Comprehensive Healthcare Office Database

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Introduction

The purpose of this project aims to provide a streamlined solution for healthcare support. Crucial aspects within the project relate to managing important information related to patients, doctors, medications and appointments. The design is meant to be user friendly for both the health physicians and the persons' seeking care, allowing for a friendly and straightforward interaction and provides an enhanced experience for both parties.

The project consists of four key tables, patients, doctors, medications, and appointments, and one junction table, patient-doctor. These tables are necessary to store essential information to support the ecosystem of the healthcare facility. These aspects allow for easy retrieval, modification, and analysis to aid in prompt decision making. This interconnected approach to data management allows better patient care, more efficient workflows, and improved overall outcomes. The patient table, storing all the information regarding a patient allows for doctors to derive information with them along with the appointments table allows them to understand the reasoning for a visit and can facilitate care. The doctor table allows for users to know which physician is the best based on location and practice. The medication table allows for the data of prescriptions and medications to be processed for doctors to prescribe to patients and the patients to understand the cost and dosage required. Triggers and procedures created in this function ensure the data integrity and accuracy whereas functions help to narrow the search of the database to obtain information for a specific patient or a doctor. This comprehensive design and implementation creates a reliable and responsive relationship between patient and doctor.

ER Diagram

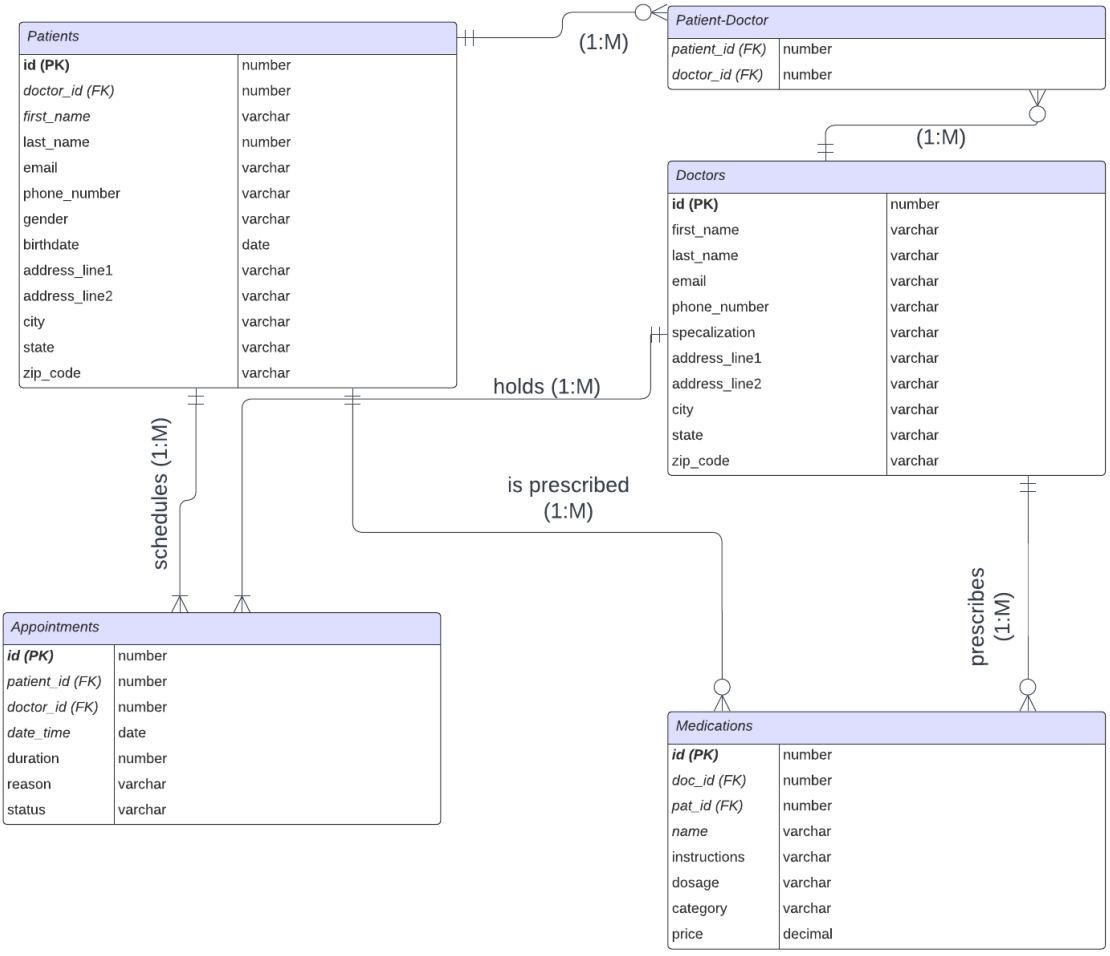

Figure 1. The entity-relationship(ER) diagram encompasses the comprehensive healthcare office, the design demonstrates the relationships of the attributes in each table.

Normalization

UNF	**1NF**	**2NF**	**3NF**
doctors-patient	**Doctors**	**Doctors**	**Doctors**
doc_id (PK)	id (PK)	id (PK)	id (PK)
first_name	first_name	first_name	first_name
last_name	last_name	last_name	last_name
email	email	email	email
phone_number	phone_number	phone_number	phone_number
specialization	specialization	specialization	specialization
doc_address_line1	address_line1	address_line1	address_line1
doc_address_line2	address_line2	address_line2	address_line2
doc_city	city	city	city
doc_state	state	state	state
doc_zip_code	zip_code	zip_code	zip_code
pat_id	**Patients**	**Patients**	**Patients**
pat_first_name	id (PK)	id (PK)	id (PK)
pat_last_name	first_name	first_name	first_name
pat_email	last_name	last_name	last_name
pat_phone_number	email	email	email
pat_gender	phone_number	phone_number	phone_number
pat_birthdate	gender	gender	gender
pat_address	birthdate	birthdate	birthdate
appointment_date_time	address	address	address_line1
appointment_duration	appointment_date_time	appointment_date_time	address_line2
appointment_reason	appointment_duration	appointment_duration	city
appointment_status	appointment_reason	appointment_reason	state
medications_name	appointment_status	appointment_status	zip_code
medications_price	medications_name	medications_name	**Appointments**
medications_side_effects	medications_price	medications_price	id (PK)
medications_instructions	medications_side_effects	medications_side_effects	doctor_id (FK)
medications_dosage	medications_instructions	medications_instructions	patient_id (FK)
medications_category	medications_dosage	medications_dosage	date_time

	medications_category	medications_category	duration
	doc_id(FK)	doc_id(FK)	reason
			status
			Medications
			id (PK)
			name
			price
			side_effects
			instructions
			dosage
			category
			pat_id (FK)

Patients

ATTRIBUTE NAME	DATA TYPE	SIZE	ALLOW NULL
id	NUMBER	4	NO (PK)
doctor_id	NUMBER	4	NO
first_name	VARCHAR	50	NO
last_name	VARCHAR	50	NO
email	VARCHAR	100	YES
phone_number	VARCHAR	20	NO
gender	VARCHAR	10	NO
birthdate	DATE		NO
address_line1	VARCHAR	100	NO
address_line2	VARCHAR	100	YES
city	VARCHAR	50	NO

state	VARCHAR	50	NO
zip_code	VARCHAR	10	NO

Doctors

ATTRIBUTE NAME	DATA TYPE	SIZE	ALLOW NULL
id	NUMBER	4	NO (PK)
first_name	VARCHAR	50	NO
last_name	VARCHAR	50	NO
email	VARCHAR	100	YES
phone_number	VARCHAR	20	NO
specialization	VARCHAR	100	NO
address_line1	VARCHAR	100	NO
address_line2	VARCHAR	100	YES
city	VARCHAR	50	NO
state	VARCHAR	50	NO
zip_code	VARCHAR	10	NO

Appointments

ATTRIBUTE NAME	DATA TYPE	SIZE	ALLOW NULL
id	NUMBER	4	NO (PK)
doctor_id	NUMBER	4	NO
patient_id	NUMBER	4	NO
date_time	DATE		NO
reason	VARCHAR	200	YES
status	VARCHAR	20	NO

Medications

ATTRIBUTE NAME	DATA TYPE	SIZE	ALLOW NULL
id	NUMBER	4	NO (PK)
doctor_id	NUMBER	4	NO
patient_id	NUMBER	4	NO
medicine_name	VARCHAR	100	NO
price	DECIMAL	10, 2	NO
instructions	VARCHAR	500	YES
dosage	VARCHAR	100	YES
category	VARCHAR	50	YES

Patient-Doctor

ATTRIBUTE NAME	DATA TYPE	SIZE	ALLOW NULL
patient_id	NUMBER	4	NO
doctor_id	NUMBER	4	NO

Conclusion

Our comprehensive healthcare office database design aids in facilitating proper primary care for patients and allows for the prompt preparation of appointments, visits, and prescribing of medication within a simple integrated system. The team has taken the management of vital data into priority. This design can be improved into the future with the collaboration of newer

information, such as insurance and billing. This first implementation is a beneficial design and can be incorporated to improve the quality of primary care of users.

Task Distribution		
Nischal Bhandari	Normalization, Patient table, Functions	Patient table creation, insertion, and implementation, Joins, and functions; Extra triggers.
Chris Valente	Table design, ERD, Data dictionary	Doctor table implementation/all SQL code (functions, queries, etc.) related to Doctor table
Zachary Dishian	Appointment table, Triggers	Appointment table implementation and SQL code for the content relating to the Appointment table.
Eran Peci	Medications Table. Procedures.	Medication table implementation/all SQL code related to medications table.