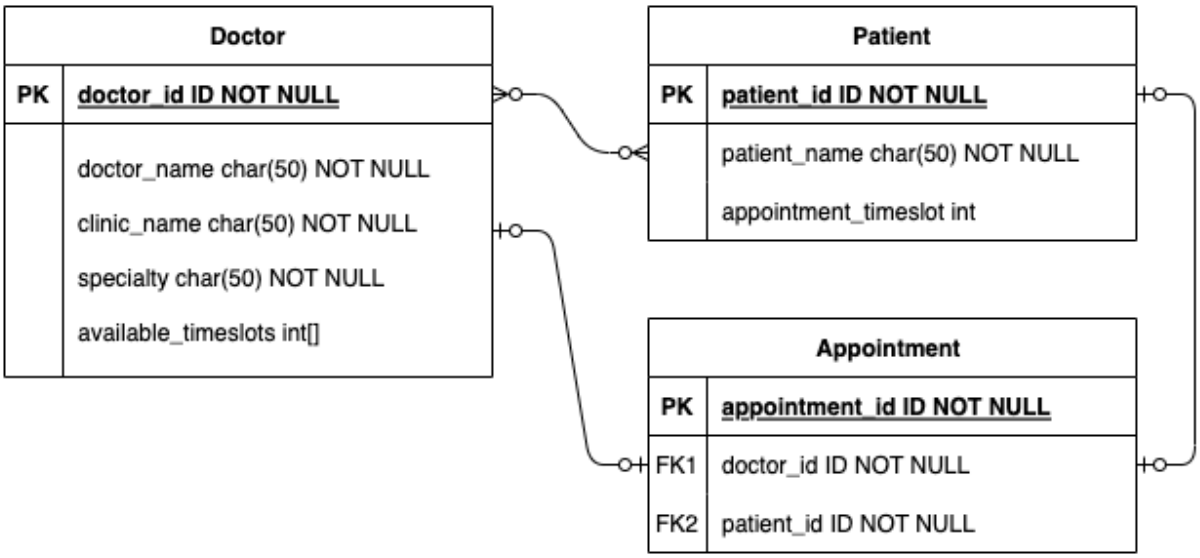
API Design
Assignment A2.1

Schema (types) of the GraphQL API (ER diagram)



- The Doctor entity has available_timeslots which is an array of integers between 1 and 16. Since we are only concerned with today's time slots of 30 minutes each from 9am to 5pm, each integer in the array represents the following time slot:

  1: 9am-9.30am, 2: 9.30am-10am, 3: 10am-10.30am, 4: 10.30am-11am,
  5: 11am-11.30am, 6: 11.30am-12pm, 7: 12pm-12.30pm, 8: 12.30pm-1pm,
  9: 1pm-1.30pm, 10: 1.30pm-2pm, 11: 2pm-2.30pm, 12: 2.30pm-3pm,
  13: 3pm-3.30pm, 14: 3.30pm-4pm, 15: 4pm-4.30pm, 16: 4.30pm-5pm.

- Once an appointment is booked with a doctor, the integer corresponding to the time slot is removed from their available_timeslots array.

- If the appointment is canceled, the integer is added back to the array.

- The Patient entity has appointment_timeslot which is an integer between 1 and 16, whose value depends on the time slot of the appointment they have booked.

Various queries that the API will support

1. Get doctor details
   Name: getDoctorDetails
   Inputs: doctor_id
   Outputs: doctor_name, clinic_name, specialty

2. Get doctor's available time slots for today
   Name: getDoctorSlots
   Inputs: doctor_id
   Outputs: available_timeslots

Mutations that the API will support

1. Book an appointment with a doctor for today
   Name: bookAppointment
   Inputs: doctor_id, patient_id, appointment_timeslot
   Outputs: doctor_name, available_timeslots, patient_name, appointment_timeslot

2. Cancel an appointment
   Name: cancelAppointment
   Inputs: appointment_id
   Outputs: doctor_id, available_timeslots

3. Update name of the patient for an appointment
   Name: updatePatientName
   Inputs: appointment_id, patient_name
   Outputs: patient_id, patient_name, appointment_timeslot

Endpoint of the GraphQL API (URL)

http://localhost:4000/graphql

Test Cases Design

Notes:

- The test case identifiers follow the following format: [Q/M][int].[0/1]. Q/M stands for Query/Mutation. The following int is the serial number, and the binary digit after the dot stands for happy path test case (1) and error condition test case (0).
- This API is for the use of the developers to perform CRUD operations.

Happy path test cases for the queries are mentioned below.

Q1.1. getDoctorDetailsHappy
Here the input is a valid doctor_id. The expected output is the doctor_name, clinic, and specialty.

Q2.1. getDoctorSlotsHappy
Here the input is a valid doctor_id. The expected output is the array of available_timeslots.

Happy path test cases for the mutations are mentioned below.

M1.1. bookAppointmentHappy
Here the input is a valid doctor_id, a valid patient_id, and an appointment_timeslot which is present in the available_timeslots array. The expected output is the doctor_name, the new available_timeslots array from which the appointment_timeslot has been removed, patient_name, and appointment_timeslot.

M2.1. cancelAppointmentHappy
Here the input is a valid appointment_id. The expected output is the doctor_id, and the new available_timeslots array to which the appointment_timeslot has been added back.

M3.1. updatePatientNameHappy
Here the input is a valid appointment_id, and the new patient_name. The expected output is a new patient_id for this new patient, the new patient_name, and the appointment_timeslot.

Error condition test cases for the queries are mentioned below.

Q1.0. getDoctorDetailsUnhappy
Here the input is an invalid doctor_id. The expected output is an error.

Q2.0. getDoctorSlotsUnhappy
Here the input is an invalid doctor_id. The expected output is an error.

Error condition test cases for the mutations are mentioned below.

M1.0. bookAppointmentUnhappy
Here the input is an invalid doctor_id, an invalid patient_id, and an appointment_timeslot which is not present in the available_timeslots array. The expected output is an error.

M2.0. cancelAppointmentUnhappy
Here the input is an invalid appointment_id. The expected output is an error.

M3.0. updatePatientNameUnhappy
Here the input is an invalid appointment_id, and the new patient_name. The expected output is an error.