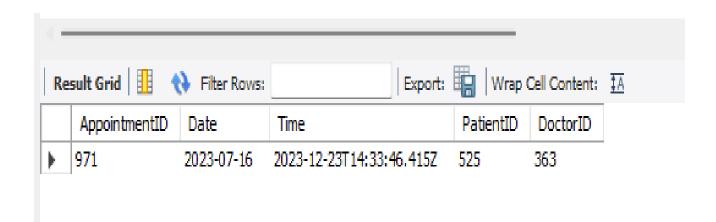# HealthCare Management System

Effective healthcare management using SQL enhances patient care quality and operational efficiency by leveraging data-driven insights. Through strategic database queries, it optimizes resource allocation, tracks patient outcomes, and improves decision-making processes.

Find all appointments scheduled on a specific date (e.g., '2023-07-16').

select * from appointment where date = '2023-07-16';

AppointmentID	Date	Time	PatientID	DoctorID
971	2023-07-16	2023-12-23T14:33:46.415Z	525	363

List all procedures performed during a specific appointment.

SELECT * FROM MedicalProcedure WHERE AppointmentID = 360;

	ProcedureID	ProcedureName	AppointmentID
▶	409	Epidural anesthesia for pain management	360
	320	Laser therapy for skin conditions	360
	870	Medication management	360
	152	Chemotherapy	360

Retrieve the specilization who worked on Dermatology of doctors table

select * from doctor
where
Specialization = 'Dermatology';

	DoctorID	DoctorName	Specialization	DoctorContact
▶	811	Lucille	Dermatology	.@yopmail.com
	589	Calla	Dermatology	.@yopmail.com
	778	Brana	Dermatology	.@yopmail.com
	706	Robbi	Dermatology	.@yopmail.com
	801	Brooks	Dermatology	.@yopmail.com
	120	Lilith	Dermatology	.@yopmail.com
	117	Alex	Dermatology	.@yopmail.com
	345	Phedra	Dermatology	.@yopmail.com
	888	Grier	Dermatology	.@yopmail.com
	473	Dulcinea	Dermatology	.@yopmail.com
	714	Brianna	Dermatology	.@yopmail.com
	808	Max	Dermatology	.@yopmail.com
	905	Minne	Dermatology	.@yopmail.com
	504	Averyl	Dermatology	.@yopmail.com
	884	Randa	Dermatology	.@yopmail.com
	822	Elise	Dermatology	.@yopmail.com
	777	Aimil	Dermatology	.@yopmail.com
	878	Ann-Marie	Dermatology	.@yopmail.com

Result Grid | Filter Rows: | Export: | Wr

Find all billing records for a specific doctor (e.g., DoctorID = 262) by joining with the Appointments table.

SELECT b.InvoiceID, b.PatientID, b.Items, b.AmountFROM Billing bJOIN Appointment a ON b.PatientID = a.PatientIDWHERE a.DoctorID = 262;

InvoiceID	PatientID	Items	Amount
d17275f1-fd48-4dc7-8c44-8425ef0d38ea	852	Emergency surgical procedures	869041
7f998656-650a-4cd1-ba56-2634b34cfee8	852	Pulmonary function tests	951438
3a144e21-f79f-421d-bfee-e51a45f15c70	852	Symptom management for end-of-life care	561663

List all appointments along with the names of the patients and doctors.

- SELECT a.AppointmentID, a.Date, a.Time, p.firstname AS PatientFirstName, p.lastname AS PatientLastName, d.DoctorNameFROM Appointment aJOIN Patient p ON a.PatientID = p.PatientIDJOIN Doctor d ON a.DoctorID = d.DoctorID;

AppointmentID	Date	Time	PatientFirstName	PatientLastName	DoctorName
618	2020-03-03	2023-12-23T14:33:46.415Z	Andree	Suk	Shell
618	2020-03-03	2023-12-23T14:33:46.415Z	Kassey	Liebermann	Shell
992	2023-01-03	2023-12-23T14:33:46.415Z	Blinni	Fitzsimmons	Shell
618	2020-03-03	2023-12-23T14:33:46.415Z	Eadie	Wattenberg	Shell
365	2023-07-23	2023-12-23T14:33:46.413Z	Karlee	Creamer	Regina
855	2020-05-22	2023-12-23T14:33:46.411Z	Micheline	Eugenia	Regina
365	2023-07-23	2023-12-23T14:33:46.413Z	Nadine	Rossner	Regina
900	2023-11-09	2023-12-23T14:33:46.413Z	Mellicent	Virgin	Regina
900	2023-11-09	2023-12-23T14:33:46.413Z	Dari	Agle	Regina
104	2021-12-29	2023-12-23T14:33:46.410Z	Coral	Armanda	Sissy
104	2021-12-29	2023-12-23T14:33:46.410Z	Chloris	Ferrell	Sissy
104	2021-12-29	2023-12-23T14:33:46.410Z	Grier	Ummersen	Sissy
282	2020-04-22	2023-12-23T14:33:46.417Z	Ira	Eachern	Thalia
679	2023-11-05	2023-12-23T14:33:46.410Z	Althea	Hunfredo	Concettina
501	2022-10-26	2023-12-23T14:33:46.411Z	Mamie	Prouty	Concettina
114	2022-07-27	2023-12-23T14:33:46.414Z	Demetris	Ade	Lanae
114	2022-07-27	2023-12-23T14:33:46.414Z	Daune	Isacco	Lanae
114	2022-07-27	2023-12-23T14:33:46.414Z	Margalo	Lucienne	Lanae

Retrieve the names and contact details of doctors who have performed procedures.

SELECT DISTINCT d.DoctorName, d.Specialization, d.DoctorContactFROM Doctor dJOIN Appointment a ON d.DoctorID = a.DoctorIDJOIN MedicalProcedure mp ON a.AppointmentID = mp.AppointmentID;

DoctorName	Specialization	DoctorContact
Kary	Radiology	.@yopmail.com
Tarra	Psychiatry	.@yopmail.com
Dorene	Emergency Medicine	.@yopmail.com
Jeanna	Critical Care Medicine	.@yopmail.com
Zsa Zsa	Oncologist	.@yopmail.com
Hyacinthe	Allergists	.@yopmail.com
Alejandra	Critical Care Medicine	.@yopmail.com
Flory	Obstetric Anesthesiologists	.@yopmail.com
Natka	Neurology	.@yopmail.com
Jinny	Neurology	.@yopmail.com
Valli	Radiology	.@yopmail.com
Constance	Otolaryngologists	.@yopmail.com
Orsola	Pediatrics	.@yopmail.com
Tera	Dermatology	.@yopmail.com
Jsandye	Gastroenterology	.@yopmail.com
Shaylyn	Ophthalmology	.@yopmail.com
Gusella	Neurology	.@yopmail.com
Joeann	Radiology	.@yopmail.com

Calculate the total amount billed to each patient.

SELECT p.PatientID, p.firstname, SUM(b.Amount) AS TotalAmountFROM Patient pJOIN Billing b ON p.PatientID = b.PatientIDGROUP BY p.PatientID, p.firstname;

	PatientID	firstname	TotalAmount
▶	894	Tatiania	1718550
	894	Kaja	1718550
	448	Wendi	2020587
	618	Susette	1639964
	618	Molli	1639964
	117	Christal	1764184
	117	Madelle	1764184
	374	Konstance	448957
	140	Reeba	754555
	734	Sibella	766908
	734	Carilyn	766908
	261	Genovera	1819533
	261	Annecori...	1819533
	166	Lyssa	750380
	166	Marcy	750380
	545	Chandra	665629
	582	Heida	730503
	582	Courtnay	730503

Result Grid | Filter Rows:

List all doctors along with the number of appointments they have scheduled.

SELECT d.DoctorID, d.DoctorName, COUNT(a.AppointmentID) AS NumberOfAppointmentsFROM Doctor dJOIN Appointment a ON d.DoctorID = a.DoctorIDGROUP BY d.DoctorID, d.DoctorName;

Result Grid		Filter Rows:		Expor
	DoctorID	DoctorName	NumberOfAppointments	
▶	226	Cyndie	3	
	226	Minda	3	
	656	Leontine	3	
	656	Merrie	3	
	262	Adele	2	
	262	Lanna	2	
	262	Maye	2	
	748	Tomasina	2	
	748	Nanete	2	
	580	Lynnea	3	
	438	Iseabal	3	
	662	Nadine	3	
	889	Paola	2	
	460	Tani	1	
	382	Annice	1	
	856	Briney	1	
	856	Arabel	1	
	946	Zsa Zsa	1	

Generate a detailed report of all appointments, including patient details, doctor details, and any associated procedures.

SELECT a.AppointmentID, a.Date, a.Time, p.firstname AS PatientFirstName, p.lastname AS PatientLastName, d.DoctorName, mp.ProcedureNameFROM Appointment aJOIN Patient p ON a.PatientID = p.PatientIDJOIN Doctor d ON a.DoctorID = d.DoctorIDLEFT JOIN MedicalProcedure mp ON a.AppointmentID = mp.AppointmentIDORDER BY a.Date, a.Time;

AppointmentID	Date	Time	PatientFirstName	PatientLastName	DoctorName	ProcedureName
626	2020-01-01	2023-12-23T14:33:46.411Z	Shirlee	Bonucci	Gusty	Mechanical ventilation
626	2020-01-01	2023-12-23T14:33:46.411Z	Shirlee	Bonucci	Jinny	Mechanical ventilation
169	2020-01-03	2023-12-23T14:33:46.417Z	Ruthe	Weaks	Carilyn	Colonoscopy
962	2020-01-04	2023-12-23T14:33:46.415Z	Sallie	Alice	Gloria	Thyroid biopsy
962	2020-01-04	2023-12-23T14:33:46.415Z	Zondra	Mike	Gloria	Thyroid biopsy
628	2020-01-08	2023-12-23T14:33:46.407Z	Trixi	Carmena	Merrie	EEG (Electroencephalogram)
628	2020-01-08	2023-12-23T14:33:46.407Z	Trixi	Carmena	Leontine	EEG (Electroencephalogram)
943	2020-01-13	2023-12-23T14:33:46.407Z	Babita	Felecia	Paola	NULL
540	2020-01-14	2023-12-23T14:33:46.412Z	Ricky	Darrell	Rozele	Electroconvulsive therapy (ECT)
540	2020-01-14	2023-12-23T14:33:46.412Z	Ricky	Darrell	Esmeralda	Electroconvulsive therapy (ECT)
540	2020-01-14	2023-12-23T14:33:46.412Z	Ricky	Darrell	Minne	Electroconvulsive therapy (ECT)
168	2020-01-22	2023-12-23T14:33:46.415Z	Jemie	Baudin	Daryl	Emergency surgical procedures
168	2020-01-22	2023-12-23T14:33:46.415Z	Jemie	Baudin	Daryl	Allergy testing
168	2020-01-22	2023-12-23T14:33:46.415Z	Alexine	Ophelia	Daryl	Emergency surgical procedures
168	2020-01-22	2023-12-23T14:33:46.415Z	Alexine	Ophelia	Daryl	Allergy testing
168	2020-01-22	2023-12-23T14:33:46.415Z	Jemie	Baudin	Collen	Allergy testing
168	2020-01-22	2023-12-23T14:33:46.415Z	Alexine	Ophelia	Collen	Allergy testing
168	2020-01-22	2023-12-23T14:33:46.415Z	Jemie	Baudin	Collen	Emergency surgical procedures

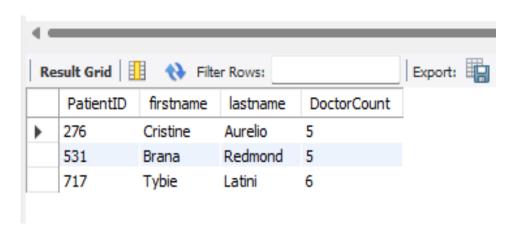# Find the doctor with the highest total amount billed for their patients.

SELECT d.DoctorID, d.DoctorName, SUM(b.Amount) AS TotalBilledFROM Doctor dJOIN Appointment a ON d.DoctorID = a.DoctorIDJOIN Billing b ON a.PatientID = b.PatientIDGROUP BY d.DoctorID, d.DoctorNameORDER BY TotalBilled DESCLIMIT 1;

	DoctorID	DoctorName	TotalBilled
▶	667	Gloria	5846564

Identify patients who have had appointments with more than four different doctors.

SELECT p.PatientID, p.firstname, p.lastname, COUNT(DISTINCT a.DoctorID) AS DoctorCountFROM Patient pJOIN Appointment a ON p.PatientID = a.PatientIDGROUP BY p.PatientID, p.firstname, p.lastnameHAVING DoctorCount > 4;

PatientID	firstname	lastname	DoctorCount
276	Cristine	Aurelio	5
531	Brana	Redmond	5
717	Tybie	Latini	6

Calculate the average amount billed per appointment for each doctor.

SELECT d.DoctorID, d.DoctorName, AVG(b.Amount) AS AverageBilledFROM Doctor dJOIN Appointment a ON d.DoctorID = a.DoctorIDJOIN Billing b ON a.PatientID = b.PatientIDGROUP BY d.DoctorID, d.DoctorName;

Result Grid	Filter Rows:	
DoctorID	DoctorName	AverageBilled
112	Josephine	404117.4000
235	Mariann	404117.4000
942	Ada	546654.6667
209	Nicoli	546654.6667
581	Myriam	448957.0000
731	Joane	638914.5000
262	Maye	794047.3333
262	Lanna	794047.3333
262	Adele	794047.3333
509	Hope	766908.0000
509	Dorice	766908.0000
288	Frank	750380.0000
288	Dominga	750380.0000
288	Tierney	750380.0000
696	Alejandra	750380.0000
184	Clementine	665629.0000

Find all patients who have had at least one billing transaction above a specific amount (e.g., 900000).

SELECT DISTINCT
p.PatientID, p.firstname,
p.lastnameFROM Patient
pJOIN Billing b ON
p.PatientID =
b.PatientIDWHERE
b.Amount > 900000;

PatientID	firstname	lastname
906	Viviene	Autrey
804	Madelle	Camden
888	Reeba	Romelda
452	Joleen	Sophronia
926	Doro	Tybald
931	Keelia	Olin
241	Lynnea	Arquit
816	Brena	Obed
551	Raf	McCutcheon
174	Cam	Cordi
211	Sara-Ann	Amadas
241	Etta	Ambrosia
341	Ebonee	Kendrick
434	Lauryn	Karl
816	Zsa Zsa	Nikaniki
353	Raina	Fabiola
421	Queenie	Haldas