

Hospital Data Analysis using SQL.

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Questions:

1. Show first name, last name, and gender of patients who's gender is 'M'.
2. Show first name and last name of patients who does not have allergies. (null).
3. Show first name of patients that start with the letter 'C'.
4. Show first name and last name of patients that weight within the range of 100 to 120 (inclusive).
5. Update the patients table for the allergies column. If the patient's allergies is null then replace it with 'NKA'.
6. Show first name and last name concatenated into one column to show their full name.
7. Show first name, last name, and the full province name of each patient. Example: 'Ontario' instead of 'ON'
8. Show how many patients have a birth_date with 2010 as the birth year.
9. Show the first_name, last_name, and height of the patient with the greatest height.
10. Show all columns for patients who have one of the following patient_ids: 1,45,534,879,1000.
11. Show the total number of admissions.
12. Show all the columns from admissions where the patient was admitted and discharged on the same day.
13. Show the patient id and the total number of admissions for patient_id 579.
14. Based on the cities that our patients live in, show unique cities that are in province_id 'NS'?

- 
15. Write a query to find the first_name, last name and birth date of patients who has height greater than 160 and weight greater than 70.
 16. Write a query to find list of patients first_name, last_name, and allergies from patients where allergies are not null and allergies is not Hamilton.
 17. Based on cities where our patient lives in, write a query to display the list of unique city starting with a vowel (a, e, i, o, u). Show the result order in ascending by city.
 18. Show unique birth years from patients and order them by ascending.
 19. Show unique first names from the patients table which only occurs once in the list.

For example, if two or more people are named 'John' in the first_name column then don't include their name in the output list. If only 1 person is named 'Leo' then include them in the output.

20. Show patient_id and first_name from patients where their first_name start and ends with 's' and is at least 6 characters long.

21. Show patient_id, first_name, last_name from patients whos diagnosis is 'Dementia'.

Primary diagnosis is stored in the admissions table.

22. Display every patient's first_name. Order the list by the length of each name and then by alphabetically.
23. 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.
24. Show first and last name, allergies from patients which have allergies to either 'Penicillin' or 'Morphine'. Show results ordered ascending by allergies then by first_name then by last_name.
25. Show patient_id, diagnosis from admissions. Find patients admitted multiple times for the same diagnosis.



26. Show the city and the total number of patients in the city. Order from most to least patients and then by city name ascending.
27. Show first name, last name and role of every person that is either patient or doctor.

The roles are either "Patient" or "Doctor"

28. Show all allergies ordered by popularity. Remove NULL values from query.
29. 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.
30. 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 EX: SMITH,jane
31. 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.
32. Show the difference between the largest weight and smallest weight for patients with the last name 'Maroni'.
33. 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.
34. Show all columns for patient_id 542's most recent admission_date.
35. Show patient_id, attending_doctor_id, and diagnosis for admissions that match one of the two criteria:
 - patient_id is an odd number and attending_doctor_id is either 1, 5, or 19.
 - attending_doctor_id contains a 2 and the length of patient_id is 3 characters.
36. Show first_name, last_name, and the total number of admissions attended for each doctor.

Every admission has been attended by a doctor.

37. For each doctor, display their id, full name, and the first and last admission date they attended.
 38. Display the total amount of patients for each province. Order by descending.
 39. For every admission, display the patient's full name, their admission diagnosis, and their doctor's full name who diagnosed their problem.
 40. Display the number of duplicate patients based on their `first_name` and `last_name`.
 41. Display patient's full name, height in the units feet rounded to 1 decimal, weight in the unit pounds rounded to 0 decimals, `birth_date`, gender non abbreviated.
Convert CM to feet by dividing by 30.48. Convert KG to pounds by multiplying by 2.205.
 42. 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 descending.
- For example, if they weight 100 to 109 they are placed in the 100 weight group, 110-119 = 110 weight group, etc.
43. Write a query to Show `patient_id`, `weight`, `height`, `isObese` from the patients table.
Display `isObese` as a boolean 0 or 1. `Obese` is defined as $\text{weight(kg)} / (\text{height(m)}^2) \geq 30$. `weight` is in units kg. `height` is in units cm.
 44. 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.

45. 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:

1. patient_id
2. the numerical length of patient's last_name
3. year of patient's birth_date

46. Each admission costs \$50 for patients without insurance, and \$10 for patients with insurance. All patients with an even patient_id have insurance.

Give each patient a 'Yes' if they have insurance, and a 'No' if they don't have insurance. Add up the admission_total cost for each has_insurance group.

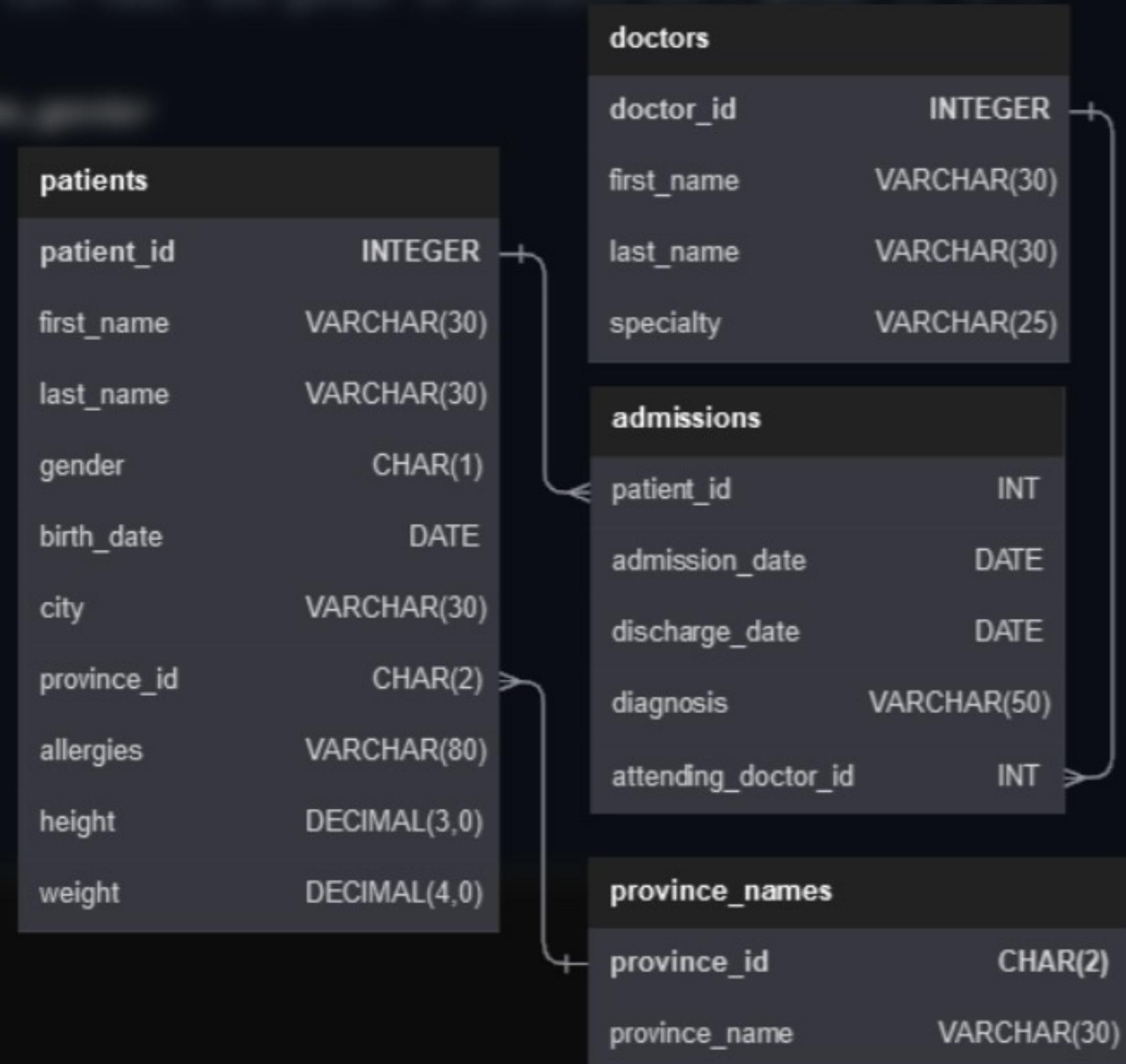
47. Show the provinces that has more patients identified as 'M' than 'F'. Must only show full province_name

48. We are looking for a specific patient. Pull all columns for the patient who matches the following criteria:

- First_name contains an 'r' after the first two letters.
- Identifies their gender as 'F'
- Born in February, May, or December
- Their weight would be between 60kg and 80kg
- Their patient_id is an odd number
- They are from the city 'Kingston'

49. Show the percent of patients that have 'M' as their gender. Round the answer to the nearest hundredth number and in percent form.

- 
50. For each day display the total amount of admissions on that day. Display the amount changed from the previous date.
 51. Sort the province names in ascending order in such a way that the province 'Ontario' is always on top.



```
1 /*Show first name, last name, and gender of patients who's gender is 'M'*/
2
3 SELECT
4 first_name, last_name, gender
5 FROM patients
6 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

```
1 /*Show first name and last name of patients who does not have allergies. (null)*/
2
3 SELECT
4 first_name, last_name
5 FROM patients
6 WHERE allergies IS NULL;
```

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

```
1 /*Show first name of patients that start with the letter 'C'*/
2
3 SELECT
4 first_name
5 FROM
6 patients
7 WHERE first_name LIKE 'C%'
8
9 /*
10 The % wildcard is used to represent any number of characters after the 'C' in the first name.
11 */
```

first_name

Charles

Cedric

Charles

Cross

Calleigh

Catherine

```
1 /*Show first name and last name of patients that weight within the range of 100 to 120 (inclusive)*/
2
3 SELECT
4 first_name, last_name
5 FROM
6 patients
7 WHERE
8 100<=weight AND weight<=120;
```

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

```

1 /*Update the patients table for the allergies column. If the patient's allergies
2 is null then replace it with 'NKA'*/
3
4 UPDATE
5 patients
6 SET
7 allergies="NKA"
8 WHERE
9 allergies IS NULL;
10
11 SELECT * FROM patients;
12
13

```

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1	Donald	Waterfield	M	1963-02-12	Barrie	ON	NKA	156	65
2	Mickey	Baasha	M	1981-05-28	Dundas	ON	Sulfa	185	76
3	Jiji	Sharma	M	1957-09-05	Hamilton	ON	Penicillin	194	106
4	Blair	Diaz	M	1967-01-07	Hamilton	ON	NKA	191	104
5	Charles	Wolfe	M	2017-11-19	Orillia	ON	Penicillin	47	10
6	Sue	Falcon	F	2017-09-30	Ajax	ON	Penicillin	43	5

```
1 /*Show first name and last name concatenated into one column to show their full name*/
2
3 SELECT
4 CONCAT (first_name," ",last_name) AS full_name
5 FROM
6 patients;
7
8
9
```

full_name

Gene Edwards

Jonny Christian

Emmett Erin

Harry Soprano

Richard Davis

Olwyn Chino

```
1 /*Show first name, last name, and the full province name of each patient.  
2  
3 Example: 'Ontario' instead of 'ON'*/  
4  
5 SELECT  
6 first_name, last_name,province_name  
7 FROM  
8 patients p  
9 JOIN |  
10 province_names pr ON p.province_id = pr.province_id;  
11  
12  
13 /*  
14 A JOIN clause is used to combine rows from  
15 two or more tables, based on a related column (primary, foreign key) between them.  
16 */  
17  
18  
19
```

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

```
1 /*Show how many patients have a birth_date with 2010 as the birth year.*/
2
3 SELECT
4 COUNT(*) AS total
5 FROM
6 patients
7 WHERE
8 birth_date LIKE "2010%";
9
10 /*Alternate Solution
11 SELECT count(first_name) AS total_patients
12 FROM patients
13 WHERE
14 birth_date >= '2010-01-01'
15 AND birth_date <= '2010-12-31'*/
16
17 /*
18 The COUNT() function returns the number of rows that matches a specified criterion.
19 COUNT() usually has * as it's parameter because the name of the column
20 does not usually matter since they all have the same count.
```

total

55

```
1 /*Show the first_name, last_name, and height of the patient with the greatest height.*/
2
3 SELECT
4 first_name,last_name,MAX(height)
5 FROM
6 patients;
7 /*alternate solution*/
8 SELECT
9 first_name,last_name,height
10 FROM patients
11 WHERE height=(SELECT MAX(height) FROM patients);
12
13
14
15
16 /*
17 The COUNT() function returns the number of rows that matches a specified criterion.
18 COUNT() usually has * as it's parameter because the name of the column
19 does not usually matter since they all have the same count.
20 */
```

first_name	last_name	MAX(height)
Sam	Haruko	226

```

1 /*Show all columns for patients who have one of the following patient_ids:
2 1,45,534,879,1000*/
3
4 SELECT
5 *
6 FROM
7 patients
8 WHERE
9 patient_id=1
10 OR patient_id=45
11 OR patient_id=534
12 OR patient_id=879
13 OR patient_id=1000;
14 |
15
16 /* Alternate solution*/
17 SELECT * FROM patients
18 WHERE patient_id IN (1,45,534,879,1000);
19

```

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

```
1 /*Show the total number of admissions*/
2
3 SELECT COUNT(patient_id) AS total
4 FROM
5 admissions;
6
7
8
9 /* Alternate solution*/
10
11
```

total

5067

```

1 /*Show all the columns from admissions where the
2 patient was admitted and discharged on the same day.*/
3
4 SELECT
5 *
6 FROM
7 admissions
8 WHERE
9 admission_date=discharge_date;
10
11
12
13 /* Alternate solution*/
14
15

```

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



```
1 /*Show the patient id and the total number of admissions for patient_id 579.*/
2
3 SELECT
4 patient_id,COUNT(*) AS total_admissions
5 FROM
6 admissions
7 WHERE
8 patient_id=579;
9
10
11
12 /* Alternate solution*/
13
14
```

patient_id	total_admissions
579	2

```
1 /*Based on the cities that our patients live in,  
2 show unique cities that are in province_id 'NS'?*/  
3  
4 SELECT  
5 DISTINCT(city) AS unique_cities  
6  
7 FROM  
8 patients  
9 WHERE  
10 province_id='NS';  
11 ;  
12  
13  
14  
15 /* Alternate solution*/  
16  
17
```

unique_cities

Port Hawkesbury

Halifax

Inverness

```
1 /*Write a query to find the first_name, last name and  
2 birth date of patients who has height greater than 160  
3 and weight greater than 70*/  
4  
5 SELECT  
6 first_name, last_name, birth_date  
7 FROM  
8 patients  
9 WHERE  
10 height > 160 AND weight > 70;  
11  
12  
13  
14  
15  
16 /* Alternate solution */  
17  
18
```

first_name	last_name	birth_date
Mickey	Baasha	1981-05-28
Jiji	Sharma	1957-09-05
Blair	Diaz	1967-01-07
Thomas	ONeill	1993-01-31
Sonny	Beckett	1952-12-11
Sister	Spitzer	1966-10-15

```

1
2 /*
3 Write a query to find list of patients first_name, last_name,
4 and allergies from patients where allergies are not null and allergies is not Hamilton
5 */
6
7 SELECT first_name, last_name, allergies
8 FROM patients
9 WHERE allergies IS NOT NULL AND city="Hamilton";
10

```

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
12	Sara	di Marco	F	1949-04-29	Hamilton	ON	NULL	145	46
13	Daphne	Seabright	F	1954-11-18	Ancaster	ON	Codeine	146	77
14	Rick	Bennett	M	1977-01-27	Ancaster	ON	Penicillin	220	95
15	Amy	Leela	F	1977-06-25	Hamilton	ON	NULL	172	72
16	Woody	Bashir	M	1951-11-15	Barrie	ON	Penicillin	153	59
17	Tom	Halliwell	M	1987-08-01	Hamilton	ON	Ragweed	179	114

```
1
2 /*
3 Based on cities where our patient lives in, write a query to display the
4 list of unique city starting with
5 a vowel (a, e, i, o, u). Show the result order in ascending by city.
6 */
7
8 SELECT DISTINCT city
9 FROM patients
10 WHERE city LIKE 'a%' OR
11 city LIKE 'e%' OR
12 city LIKE 'i%' OR
13 city LIKE 'o%' OR
14 city LIKE 'u%'
15 ORDER BY city ASC;
16
```

city

Ajax

Ancaster

Athens

Edmonton

Elmira

Elmwood

Inverness

Oakville

```
1
2 /*
3 Show unique birth years from patients and order them by ascending.
4 */
5
6 SELECT DISTINCT YEAR(birth_date) AS birth_year
7 FROM patients
8 ORDER BY birth_date
9 ;
10
11 /*Alternate Solution */
12 SELECT YEAR(birth_date)
13 FROM patients
14 GROUP BY YEAR(birth_date);
15 |
```

YEAR(birth_date)

1918
1923
1925
1926
1927
1928
1929
1931

```
1
2 /*
3 Show unique first names from the patients table which only occurs once in the list.
4
5 For example, if two or more people are named 'John' in the first_name column then
6 don't include their name in the output list.
7 If only 1 person is named 'Leo' then include them in the output.
8 */
9
10 SELECT first_name
11 FROM patients
12 GROUP BY first_name
13 HAVING COUNT(*) =1
14 ;
15
16 /*Alternate Solution */
```

first_name

Abby

Adelaide

Adelia

Akira

Albert

Aldo

```
1 /*
2  Show patient_id and first_name from patients where their
3  first_name start and ends with 's' and is at least 6 characters long.
4 */
5
6
7 SELECT patient_id,first_name
8 FROM patients
9 WHERE first_name LIKE "%s"
10 AND first_name LIKE "s%" AND LEN(first_name)>=6
11
12 /*Alternate Solution */
13 SELECT
14     patient_id,
15     first_name
16 FROM patients
17 WHERE first_name LIKE 's_____%s';
```

patient_id	first_name
496	Spiros
629	Spiros
648	Stanislaus
1273	Stanislaus
1789	Seamus
1926	Stanislaus
1996	Stanislaus
2258	Spiros

```
1
2 /*
3 Show patient_id, first_name, last_name from patients whos diagnosis is 'Dementia'.
4
5 Primary diagnosis is stored in the admissions table.
6 */
7
8 SELECT
9 p.first_name,p.last_name,p.patient_id
10 FROM patients p
11 JOIN admissions a ON a.patient_id = p.patient_id
12 WHERE a.diagnosis='Dementia' ;
13
14
15 /*Alternate Solution */
16 |
```

first_name	last_name	patient_id
Miranda	Delacour	160
David	Bustamonte	178
Matt	Celine	207
Jaki	Granger	613
Montana	Vimes	836
Simon	Spellman	924
Irene	Murphy	1201
Jillian	Valentine	1264

```
1 /*Display every patient's first_name.  
2 Order the list by the length of each name and then by alphabetically*/  
3  
4 SELECT first_name  
5 FROM patients  
6 ORDER BY LEN(first_name),first_name ASC;  
7  
8  
9 /*  
10 */  
11 */
```

first_name

Ben

Ben

Ben

Ben

Ben

Ben

```
1 /*Show the total amount of male patients and the total amount of
2 female patients in the patients table.
3 Display the two results in the same row.*/
4 SELECT
5 (SELECT COUNT(*) FROM patients WHERE gender='M') AS total_male,
6 (SELECT COUNT(*) FROM patients WHERE gender='F') AS total_female
7 |
8
9 /*
10 When we have to represent the data in only one row then don't put FROM patients afterwards
11 */
```

total_male	total_female
2468	2062

```
1 /*Show first and last name, allergies from patients which have allergies to either
2 'Penicillin' or 'Morphine'. Show results ordered
3 ascending by allergies then by first_name then by last_name.*/
4
5 SELECT first_name,last_name,allergies
6 FROM patients
7 WHERE allergies IN ('Penicillin','Morphine')
8 ORDER BY allergies,first_name,last_name;
9
10
11 /*
12
13 */
```

first_name	last_name	allergies
Briareos	Hayes	Morphine
Christine	Argyros	Morphine
Griselda	Hopper	Morphine
Henry	Huang	Morphine
Janice	Redfield	Morphine
Jesse	Guarnaccia	Morphine

```
1 /*
2
3 Show patient_id, diagnosis from admissions.
4 Find patients admitted multiple times for the same diagnosis.
5 */
6
7
8 SELECT DISTINCT patient_id,diagnosis
9 FROM admissions
10 GROUP BY patient_id,diagnosis
11 HAVING COUNT(*) >=2
12 ORDER BY patient_id ASC;
13
14 /*
15 The HAVING clause was added to SQL because
16 the WHERE keyword cannot be used with aggregate functions.
17 */
```

patient_id	diagnosis
2004	Left Shoulder Rotator Cuff Repair
2859	Severed Spine At C3
3012	Appendicitis
3367	Pyelonephritis
3468	Congestive Heart Failure
4083	Congestive Heart Failure
4121	Congestive Heart Failure
4363	Congestive Heart Failure

```
1 /*
2
3 Show the city and the total number of patients in the city.
4 Order from most to least patients and then by city name ascending.
5 */
6
7 SELECT city, COUNT(*) AS num_patients
8 FROM patients
9 GROUP BY city
10 ORDER BY COUNT(*) DESC,city ASC;
11
12 /*
13
14 */
```

city	num_patients
Red Deer	2
Scarborough	2
Stainer	2
Tuscorora	2
Unionville	2
Linton	1
Rockford	1
Ureterburg	1

```
1 /*
2 Show first name, last name and role of every person that is either patient or doctor.
3 The roles are either "Patient" or "Doctor"
4 */
5
6
7 SELECT first_name,last_name,'Patient' AS role FROM patients
8 UNION ALL
9 SELECT first_name,last_name,'Doctor' AS role FROM doctors;
10 /*
11
12 */
```

first_name	last_name	role
Donald	Waterfield	Patient
Mickey	Baasha	Patient
Jiji	Sharma	Patient
Blair	Diaz	Patient
Charles	Wolfe	Patient
Sue	Falcon	Patient

```
1 /*
2
3 Show all allergies ordered by popularity. Remove NULL values from query.
4 */
5
6
7 SELECT allergies,COUNT(*) AS total_diagnosis
8 FROM patients
9 WHERE allergies IS NOT NULL
10 GROUP BY allergies
11 ORDER BY total_diagnosis DESC
12 ;
13 /*
14
15 */
```

allergies	total_diagnosis
Penicillin	1082
Codeine	305
Sulfa	157
ASA	99
Sulfa Drugs	71
Peanuts	52
Iodine	48
Tylenol	42

```
1 /*
2 Show all patient's first_name, last_name, and birth_date who were born in the 1970s decade.
3 Sort the list starting from the earliest birth_date
4 */
5
6
7 SELECT first_name, last_name, birth_date
8 FROM patients
9 WHERE YEAR(birth_date)>=1970 AND YEAR(birth_date)<=1979
10 ORDER BY birth_date ASC;
11
12 /*
13
14 */
```

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

```
1
2 /*
3  We want to display each patient's full name in a single column.
4  Their last_name in all upper letters must appear first,
5  then first_name in all lower case letters. Separate the last_name and first_name with a comma.
6  Order the list by the first_name in decending order
7 EX: SMITH,jane
8 */
9
10 SELECT CONCAT(UPPER(last_name),',',LOWER(first_name)) AS full_name
11 FROM patients
12 ORDER BY first_name DESC;
```

full_name

MILLER,zoe

CORBIE,ziva

KOBAYAKAWA,zenigata

OVERSTREET,zenigata

BENNETT,zen

MEPHESTO,zelda

```
1
2 /*
3 Show the province_id(s), sum of height;
4 where the total sum of its patient's height is greater than or equal to 7,000.
5 */
6
7 SELECT province_id, SUM(height) AS sum_height
8 FROM patients
9 GROUP BY province_id
10 HAVING SUM(height) >=7000
11 ORDER BY sum_height DESC;
```

province_id	sum_height
ON	678037
NS	9765
BC	7720

```
1
2 /*
3 Show the difference between the largest weight
4 and smallest weight for patients with the last name 'Maroni'
5 */
6
7 SELECT (MAX(weight)-MIN(weight)) AS diff_weight
8 FROM patients
9 WHERE last_name='Maroni';|
```

diff_weight

71

```
1
2 /*
3 Show all of the days of the month (1-31) and how many admission_dates occurred on that day.
4 Sort by the day with most admissions to least admissions.'
5 */
6
7 SELECT DAY(admission_date) day_of_month,COUNT(*) AS number_of_admissions
8 FROM admissions
9 GROUP BY day_of_month
10 ORDER BY COUNT(*) DESC;
```

day_of_month	number_of_admissions
11	184
4	184
9	183
2	180
12	179
6	179
16	177
21	174

```
1
2 /*
3 Show all columns for patient_id 542's most recent admission_date.
4 */
5
6 SELECT *
7 FROM admissions
8 WHERE patient_id=542
9 GROUP BY patient_id
10 HAVING MAX(admission_date);
```

patient_id	admission_date	discharge_date	diagnosis	attending_doctor_id
542	2019-04-06	2019-04-09	Abdominal Pain	14

```

2 /*
3 Show patient_id, attending_doctor_id, and diagnosis for admissions that match
4 one of the two criteria:
5 1. patient_id is an odd number and attending_doctor_id is either 1, 5, or 19.
6 2. attending_doctor_id contains a 2 and the length of patient_id is 3 characters.
7 */
8
9 SELECT patient_id,attending_doctor_id,diagnosis
10 FROM admissions
11 WHERE patient_id%2<>0 AND attending_doctor_id IN (1,5,19)
12 OR attending_doctor_id LIKE '%2%' AND LEN(patient_id)=3;
13
14
15 /*Alternate solution*/
16 SELECT
17     patient_id,
18     attending_doctor_id,
19     diagnosis
20 FROM admissions
21 WHERE
22     (attending_doctor_id IN (1, 5, 19) AND patient_id % 2 != 0)
23 OR
24     (attending_doctor_id LIKE '%2%' AND LEN(patient_id) = 3)

```

patient_id	attending_doctor_id	diagnosis
9	19	Ruptured Appendicitis
13	1	Renal Failure
15	5	Hiatal Hernia
31	19	Cardiovascular Disease
51	1	Undiagnosed Chest Pain
100	22	Depression, Dementia

```

1
2 /*
3 Show first_name, last_name, and the total number of admissions attended for each doctor.
4
5 Every admission has been attended by a doctor.
6 */
7
8 SELECT first_name, last_name, COUNT(*) AS total_number_of_admissions
9 FROM doctors d
10 JOIN admissions a ON a.attending_doctor_id=d.doctor_id
11 GROUP BY first_name, last_name;
12
13 /*Alternate solution*/
14 SELECT
15   first_name,
16   last_name,
17   COUNT(*) AS admissions_total
18 FROM admissions a
19 JOIN doctors ph ON ph.doctor_id = a.attending_doctor_id
20 GROUP BY attending_doctor_id

```

first_name	last_name	total_number_of_admissions
Angelica	Noe	209
Bobbi	Estrada	176
Claude	Walls	214
Donna	Greenwood	203
Douglas	Brooks	201
Flora	Moore	194
Hazel	Patterson	206
Heather	Beck	178

```

1
2 /*
3 For each doctor, display their id, full name,
4 and the first and last admission date they attended.
5 */
6
7 SELECT doctor_id,CONCAT(first_name,' ',last_name) AS full_name,MIN(admission_date) AS first_admission,
8 MAX(admission_date) AS last_admission
9 FROM doctors d
10 JOIN admissions a ON a.attending_doctor_id=d.doctor_id
11 GROUP BY doctor_id;
12
13 /*Alternate Solution*/
14 SELECT
15   doctor_id,
16   first_name || ' ' || last_name AS full_name,
17   MIN(admission_date) AS first_admission_date,
18   MAX(admission_date) AS last_admission_date
19 FROM admissions a
20   JOIN doctors ph ON a.attending_doctor_id = ph.doctor_id
21 GROUP BY doctor_id;

```

doctor_id	full_name	first_admission	last_admission
1	Claude Walls	2018-06-10	2019-06-03
2	Joshua Green	2018-06-06	2019-06-03
3	Miriam Tregre	2018-06-06	2019-06-03
4	James Russo	2018-06-10	2019-06-04
5	Scott Hill	2018-06-06	2019-06-05
6	Tasha Phillips	2018-06-06	2019-06-02
7	Hazel Patterson	2018-06-10	2019-06-05
8	Mickey Duval	2018-06-10	2019-06-05

```
1
2 /*
3 Display the total amount of patients for each province. Order by descending.
4 */
5
6
7 SELECT province_name,COUNT(*) AS total_patients
8 FROM province_names pn
9 JOIN patients p ON p.province_id=pn.province_id
10 GROUP BY province_name
11 ORDER BY total_patients DESC;
12
13 /*Alternate Solution*/
14
```

province_name	total_patients
Ontario	4298
Nova Scotia	60
British Columbia	49
Alberta	47
Manitoba	31
Quebec	23
Saskatchewan	13
Newfoundland and Labrador	9

```

1
2 /*
3 For every admission, display the patient's full name, their admission diagnosis,
4 and their doctor's full name who diagnosed their problem.
5 */
6
7 SELECT CONCAT(p.first_name, ' ', p.last_name) AS patient_name, diagnosis,
8 CONCAT(d.first_name, ' ', d.last_name)
9 AS doctor_name
10 FROM patients p
11 JOIN admissions a ON a.patient_id=p.patient_id
12 JOIN doctors d ON d.doctor_id=a.attending_doctor_id;
13
14
15 /*Alternate Solution*/
16
17

```

patient_name	diagnosis	doctor_name
Donald Waterfield	Ovarian Dermoid-Cyct	Lisa Cuddy
Donald Waterfield	Ineffective Breathin Pattern R/T Fluid Accumulatio	Jenny Pulaski
Jiji Sharma	Cardiac Arrest	Joshua Green
Jiji Sharma	Congestive Heart Failure	Mickey Duval
Sue Falcon	Asthma Exacerbation	Miriam Tregre
Sue Falcon	Uterine Fibroid	Simon Santiago

```
1 /*
2 Display the number of duplicate patients based on their first_name and last_name.
3 */
4
5
6
7
8
9 SELECT first_name,last_name,COUNT(*) num_of_duplicates
10 FROM patients
11 GROUP BY first_name,last_name
12 HAVING num_of_duplicates>1;
```

first_name	last_name	num_of_duplicates
Alexandra	Holroyd	2
Avon	Travis	2
Belladonna	Thomas	2
Chris	Johnson	2
Dol	Forelli	2
Emil	Owens	2
Jack	Bennett	2
Jack	McArthur	2

```

1 /*
2 Display patient's full name,
3 height in the units feet rounded to 1 decimal,
4 weight in the unit pounds rounded to 0 decimals,
5 birth_date,
6 gender non abbreviated.
7
8 Convert CM to feet by dividing by 30.48.
9 Convert KG to pounds by multiplying by 2.205.
10 */
11
12
13
14 SELECT CONCAT(first_name,' ',last_name) AS full_name
15 ,ROUND((height/30.48),1) AS height_in_feet
16 ,ROUND((weight*2.205),0) AS weight_in_pounds
17 ,birth_date
18 ,CASE gender
19     WHEN 'M' THEN 'Male'
20     WHEN 'F' THEN 'Female'
21 END AS gender
22 FROM patients;

```

full_name	height_in_feet	weight_in_pounds	birth_date	gender
Donald Waterfield	5.1	143	1963-02-12	Male
Mickey Baasha	6.1	168	1981-05-28	Male
Jiji Sharma	6.4	234	1957-09-05	Male
Blair Diaz	6.3	229	1967-01-07	Male
Charles Wolfe	1.5	22	2017-11-19	Male
Sue Falcon	1.4	11	2017-09-30	Female

```

1 /*
2 Show all of the patients grouped into weight groups.
3 Show the total amount of patients in each weight group.
4 Order the list by the weight group decending.
5
6 For example, if they weight 100 to 109 they are placed in the 100 weight group,
7 110-119 = 110 weight group, etc.
8 */
9
10
11
12 SELECT
13     COUNT(*) AS patients_in_group,
14     FLOOR(weight/10) * 10 AS weight_group
15 FROM patients
16 GROUP BY weight_group
17 ORDER BY weight_group DESC
18 ;

```

patients_in_group	weight_group
6	140
59	130
191	120
426	110
507	100
403	90
478	80
633	70

```

1 /*
2 Write a query to
3 Show patient_id, weight, height, isObese from the patients table.
4 Display isObese as a boolean 0 or 1.
5 Obese is defined as weight(kg)/(height(m)2) >= 30.
6 weight is in units kg.
7 height is in units cm.
8 */
9
10 SELECT patient_id,weight,height,
11 CASE
12     WHEN (weight /(POWER(height / 100.0, 2)))>=30 THEN 1
13     ELSE 0
14 END AS isObese
15 FROM patients
16 ;|

```

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

```
1 /*
2 Show patient_id, first_name, last_name, and attending doctor's specialty.
3 Show only the patients who has a diagnosis as 'Epilepsy' and the doctor's first name is 'Lisa'
4
5 Check patients, admissions, and doctors tables for required information.
6 */
7
8 SELECT p.patient_id,p.first_name,p.last_name,d.specialty
9 FROM patients p
10 JOIN admissions a ON a.patient_id=p.patient_id
11 JOIN doctors d ON d.doctor_id=a.attending_doctor_id
12 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

```
1 /*
2 All patients who have gone through admissions, can see their medical documents on our site.
3 Those patients are given a temporary password after their first admission. Show the patient_id
4 and temp_password.
5
6 The password must be the following, in order:
7 1. patient_id
8 2. the numerical length of patient's last_name
9 3. year of patient's birth_date
10 */
11
12 SELECT DISTINCT p.patient_id, CONCAT(p.patient_id, LEN(p.last_name), YEAR(p.birth_date)) AS temp_password
13 FROM patients p
14 JOIN admissions a ON a.patient_id=p.patient_id;
15 |
```

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

```
1 /*
2 Each admission costs $50 for patients without insurance,
3 and $10 for patients with insurance. All patients with an even patient_id have insurance.
4
5 Give each patient a 'Yes' if they have insurance,
6 and a 'No' if they don't have insurance. Add up the admission_total cost for each has_insurance group.
7 */
8
9 SELECT |
10 CASE
11     WHEN (patient_id%2)=0 THEN 'Yes'
12     ELSE 'No'
13 END AS has_insurance,
14 SUM(CASE
15     WHEN (patient_id%2)=0 THEN 10
16     ELSE 50
17 END) AS cost
18 FROM admissions
19 GROUP BY has_insurance;
```

has_insurance	cost
No	127800
Yes	25110

```
1 /
2 Show the provinces that has more patients identified as 'M' than 'F'.
3 Must only show full province_name
4 */
5
6 SELECT
7 province_name
8 FROM province_names pn
9 JOIN patients p ON p.province_id=pn.province_id
10 GROUP BY province_name
11 HAVING SUM(CASE WHEN gender='M'THEN 1 ELSE 0 END) > SUM(CASE WHEN gender = 'F' THEN 1 ELSE 0 END);
12 /*Alternate Solution*/
13 SELECT province_name
14 FROM (
15     SELECT
16         province_name,
17         SUM(gender = 'M') AS n_male,
18         SUM(gender = 'F') AS n_female
19     FROM patients pa
20     JOIN province_names pr ON pa.province_id = pr.province_id
21     GROUP BY province_name
22 )
23 WHERE n_male > n_female
```

province_name

Alberta

British Columbia

Manitoba

Newfoundland and Labrador

Nova Scotia

Ontario

Saskatchewan

```

1 /
2 We are looking for a specific patient. Pull all columns for the patient who matches the following
3 criteria:
4 - First_name contains an 'r' after the first two letters.
5 - Identifies their gender as 'F'
6 - Born in February, May, or December
7 - Their weight would be between 60kg and 80kg
8 - Their patient_id is an odd number
9 - They are from the city 'Kingston'
10 */
11 SELECT *
12 FROM patients
13 WHERE first_name LIKE '__%r%'
14 AND gender='F'
15 AND weight BETWEEN 60 AND 80
16 AND MONTH(birth_date) IN (2,5,12)
17 AND (patient_id%2)!=0
18 AND city='Kingston';
19
20
21
22 /*Alternate Solution*/
23

```

patient_id	first_name	last_name	gender	birth_date	city	province_id	allergies	height	weight
1839	Chris	Cardenas	F	1969-12-02	Kingston	ON	NULL	141	71

```
1 /*Show the percent of patients that have 'M' as their gender.  
2 Round the answer to the nearest hundredth number and in percent form.  
3 */  
4 SELECT CONCAT(ROUND(AVG(gender='M')*100,2),'%') AS percentage_of_male  
5 FROM patients;  
6  
7  
8 /* Alternate Solution */  
9  
10 |  
11 SELECT CONCAT(  
12     ROUND(  
13         (  
14             SELECT COUNT(*)  
15             FROM patients  
16             WHERE gender = 'M'  
17         ) / CAST(COUNT(*) AS float),  
18         4  
19     ) * 100,  
20     '%'  
21     ) AS percent_of_male_patients  
22 FROM patients;  
23
```

percentage_of_male

54.48%

```

1
2
3 /*
4 For each day display the total amount of admissions on that day.
5 Display the amount changed from the previous date.
6 */
7
8 SELECT
9 admission_date,
10 COUNT(admission_date) AS admission_day,
11 COUNT(admission_date) - LAG(COUNT(admission_date)) OVER(ORDER BY admission_date) AS
12 admission_count_change
13 FROM admissions
14 GROUP BY admission_date;
15
16 /*Alternate Solution*/
17

```

admission_date	admission_day	admission_count_change
2018-06-06	17	NULL
2018-06-07	9	-8
2018-06-08	9	0
2018-06-09	18	9
2018-06-10	12	-6
2018-06-11	22	10

```
1
2
3 /*
4 Sort the province names in ascending order in such a way that the province 'Ontario' is always on top.
5 */
6 SELECT province_name
7 FROM province_names
8 ORDER BY province_name='Ontario' DESC, province_name ASC;
9
10 /*Alternate Solution*/
11
```

province_name

Ontario

Alberta

British Columbia

Manitoba

New Brunswick

Newfoundland and Labrador

Northwest Territories

Nova Scotia