should we use database for hospital?!

The problem driving the creation of a hospital database lies in the need to streamline and centralize the management of vast amounts of critical information within healthcare facilities. *This includes patient records and staff management.* By developing a comprehensive database solution, hospitals aim to enhance efficiency, accuracy, and accessibility of data, ultimately improving patient care and operational effectiveness.

ER Diagram

The ER diagram description for the hospital database is as the following:

- The hospital has a number of **patients** each patient has *patient_id, name, age, gender, phone, address, Medical_history.*

- Each patient may book an **appointment**, each appointment has a set of attributes: *appointment_id, purpose, date_time*, and each appointment must booked by a patient.

- Each patient may perform a **surgery** each surgery has a set of attributes: *surgery_id, surgery_type, surgery_date*, and the surgery must performed by a doctor.

- The hospital has a number of **doctors** each doctor has *doc_id, Name which represented as first_name and last_name, email, phone, specialization.*

- The hospital has a number of **departments** each department has *depart_id, depart_name.*

- The hospital has a number of **nurses** each nurse has *nurse_id, name, email, phone.*

- *Each **doctor** is belongs to a **department**, and each department can have more than one doctor.*
- There is one doctor treats many patients, using the **treatment** which has a *date, time, results, treatment_description* which represented as *treatment_code and description.*

- Each ***patient*** is assigned to a ***doctor***, and each doctor can have more than one patient.

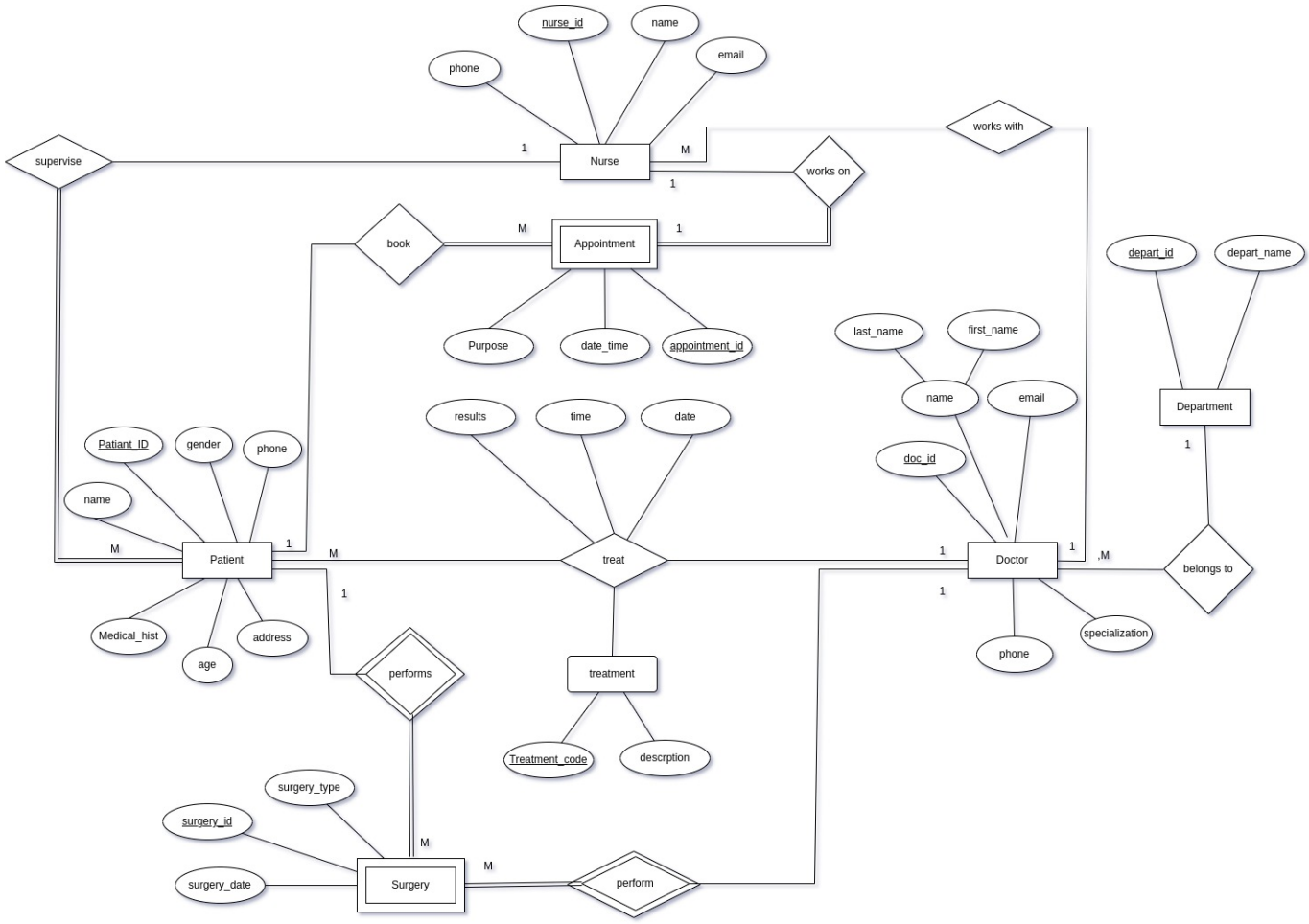
- Each ***nurse*** may supervise more than one ***patient***, and each patient must be supervised by one nurse.

- Each ***nurse*** works with one ***doctor*** and each doctor can work with more than one nurse.

- Each ***nurse*** works on ***appointment***, and each appointment must be supervised by a nurse.

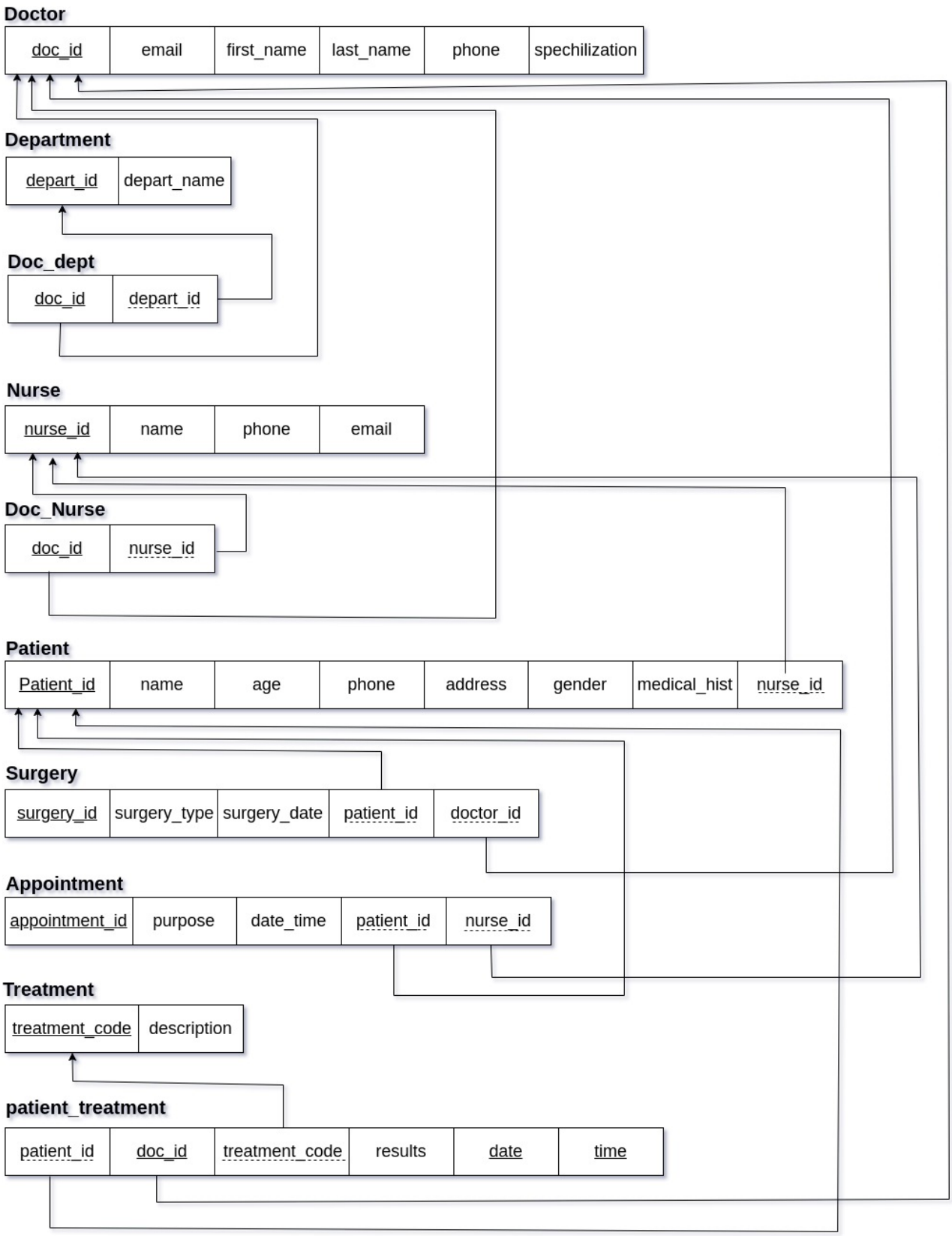
- Each ***doctor*** can perform more than one ***surgery***, and each surgery must be performed by a doctor.

- The ***patient*** can be performed by a ***surgery*** and the surgery must be performed on a patient by a doctor.



Relational Mapping

The ER diagram can be mapped to the following relational schema:



Data Dictionary

The data dictionary for the hospital database is as the following:

Doctor Table

Attribute	Data Type	Description	PK	FK	Reference
doc_id	NUMBER (6)	Unique identifier for doctors	Y		
first_name	VARCHAR2 (10)	First name of the doctor			
last_name	VARCHAR2 (10)	Last name of the doctor			
email	VARCHAR2 (20)	Email address of the doctor			
phone	VARCHAR2 (12)	Phone number of the doctor			
specialization	VARCHAR2 (15)	Area of specialization for the doctor			

Department Table

Attribute	Data Type	Description	PK	FK	Reference
depart_id	NUMBER (5)	Unique identifier for departments	Y		
depart_name	VARCHAR2 (10)	Name of the department			

Doc_department Table

Attribute	Data Type	Description	PK	FK	Reference
doc_id	NUMBER (6)	Unique identifier for doctors	Y		doctor
depart_id	NUMBER (5)	Identifier for departments		Y	department

Nurse Table

Attribute	Data Type	Description	PK	FK	Reference
nurse_id	NUMBER (6)	Unique identifier for nurses	Y		
name	VARCHAR2 (15)	Name of the nurse			
phone	VARCHAR2 (12)	Phone number of the nurse			
email	VARCHAR2 (20)	Email address of the nurse			

doc_nurse Table

Attribute	Data Type	Description	PK	FK	Reference
doc_id	NUMBER (6)	Unique identifier for doctors	Y		doctor
nurse_id	NUMBER (6)	Unique identifier for nurses		Y	nurse

Patient Table

Attribute	Data Type	Description	PK	FK	Reference
patient_id	NUMBER (6)	Unique identifier for patients	Y		
name	VARCHAR2 (15)	Name of the patient			
age	NUMBER (2)	Age of the patient			
phone	VARCHAR2 (12)	Phone number of the patient			
address	VARCHAR2 (20)	Address of the patient			
gender	VARCHAR2 (1)	Gender of the patient			
medical_hist	VARCHAR2 (30)	Medical history of the patient			
nurse_id	NUMBER (6)	Identifier of the assigned nurse		Y	nurse

Surgery Table

Attribute	Data Type	Description	PK	FK	Reference
surgery_id	NUMBER (5)	Unique identifier for surgeries	Y		
surgery_type	VARCHAR2 (10)	Type of surgery			
surgery_date	TIMESTAMP	Date of the surgery			
doc_id	NUMBER (6)	Identifier of the performing doctor		Y	doctor
patient_id	NUMBER (6)	Identifier of the patient		Y	patient

Appointment Table

Attribute	Data Type	Description	PK	FK	Reference
appointment_id	NUMBER (5)	Unique identifier for appointments	Y		
purpose	VARCHAR2 (10)	Purpose of the appointment			
date_time	TIMESTAMP	Date and time of the appointment			
nurse_id	NUMBER (6)	Identifier of the attending nurse		Y	nurse
patient_id	NUMBER (6)	Identifier of the patient		Y	patient

Treatment Table

Attribute	Data Type	Description	PK	FK	Reference
Treatment_code	VARCHAR2 (15)	Unique code for the treatment	Y		
description	VARCHAR2 (25)	Description of the treatment			

patient_treatment Table

Attribute	Data Type	Description	PK	FK	Reference
patient_id	NUMBER (6)	Identifier of the patient		Y	patient
doc_id	NUMBER (6)	Identifier of the doctor	Y		doctor
treatment_code	VARCHAR2 (15)	Code of the treatment		Y	treatment
date	DATE	Date of the treatment	Y		
time	TIME	Time of the treatment	Y		
results	VARCHAR2 (20)	Results or outcome of the treatment			