

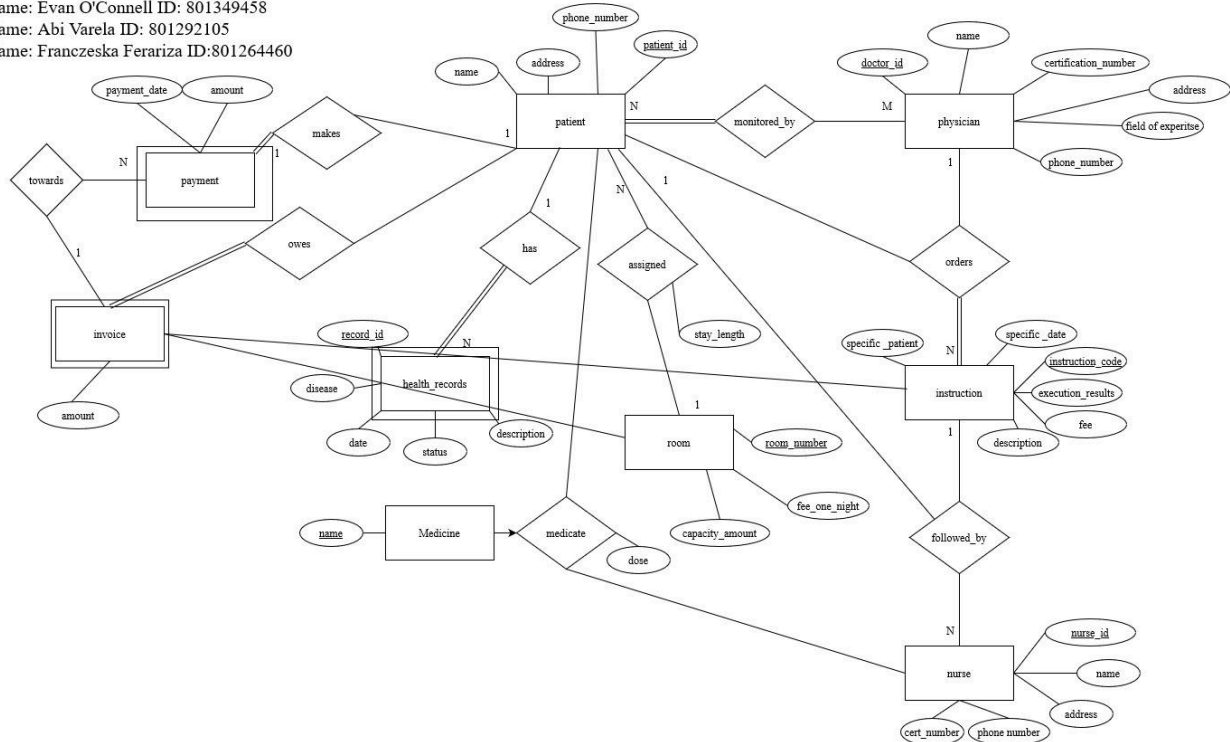
Group Members: Evan O'Connell, Abi Varela, Franczeska Feriza

1. Assumptions:

Only assumption made was that certification_number is not a 'key value', as its meaning is unclear.

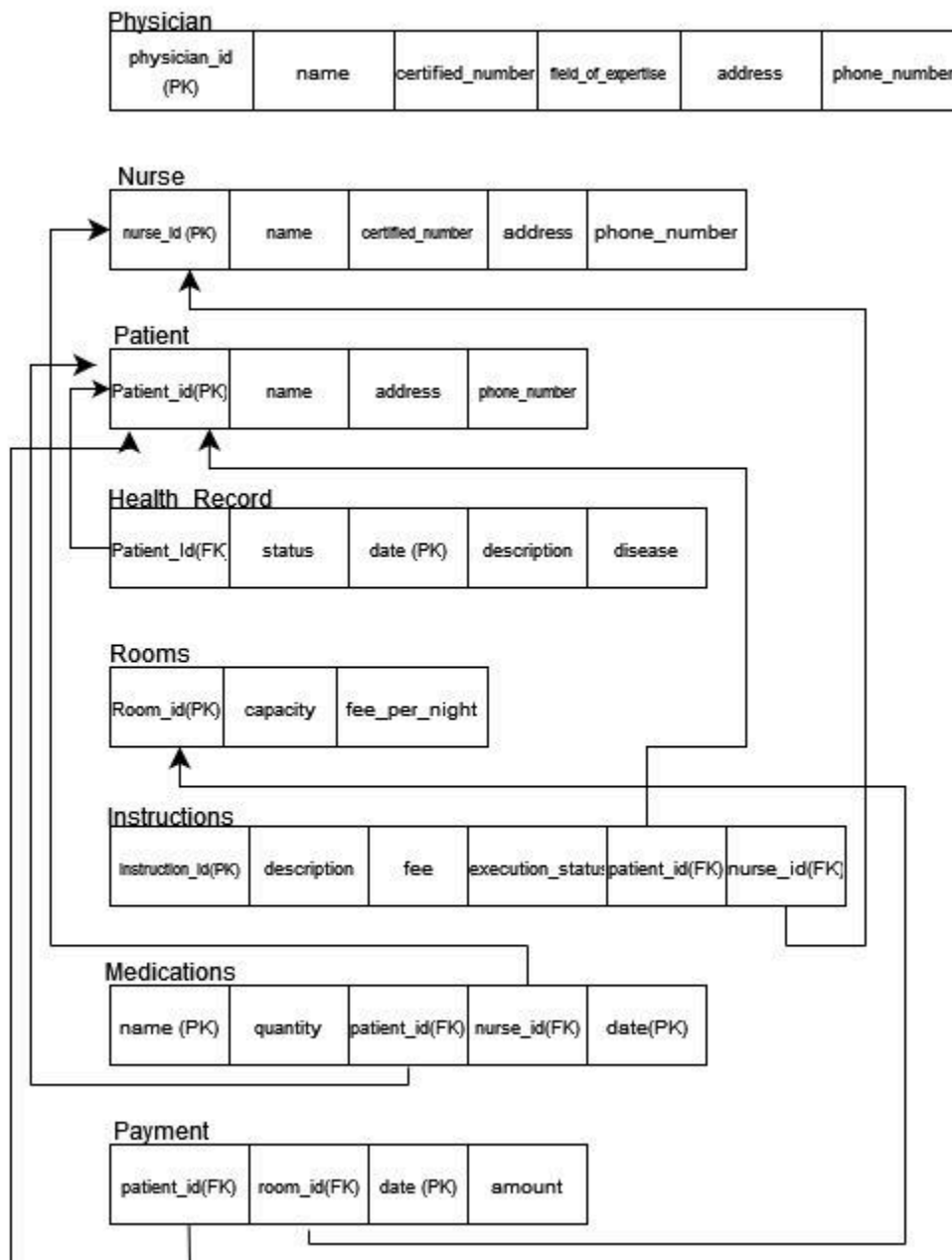
2. Diagram:

Group Members:
Name: Evan O'Connell ID: 801349458
Name: Abi Varela ID: 801292105
Name: Franczeska Ferariza ID: 801264460



Got some feedback from TA on connection between payment and invoice, as well as how medication should be represented in the diagram.

3.



4. Views

-view combines patient information with details about their assigned room

```
CREATE VIEW vw_patient_room_details AS SELECT p.patient_id, p.name AS patient_name,
p.address AS patient_address, p.phone_number AS patient_phone, ar.room_num, ar.duration FROM
patient p JOIN assigned_room ar ON p.patient_id = ar.patient;
```

patient_id	patient_name	patient_address	patient_phone	record_id	disease	date	status	primary_physician
P001	John Doe	123 Main St, Healville, CA	5551112222	HR001	Influenza	2024-01-15	Recovered	Dr. Alice Johnson
P002	Jane Smith	456 Elm St, Medicity, TX	5553334444	HR002	Fractured Arm	2023-11-10	Healing	Dr. Bob Smith
P003	Michael Johnson	789 Oak St, Curetown, NY	5555556666	HR003	Allergic Rhinitis	2024-03-20	Under Treatment	Dr. Carol Williams
P004	Sarah Brown	321 Pine St, Treatville, FL	5557778888	HR004	Diabetes Type 2	2024-02-05	Managed	Dr. David Brown
P005	Emily Davis	654 Maple St, Mendentown, IL	5559990000	HR005	Skin Rash	2024-04-15	Resolved	Dr. Emily Davis

Gives quick access to information about patients and their assigned rooms. Instead of joining the patient and assigned_room tables each time, use this view to retrieve patient details with room assignment details.

-combines patient attributes with their health records and physician details

```
CREATE VIEW vw_patient_health_record AS SELECT p.patient_id, p.name AS patient_name,
p.address AS patient_address, p.phone_number AS patient_phone, hr.record_id, hr.disease, hr.date,
hr.status, ph.name AS primary_physician FROM patient p LEFT JOIN health_records hr ON p.patient_id
= hr.patient_num LEFT JOIN physician ph ON p.primary_physician = ph.doctor_id;
```

```
mysql> select * from vw_patient_health_record;
```

patient_id	patient_name	patient_address	patient_phone	record_id	disease	date	status	primary_physician
P001	John Doe	123 Main St, Healville, CA	5551112222	HR001	Influenza	2024-01-15	Recovered	Dr. Alice Johnson
P002	Jane Smith	456 Elm St, Medicity, TX	5553334444	HR002	Fractured Arm	2023-11-10	Healing	Dr. Bob Smith
P003	Michael Johnson	789 Oak St, Curetown, NY	5555556666	HR003	Allergic Rhinitis	2024-03-20	Under Treatment	Dr. Carol Williams
P004	Sarah Brown	321 Pine St, Treatville, FL	5557778888	HR004	Diabetes Type 2	2024-02-05	Managed	Dr. David Brown
P005	Emily Davis	654 Maple St, Mendentown, IL	5559990000	HR005	Skin Rash	2024-04-15	Resolved	Dr. Emily Davis

5 rows in set (0.00 sec)

Useful for cross checking health records with both patient and their supervising doctor, especially when wanting to do this for multiple patients multiple times.

-patient information with details about their assigned room

```
CREATE VIEW vw_patient_room_details AS
SELECT p.patient_id, p.name AS patient_name, p.address AS patient_address, p.phone_number AS
patient_phone,
        ar.room_num, ar.duration
FROM patient p
JOIN assigned_room ar ON p.patient_id = ar.patient;
```

```
mysql> select * from vw_patient_room_details;
```

patient_id	patient_name	patient_address	patient_phone	room_num	duration
P001	John Doe	123 Main St, Healville, CA	5551112222	101A	5
P002	Jane Smith	456 Elm St, Medicity, TX	5553334444	102B	3
P003	Michael Johnson	789 Oak St, Curetown, NY	5555556666	103C	7
P004	Sarah Brown	321 Pine St, Treatville, FL	5557778888	104D	4
P005	Emily Davis	654 Maple St, Mendentown, IL	5559990000	105E	2

5 rows in set (0.00 sec)

Useful for finding which patients are in which room and how to contact them.

5. Queries and Results

1. Retrieve patient names, their assigned room numbers, and the primary physician's name for each patient.

```
SELECT p.name AS patient_name, ar.room_num, ph.name AS primary_physician
FROM assigned_room ar JOIN patient p ON ar.patient = p.patient_id
JOIN physician ph ON p.primary_physician = ph.doctor_id;
```

patient_name	room_num	primary_physician
John Doe	101A	Dr. Alice Johnson
Jane Smith	102B	Dr. Bob Smith
Michael Johnson	103C	Dr. Carol Williams
Sarah Brown	104D	Dr. David Brown
Emily Davis	105E	Dr. Emily Davis

5 rows in set (0.00 sec)

2. Retrieve the total amount of medication administered by each nurse
SELECT n.name AS nurse_name, COUNT(*) AS total_medications_administered
FROM medication m
JOIN nurse n ON m.admin_nurse = n.nurse_id
GROUP BY n.name;

nurse_name	medications_administered
Nurse Olivia Green	1
Nurse Liam White	1
Nurse Emma Black	1
Nurse Noah Brown	1
Nurse Ava Blue	1

5 rows in set (0.00 sec)

3. Retrieve patients along with their primary physician's name and the total fees billed for their instructions.
SELECT p.name AS patient_name, SUM(i.fee) AS total_amount_billed, ph.field_of_expertise
FROM instruction i
JOIN patient p ON i.specific_patient = p.patient_id
JOIN physician ph ON p.primary_physician = ph.doctor_id
GROUP BY p.name, ph.field_of_expertise;

patient_name	primary_physician	total_fee_billed
John Doe	Dr. Alice Johnson	150
Jane Smith	Dr. Bob Smith	200
Michael Johnson	Dr. Carol Williams	175
Sarah Brown	Dr. David Brown	250
Emily Davis	Dr. Emily Davis	225

5 rows in set (0.00 sec)

4. Retrieve the total amount billed for each patient's instructions, along with their primary physician's field of expertise.

```
SELECT p.name AS patient_name, SUM(i.fee) AS total_amount_billed, ph.field_of_expertise
FROM instruction i
JOIN patient p ON i.specific_patient = p.patient_id
JOIN physician ph ON p.primary_physician = ph.doctor_id
GROUP BY p.name, ph.field_of_expertise;
```

patient_name	total_amount_billed	field_of_expertise
John Doe	150	Cardiology
Jane Smith	200	Neurology
Michael Johnson	175	Pediatrics
Sarah Brown	250	Orthopedics
Emily Davis	225	Dermatology

5 rows in set (0.00 sec)

5. Retrieve a list of patients along with their assigned primary physicians, showing the total number of instructions given to each patient.

```
SELECT p.name AS patient_name, ph.name AS primary_physician,
COUNT(i.instruction_code) AS total_instructions
FROM patient p
JOIN physician ph ON p.primary_physician = ph.doctor_id
LEFT JOIN instruction i ON p.patient_id = i.specific_patient
GROUP BY p.name, ph.name
ORDER BY total_instructions DESC;
```

patient_name	primary_physician	total_instructions
John Doe	Dr. Alice Johnson	1
Jane Smith	Dr. Bob Smith	1
Michael Johnson	Dr. Carol Williams	1
Sarah Brown	Dr. David Brown	1
Emily Davis	Dr. Emily Davis	1

5 rows in set (0.00 sec)

6. Get average fee per instruction
 SELECT AVG(fee) AS average_fee_per_instruction
 FROM instruction;

average_fee_per_instruction
200.0000

7. Total Fees Billed per Instruction by Physician's Field of Expertise
 SELECT ph.field_of_expertise, SUM(i.fee) AS total_fee_billed FROM physician ph JOIN
 patient p ON ph.doctor_id = p.primary_physician JOIN instruction i ON p.patient_id =
 i.specific_patient GROUP BY ph.field_of_expertise;

field_of_expertise	total_fee_billed
Cardiology	150
Neurology	200
Pediatrics	175
Orthopedics	250
Dermatology	225

5 rows in set (0.00 sec)

8. List Nurses and Their Assigned Patients with the Total Number of Instructions Given
 SELECT n.name AS nurse_name, p.name AS patient_name, COUNT(i.instruction_code) AS
 total_instructions FROM nurse n JOIN instruction i ON n.nurse_id = i.assigned_nurse JOIN
 patient p ON i.specific_patient = p.patient_id GROUP BY n.name, p.name ORDER BY n.name,
 total_instructions DESC;

nurse_name	patient_name	total_instructions
Nurse Ava Blue	Emily Davis	1
Nurse Emma Black	Michael Johnson	1
Nurse Liam White	Jane Smith	1
Nurse Noah Brown	Sarah Brown	1
Nurse Olivia Green	John Doe	1

9. Find the average duration of stay (in days) for patients assigned to each room.

```
SELECT ar.room_num, AVG(ar.duration) AS average_duration FROM assigned_room ar
GROUP BY ar.room_num;
```

room_num	average_duration
101A	5.0000
102B	3.0000
103C	7.0000
104D	4.0000
105E	2.0000

10. List patients who are still in a room but no longer sick.

```
SELECT p.name AS patient_name FROM patient p WHERE p.patient_id IN ( SELECT
DISTINCT ar.patient FROM assigned_room ar WHERE ar.patient NOT IN ( SELECT
hr.patient_num FROM health_records hr WHERE hr.status = 'Resolved' OR hr.status =
'Recovered' ) );
```

record_id	disease	date	status
HR001	Influenza	2024-01-15	Recovered

1 row in set (0.00 sec)

11. Identify patients with ongoing conditions

```
SELECT p.name AS patient_name FROM patient p WHERE p.patient_id IN ( SELECT
hr.patient_num FROM health_records hr WHERE hr.status IN ('Under Treatment', 'Managed')
GROUP BY hr.patient_num HAVING COUNT(DISTINCT hr.record_id) > 1 );
```

patient_name
Jane Smith
Michael Johnson
Sarah Brown

3 rows in set (0.00 sec)

12. Patient name and their primary physician

```
SELECT name AS patient_name, (SELECT name FROM physician WHERE doctor_id =
patient.primary_physician) AS primary_physician FROM patient;
```

patient_name	primary_physician
John Doe	Dr. Alice Johnson
Jane Smith	Dr. Bob Smith
Michael Johnson	Dr. Carol Williams
Sarah Brown	Dr. David Brown
Emily Davis	Dr. Emily Davis

5 rows in set (0.00 sec)

13. Sort nurses by how much medicine they administer

```
SELECT n.name AS nurse_name, sum(m.amount) AS medications_administered
FROM nurse n
LEFT JOIN medication m ON n.nurse_id = m.admin_nurse
GROUP BY n.name
ORDER BY medications_administered DESC;
```

nurse_name	medications_administered
Nurse Ava Blue	1000
Nurse Liam White	500
Nurse Noah Brown	20
Nurse Emma Black	10
Nurse Olivia Green	1

5 rows in set, 5 warnings (0.00 sec)

14. Comprehensive view of patient details with room details

```
SELECT p.name AS patient_name, ar.room_num, ar.duration, hr.disease, hr.date, hr.status FROM
patient p LEFT JOIN assigned_room ar ON p.patient_id = ar.patient LEFT JOIN ( SELECT h1.*
FROM health_records h1 WHERE h1.date = ( SELECT MAX(h2.date) FROM health_records h2
WHERE h2.patient_num = h1.patient_num ) ) hr ON p.patient_id = hr.patient_num;
```

patient_name	room_num	duration	disease	date	status
John Doe	101A	5	Influenza	2024-01-15	Recovered
Jane Smith	102B	3	Fractured Arm	2023-11-10	Healing
Michael Johnson	103C	7	Allergic Rhinitis	2024-03-20	Under Treatment
Sarah Brown	104D	4	Diabetes Type 2	2024-02-05	Managed
Emily Davis	105E	2	Skin Rash	2024-04-15	Resolved

5 rows in set (0.00 sec)

15. Get total fee for each room

```
SELECT ar.room_num, SUM(i.fee) AS total_fee_billed FROM assigned_room ar LEFT JOIN
patient p ON ar.patient = p.patient_id LEFT JOIN instruction i ON p.patient_id =
i.specific_patient GROUP BY ar.room_num ORDER BY total_fee_billed DESC;
```

room_num	total_fee_billed
104D	250
105E	225
102B	200
103C	175
101A	150

5 rows in set (0.00 sec)