



MEDICAL DATA HISTORY ANALYSIS

MY SQL PROJECT



By Bhagyashri Patil



OBJECTIVE

ENHANCE PATIENT CARE



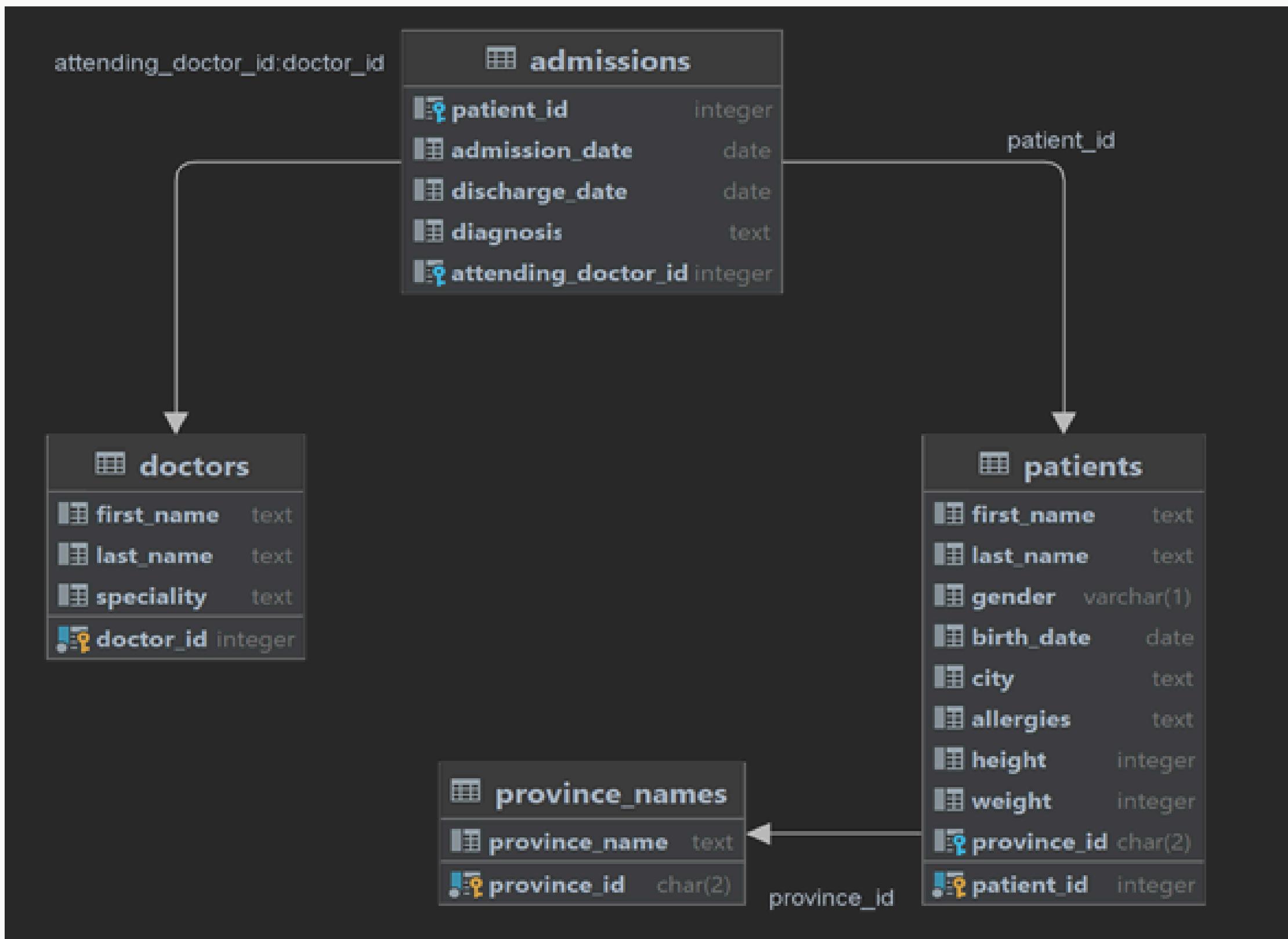
Utilize SQL to analyze patient data to identify trends and patterns that improve personalized treatment plans and healthcare outcomes.

OPTIMIZE OPERATIONS



Leverage data insights to improve resource allocation and operational efficiency, supporting informed decision-making and fostering business growth within the healthcare organization.

DATABASE SCHEMA DIAGRAM



Q1 SHOW FIRST NAME, LAST NAME, AND GENDER OF PATIENTS WHO'S GENDER IS 'M'.

```
select first_name,last_name,gender from patients  
where gender= 'M';
```

	first_name	last_name	gender
▶	Donald	Waterfield	M
	Mickey	Baasha	M
	Jiji	Sharma	M
	Blair	Diaz	M
	Charles	Wolfe	M
	Thomas	ONeill	M
	Sonny	Beckett	M

Q2 SHOW FIRST NAME AND LAST NAME OF PATIENTS WHO DOES NOT HAVE ALLERGIES.

```
select first_name,last_name,allergies from patients  
where allergies is null;
```

	first_name	last_name	allergies
▶	Donald	Waterfield	NULL
	Blair	Diaz	NULL
	Thomas	ONeill	NULL
	Sonny	Beckett	NULL
	Cedric	Coltrane	NULL
	Hank	Spencer	NULL



Q3 SHOW FIRST NAME OF PATIENTS THAT START WITH THE LETTER 'C'.

```
select first_name from patients  
where first_name like "C%";
```

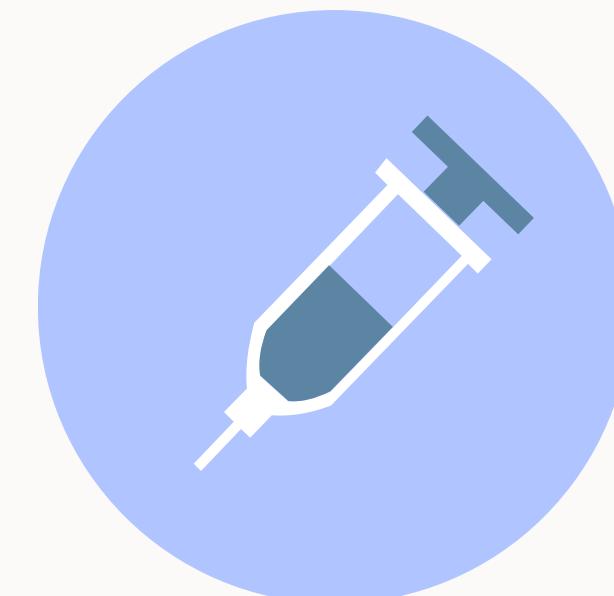
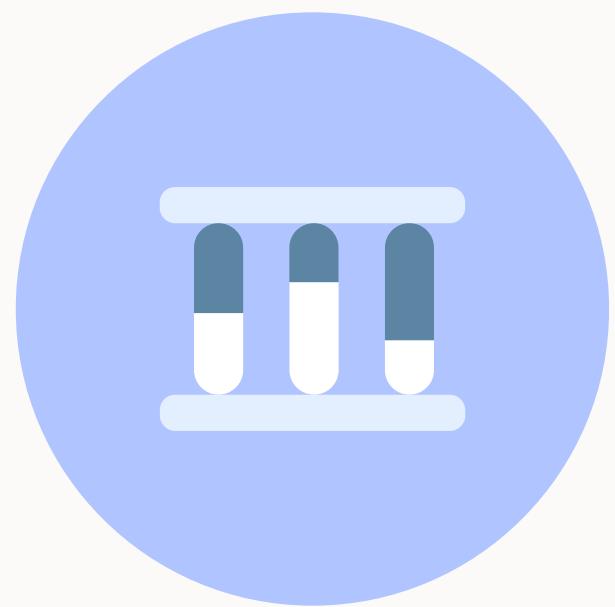
	first_name
▶	Charles
	Cedric
	Charles
	Cross
	Calleigh
	Catherine
	Caroline



Q4 SHOW FIRST NAME AND LAST NAME OF PATIENTS THAT WEIGHT WITHIN THE RANGE OF 100 TO 120 (INCLUSIVE)

```
select first_name,last_name,weight from patients where weight between '100' and '120';
```

	first_name	last_name
▶	Jiji	Sharma
	Blair	Diaz
	Thomas	ONeill
	Sonny	Beckett
	Tom	Halliwell
	Jon	Doggett



Q5 UPDATE THE PATIENTS TABLE FOR THE ALLERGIES COLUMN. IF THE PATIENT'S ALLERGIES IS NULL THEN REPLACE IT WITH 'NKA'.

```
update patients  
set allergies = 'NKA'  
where allergies is NULL;
```



A screenshot of a MySQL Workbench interface showing a query editor and output window. The query editor contains the following SQL code:

```
1 UPDATE patients  
2 SET allergies = 'NKA'  
3 WHERE allergies IS NULL;
```

The output window shows the following message:

Action Output

#	Time	Action
1	16:48:30	UPDATE patients SET allergies = 'NKA' WHERE allergies IS NULL.

Message

Error Code: 1142. UPDATE command denied to user 'dm_jean4'@'106.216.252...' for table 'patients' Duration / Fetch: 0.010 sec

Q6 SHOW FIRST NAME AND LAST NAME CONCATENATED INTO ONE COLUMN TO SHOW THEIR FULL NAME.

```
select concat(first_name," ",last_name) as  
full_name  
from patients;
```

	full_name
▶	Donald Waterfield
	Mickey Baasha
	Jiji Sharma
	Blair Diaz
	Charles Wolfe
	Sue Falcon
	Thomas O'Neill



Q7 SHOW FIRST NAME, LAST NAME, AND THE FULL PROVINCE NAME OF EACH PATIENT.

```
select first_name, last_name, province_name  
from patients  
join province_names  
on patients.province_id =  
province_names.province_id;
```

	first_name	last_name	province_name
▶	Donald	Waterfield	Ontario
	Mickey	Baasha	Ontario
	Jiji	Sharma	Ontario
	Blair	Diaz	Ontario
	Charles	Wolfe	Ontario
	Sue	Falcon	Ontario
	Thomas	ONeill	Ontario

Q8 SHOW HOW MANY PATIENTS HAVE A BIRTH_DATE WITH 2010 AS THE BIRTH YEAR.

```
select count(*) as total_patients  
from patients  
where year(birth_date) = '2010';
```

	patient_count
▶	55



Q9 SHOW THE FIRST_NAME, LAST_NAME, AND HEIGHT OF THE PATIENT WITH THE GREATEST HEIGHT.

```
select first_name,last_name,height  
from patients  
where height = (select max(height) from  
patients);
```

	first_name	last_name	height
▶	Sam	Haruko	226

Q10 SHOW ALL COLUMNS FOR PATIENTS WHO HAVE ONE OF THE FOLLOWING PATIENT_IDS: 1,45,534,879,1000

```
select * from patients  
where patient_id in (1,45,534,879,1000);
```

	patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
▶	1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NULL	156	65
	45	Cross	Gordon	M	2009-03-20	Ancaster	ON	NULL	125	53
	534	Don	Zatara	M	2008-01-11	Timmins	ON	NULL	136	67
	879	Orla	Shawn	F	1967-09-24	Sarnia	ON	Penicillin	149	65
	1000	Rick	Williams	M	1975-04-13	Hamilton	ON	Penicillin	176	127

Q11 SHOW THE TOTAL NUMBER OF ADMISSIONS.

```
select count(*) as total_admissions  
from admissions;
```

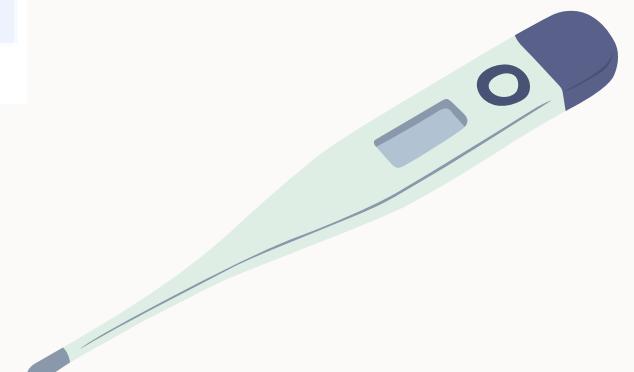
	total_admissions
▶	5067



Q12 SHOW ALL THE COLUMNS FROM ADMISSIONS WHERE THE PATIENT WAS ADMITTED AND DISCHARGED ON THE SAME DAY.

```
select * from admissions  
where admission_date = discharge_date;
```

	patient_id	admission_date	discharge_date	diagnosis	attending_doctor_id
▶	1	2018-09-20	2018-09-20	Ineffective Breathing Pattern R/T Fluid Accumulation	24
	9	2018-12-31	2018-12-31	Ruptured Appendicitis	19
	10	2019-02-27	2019-02-27	Lower Quadrant Pain	27
	17	2019-03-04	2019-03-04	Diabetes Mellitus	9
	28	2019-03-30	2019-03-30	Cancer Of The Stomach	26
	31	2018-09-26	2018-09-26	Cardiovascular Disease	19
	53	2018-10-24	2018-10-24	Urinary Tract Infection	8



Q13 SHOW THE TOTAL NUMBER OF ADMISSIONS FOR PATIENT_ID 579.

```
select patient_id, count(patient_id) as  
total_admissions  
from admissions  
where patient_id = 579;
```

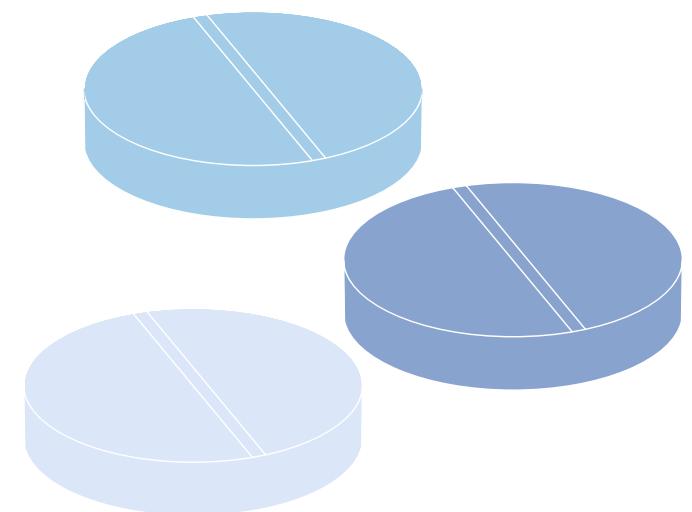
	patient_id	total_admissions
▶	579	2



Q14 BASED ON THE CITIES THAT OUR PATIENTS LIVE IN, SHOW UNIQUE CITIES THAT ARE IN PROVINCE_ID 'NS'?

```
select distinct city from patients  
where province_id = 'NS';
```

	city
▶	Port Hawkesbury
	Halifax
	Inverness



Q15 WRITE A QUERY TO FIND THE FIRST_NAME, LAST NAME AND BIRTH DATE OF PATIENTS WHO HAVE HEIGHT MORE THAN 160 AND WEIGHT MORE THAN 70

```
select first_name, last_name, birth_date, height, weight  
FROM patients  
WHERE height > 160 AND weight > 70;
```

	first_name	last_name	birth_date	height	weight
▶	Mickey	Baasha	1981-05-28	185	76
	Jiji	Sharma	1957-09-05	194	106
	Blair	Diaz	1967-01-07	191	104
	Thomas	ONeill	1993-01-31	180	117
	Sonny	Beckett	1952-12-11	174	105
	Sister	Spitzer	1966-10-15	173	95
	Rick	Bennett	1977-01-27	220	95

Q16 SHOW UNIQUE BIRTH YEARS FROM PATIENTS AND ORDER THEM BY ASCENDING.

```
select distinct year(birth_date) AS birth_year  
FROM patients  
order by birth_year;
```

	birth_year
▶	1918
	1923
	1925
	1926
	1927
	1928
	1929

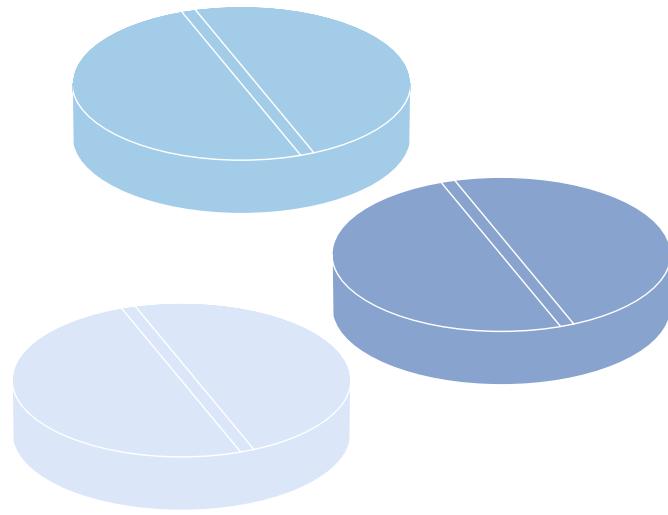


Q17 SHOW UNIQUE FIRST NAMES FROM THE PATIENTS TABLE WHICH ONLY OCCURS ONCE IN THE LIST.

```
select first_name from patients  
group by first_name  
having COUNT(first_name) = 1;
```

+

first_name
Abby
Adelaide
Adelia
Akira
Albert
Aldo
Alec



Q18 SHOW PATIENT_ID AND FIRST_NAME FROM PATIENTS WHERE THEIR FIRST_NAME START AND ENDS WITH 'S' AND IS AT LEAST 6 CHARACTERS LONG

```
select patient_id, first_name  
from patients  
where first_name like 's____%s';
```

	patient_id	first_name
▶	496	Spiros
	629	Spiros
	648	Stanislaus
	1273	Stanislaus
	1789	Seamus
	1926	Stanislaus
	1996	Stanislaus



Q19 SHOW PATIENT_ID, FIRST_NAME, LAST_NAME FROM PATIENTS WHO'S DIAGNOSIS IS 'DEMENTIA'. PRIMARY DIAGNOSIS IS STORED IN THE ADMISSIONS TABLE.

```
select p.patient_id, p.first_name, p.last_name  
from patients p  
join admissions a on p.patient_id = a.patient_id  
where diagnosis = 'Dementia';
```

	patient_id	first_name	last_name
▶	160	Miranda	Delacour
	178	David	Bustamonte
	207	Matt	Celine
	613	Jaki	Granger
	836	Montana	Vimes
	924	Simon	Spellman
	1201	Irene	Murphy

Q20 DISPLAY EVERY PATIENT'S FIRST_NAME. ORDER THE LIST BY THE LENGTH OF EACH NAME AND THEN BY ALPHABETICALLY.

```
select first_name  
from patients  
order by length(first_name), first_name;
```

Q21 SHOW THE TOTAL AMOUNT OF MALE PATIENTS AND THE TOTAL AMOUNT OF FEMALE PATIENTS IN THE PATIENTS TABLE. DISPLAY THE TWO RESULTS IN THE SAME ROW.

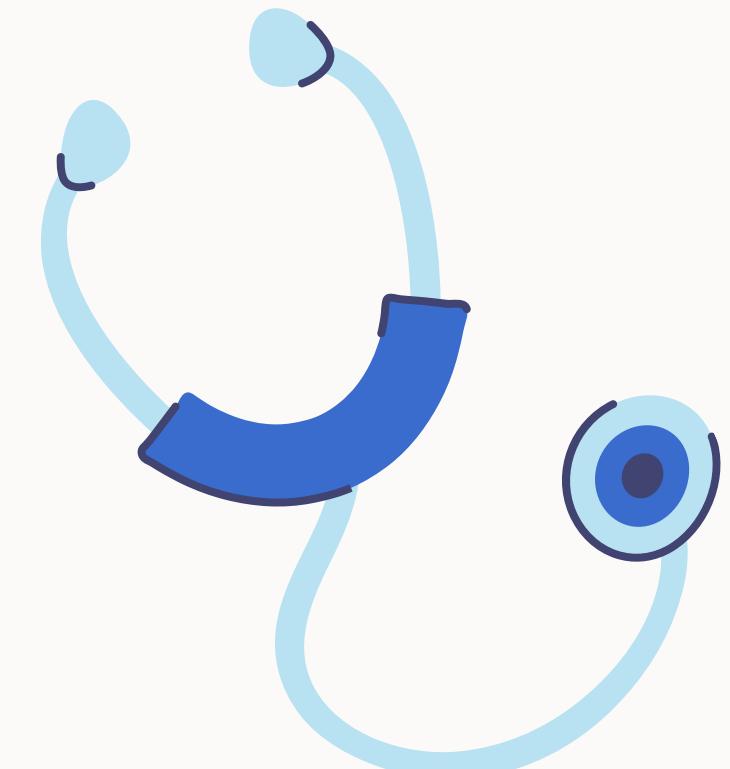
```
select sum(gender = 'M') as male_count, sum(gender = 'F') as female_count  
from patients;
```

	male_count	female_count
▶	2468	2062

Q22 SHOW THE TOTAL AMOUNT OF MALE PATIENTS AND THE TOTAL AMOUNT OF FEMALE PATIENTS IN THE PATIENTS TABLE. DISPLAY THE TWO RESULTS IN THE SAME ROW.

```
select sum(gender = 'M') as male_count, sum(gender = 'F') as female_count  
from patients;
```

	male_count	female_count
▶	2468	2062



Q23 SHOW PATIENT_ID, DIAGNOSIS FROM ADMISSIONS. FIND PATIENTS ADMITTED MULTIPLE TIMES FOR THE SAME DIAGNOSIS.

```
select patient_id, diagnosis  
from admissions  
group by patient_id, diagnosis  
having COUNT(diagnosis) > 1;
```

	patient_id	diagnosis
▶	137	Pregnancy
	320	Pneumonia
	1577	Congestive Heart Failure
	2004	Left Shoulder Rotator Cuff Repair
	2859	Severed Spine At C3
	3012	Appendicitis
	3367	Pyelonephritis



Q24 SHOW THE CITY AND THE TOTAL NUMBER OF PATIENTS IN THE CITY. ORDER FROM MOST TO LEAST PATIENTS AND THEN BY CITY NAME ASCENDING.

```
select city, COUNT(*) as number_of_patients  
from patients  
group by city  
order by number_of_patients desc, city asc;
```

	city	number_of_patients
▶	Hamilton	1938
	Toronto	317
	Burlington	276
	Brantford	147
	Ancaster	117
	Stoney Creek	107
	Cambridge	79

Q25 SHOW FIRST NAME, LAST NAME AND ROLE OF EVERY PERSON THAT IS EITHER PATIENT OR DOCTOR. THE ROLES ARE EITHER "PATIENT" OR "DOCTOR".

```
select first_name, last_name, 'Patient' as role  
from patients  
union all  
select first_name, last_name, 'Doctor' as role  
from doctors;
```

	first_name	last_name	role
▶	Donald	Laterfield	Patient
	Mickey	Baasha	Patient
	Jiji	Sharma	Patient
	Blair	Diaz	Patient
	Charles	Wolfe	Patient
	Sue	Falcon	Patient
	Thomas	ONeill	Patient



Q26 SHOW ALL ALLERGIES ORDERED BY POPULARITY. REMOVE NULL VALUES FROM QUERY.

```
select allergies, count(*) as total_diagnosis  
from patients  
where allergies is not null  
group by allergies  
order by total_diagnosis DESC;
```

	allergies	total_diagnosis
▶	Penicillin	1082
	Codeine	305
	Sulfa	157
	ASA	99
	Sulfa Drugs	71
	Peanuts	52
	Iodine	48



Q27 SHOW ALL PATIENT'S FIRST_NAME, LAST_NAME, AND BIRTH_DATE WHO WERE BORN IN THE 1970S DECADE. SORT THE LIST STARTING FROM THE EARLIEST BIRTH_DATE.

```
select first_name, last_name, birth_date  
from patients  
where year(birth_date) between 1970 and 1979  
order by birth_date ;
```

	first_name	last_name	birth_date
▶	Frances	Kobayakawa	1970-01-02
	Sunny	Burrell	1970-01-07
	Penelope	Beckett	1970-01-14
	Deborah	Stewart	1970-01-14
	Augusta	Decker	1970-01-22
	Sookie	Bearly	1970-02-01
	Temple	Wylie	1970-02-10

Q28 WE WANT TO DISPLAY EACH PATIENT'S FULL NAME IN A SINGLE COLUMN. THEIR LAST_NAME IN ALL UPPER LETTERS MUST APPEAR FIRST, THEN FIRST_NAME IN ALL LOWER CASE LETTERS. SEPARATE THE LAST_NAME AND FIRST_NAME WITH A COMMA. ORDER THE LIST BY THE FIRST_NAME IN DESCENDING ORDER.

```
select concat(upper(last_name), ',', lower(first_name)) as new_name_format  
from patients  
order by first_name desc;
```

	new_name_format
▶	MILLER,zoe
	CORBIE,ziva
	KOBAYAKAWA,zenigata
	OVERSTREET,zenigata
	BENNETT,zen
	MEPHESTO,zelda
	MORRIS,zelda



Q29 SHOW THE PROVINCE_ID(S), SUM OF HEIGHT; WHERE THE TOTAL SUM OF ITS PATIENT'S HEIGHT IS GREATER THAN OR EQUAL TO 7,000.

```
select pr.province_id, sum(pa.height) as sum_height  
from province_names pr  
join patients pa on pr.province_id = pa.province_id  
group by pr.province_id  
having sum(pa.height) >= 7000;
```

	province_id	sum_height
▶	BC	7720
	NS	9765
	ON	678037



Q30 SHOW THE DIFFERENCE BETWEEN THE LARGEST WEIGHT AND SMALLEST WEIGHT FOR PATIENTS WITH THE LAST NAME 'MARONI'.

```
select (max(weight) - min(weight)) as weight_diff  
from patients  
where last_name = 'Maroni';
```

	weight_diff
▶	71



Q31 SHOW ALL OF THE DAYS OF THE MONTH (1-31) AND HOW MANY ADMISSION_DATES OCCURRED ON THAT DAY. SORT BY THE DAY WITH MOST ADMISSIONS TO LEAST ADMISSIONS.

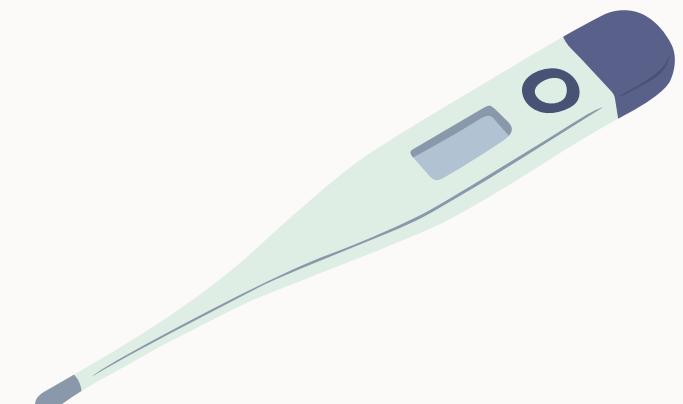
```
select day(admission_date) as day_no,  
       count(patient_id) as no_of_admissions  
  from admissions  
 group by day_no  
order by no_of_admissions desc;
```

	day_no	no_of_admissions
▶	11	184
	4	184
	9	183
	2	180
	12	179
	6	179
	16	177

Q32 SHOW ALL OF THE PATIENTS GROUPED INTO WEIGHT GROUPS. SHOW THE TOTAL AMOUNT OF PATIENTS IN EACH WEIGHT GROUP. ORDER THE LIST BY THE WEIGHT GROUP DECENDING. E.G. IF THEY WEIGHT 100 TO 109 THEY ARE PLACED IN THE 100 WEIGHT GROUP, 110-119 = 110 WEIGHT GROUP, ETC.

```
select floor(weight / 10) * 10 as weight_group,  
count(*) as total_patients  
from patients  
group by weight_group  
order by weight_group desc;
```

	patients_in_group	weight_group
▶	3	150
	50	140
	184	130
	391	120
	509	110
	426	100
	444	90



Q33 SHOW PATIENT_ID, WEIGHT, HEIGHT, ISOBSESE FROM THE PATIENTS TABLE. DISPLAY ISOBSESE AS A BOOLEAN 0 OR 1. OBESE IS DEFINED AS WEIGHT(KG)/(HEIGHT(M)). WEIGHT IS IN UNITS KG. HEIGHT IS IN UNITS CM.

```
select patient_id, weight, height,  
case  
    when weight / power(height / 100.00, 2) >= 30  
        then 1  
    else 0  
end as isobese  
from patients;
```

	patient_id	weight	height	isobese
▶	1	65	156	0
	2	76	185	0
	3	106	194	0
	4	104	191	0
	5	10	47	1
	6	5	43	0
	7	117	180	1

Q34 SHOW PATIENT_ID, FIRST_NAME, LAST_NAME, AND ATTENDING DOCTOR'S SPECIALTY.
SHOW ONLY THE PATIENTS WHO HAS A DIAGNOSIS AS 'EPILEPSY' AND THE DOCTOR'S FIRST NAME IS
'LISA'. CHECK PATIENTS, ADMISSIONS, AND DOCTORS TABLES FOR REQUIRED INFORMATION.

```
select p.patient_id, p.first_name, p.last_name,d.specialty
from patients p
inner join admissions a on p.patient_id = a.patient_id
inner join doctors d on a.attending_doctor_id = d.doctor_id
where a.diagnosis = 'Epilepsy'and d.first_name = 'Lisa';
```

	patient_id	first_name	last_name	specialty
▶	468	Frank	Anderson	Obstetrician/Gynecologist
	701	Precious	Ashton	Obstetrician/Gynecologist

Q35 ALL PATIENTS WHO HAVE GONE THROUGH ADMISSIONS, CAN SEE THEIR MEDICAL DOCUMENTS ON OUR SITE. THOSE PATIENTS ARE GIVEN A TEMPORARY PASSWORD AFTER THEIR FIRST ADMISSION. SHOW THE PATIENT_ID AND TEMP_PASSWORD.

THE PASSWORD MUST BE THE FOLLOWING, IN ORDER:

- **PATIENT_ID**
- **THE NUMERICAL LENGTH OF PATIENT'S LAST_NAME**
- **YEAR OF PATIENT'S BIRTH_DATE**

```
select distinct p.patient_id, concat(a.patient_id,  
length(p.last_name), year(p.birth_date)) as temp_password  
from patients p  
inner join admissions a on p.patient_id = a.patient_id;
```

	patient_id	temp_password
▶	1	1101963
	3	361957
	6	662017
	7	761993
	8	871952
	9	971966
	10	1081961



THANK YOU



www.linkedin.com/in/bhagyashri-patil0229



bhagyashri.patil0229@gmail.com

<https://github.com/bhagyashridevkar>