

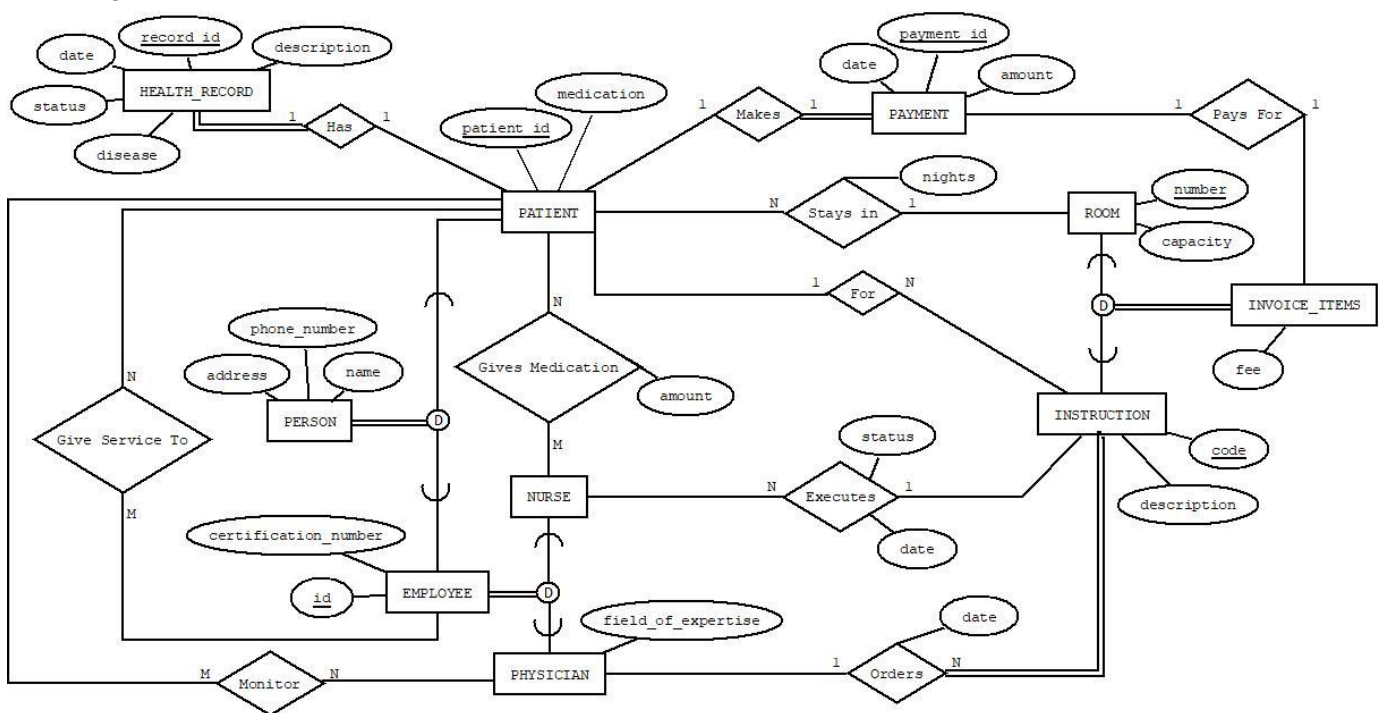
## Final Project Report

**Section 1: Assumptions**

1. A patient at the hospital cannot also be a hospital employee
2. An employee cannot be both a nurse and a physician
3. A patient's payment will always equal the exact total cost of the invoice
4. Each instruction is ordered by exactly one physician
5. Patients are only prescribed one medication, which is administered to them by a nurse

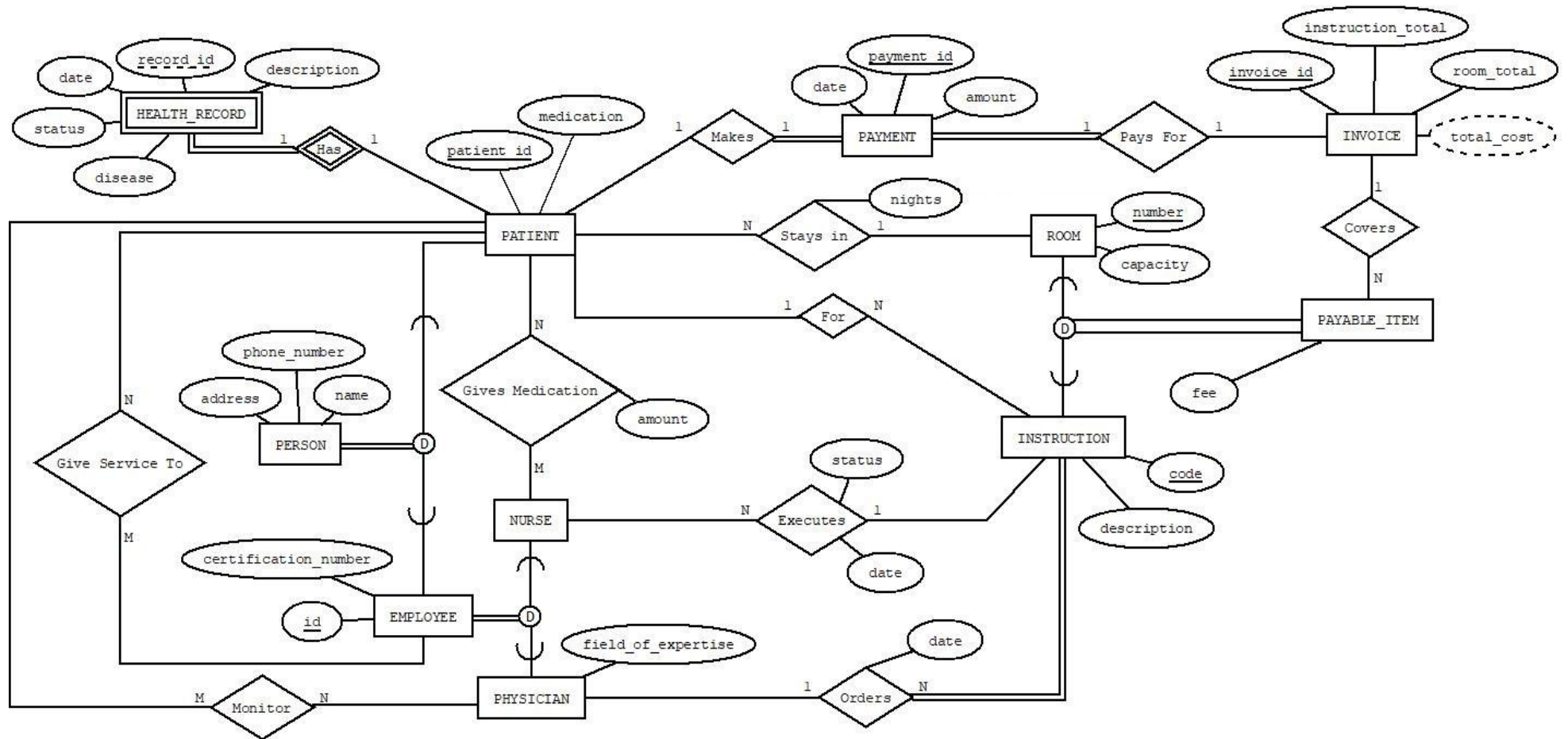
**Section 2: EERD**

Original EERD:



After receiving feedback from Part 1 of the final project, I made some revisions to the EERD for this database. I changed the **HEALTH\_RECORD** entity type to a weak entity type, with record\_id being the partial key instead of a primary key. The relationship "Has" between **HEALTH\_RECORD** and **PATIENT** was also changed to an identifying relationship. I also changed the entity type **INVOICE\_ITEMS** to **PAYABLE\_ITEMS** and removed the relationship "Pays For". I added in the entity type **INVOICE**. Its entity types are invoice\_id, instruction\_total, room\_total, and the implied attribute total\_cost. The primary key for **INVOICE** is invoice\_id. I added in a 1:1 relationship between **PAYMENT** and **INVOICE** called "Pays For", and a 1:N relationship between **PAYABLE\_ITEMS** and **INVOICE** called "Covers".

## Revised EERD:



### Section 3: Relations and Keys

Hospital database relational schema (text form):

Patient(patient\_id, medication, phone\_number, address, name, room\_number, nights)

Primary key: {patient\_id}

Foreign key: {room\_number references Room(number)}

Nurse(id, certification\_number, phone\_number, address, name, patient\_status, execute\_date, instruction\_code)

Primary key: {id}

Foreign key: {instruction\_code references Instruction(code)}

Physician(id, certification\_number, field\_of\_expertise, phone\_number, address, name)

Primary key: {id}

Foreign key: {none}

Instruction(code, patient\_id, physician\_id, date, description, fee, invoice\_id)

Primary key: {code}

Foreign key: {patient\_id references Patient(patient\_id), physician\_id references Physician(id), invoice\_id references Invoice(invoice\_id)}

Room(number, capacity, fee, invoice\_id)

Primary key: {number}

Foreign key: {invoice\_id references Invoice(invoice\_id)}

Payment(payment\_id, patient\_id, date, amount, invoice\_id)

Primary key: {payment\_id}

Foreign key: {patient\_id references Patient(patient\_id), invoice\_id references Invoice(invoice\_id)}

Medication(patient\_id, nurse\_id, amount)

Primary key: {patient\_id, nurse\_id}

Foreign key: {patient\_id references Patient(patient\_id), nurse\_id references Nurse(id)}

Monitors(patient\_id, physician\_id)

Primary key: {patient\_id, physician\_id}

Foreign key: {patient\_id references Patient(patient\_id), physician\_id references Physician(id)}

Services(patient\_id, physician\_id, nurse\_id)

Primary key: {patient\_id, physician\_id, nurse\_id}

Foreign key: {patient\_id references Patient(patient\_id), physician\_id references Physician(id), nurse\_id references Nurse(id)}

Health\_Record(record\_id, patient\_id, description, date, status, disease)

Primary key: {record\_id, patient\_id}

Foreign key: {patient\_id references Patient(patient\_id)}

Invoice(invoice\_id, room\_cost, instruction\_cost, total\_cost)

Primary key: {invoice\_id}

Foreign key: {None}

Hospital database relational schema (picture form):

Patient

<u>patient_id</u>	medication	phone_number	address	name	room_number	nights
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Nurse

<u>id</u>	certification_number	phone_number	address	name	patient_status	execute_date	instruction_code
-----------	----------------------	--------------	---------	------	----------------	--------------	------------------

Physician

<u>id</u>	certification_number	phone_number	address	name	field_of_expertise
-----------	----------------------	--------------	---------	------	--------------------

Instruction

<u>code</u>	patient_id	physician_id	date	description	fee	invoice_id
-------------	------------	--------------	------	-------------	-----	------------

Room

<u>number</u>	capacity	fee	invoice_id
---------------	----------	-----	------------

Payment

<u>payment_id</u>	patient_id	date	amount	invoice_id
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Medication

<u>patient_id</u>	<u>nurse_id</u>	amount
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Monitors

<u>patient_id</u>	<u>physician_id</u>
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Services

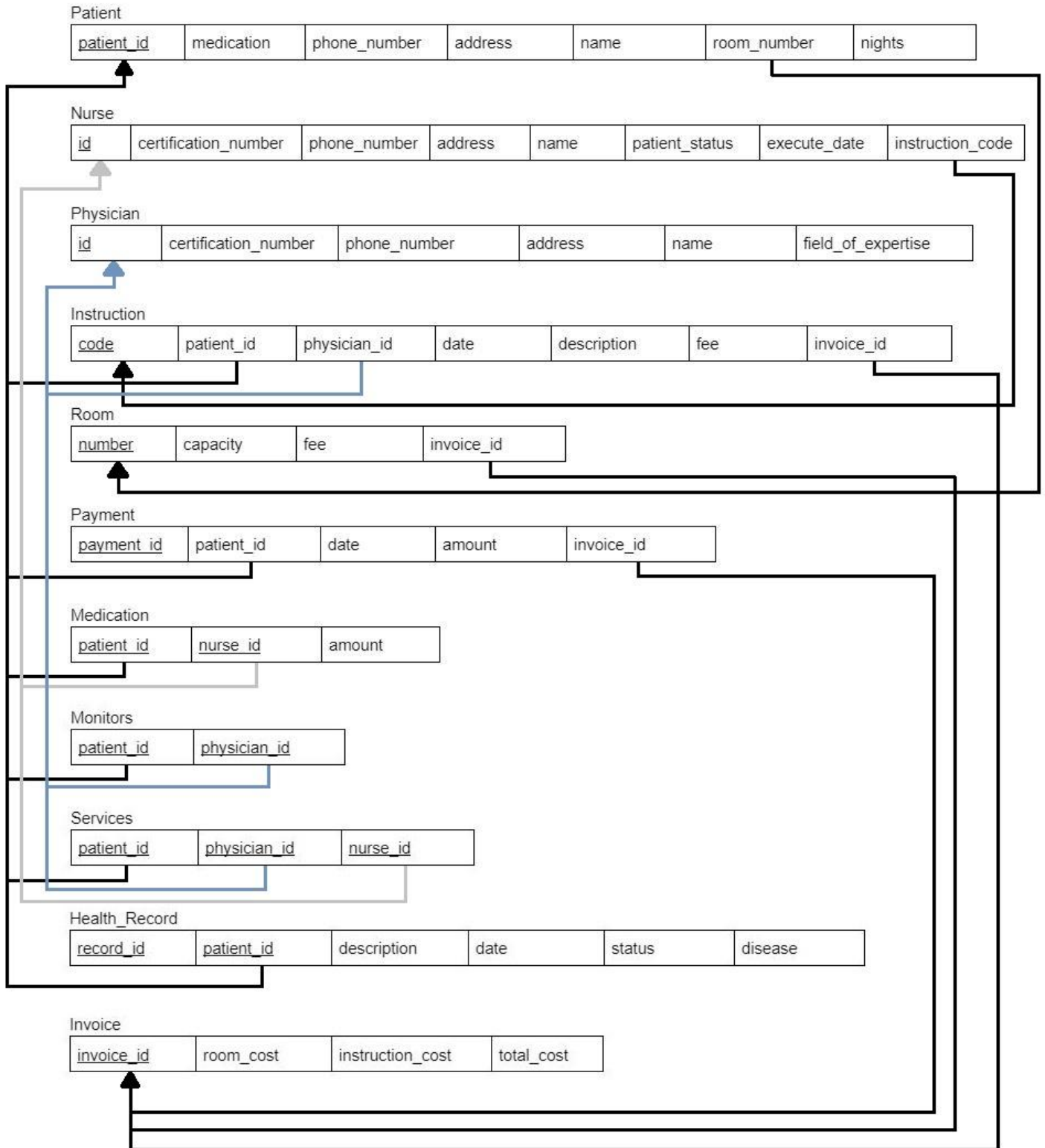
<u>patient_id</u>	<u>physician_id</u>	<u>nurse_id</u>
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Health\_Record

<u>record_id</u>	<u>patient_id</u>	description	date	status	disease
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Invoice

<u>invoice_id</u>	room_cost	instruction_cost	total_cost
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## Section 4: Views

View 1 - A list of all staff working at the hospital and their contact information. Each staff member's name, position, phone number, and address is listed. If the staff member is a physician, then their field of expertise is listed along with their position. This view is useful to the hospital because it acts like a staff directory, and makes it simple to find contact information for a specific staff member without revealing sensitive or private information on that staff member.

View body:

```
#Staff database view
DROP VIEW IF EXISTS staff_directory;
CREATE VIEW staff_directory AS
SELECT name, 'Nurse' AS position, phone_number, address FROM nurse
UNION
SELECT name, CONCAT('Physician, ', field_of_expertise) AS position, phone_number, address FROM physician;
```

Result of running view:

```
77 • SELECT * FROM staff_directory;
78
```

	name	position	phone_number	address
▶	Florence Nightingale	Nurse	275-867-5309	274 Westminster Drive, Calhoun, GA
	Rory Pond	Nurse	910-533-3804	9354 N. Berkshire Avenue, Piedmont, SC
	Steven Munn	Nurse	808-247-0048	735 W. Bear Hill Avenue, Mableton, GA
	Charlene Douglas	Nurse	924-379-0461	9 Oak Valley Avenue, Orlando, FL
	Vanessa Hutchins	Nurse	555-617-2828	27 Airport Street, Hampton, VA
	Jonas Salk	Physician, Immunology	202-918-2132	8823 Madison Drive, Atlantic City, NJ
	Veronica Mills	Physician, Gastroenterology	516-579-3238	866 South Mill Avenue, High Point, NC
	Monica Reese	Physician, Neurology	349-555-3821	1 University Way, Cullowhee, NC
	Steven Colbert	Physician, Ophthalmology	218-546-5310	710 Old Green Drive, Greer, SC
	Gilbert Grissom	Physician, Immunology	505-609-7482	9419 Anderson Road, Cary, NC

View 2 - A list of all patients currently admitted to the hospital. Each row contains the patient's name, disease, status, room number, number of nights, and prescribed medication, along with the names of the physician and nurse assigned to service them. This view is useful to the hospital because it acts as a patient directory, and organizes information on each patient from multiple tables into one place. This makes it easier to look up information on a patient.







View body:

```
79      #Patient database view
80 •    DROP VIEW IF EXISTS patient_directory;
81 •    CREATE VIEW patient_directory AS
82      SELECT p.name AS patient, disease, r.status, room_number AS room, nights, medication,
83      h.name AS physician, n.name AS nurse
84      FROM services s
85      JOIN patient p ON p.patient_id = s.patient_id
86      JOIN physician h ON h.id = s.physician_id
87      JOIN nurse n ON n.id = s.nurse_id
88      JOIN health_record r ON r.patient_id = p.patient_id;
```

Result of running view:

```
90 •    SELECT * FROM patient_directory;
```

Result Grid     Filter Rows: <input type="text"/>   Export:    Wrap Cell Content: 								
patient	disease	status	room	nights	medication	physician	nurse	
Kristin Pflug	Covid-19	Stable	1	4	Lansoprazole	Jonas Salk	Vanessa Hutchins	
Christopher Robin	Pneumonia	Critical	2	10	Penicillin	Jonas Salk	Steven Munn	
Judy Schultz	Crohns	Stable	1	4	Fenergen	Veronica Mills	Charlene Douglas	
Percy Jackson	Concussion	Stable	2	7	Fluticasone	Monica Reese	Rory Pond	
Jesse James	Influenza	Critical	5	3	Prednisone	Gilbert Grissom	Florence Nightingale	

View 3 - A list of all instructions ordered by physicians of the hospital. Each row lists the instruction code, the name of the physician who ordered the instruction, the description of the instruction, the name of the patient the instruction is for, and the date when the instruction needs to be executed. This is useful to the hospital because it puts all information on the ordered instructions in one place, making it easier for the nurses at the hospital to look up instructions that still need to be completed.

View body:

```
92      #Instruction list view
93 •    DROP VIEW IF EXISTS instruction_list;
94 •    CREATE VIEW instruction_list AS
95      SELECT code, h.name AS ordered_by, description, p.name AS patient, date FROM instruction i
96      JOIN physician h ON i.physician_id = h.id
97      JOIN patient p ON i.patient_id = p.patient_id;
```

Result of running view:

```
99 • SELECT * FROM instruction_list;
```

code	ordered_by	description	patient	date
10038	Monica Reese	Perform CT Scan	Percy Jackson	2023-01-25
25282	Gilbert Grissom	Take patient temperature	Jesse James	2023-03-07
28723	Veronica Mills	Perform blood test	Judy Schultz	2022-10-18
39563	Jonas Salk	Give prescribed dose of antibiotic every hour	Christopher Robin	2023-02-26
55901	Jonas Salk	Give dose of medication in one hour	Kristin Pflug	2022-10-16

## Section 5: Triggers

Trigger 1 - This trigger automatically generates a new health record whenever a new patient is added. If the new patient's ID is not null, then a new tuple is inserted into health\_record, with an ID one greater than the maximum record\_id value. This trigger is useful to the hospital because then staff do not have to manually create a new health record for every new hospital patient that is admitted. Having the trigger generate a new health record automatically saves the staff time and ensures that the basic information about the patient is saved in their new health record. This new health record can also be updated with new information as the physicians and nurses treat the patient.

Trigger body:

```
101 #Create a new health record when a new patient is added
102 • DROP TRIGGER IF EXISTS generate_record;
103 DELIMITER //
104 • CREATE TRIGGER generate_record
105 AFTER INSERT ON patient
106 FOR EACH ROW
107 BEGIN
108     IF (NEW.patient_id IS NOT NULL) THEN
109         SET @new_id = (SELECT MAX(record_id) FROM health_record);
110         INSERT INTO health_record (record_id, patient_id, description, date, status, disease)
111         VALUE (@new_id+1, NEW.patient_id, 'Recently admitted', NOW(), 'Pending', 'Pending');
112     END IF;
113 END//
114 DELIMITER ;
```



Example of trigger results:  
Patient table before insertion

patient_id	name	address	phone_number	room_number	nights	medication
123	Kristin Pflug	444 Walden Station Drive, Charlotte, NC	919-412-8526	1	4	Lansoprazole
456	Judy Schultz	1012 Wakehurst Drive, Cary, NC	919-454-9458	1	4	Fenergen
789	Jesse James	10 Rockefeller Plaza, New York, NY	646-459-0800	5	3	Prednisone
856	Percy Jackson	200 Central Park West, New York, NY	212-769-5100	2	7	Fluticasone
867	Christopher Robin	4000 Louis Stephens Drive, Cary, NC	919-463-8500	2	10	Penicillin
NULL	NULL	NULL	NULL	NULL	NULL	NULL

Health Record table before insertion

record_id	patient_id	description	date	status	disease
1385	789	Patient diagnosed with severe case of influenza, condition critical	2023-03-04 16:30:00	Critical	Influenza
2951	856	Patient suffered head injury in school soccer match; diagnosed with mild concussion	2023-01-17 20:20:00	Stable	Concussion
3092	456	Patient suffering from obstruction due to Crohns disease	2022-10-18 12:19:00	Stable	Crohns
5961	867	Patient admitted with pneumonia, condition critical	2023-02-25 19:04:00	Critical	Pneumonia
8675	123	Patient diagnosed with Covid-19; admitted to hospital and quarantined	2022-10-15 02:45:00	Stable	Covid-19
NULL	NULL	NULL	NULL	NULL	NULL

Patient table after insertion

```

118 • INSERT INTO patient VALUE (999, 'Jane Doe', '1 University Way, Cullowhee, NC', '555-269-8439', 3, 2, 'Ibuprofen');
119 • SELECT * FROM patient;
120 • SELECT * FROM health_record;
121

```

patient_id	name	address	phone_number	room_number	nights	medication
123	Kristin Pflug	444 Walden Station Drive, Charlotte, NC	919-412-8526	1	4	Lansoprazole
456	Judy Schultz	1012 Wakehurst Drive, Cary, NC	919-454-9458	1	4	Fenergen
789	Jesse James	10 Rockefeller Plaza, New York, NY	646-459-0800	5	3	Prednisone
856	Percy Jackson	200 Central Park West, New York, NY	212-769-5100	2	7	Fluticasone
867	Christopher Robin	4000 Louis Stephens Drive, Cary, NC	919-463-8500	2	10	Penicillin
999	Jane Doe	1 University Way, Cullowhee, NC	555-269-8439	3	2	Ibuprofen
NULL	NULL	NULL	NULL	NULL	NULL	NULL

Health Record after insertion

```

118 • INSERT INTO patient VALUE (999, 'Jane Doe', '1 University Way, Cullowhee, NC', '555-269-8439', 3, 2, 'Ibuprofen');
119 • SELECT * FROM patient;
120 • SELECT * FROM health_record;
121

```

record_id	patient_id	description	date	status	disease
1385	789	Patient diagnosed with severe case of influenza, condition critical	2023-03-04 16:30:00	Critical	Influenza
2951	856	Patient suffered head injury in school soccer match; diagnosed with mild concussion	2023-01-17 20:20:00	Stable	Concussion
3092	456	Patient suffering from obstruction due to Crohns disease	2022-10-18 12:19:00	Stable	Crohns
5961	867	Patient admitted with pneumonia, condition critical	2023-02-25 19:04:00	Critical	Pneumonia
8675	123	Patient diagnosed with Covid-19; admitted to hospital and quarantined	2022-10-15 02:45:00	Stable	Covid-19
8676	999	Recently admitted	2023-04-27 16:27:38	Pending	Pending
NULL	NULL	NULL	NULL	NULL	NULL

Trigger 2 - This trigger sets a new physician's ID to the next highest ID number available if the ID is null. This trigger is useful to the hospital because it ensures all physicians at the hospital have a non-null, unique ID value.

Trigger body:

```

122  #Set a new physician's id to the next highest ID number available if it is null
123  • DROP TRIGGER IF EXISTS new_physician_id;
124  DELIMITER //
125  • CREATE TRIGGER new_physician_id
126  BEFORE INSERT ON physician
127  FOR EACH ROW
128  BEGIN
129      IF (NEW.id IS NULL) THEN
130          SET @highest_id = (SELECT MAX(id) FROM physician);
131          SET NEW.id = @highest_id+1;
132      END IF;
133  END//
134  DELIMITER ;

```

Example of trigger results:

Physician table before insertion

	id	name	certification_number	phone_number	address	field_of_expertise
▶	1	Jonas Salk	682	202-918-2132	8823 Madison Drive, Atlantic City, NJ	Immunology
	2	Veronica Mills	461	516-579-3238	866 South Mill Avenue, High Point, NC	Gastroenterology
	3	Monica Reese	714	349-555-3821	1 University Way, Cullowhee, NC	Neurology
	4	Steven Colbert	183	218-546-5310	710 Old Green Drive, Greer, SC	Ophthalmology
	5	Gilbert Grissom	537	505-609-7482	9419 Anderson Road, Cary, NC	Immunology
*	NULL	NULL	NULL	NULL	NULL	NULL

Physician table after insertion

```

137  • INSERT INTO physician VALUE (NULL, 'David Dolittle', 787, '555-666-8169', '841 Paris Hill Court, Cranford, NJ', 'Neurology');
138  • SELECT * FROM physician;

```

Result Grid						
Filter Rows: [ ] Edit: [ ] Export/Import: [ ] Wrap Cell Content: [ ]						
	id	name	certification_number	phone_number	address	field_of_expertise
▶	1	Jonas Salk	682	202-918-2132	8823 Madison Drive, Atlantic City, NJ	Immunology
	2	Veronica Mills	461	516-579-3238	866 South Mill Avenue, High Point, NC	Gastroenterology
	3	Monica Reese	714	349-555-3821	1 University Way, Cullowhee, NC	Neurology
	4	Steven Colbert	183	218-546-5310	710 Old Green Drive, Greer, SC	Ophthalmology
	5	Gilbert Grissom	537	505-609-7482	9419 Anderson Road, Cary, NC	Immunology
	6	David Dolittle	787	555-666-8169	841 Paris Hill Court, Cranford, NJ	Neurology
*	NULL	NULL	NULL	NULL	NULL	NULL

Trigger 3 - This trigger sets a new instruction's date and time to the current date and time if the value of its date field is null. This is useful to the hospital because it ensures all instructions have a valid date, and if an instruction needs to be carried out immediately, it can be set to the current date and time automatically without having to enter the exact date and time manually.

Trigger body:

```

140 #If no date/time is provided on an instruction, set it to the current date/time
141 • DROP TRIGGER IF EXISTS instruction_time_now;
142 DELIMITER //
143 • CREATE TRIGGER instruction_time_now
144 BEFORE INSERT ON instruction
145 FOR EACH ROW
146 BEGIN
147     IF (NEW.date IS NULL) THEN
148         SET NEW.date = CURRENT_DATE();
149     END IF;
150 END//
151 DELIMITER ;

```

Example of trigger results:

### Instruction table before insertion

[illegible]

### Instruction table after insertion

```
154 • INSERT INTO instruction VALUE (12345, 789, 3, NULL, 'Give dose of antibiotic', 25.00, 1003);
155 • SELECT * FROM instruction;
```

Result Grid

Filter Rows:

Edit:

Export/Import:

Wrap Cell Content:

	code	patient_id	physician_id	date	description		fee	invoice_id
	10038	856	3	2023-01-25	Perform CT Scan		94.99	1005
	12345	789	3	2023-04-27	Give dose of antibiotic		25	1003
	25282	789	5	2023-03-07	Take patient temperature		60	1003
	28723	456	2	2022-10-18	Perform blood test		75	1002
	39563	867	1	2023-02-26	Give prescribed dose of antibiotic every hour		25	1004
	55901	123	1	2022-10-16	Give dose of medication in one hour		30.5	1001
	NULL	NULL	NULL	NULL	NULL		NULL	NULL



## Section 6: Queries, Descriptions, and Results

Query 1 - Print the names and IDs of all patients at the hospital and the information on the staff members servicing each patient.

Query:

```
#Print names, ids of patients and staff servicing them
SELECT p.name AS patient, s.patient_id, h.name AS physician, s.physician_id, n.name AS nurse, s.nurse_id
FROM services s
JOIN patient p ON p.patient_id = s.patient_id
JOIN physician h ON h.id = s.physician_id
JOIN nurse n ON n.id = s.nurse_id;
```

Results:

patient	patient_id	physician	physician_id	nurse	nurse_id
Jesse James	789	Gilbert Grissom	5	Florence Nightingale	1
Percy Jackson	856	Monica Reese	3	Rory Pond	2
Christopher Robin	867	Jonas Salk	1	Steven Munn	3
Judy Schultz	456	Veronica Mills	2	Charlene Douglas	4
Kristin Pflug	123	Jonas Salk	1	Vanessa Hutchins	5

Query 2 - List the basic medical information on each patient at the hospital (including the name of the patient, their disease, their status, and their prescribed medication), the patient's room number, and the number of nights they have stayed at the hospital.

Query:

```
#List basic medical information on patient including name, disease, status, and medication.
#Also include the patient's room number and number of nights
SELECT name, disease, status, room_number, nights, medication FROM patient p
JOIN health_record h ON h.patient_id = p.patient_id;
```

Results:

name	disease	status	room_number	nights	medication
Kristin Pflug	Covid-19	Stable	1	4	Lansoprazole
Judy Schultz	Crohns	Stable	1	4	Fenergen
Jesse James	Influenza	Critical	5	3	Prednisone
Percy Jackson	Concussion	Stable	2	7	Fluticasone
Christopher Robin	Pneumonia	Critical	2	10	Penicillin

Query 3 - List all instructions, the name of the physician that ordered the instruction, and the name of the patient the order is for.

Query:

```
#List physician names, instructions they have ordered and the name of the patient the order is for
SELECT h.name AS physician, description AS instruction, p.name AS for_patient, date FROM instruction i
JOIN physician h ON i.physician_id = h.id
JOIN patient p ON i.patient_id = p.patient_id;
```

Results:

physician	instruction	for_patient	date
Monica Reese	Perform CT Scan	Percy Jackson	2023-01-25
Gilbert Grissom	Take patient temperature	Jesse James	2023-03-07
Veronica Mills	Perform blood test	Judy Schultz	2022-10-18
Jonas Salk	Give prescribed dose of antibiotic every hour	Christopher Robin	2023-02-26
Jonas Salk	Give dose of medication in one hour	Kristin Pflug	2022-10-16

Query 4 - Calculate the average amount patients paid for their hospital invoice.

Query:

```
18 #Find the average patient payment amount
19 • SELECT AVG(amount) AS average_payment FROM payment;
```

Results:

average_payment
947.0640000000001

Query 5 - Find the number of patients at the hospital that are from North Carolina.

Query:

```
21 #Find the number of patients who are from NC
22 • SELECT COUNT(patient_id) AS NC_Patients FROM patient WHERE address LIKE '%, NC';
```

Results:

NC_Patients
3

Query 6 - Find the name of the patient with the highest room cost, and list the cost of their room.

Query:

```
#Find the name of the patient with the highest room cost
SELECT name, room_cost FROM invoice i, payment p, patient a
WHERE i.invoice_id = p.invoice_id AND a.patient_id = p.patient_id
AND room_cost = (SELECT MAX(room_cost) FROM invoice);
```

Results:

Result Grid		Filter Rows:
name	room_cost	
Jesse James	1500	

Query 7 - List all physicians from North Carolina who monitor patients from North Carolina.

Query:

```
#Find all physicians from NC who monitor patients from NC
SELECT name, physician_id FROM monitors, physician
WHERE patient_id IN (SELECT patient_id FROM patient WHERE address LIKE '%, NC')
AND address LIKE '%, NC' AND physician_id = id;
```

Results:

Result Grid		Filter Rows:	Export:
name	physician_id		
Veronica Mills	2		

Query 8 - List all nurses who service patients monitored by the physician Jonas Salk.

Query:

```
34 #List all nurses who service patients monitored by physician Jonas Salk
35 • SELECT id, name, phone_number, address FROM nurse WHERE id IN
36 (SELECT nurse_id FROM services
37 WHERE physician_id = (SELECT id FROM physician WHERE name = 'Jonas Salk'));
```

Results:

Result Grid		Filter Rows:	Edit:	Export/Import:	Wr
id	name	phone_number	address		
3	Steven Munn	808-247-0048	735 W. Bear Hill Avenue, Mableton, GA		
5	Vanessa Hutchins	555-617-2828	27 Airport Street, Hampton, VA		
NULL	NULL	NULL	NULL		



Query 9 - Find all physicians that are not currently monitoring any patients.

Query:

```
39 #Find all physicians that are not monitoring any patients
40 • SELECT * FROM physician WHERE id NOT IN (SELECT DISTINCT physician_id FROM monitors);
```

Results:

Result Grid   Filter Rows:   Edit:   Export/Import:   Wrap Cell Content:						
id	name	certification_number	phone_number	address	field_of_expertise	
4	Steven Colbert	183	218-546-5310	710 Old Green Drive, Greer, SC	Ophthalmology	
NULL	NULL	NULL	NULL	NULL	NULL	

Query 10 - List every person at the hospital who is from North Carolina.

Query:

```
#List everyone in the hospital database that is from NC
SELECT name, 'Patient' AS role, address, phone_number FROM patient WHERE address LIKE '%, NC'
UNION
SELECT name, 'Physician' AS role, address, phone_number FROM physician WHERE address LIKE '%, NC'
UNION
SELECT name, 'Nurse' AS role, address, phone_number FROM nurse WHERE address LIKE '%, NC';
```

Results:

Result Grid   Filter Rows:   Export:   Wrap Cell Content:				
	name	role	address	phone_number
▶	Kristin Pflug	Patient	444 Walden Station Drive, Charlotte, NC	919-412-8526
	Judy Schultz	Patient	1012 Wakehurst Drive, Cary, NC	919-454-9458
	Christopher Robin	Patient	4000 Louis Stephens Drive, Cary, NC	919-463-8500
	Veronica Mills	Physician	866 South Mill Avenue, High Point, NC	516-579-3238
	Monica Reese	Physician	1 University Way, Cullowhee, NC	349-555-3821
	Gilbert Grissom	Physician	9419 Anderson Road, Cary, NC	505-609-7482

Query 11 - List all physicians whose field of expertise is Immunology.

Query:

```
49 #List all physicians specializing in immunology
50 • SELECT name, phone_number FROM physician WHERE field_of_expertise='Immunology';
```

Results:

Result Grid   Filter Rows:   Export:		
	name	phone_number
▶	Jonas Salk	202-918-2132
	Gilbert Grissom	505-609-7482

Query 12 - List the names of all patients whose medication amount is 3 or more, along with the name of the medication they are taking.

Query:

```
#List the patients whose medication amount is 3 or more
SELECT name, medication, amount FROM patient p, medication m WHERE m.patient_id = p.patient_id
AND p.patient_id IN (SELECT patient_id FROM medication WHERE amount >= 3);
```

Results:

Result Grid	Filter Rows:	Export:	Wrap Ce
name	medication	amount	
Kristin Pflug	Lansoprazole	3	
Christopher Robin	Penicillin	5	

Query 13 - List all physicians who are currently monitoring a patient in critical condition.

Query:

```
#List all physicians who are monitoring a patient in critical condition
SELECT p.name FROM monitors m
JOIN physician p ON m.physician_id = p.id
WHERE patient_id IN (SELECT patient_id FROM health_record WHERE status='Critical');
```

Results:

Result Grid	Filter Rows:
name	
Gilbert Grissom	
Jonas Salk	

Query 14 - List the information of all patients currently staying in room 1.

Query:

```
#List information about all patients currently staying in room 1
SELECT p.patient_id, name, description, status, nights, medication FROM patient p, health_record h
WHERE p.patient_id = h.patient_id AND room_number = 1;
```





Results:

Result Grid	Filter Rows:	Export:	Wrap Cell Content:
patient_id	name	description	status nights medication
123	Kristin Pflug	Patient diagnosed with Covid-19; admitted to hospital and quarantined	Stable 4 Lansoprazole
456	Judy Schultz	Patient suffering from obstruction due to Crohns disease	Stable 4 Fenergen

Query 15 - List all instructions, the name of the nurse who executed the instruction, the date and time it was executed, and the ID and status of the patient the instruction was ordered for.  
Query:

```
#List all instructions, the name of the nurse who executed it, the execute date, and the id and  
#status of the patient it was ordered for  
SELECT name, instruction_code, description, execute_date, patient_id, patient_status FROM nurse  
JOIN instruction ON instruction_code = code;
```

Results:

Result Grid   Filter Rows: <input type="text"/> Export:  Wrap Cell Content: 						
	name	instruction_code	description	execute_date	patient_id	patient_status
	Florence Nightingale	28723	Perform blood test	2022-10-18 08:23:00	456	Stable
	Rory Pond	39563	Give prescribed dose of antibiotic every hour	2023-02-26 14:24:00	867	Critical
	Steven Munn	10038	Perform CT Scan	2023-01-25 22:05:00	856	Stable
	Charlene Douglas	55901	Give dose of medication in one hour	2022-10-16 12:25:00	123	Stable
	Vanessa Hutchins	25282	Take patient temperature	2023-03-07 14:56:00	789	Critical