Module 03 Tutorial Session

Question

Create logical and physical ER diagrams for the following scenario.

Bewell Medical Clinic (BMC) is in need of a database to manage the details of their patients, doctors, and appointments. The following information has been discovered:

* BMC must store patient details, including name, date of birth, address and phone.
* BMC stores the name, date of birth, qualifications, address and phone of their doctors.
* When patients make an appointment, the date/time of it must be stored, as well as a description of the reason for the appointment, the doctor who they will see, and the room that it will be in.
* For billing purposes, BMC wishes to store the names and associated costs of all appointment types – e.g. short consultation, long consultation, short consultation (pensioner), long consultation (pensioner).
* BMC wishes to store details of the medicines it stocks – they wish to record the name of the medicine and its manufacturer, and the cost (to patients) per dose.
* During an appointment, the doctor can prescribe one or more medicines to the patient. This must be recorded.
* Medicines can only be prescribed during an appointment – hence, the doctor who prescribed it and the patient it is for can be determined via the appointment details.

**Assumptions**

* Patients are only recorded in the database once they have an appointment booked
* Appointment details are kept after they occur
* If it possible for a doctor to have never been part of an appointment (e.g. new staff)
* Every appointment has a patient, doctor and appointment type
* It is possible to have an appointment type that no appointments have been made for
* It is possible to have medicines that have never been prescribed
* Appointments may not involve any prescriptions
* Each prescription involves one appointment and one medicine, but multiple prescriptions can be made in a single appointment

**Solution – Logical ERD**

doctor\_id, name

dob, qualifications, address, phone

doctor

patient\_id, name

dob, address, phone

medicine\_id, name

manufacturer, cost

medicine

appointment

patient

appt\_type\_id,

name, cost

appt\_type

appt\_id, datetime, room, reason

**Solution – Physical ERD**

doctor\_id, name

dob, qualifications, address, phone

doctor

prescription

medicine

appointment

patient

appt\_id, datetime, room, reason, *patient\_id*, *doctor\_id*, *appt\_type\_id*

appt\_type

appt\_type\_id,

name, cost

prescription\_id,

*appt\_id*, *medicine\_id*

patient\_id, name

dob, address, phone

medicine\_id, name

manufacturer, cost