Fadly Syahputra
Homework #2

1. In a paragraph or two of text, enumerate the following items for a **health clinic**
   - Schemas
   - Entities
   - Attributes of the entities
   - Relationships among the entities
   - Rules governing the attributes

   Your work should contain at least 5 entities (tables), each of which contains at least 4 attributes (columns) and the appropriate rules

   Answer:

   Schemas : health_clinic
   Entities : patients, doctors, appointments, treatments, billing
   Attributes and Rule/Constraints :

   patients table: Stores details about clinic patients.

Columns	Data Type	Constraints
- patient_id	NUMBER	PRIMARY KEY, AUTO_INCREMENT
- first_name	VARCHAR (255 char)	NOT NULL
- last_name	VARCHAR (255 char)	NULLABLE
- date_of_birth	DATE	NOT NULL
- phone_number	VARCHAR (20 char)	NOT NULL
- email	VARCHAR (255 char)	NULLABLE
- address	VARCHAR (255 char)	NULLABLE

   doctors table: Stores information about the doctors working at the clinic.

Columns	Data Type	Constraints
- doctor_id	NUMBER	PRIMARY KEY, AUTO_INCREMENT
- first_name	VARCHAR (255 char)	NOT NULL
- last_name	VARCHAR (255 char)	NULLABLE
- specialization	VARCHAR (255 char)	NOT NULL (a list of medical specialties in the FE)
- phone_number	VARCHAR (20 char)	NOT NULL
- email	VARCHAR (255 char)	NOT NULL

   appointments table: Stores patient-doctor appointments.

Columns	Data Type	Constraints
- appointment_id	NUMBER	PRIMARY KEY, AUTO_INCREMENT
- patient_id	NUMBER	FOREIGN KEY REFERENCES Patients(patient_id)
- doctor_id	NUMBER	FOREIGN KEY REFERENCES Doctors(doctor_id)
- appointment_date	DATETIME	NOT NULL
- status	VARCHAR (20 char)	DEFAULT 'Scheduled'. (Option in the FE: Scheduled, Completed, Canceled)
- notes	TEXT	NULLABLE

treatments table: Stores the treatments or procedures given to patients.

Columns	Data Type	Constraints
- treatment_id	NUMBER	PRIMARY KEY, AUTO_INCREMENT
- appointment_id	NUMBER	FOREIGN KEY REFERENCES Appointments(appointment_id)
- treatment_name	VARCHAR (255 char)	NOT NULL (a list of treatments in the FE)
- cost	DECIMAL(11,2)	NOT NULL
- description	TEXT	NULLABLE

billing table: Stores the billing and payment details for treatments.

Columns	Data Type	Constraints
- billing_id	NUMBER	PRIMARY KEY, AUTO_INCREMENT
- patient_id	NUMBER	FOREIGN KEY REFERENCES Patients(patient_id)
- appointment_id	NUMBER	FOREIGN KEY REFERENCES Appointments(appointment_id)
- total_amount	DECIMAL(12,2)	NOT NULL
- payment_status	VARCHAR (20 char)	DEFAULT 'Pending'. (Options in the FE: Pending, Paid, Overdue)
- payment_date	DATETIME	NULLABLE

Relationships among the entities:

- **Patients** can have multiple **Appointments** (One-to-Many).
- **Doctors** can have multiple **Appointments** (One-to-Many).
- **Appointments** can have multiple **Treatments** (One-to-Many).
- **Appointments** generate one **Billing** record (One-to-One).
- **Patients** can have multiple **Billing** records (One-to-Many).

2. Implement the logical model in Oracle Data Modeler