



# HOSPITAL MANAGEMENT SYSTEM

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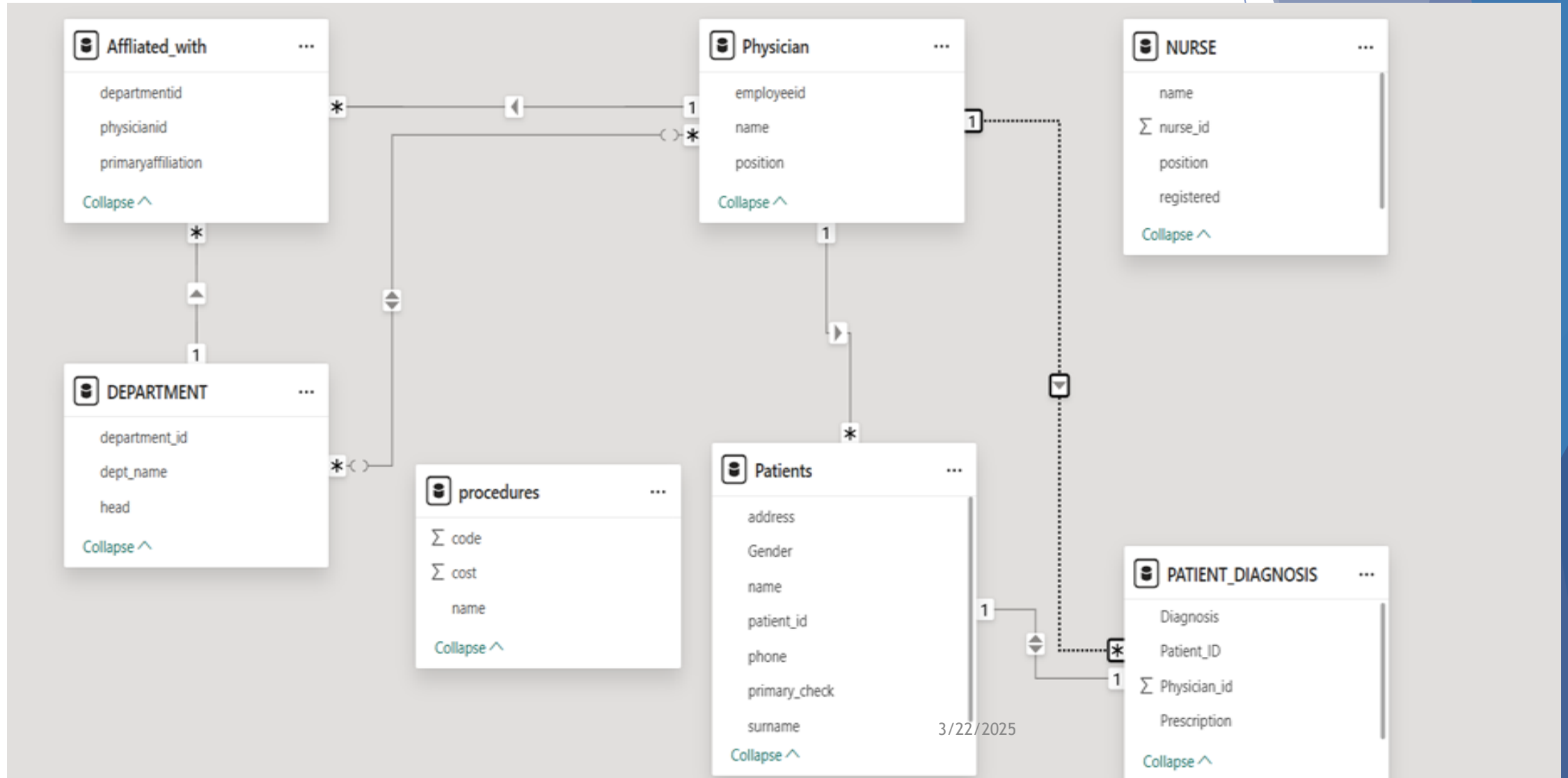
HOSPITAL  
MANAGEMENT

# Objective

1. To develop a comprehensive SQL database for the hospital management system that enables efficient data analysis.
2. Design the database schema to include the following tables:
  - Doctors:** Contains information about each doctor.
  - Departments:** Contains information about each department.
  - Doctor\_Department\_Assignment:** Contains the relationships between doctors and departments
3. Analyze the data between physician, department, patient and nurse.



# ER-Diagram (Entity Relationship Diagram) For Hospital Management System.



# 1. Write a query in SQL to obtain the name of the physician in alphabetical order.

329

330 • `SELECT NAME FROM PHYSICIAN ORDER BY NAME ASC;`

331

Result Grid | | Filter Rows:  | Export: | Wrap Cell Content:

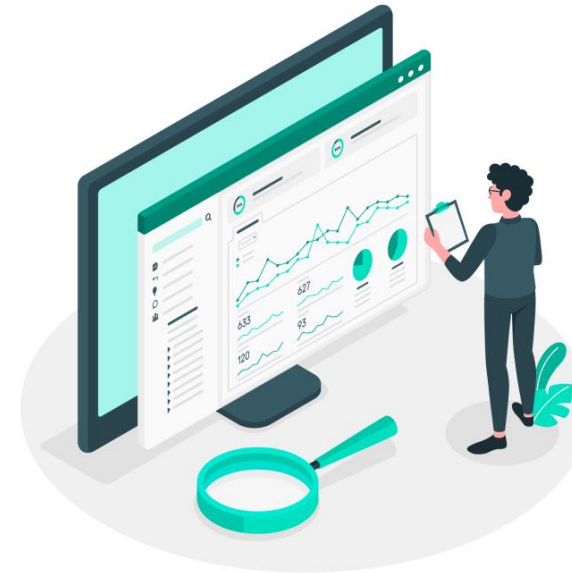
NAME
Dr.Aaliyah Craig
Dr.Alexis Estes
Dr.Ariya Bradley
Dr.Berkley McKenzie
Dr.Bob Kelso
Dr.Brynn Harrison
Dr.Cali Vazquez
Dr.Cedric Kelley
Dr.Christopher Turk
Dr.Dallas Gutierrez



## 2. Write a query in SQL to obtain the full name of the patients whose gender is male.

```
333  
334 • SELECT NAME, SURNAME, CONCAT(NAME, " ", SURNAME) AS FULL_NAME, GENDER  
335 FROM PATIENT  
336 WHERE GENDER = "MALE";
```

NAME	SURNAME	FULL_NAME	GENDER
John	Smith	John Smith	Male
Remo	Xavier	Remo Xavier	Male
Dennis	Doe	Dennis Doe	Male
John	Smith	John Smith	Male
Michael	Williams	Michael Williams	Male
David	Jones	David Jones	Male





3. Write a query in SQL to find the name of the nurse who are the head of their department and are registered.

```
340 • SELECT NAME, POSITION, REGISTERED
341 FROM NURSE
342 WHERE POSITION = "Head Nurse" AND REGISTERED = "YES";
343
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

NAME	POSITION	REGISTERED
Carla Espinosa	Head Nurse	Yes
Rose Hughes	Head Nurse	Yes
Olive Peterson	Head Nurse	Yes
Jamiya Villarreal	Head Nurse	Yes
Liliana Pace	Head Nurse	Yes



4. Write a query in SQL to find the name of the nurse who are Team Leader or not registered.

```
346 • SELECT NAME, POSITION, REGISTERED
347 FROM NURSE
348 WHERE POSITION = "Head Nurse" AND REGISTERED = "No";
```

NAME	POSITION	REGISTERED
Nia Knox	Head Nurse	No



5. Write a query to obtain the average cost of all the medical procedures.

```
352 • SELECT ROUND(AVG(COST),1) AS AVG_COST
353 FROM PROCEDURES;
```

Result Grid | Filter Rows: | Export:

AVG_COST
2552.5



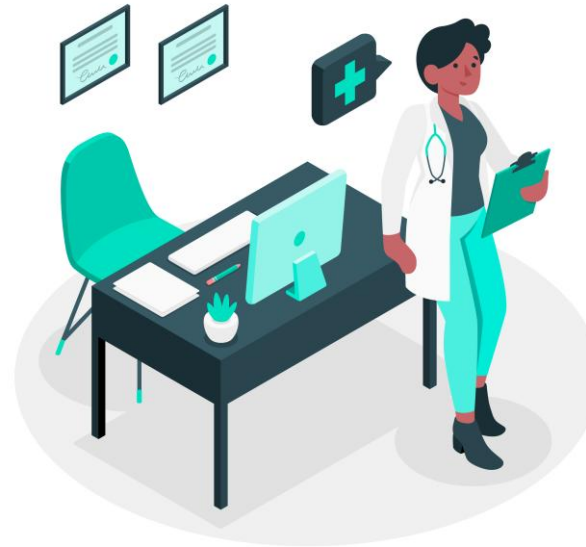


6. Write a query to obtain name and cost of the procedure whose cost is greater than 2000.

```
356
357 • SELECT NAME,COST
358 FROM PROCEDURES
359 WHERE COST >2000;
```

Result Grid | Filter Rows:

NAME	COST
MRI-Brain	5000
MRI-Spine	6000
CT Scan-Abdomen	3000
CT Scan-Pelvis	3500
Ultrasound-Obstetric	2500
PET-CT Scan	5000
Fluoroscopy - Upper GI Series	7000
Fluoroscopy - Barium Enema	4500
MRI-Knee	4000



## 7. Write a query to update the name of the patient to Robert Fernandez having patient id as 5.

```
362
363 • UPDATE PATIENT
364   SET NAME = "Robert", SURNAME = "Fernandez"
365   WHERE PATIENT_ID = 5;
366
367 • SELECT * FROM PATIENT WHERE PATIENT_ID = 5;
```

patient_id	name	surname	address	Gender	primary_check
5	Robert	Fernandez	123 Main St	Male	24
NULL	NULL	NULL	NULL	NULL	NULL



## 8. Write a query to drop phone column from patient table

```
370
371 • ALTER TABLE PATIENT
372 DROP COLUMN PHONE;
373
374 • SELECT * FROM PATIENT;
375
```

patient_id	name	surname	address	Gender	primary_check
1	John	Smith	42 Foobar Lane	Male	2
2	Grace	Ritchie	37 Snafu Drive	Female	2
3	Remo	Xavier	101 Omgbbq Street	Male	9
4	Dennis	Doe	1100 Foobaz Avenue	Male	17
5	Robert	Fernandez	123 Main St	Male	24
6	Emily	Johnson	56 Elm St	Female	7



## 9. Write a query to find second maximum cost of medical procedure?

```
379
380 • WITH SECOND_HIGHEST_COST AS
381 (SELECT CODE, NAME, COST,
382     DENSE_RANK() OVER(ORDER BY COST DESC) AS RANKING
383  FROM PROCEDURES)
384 SELECT * FROM SECOND_HIGHEST_COST WHERE RANKING =2;
385
```

Result Grid	Filter Rows:	Export:	Wrap Cell Content:
CODE	NAME	COST	RANKING
6	MRI-Spine	6000	2

```
387
388 • SELECT MAX(COST) AS SECOND_HIGHEST_COST
389 FROM PROCEDURES
390 WHERE COST < (SELECT MAX(COST) FROM PROCEDURES);
```

Result Grid	Filter Rows:	Export:	Wrap Cell Conte
SECOND_HIGHEST_COST			
6000			



10. Write a query in SQL to obtain the name of the patients starting with letter A.

```
393
394 • SELECT CONCAT(NAME, " ", SURNAME) AS FULL_NAME, GENDER
395 FROM PATIENT
396 WHERE CONCAT(NAME, " ", SURNAME) LIKE 'A%';
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

	FULL_NAME	GENDER
▶	Ashley Taylor	Female
	Amanda Hernandez	Female
	Andrew Cruz	Male
	Austin Green	Male



11. Write a query in SQL to obtain the name of the patients whose third letter is M.

```
404 • SELECT CONCAT(NAME, " ", SURNAME) AS FULL_NAME  
405 FROM PATIENT  
406 WHERE CONCAT(NAME, " ", SURNAME) LIKE '__M%';  
407
```

Result Grid	Filter Rows:	Export:	Wrap Cell Co
FULL_NAME			
▶	Remo Xavier		
	Samantha Anderson		
	James Lopez		





12. Write a query in SQL to obtain the name of the patients whose name start with letter J and ends with Z.

```
409
410 • SELECT CONCAT(NAME, " ", SURNAME) AS FULL_NAME
411 FROM PATIENT
412 WHERE CONCAT(NAME, " ", SURNAME) LIKE 'J%Z';
413
```


Result Grid	Filter Rows:	Export:	Wrap Cell
FULL_NAME			
James Lopez			
Jennifer Gonzalez			
Joshua Perez			



## 13. Write a query to obtain patient details having patient id 11 to 20.




```
415
416 • SELECT *
417 FROM PATIENT
418 WHERE PATIENT_ID BETWEEN 11 AND 20;
```

Result Grid



Filter Rows:

Edit:

Export/Import:

	patient_id	name	surname	address	Gender	primary_check
▶	11	Christopher	Wilson	890 Birch St	Male	5
	12	Ashley	Taylor	111 Walnut St	Female	33
	13	Matthew	Martinez	222 Cherry St	Male	3
	14	Samantha	Anderson	333 Spruce St	Female	18
	15	Daniel	Garcia	444 Sycamore St	Male	6
	16	Amanda	Hernandez	555 Pineapple St	Female	19
	17	James	Lopez	666 Banana St	Male	15
	18	Jennifer	Gonzalez	777 Orange St	Female	26
	19	Joshua	Perez	888 Grape St	Male	6
	20	Brittany	Torres	999 Lemon St	Female	20



## 14. Write a query in SQL to obtain the name of the physicians who are the head of each department

```
421
422 • SELECT P.NAME AS DOCTORS_NAME, D.DEPT_NAME
423 FROM PHYSICIAN P
424 INNER JOIN DEPARTMENT D
425 ON P.EMPLOYEEID = D.HEAD;
426
```

Result Grid		Filter Rows:	Export:
DOCTORS_NAME	DEPT_NAME		
Dr.Percival Cox	General Medicine		
Dr.John Wen	Surgery		
Dr.Molly Clock	Psychiatry		
Dr.Nancy James	Cardiology		
Dr.Imani Harper	Nephrology		
Dr.Robert Suarez	Urology		
Dr.Ariya Bradley	Neurology		
Dr.Nico Galvan	Physiotherapy		
Dr.Mabel Leal	ENT		
Dr.Bob Kelso	Pulmonology		
Dr.Bony Cook	Gastroenterology		



## 15. Write a query in SQL to obtain the name of the patients with their physicians by whom they got their preliminary treatment

```
428
429 • SELECT CONCAT(P.NAME," ",P.SURNAME) AS PATIENT_NAME,PH.NAME AS PHY_WHO_DID_PRELIMINARY_TRE
430 FROM PATIENT P
431 LEFT JOIN PHYSICIAN PH
432 ON P.PRIMARY_CHECK = PH.EMPLOYEEID;
433
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

PATIENT_NAME	PHY_WHO_DID_PRELIMINARY_TRE
John Smith	Dr.Elliot Reid
Grace Ritchie	Dr.Elliot Reid
Remo Xavier	Dr.Molly Clock
Dennis Doe	Dr.Rosalie Vaughn
Robert Fernandez	Dr.Gavin Curtis
Emily Johnson	Dr.John Wen
Michael Williams	Dr.Nancy James
Sarah Brown	Dr.Alexis Estes
David Jones	Dr.Dallas Gutierrez
Jessica Davis	Dr.Aaliyah Craig
Christopher Wilson	Dr.Bob Kelso



16. Write a query in SQL to obtain the name of the physician with the department who are done with affiliation.

```
436 • SELECT
437     PH.NAME AS DOCTOR_NAME,
438     D.DEPT_NAME
439 FROM PHYSICIAN PH
440 INNER JOIN DEPARTMENT D
441 ON PH.EMPLOYEEID = D.HEAD
442 INNER JOIN AFFILIATED_WITH A
443 ON PH.EMPLOYEEID = A.PHYSICIANID
444 WHERE A.PRIMARYAFFILIATION = 'T';
445
```

Result Grid | Filter Rows: | Export:

DOCTOR_NAME	DEPT_NAME
Dr. Percival Cox	General Medicine
Dr. Bob Kelso	Pulmonology
Dr. John Wen	Surgery
Dr. Molly Clock	Psychiatry
Dr. Imani Harper	Nephrology
Dr. Scott Vaughan	Gynecology
Dr. Nancy James	Cardiology
Dr. Mabel Leal	ENT
Dr. Remy Cook	Gastroenterology
Dr. Cali Vazquez	Orthopedics
Dr. Jesse Craig	Neonatal





## 17. Write a query to obtain physician name, position and department they are affiliated with.

```
448 • SELECT
449     PH.NAME AS DOCTOR_NAME,
450     PH.POSITION,
451     D.DEPT_NAME
452 FROM PHYSICIAN PH
453 INNER JOIN AFFILIATED_WITH A
454 ON PH.EMPLOYEEID = A.PHYSICIANID
455 INNER JOIN DEPARTMENT D
456 ON A.DEPARTMENTID = D.DEPARTMENT_ID;
457
```

Result Grid	Filter Rows:	Export:	Wrap Cell Content:
DOCTOR_NAME	POSITION	DEPT_NAME	
Dr. John Dorian	Staff Internist	General Medicine	
Dr. Elliot Reid	Attending Physician	General Medicine	
Dr. Christopher Turk	Surgical Attending Physician	General Medicine	
Dr. Percival Cox	Senior Attending Physician	General Medicine	
Dr. John Wen	Surgical Attending Physician	General Medicine	
Dr. Keith Dudemeister	Resident	General Medicine	
Dr. Christopher Turk	Surgical Attending Physician	Surgery	
Dr. Todd Quinlan	Surgical Attending Physician	Surgery	
Dr. John Wen	Surgical Attending Physician	Surgery	
Dr. Molly Clock	Attending Psychiatrist	Psychiatry	
Dr. Berkley McKenzie	Resident	Cardiology	





18. Write a query in SQL to obtain the patient name from which physician they get primary checkup and also mention the patient diagnosis with prescription.

```

461 • SELECT CONCAT(P.NAME," ",P.SURNAME) AS Patient_Name,
462         P.GENDER,
463         PH.NAME AS Doctor_Name,
464         PH.POSITION,
465         PD.DIAGNOSIS AS Patient_Diagnosis,
466         PD.PRESCRIPTION AS Patient_Prescription
467 FROM PATIENT_DIAGNOSIS PD
468 LEFT JOIN PHYSICIAN PH
469 ON PD.PHYSICIAN_ID = PH.EMPLOYEEID
470 LEFT JOIN PATIENT P
471 ON P.PATIENT_ID = PD.PATIENT_ID;

```

Patient_Name	GENDER	Doctor_Name	POSITION	Patient_Diagnosis	Patient_Prescription
John Smith	Male	Dr.Elliot Reid	Attending Physician	Hypertension	Lisinopril
Dennis Doe	Male	Dr.Rosalie Vaughn	Assistant Orthopedic Surgeon	Arthritis	Naproxen & Aspirin
Remo Xavier	Male	Dr.Molly Clock	Attending Psychiatrist	Anxiety Disorder	Fluoxetine
Robert Fernandez	Male	Dr.Gavin Curtis	Assistant Physiotherapist	Muscular Dystrophy	Corticosteroids
Grace Ritchie	Female	Dr.Elliot Reid	Attending Physician	Asthma	Albuterol
Kayla Adams	Female	Dr.Imani Harper	Senior Attending Nephrologist	IgA Nephropathy	Budesonide
Emily Johnson	Female	Dr.John Wen	Surgical Attending Physician	Chronic Pain	Tramadol
Michael Williams	Male	Dr.Nancy James	Cardiologist	Acoustic neuroma	Radiation therapy
Sarah Brown	Female	Dr.Alexis Estes	Senior Intensivist	Septic Shock	Corticosteroids:Hydrocortisone
David Jones	Male	Dr.Dallas Gutierrez	Senior attending Urologist	Kidney Stones	Ibuprofen, Acetaminophen
Jessica Davis	Female	Dr.Aaliyah Craig	Assistant Neuro Surgeon	Parkinsons Disease...	Ropinirole



## 19. Write a query in SQL to obtain the maximum cost of the medical procedure.

4/4

```
475 • SELECT NAME,COST FROM PROCEDURES  
476 WHERE COST = (SELECT MAX(COST) FROM PROCEDURES);
```

Result Grid	Filter Rows:	Export:	Wrap Cell Content
NAME	COST		
Fluoroscopy - Upper GI Series	7000		

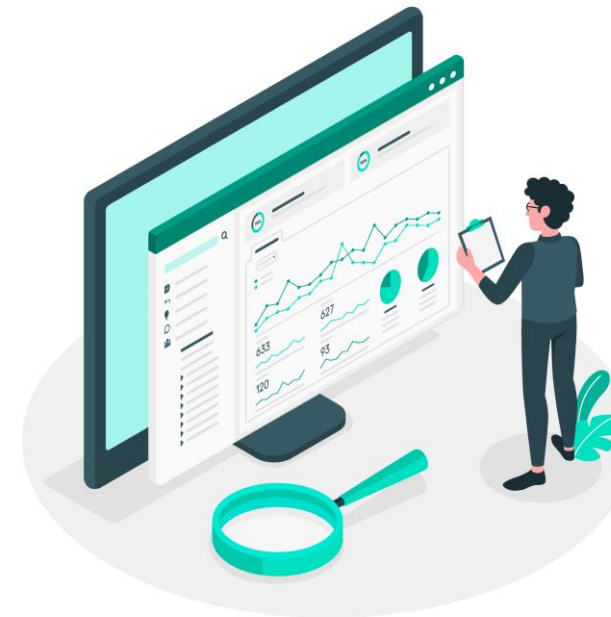


## 20. Write a query in SQL to obtain the details of patient who has diagnosed with chronic pain.

```
479
480 • SELECT * FROM PATIENT
481 WHERE PATIENT_ID IN (SELECT PATIENT_ID FROM PATIENT_DIAGNOSIS WHERE DIAGNOSIS = 'Chronic Pain');
482
```

Result Grid

patient_id	name	surname	address	Gender	primary_check
6	Emily	Johnson	56 Elm St	Female	7
13	Matthew	Martinez	222 Cherry St	Male	3



21. Write a query in SQL to obtain the procedure name and cost whose cost is greater than the average cost of all the procedure.

```
484
485 • SELECT NAME,COST
486 FROM PROCEDURES
487 WHERE COST > (SELECT AVG(COST) FROM PROCEDURES);
488
```

Result Grid			Filter Rows:	Export:	Wrap Cell
	NAME	COST			
▶	MRI-Brain	5000			
	MRI-Spine	6000			
	CT Scan-Abdomen	3000			
	CT Scan-Pelvis	3500			
	PET-CT Scan	5000			
	Fluoroscopy - Upper GI Series	7000			
	Fluoroscopy - Barium Enema	4500			
	MRI-Knee	4000			



22. Write a query in SQL to obtain the procedure name and cost whose cost is less than the average cost of all the procedure.

```
491 • SELECT NAME,COST
492 FROM PROCEDURES
493 WHERE COST < (SELECT AVG(COST) FROM PROCEDURES);
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content

NAME	COST
X-ray-Chest	1000
X-ray-Abdomen	1200
X-ray-Skull	900
X-ray-Spine	1500
Ultrasound-Abdomen	700
Ultrasound-Obstetric	2500
Mammogram	1200
Bone Density Scan (DEXA)	1800
Nuclear Medicine - Thyroid Scan	450
Angiography - Cerebral	800
Interventional Radiology - Biopsy	700



## 23. Write a query in SQL to obtain the physician name who are either head chief or senior in their respective department.

```
496
497 • SELECT * FROM PHYSICIAN
498 WHERE POSITION IN
499 (SELECT POSITION
500 FROM PHYSICIAN
501 WHERE POSITION LIKE '%HEAD CHIEF%' OR POSITION LIKE '%SENIOR%');
```

Result Grid	Filter Rows:	Edit:	Export/Import:	Wrap C
employeeid	name	position		
4	Dr.Percival Cox	Senior Attending Physician		
5	Dr.Bob Kelso	Head Chief of pulmonology		
10	Dr.Imani Harper	Senior Attending Nephrologist		
12	Dr.Scott Vaughan	Senior Attending Gynecologist		
15	Dr.Mabel Leal	Senior ENT Surgeon		
18	Dr.Remy Cook	Head chief of Gastroenterology		
21	Dr.Cali Vazquez	Head Chief of Orthopedics		
22	Dr.Jesse Craig	Head chief of neonatal		
25	Dr.Alexis Estes	Senior Intensivist		
27	Dr.Nico Galvan	Head chief of physiotherapy		
28	Dr.Dallas Gutierrez	Senior attending Urologist		





24. Write a query in SQL to obtain the employee id, physician name and position whose primary affiliation has not been done.

```
504  
505 • SELECT * FROM PHYSICIAN  
506 WHERE EMPLOYEEID IN (SELECT PHYSICIANID FROM AFFILIATED_WITH WHERE PRIMARYAFFILIATION = 'f');
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: |

employeeid	name	position
3	Dr.Christopher Turk	Surgical Attending Physician
7	Dr.John Wen	Surgical Attending Physician
11	Dr.Berkley McKenzie	Resident
14	Dr.Jaxson Khan	Assistant Intensivist
16	Dr.Cedric Kelley	Junior Resident
20	Dr.Odin Banks	Junior Intensivist
23	Dr.Brynn Harrison	Staff Internist
26	Dr.Estella Keller	Assistant Gastro Surgeon
31	Dr.Richard Mitchell	Senior Resident
32	Dr.Willow Farmer	Junior Resident



# Conclusion: -

this SQL Project demonstrates a significant step toward modernizing hospital management processes. By designing and developing an efficient database management system, we aim to enhance the accessibility, organization, and reliability of patient and hospital data. The conceptual and logical designs, illustrated through the EER diagram and relational schema, provide a solid foundation for implementation. With well-defined data types and constraints, the project ensures data integrity and accuracy.

Moving forward, the implementation and iterative improvement of this system will pave the way for a more responsive and effective hospital management system. This project not only addresses the current needs of hospital operations but also has the potential to adapt to future challenges, fostering a smoother workflow and better patient care.

# MY SQL PROJECT DATASET RESOURCE

## **Project Resource: -**

GitHub Project Link: [https://github.com/SUNIL7978/SQL\\_PROJECT\\_HOSPITAL\\_MANAGEMENT\\_SYSTEM](https://github.com/SUNIL7978/SQL_PROJECT_HOSPITAL_MANAGEMENT_SYSTEM)

## **Profile Link: -**

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# Thank You

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