

Breast Cancer Healthcare & Tracking System

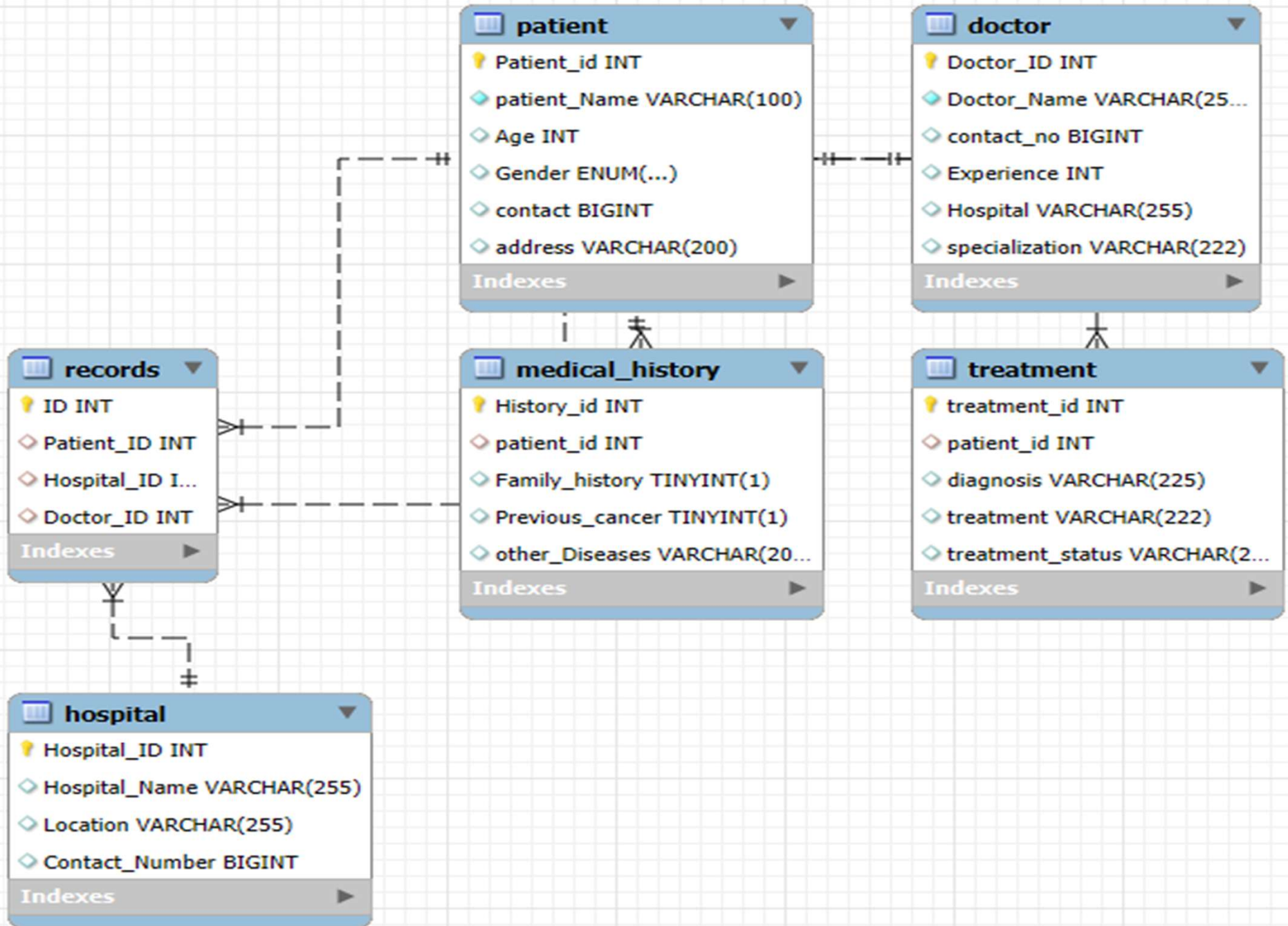




ABSTRACT

THE BREAST CANCER DATABASE IS A MEDICAL RECORD SYSTEM THAT WILL HELP TO STORE AND MANAGE PATIENT INFORMATION, INCLUDING DIAGNOSIS, TREATMENT HISTORY, AND DOCTOR ASSIGNMENTS. IT ENABLES HEALTHCARE PROVIDERS TO TRACK PATIENTS, RECORD MEDICAL HISTORIES, AND MONITOR TREATMENTS. THERE ARE MULTIPLE MODULES THAT ALLOW FOR EFFICIENT MANAGEMENT OF PATIENT RECORDS, HOSPITAL DATA, AND DOCTOR SPECIALIZATIONS, ENSURING ACCURATE AND SECURE STORAGE OF MEDICAL INFORMATION.

ER DIAGRAM



STRUCTURE OF TABLE

Field	Type	Null	Key	Default	Extra
Patient_id	int	NO	PRI	NULL	auto_increment
patient_Name	varchar(100)	NO		NULL	
Age	int	YES		NULL	
Gender	enum('male','female')	YES		NULL	
contact	bigint	YES	UNI	NULL	
address	varchar(200)	YES		NULL	

PATIENT TABLE

This Table contain patient details such as ID,NAME,AGE,GENDER, CONTACT,ADDRESS

Syntax :

DESC Patient;

Medical history Table

This Table contain Medical history details such as

History id , Patient id,
Family history,
Previous cancer,
Other diseases

Syntax :

DESC Medical_History;

Result Grid						
Filter Rows:		Export:		Wrap Cell Content:		
	Field	Type	Null	Key	Default	Extra
▶	History_id	int	NO	PRI	NULL	auto_increment
	patient_id	int	YES	MUL	NULL	
	Family_history	tinyint(1)	YES		NULL	
	Previous_cancer	tinyint(1)	YES		NULL	
	other_Diseases	varchar(200)	YES		NULL	

Treatment Table

This Table contain
Treatment details such as
Treatment id , Patient id,
diagnosis, Treatment,
Treatment status

Syntax :

DESC Treatment;

Field	Type	Null	Key	Default	Extra
treatment_id	int	NO	PRI	NULL	auto_increment
patient_id	int	YES	MUL	NULL	
diagnosis	varchar(225)	YES		NULL	
treatment	varchar(222)	YES		NULL	
treatment_status	varchar(20)	YES		NULL	

Doctor Table

This Table contain Doctor details such as

Doctor id , Doctor Name,
Experience, Hospital,
Specialization

Syntax :

DESC Doctor;

Field	Type	Null	Key	Default	Extra
Doctor_ID	int	NO	PRI	NULL	auto_increment
Doctor_Name	varchar(255)	NO		NULL	
contact_no	bigint	YES		NULL	
Experience	int	YES		NULL	
Hospital	varchar(255)	YES		NULL	
specialization	varchar(222)	YES		NULL	

Hospital Table

This Table contain Hospital details such as

Hospital id,

Hospital Name,

Location, Contact number

Syntax :

DESC Hospital;

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

	Field	Type	Null	Key	Default	Extra
▶	Hospital_ID	int	NO	PRI	NULL	auto_increment
	Hospital_Name	varchar(255)	YES		NULL	
	Location	varchar(255)	YES		NULL	
	Contact_Number	bigint	YES	UNI	NULL	

Records Table

This Table contain records details such as

Patient id,

Hospital id,

Doctor id,








Syntax :

DESC Records;







Result Grid						
		Filter Rows:				
		Export:				
		Wrap Cell Content:				
	Field	Type	Null	Key	Default	Extra
►	ID	int	NO	PRI	NULL	auto_increment
	Patient_ID	int	YES	MUL	NULL	
	Hospital_ID	int	YES	MUL	NULL	
	Doctor_ID	int	YES	MUL	NULL	

CONTENTS OF TABLE

PATIENT TABLE

Result Grid  Filter Rows: <input type="text"/> Edit:    Export/Import:   Wrap Cell Content: 						
	Patient_id	patient_Name	Age	Gender	contact	address
▶	1	priya verma	45	female	9933992228	delhi,india
	2	Anya sharma	38	female	9988556677	mumbai, india
	3	neha agarwal	56	female	7766445382	chennai,india
	4	pooja reddy	41	female	2364628734	hyderabad,india
	5	Emma Johnson	47	female	5432109876	New York, USA
	6	Isabella Martinez	44	female	4321098765	Madrid, Spain
	7	Sofia Rossi	50	female	3210987654	Rome, Italy
	8	Emily Watson	39	female	2109876543	London, UK
	9	Rohan Malhotra	52	male	1098765432	Pune, India
	10	Amit Desai	60	male	9988776655	Ahmedabad, India
	11	John Smith	55	male	8877665544	Los Angeles, USA
	12	Carlos Fernandez	58	male	7766554433	Buenos Aires, Ar...
	13	Meera Nair	30	female	6655443322	Bangalore, India
	14	Lily Brown	28	female	5544332211	Toronto, Canada
	15	Hana Kim	26	female	4433221100	Seoul, South Korea
*	NULL	NULL	NULL	NULL	NULL	NULL









Medical history Table

Result Grid					
Filter Rows: <input type="text"/>					
Edit:   					
Export/Import:  					
Wrap Cell Content: 					
	History_id	patient_id	Family_history	Previous_cancer	other_Diseases
▶	1	10	0	0	No major illness
	2	3	1	1	Osteoporosis
	3	7	1	1	Asthma
	4	14	1	1	Chronic Kidney Disease
	5	2	0	0	Thyroid Disorder
	6	12	0	1	Lung Infection
	7	5	1	1	High Blood Pressure
	8	1	1	0	Diabetes, Hypertension
	9	9	1	1	Diabetes, High Cholesterol
	10	6	0	0	Obesity, Heart Disease
	11	15	0	0	Migraine
	12	8	0	0	No major illness
	13	4	0	0	No major illness
	14	11	1	0	Hypertension
	15	13	0	0	Arthritis
*	NULL	NULL	NULL	NULL	NULL









Treatment Table

<div> <div>Result Grid</div> <div> Filter Rows: <input type="text"/> </div> <div> Edit: </div> <div> Export/Import: </div> <div> Wrap Cell Content: </div> </div>					
	treatment_id	patient_id	diagnosis	treatment	treatment_status
▶	101	6	Breast Cancer Stage 4	Targeted Therapy	Ongoing
	102	5	Breast Cancer Stage 3	Surgery	Completed
	103	14	Breast Cancer Stage 3	Chemotherapy + Surgery	Ongoing
	104	7	Breast Cancer Stage 2	Radiation Therapy	Completed
	105	9	Breast Cancer Stage 2	Radiation Therapy	Ongoing
	106	3	Breast Cancer Stage 1	Chemotherapy	Completed
	107	1	Breast Cancer Stage 1	Hormone Therapy	Completed
	108	2	Fibroadenoma	Fluid Aspiration	Ongoing
	109	10	Benign Tumor	Observation and Lifestyle Changes	Completed
	110	12	Breast Cyst	Fluid Aspiration	Completed
	111	8	Early-Stage Breast C...	Hormone Therapy	Ongoing
	112	11	Ductal Carcinoma In Situ	Surgery	Completed
	113	13	Breast Fibrosis	Observation	Ongoing
	114	4	Lobular Carcinoma In ...	Surgery + Radiation	Completed
	115	15	Inflammatory Breast ...	Chemotherapy + Surgery	Ongoing
✱	NULL	NULL	NULL	NULL	NULL

Doctor Table

Result Grid   Filter Rows: <input type="text"/> Edit:    Export/Import:   Wrap Cell Content: 						
	Doctor_ID	Doctor_Name	contact_no	Experience	Hospital	specialization
▶	1	Dr. A Sharma	9876543210	15	AIIMS Delhi	Chemotherapy Specialist
	2	Dr. B Mehta	8765432109	12	Tata Memorial Hospital	Surgical Oncologist
	3	Dr. C Gupta	7654321098	12	Apollo Hospitals	Radiation Therapy Specialist
	4	Dr. D Kapoor	6543210987	8	Fortis Hospital	Hormone Therapy Expert
	5	Dr. E Singh	5432109876	20	Max Healthcare	Targeted Therapy Specialist
	6	Dr. F Patel	4321098765	14	Kokilaben Hospital	General Oncologist
*	NULL	NULL	NULL	NULL	NULL	NULL

Hospital Table

Result Grid   Filter Rows: <input type="text"/> Edit:    Export/Import:   Wrap Cell Content: 				
	Hospital_ID	Hospital_Name	Location	Contact_Number
▶	1	Apollo Cancer Institute	New Delhi, India	9876543210
	2	Tata Memorial Hospital	Mumbai, India	8765432109
	3	AIIMS Oncology Center	Chennai, India	7654321098
	4	Fortis Cancer Care	Bangalore, India	7543210987
	5	Medanta Cancer Institute	Hyderabad, India	7432109876
	6	gandhi cancer care	kerala,india	3466477838
*	NULL	NULL	NULL	NULL

Records Tables

Result Grid					Filter Rows:					Edit:					Export/Import:					Wrap Cell Content:				
	ID	Patient_ID	Hospital_ID	Doctor_ID																				
▶	1	1	5	4																				
	2	2	4	6																				
	3	3	3	1																				
	4	4	4	2																				
	5	5	3	2																				
	6	6	2	5																				
	7	7	1	3																				
	8	8	1	4																				
	9	9	5	3																				
	10	10	2	6																				
	11	11	2	2																				
	12	12	3	6																				
	13	13	3	6																				
	14	14	4	1																				
	15	15	4	1																				
	16	2	1	6																				
	17	4	1	2																				
*	NULL	NULL	NULL	NULL																				

JOINS

Question: Retrieve the names of patients who have visited more than one hospital

SYNTAX:

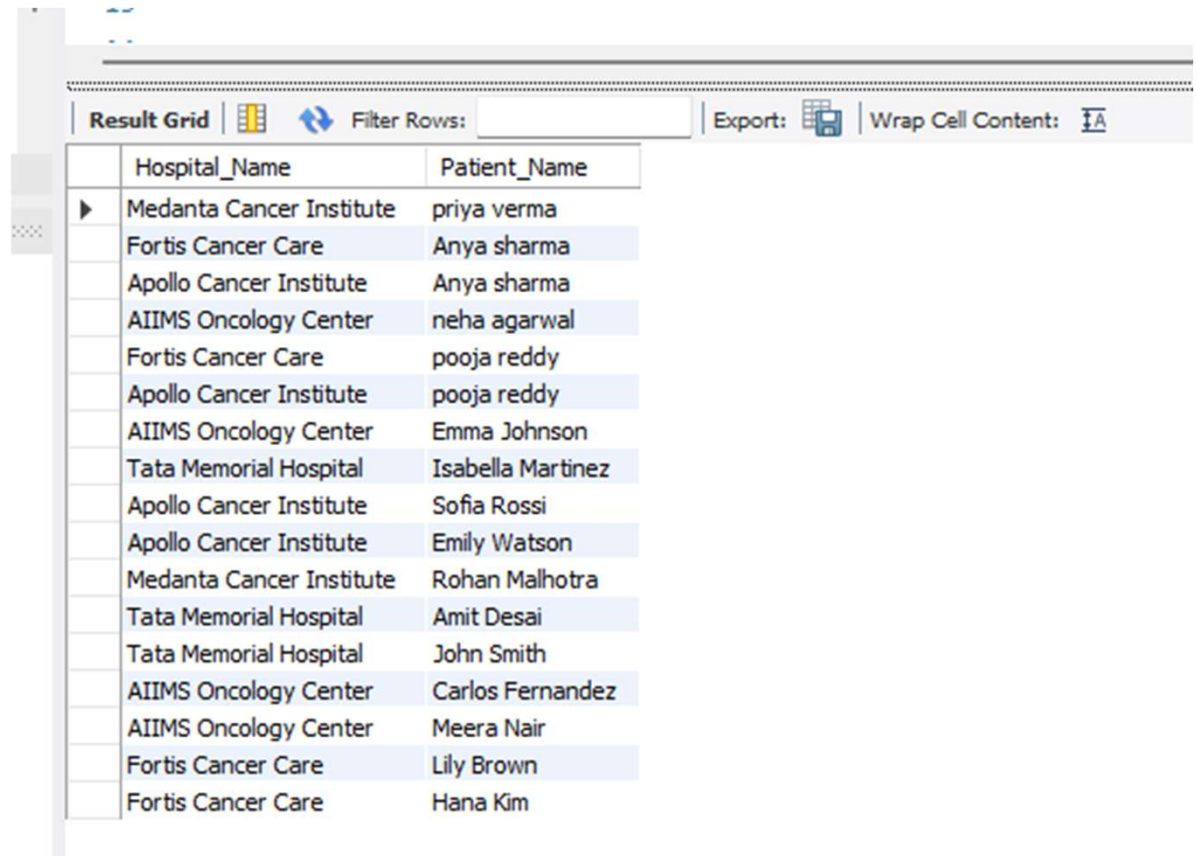
```
SELECT pPatient_Name,  
COUNT(DISTINCT rHospital_ID) AS  
Total_Hospitals  
FROM Patient p  
JOIN Records r ON pPatient_ID =  
rPatient_ID  
GROUP BY pPatient_ID  
HAVING COUNT(DISTINCT  
rHospital_ID) > 1;
```

Result Grid			Filter Rows:	Export:	Wrap Cell Content:
	Patient_Name	Total_Hospitals			
▶	Anya sharma	2			
	pooja reddy	2			

Question: Display all hospitals and the patients associated with them

SYNTAX :

```
SELECT hHospital_Name,  
pPatient_Name  
FROM Hospital h  
RIGHT JOIN Records r ON  
hHospital_ID = rHospital_ID  
RIGHT JOIN Patient p ON  
rPatient_ID = pPatient_ID;
```



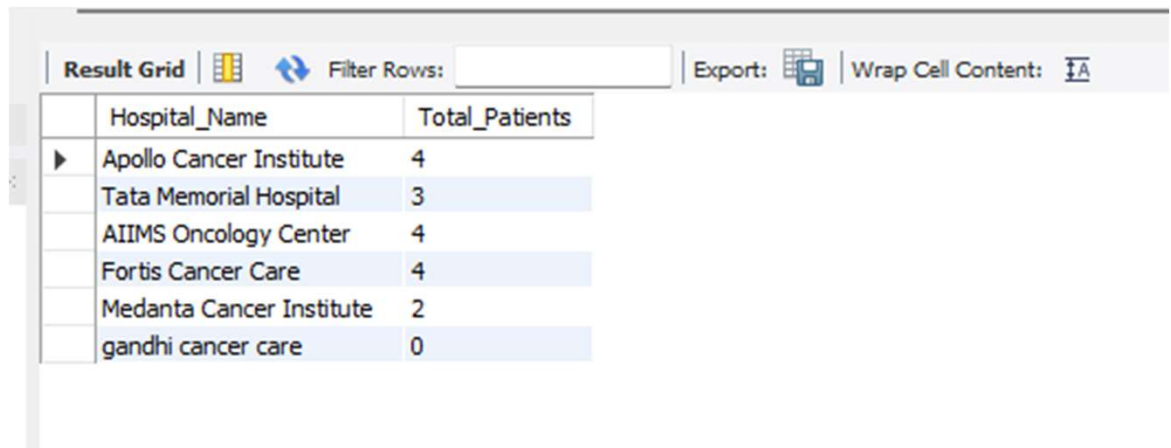
The screenshot shows a database query result grid with two columns: Hospital_Name and Patient_Name. The grid displays 17 rows of data, representing the result of a right join between the Hospital and Patient tables. The data is as follows:

Hospital_Name	Patient_Name
Medanta Cancer Institute	priya verma
Fortis Cancer Care	Anya sharma
Apollo Cancer Institute	Anya sharma
AIIMS Oncology Center	neha agarwal
Fortis Cancer Care	pooja reddy
Apollo Cancer Institute	pooja reddy
AIIMS Oncology Center	Emma Johnson
Tata Memorial Hospital	Isabella Martinez
Apollo Cancer Institute	Sofia Rossi
Apollo Cancer Institute	Emily Watson
Medanta Cancer Institute	Rohan Malhotra
Tata Memorial Hospital	Amit Desai
Tata Memorial Hospital	John Smith
AIIMS Oncology Center	Carlos Fernandez
AIIMS Oncology Center	Meera Nair
Fortis Cancer Care	Lily Brown
Fortis Cancer Care	Hana Kim

Question: Retrieve the number of patients associated with each hospital

SYNTAX :

```
SELECT hHospital_Name,  
COUNT(rPatient_ID) AS  
Total_Patients  
FROM Hospital h  
LEFT JOIN Records r ON  
hHospital_ID = rHospital_ID  
GROUP BY hHospital_Name;
```



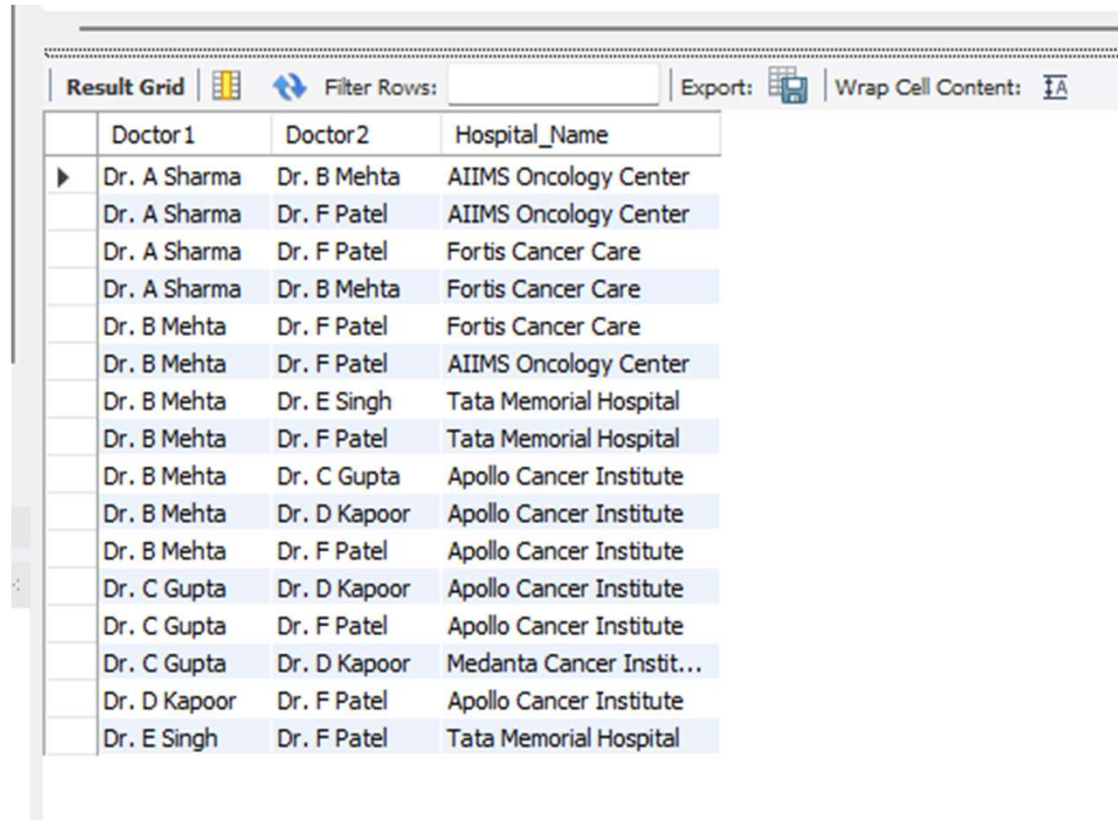
The screenshot shows a database query result grid. At the top, there is a toolbar with 'Result Grid', a filter icon, a 'Filter Rows:' input field, an 'Export:' button with a download icon, and a 'Wrap Cell Content:' button with a text icon. Below the toolbar is a table with two columns: 'Hospital_Name' and 'Total_Patients'. The table contains six rows of data, with the first row highlighted in blue.

Hospital_Name	Total_Patients
Apollo Cancer Institute	4
Tata Memorial Hospital	3
AIIMS Oncology Center	4
Fortis Cancer Care	4
Medanta Cancer Institute	2
gandhi cancer care	0

Question: find pairs of doctors working in the same hospital

SYNTAX:

```
SELECT DISTINCT  
LEAST(d1.Doctor_Name,  
d2.Doctor_Name) AS Doctor1,  
GREATEST(d1.Doctor_Name,  
d2.Doctor_Name) AS Doctor2,  
h.Hospital_Name FROM Records  
r1 JOIN Records r2 ON  
r1.Hospital_ID = r2.Hospital_ID  
AND r1.Doctor_ID <  
r2.Doctor_ID JOIN Doctor d1 ON  
r1.Doctor_ID = d1.Doctor_ID --  
Ensure correct reference JOIN  
Doctor d2 ON r2.Doctor_ID =  
d2.Doctor_ID -- Ensure correct  
reference JOIN Hospital h ON  
r1.Hospital_ID = h.Hospital_ID;
```



The screenshot shows a database query result grid with the following columns: Doctor1, Doctor2, and Hospital_Name. The grid displays 18 rows of data, representing pairs of doctors working in the same hospital. The interface includes a 'Result Grid' tab, a 'Filter Rows' button, and an 'Export' button. The 'Wrap Cell Content' option is also visible.

Doctor1	Doctor2	Hospital_Name
Dr. A Sharma	Dr. B Mehta	AIIMS Oncology Center
Dr. A Sharma	Dr. F Patel	AIIMS Oncology Center
Dr. A Sharma	Dr. F Patel	Fortis Cancer Care
Dr. A Sharma	Dr. B Mehta	Fortis Cancer Care
Dr. B Mehta	Dr. F Patel	Fortis Cancer Care
Dr. B Mehta	Dr. F Patel	AIIMS Oncology Center
Dr. B Mehta	Dr. E Singh	Tata Memorial Hospital
Dr. B Mehta	Dr. F Patel	Tata Memorial Hospital
Dr. B Mehta	Dr. C Gupta	Apollo Cancer Institute
Dr. B Mehta	Dr. D Kapoor	Apollo Cancer Institute
Dr. B Mehta	Dr. F Patel	Apollo Cancer Institute
Dr. C Gupta	Dr. D Kapoor	Apollo Cancer Institute
Dr. C Gupta	Dr. F Patel	Apollo Cancer Institute
Dr. C Gupta	Dr. D Kapoor	Medanta Cancer Instit...
Dr. D Kapoor	Dr. F Patel	Apollo Cancer Institute
Dr. E Singh	Dr. F Patel	Tata Memorial Hospital

Subqueries

Question: Find the oldest patient in the database

SYNTAX :

```
SELECT Patient_Name, Age  
FROM Patient
```

```
WHERE Age = (SELECT  
MAX(Age) FROM Patient);
```



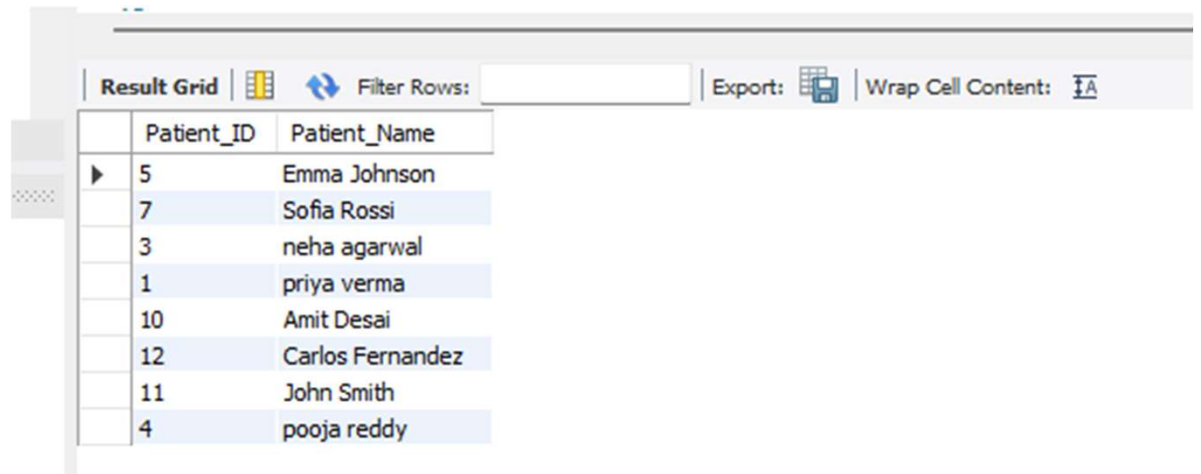
The screenshot shows a database interface with a 'Result Grid' tab. Above the grid is a 'Filter Rows:' input field and buttons for 'Export' and 'Wrap Cell Content'. The grid contains one row with the following data:

	Patient_Name	Age
▶	Amit Desai	60

Question: Retrieve all patients who have completed treatment

SYNTAX :

```
SELECT Patient_ID,  
Patient_Name  
FROM Patient  
WHERE Patient_ID IN (SELECT  
Patient_ID FROM Treatment  
WHERE treatment_status =  
'Completed');
```



The screenshot shows a 'Result Grid' window with a toolbar containing icons for 'Filter Rows', 'Export', and 'Wrap Cell Content'. The grid displays a table with two columns: 'Patient_ID' and 'Patient_Name'. The data is as follows:

Patient_ID	Patient_Name
5	Emma Johnson
7	Sofia Rossi
3	neha agarwal
1	priya verma
10	Amit Desai
12	Carlos Fernandez
11	John Smith
4	pooja reddy

Question: Find patients who have multiple records in the records table

SYNTAX :

```
SELECT Patient_ID,  
Patient_Name  
FROM Patient p  
WHERE EXISTS (SELECT 1  
FROM Records r WHERE  
pPatient_ID = rPatient_ID  
GROUP BY rPatient_ID  
HAVING COUNT(*) > 1);
```



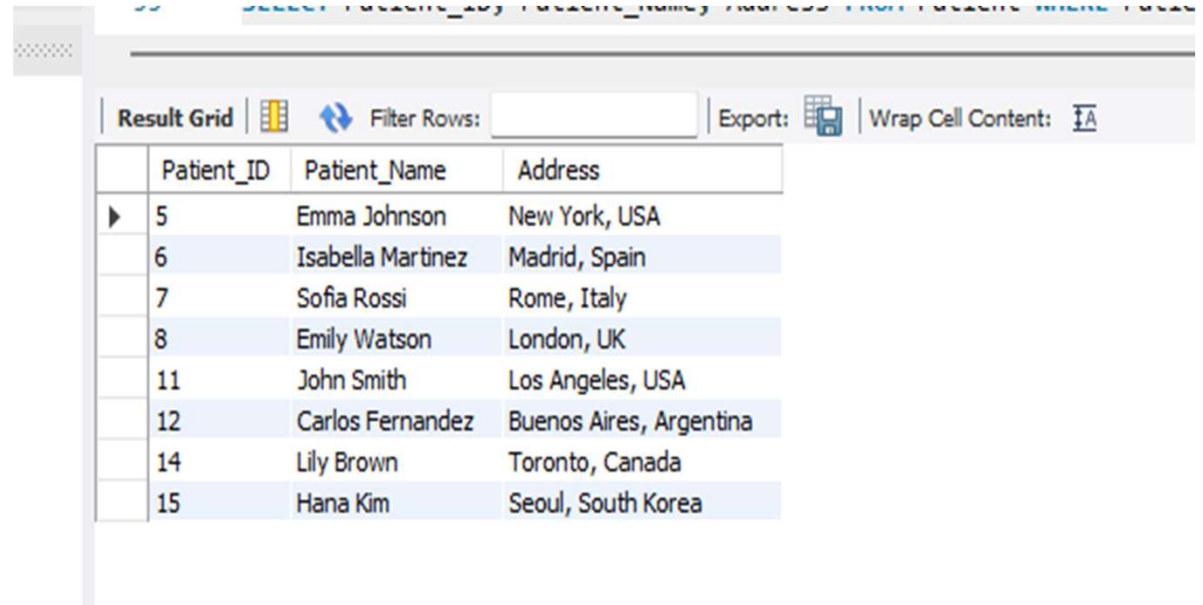
The screenshot shows a database interface with a 'Result Grid' tab. The grid contains two rows of data. The first row has Patient_ID 2 and Patient_Name Anya sharma. The second row has Patient_ID 4 and Patient_Name pooja reddy. The interface also includes a 'Filter Rows' field, an 'Export' button, and a 'Wrap Cell Content' option.

	Patient_ID	Patient_Name
▶	2	Anya sharma
	4	pooja reddy

Question: Find Patients Not from India

SYNTAX:

```
SELECT Patient_ID,  
Patient_Name, Address FROM  
Patient WHERE Patient_ID IN (  
SELECT Patient_ID FROM  
Patient WHERE Address NOT  
LIKE '%India%');
```



The screenshot shows a database application interface. At the top, there is a header bar with the text "SELECT Patient_ID, Patient_Name, Address FROM Patient WHERE Address NOT LIKE '%India%'". Below this is a toolbar with the following options: "Result Grid" (selected), a grid icon, a refresh icon, "Filter Rows:" (with an empty input field), "Export:" (with a download icon), and "Wrap Cell Content:" (with a text icon). The main area displays a table with the following data:

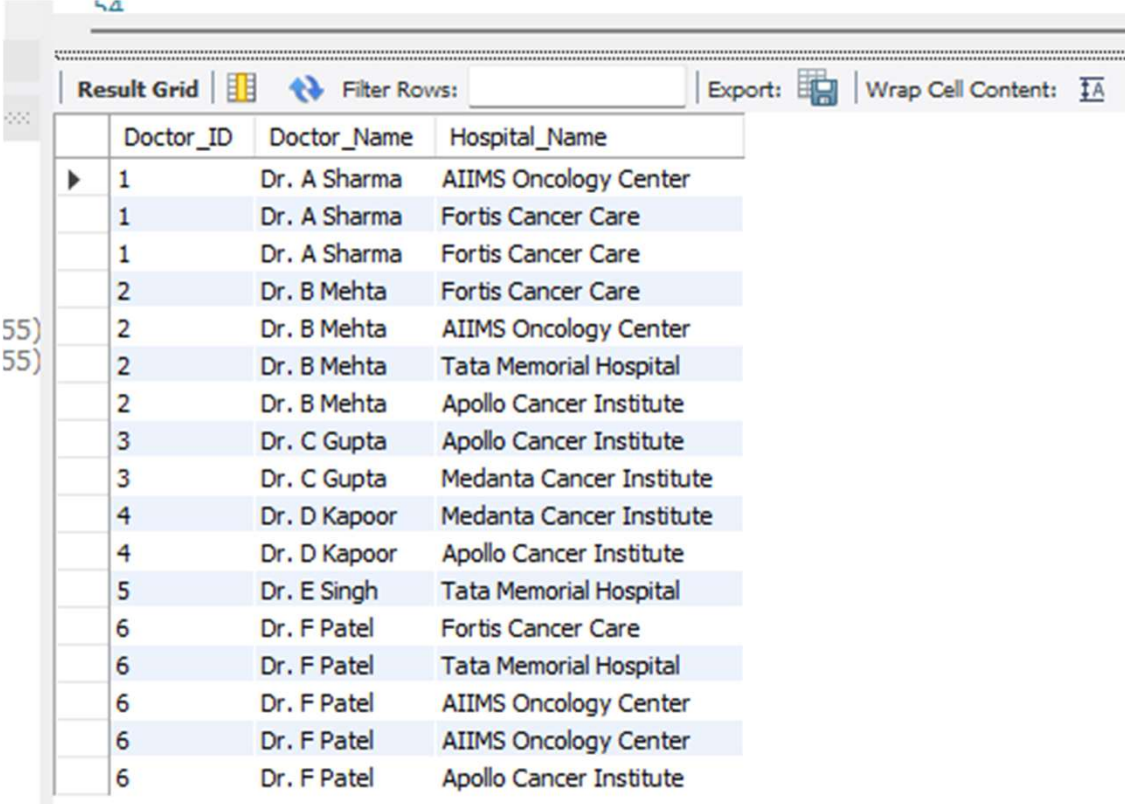
	Patient_ID	Patient_Name	Address
▶	5	Emma Johnson	New York, USA
	6	Isabella Martinez	Madrid, Spain
	7	Sofia Rossi	Rome, Italy
	8	Emily Watson	London, UK
	11	John Smith	Los Angeles, USA
	12	Carlos Fernandez	Buenos Aires, Argentina
	14	Lily Brown	Toronto, Canada
	15	Hana Kim	Seoul, South Korea

VIEW

CREATE VIEW AS DOCTOR
HOSPITAL.

SYNTAX:

```
CREATE VIEW DoctorHospital AS
SELECT d.Doctor_ID,
d.Doctor_Name,
h.Hospital_Name
FROM Doctor d, Records r,
Hospital h
WHERE d.Doctor_ID = r.Doctor_ID
AND r.Hospital_ID =
h.Hospital_ID;
```



	Doctor_ID	Doctor_Name	Hospital_Name
▶	1	Dr. A Sharma	AIIMS Oncology Center
	1	Dr. A Sharma	Fortis Cancer Care
	1	Dr. A Sharma	Fortis Cancer Care
	2	Dr. B Mehta	Fortis Cancer Care
55)	2	Dr. B Mehta	AIIMS Oncology Center
55)	2	Dr. B Mehta	Tata Memorial Hospital
	2	Dr. B Mehta	Apollo Cancer Institute
	3	Dr. C Gupta	Apollo Cancer Institute
	3	Dr. C Gupta	Medanta Cancer Institute
	4	Dr. D Kapoor	Medanta Cancer Institute
	4	Dr. D Kapoor	Apollo Cancer Institute
	5	Dr. E Singh	Tata Memorial Hospital
	6	Dr. F Patel	Fortis Cancer Care
	6	Dr. F Patel	Tata Memorial Hospital
	6	Dr. F Patel	AIIMS Oncology Center
	6	Dr. F Patel	AIIMS Oncology Center
	6	Dr. F Patel	Apollo Cancer Institute

CREATE VIEW AS PATIENT
TREATMENT DETAILS.

SYNTAX:

```
CREATE VIEW
PatientTreatmentDetails AS
SELECT p.Patient_ID,
p.Patient_Name, t.Diagnosis,
t.Treatment, t.Treatment_Status
FROM Patient p, Treatment t
WHERE p.Patient_ID = t.Patient_ID;
```

Result Grid					
		Filter Rows:	Export:	Wrap Cell Content:	
	Patient_ID	Patient_Name	Diagnosis	Treatment	Treatment_Status
▶	1	priya verma	Breast Cancer Stage 1	Hormone Therapy	Completed
	2	Anya sharma	Fibroadenoma	Fluid Aspiration	Ongoing
	3	neha agarwal	Breast Cancer Stage 1	Chemotherapy	Completed
	4	pooja reddy	Lobular Carcinoma In Situ	Surgery + Radiation	Completed
255)	5	Emma Johnson	Breast Cancer Stage 3	Surgery	Completed
255)	6	Isabella Martinez	Breast Cancer Stage 4	Targeted Therapy	Ongoing
	7	Sofia Rossi	Breast Cancer Stage 2	Radiation Therapy	Completed
	8	Emily Watson	Early-Stage Breast Cancer	Hormone Therapy	Ongoing
	9	Rohan Malhotra	Breast Cancer Stage 2	Radiation Therapy	Ongoing
	10	Amit Desai	Benign Tumor	Observation and Lifestyle Changes	Completed
	11	John Smith	Ductal Carcinoma In Situ	Surgery	Completed
	12	Carlos Fernandez	Breast Cyst	Fluid Aspiration	Completed
	13	Meera Nair	Breast Fibrosis	Observation	Ongoing
	14	Lily Brown	Breast Cancer Stage 3	Chemotherapy + Surgery	Ongoing
	15	Hana Kim	Inflammatory Breast Cancer	Chemotherapy + Surgery	Ongoing

THANK YOU