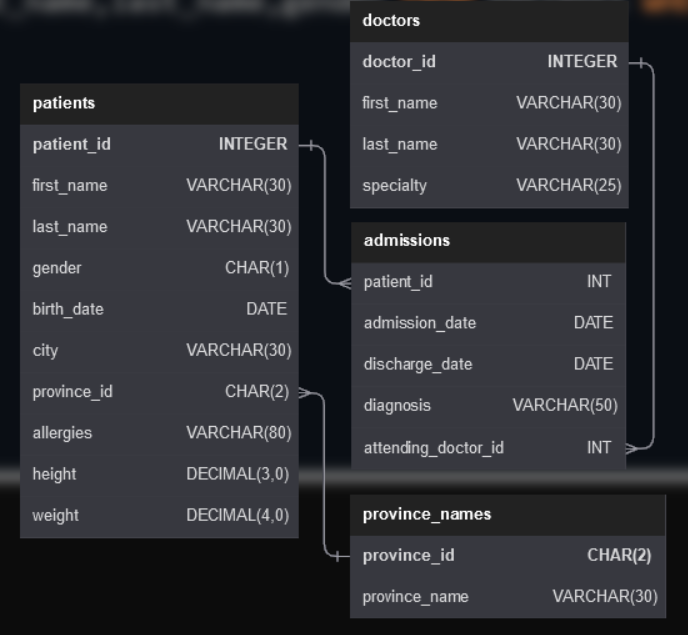
This is SQL practice on Hospital and Northwind db.

<https://www.sql-practice.com/>

A. HOSPITAL DATABASE



**Easy**

1. **Show first name, last name, and gender of patients whose gender is 'M'.**

SELECT first\_name, last\_name, gender

FROM patients where gender ='M';

1. **Show first name and last name of patients who do not have allergies (null).**

SELECT first\_name,last\_name

FROM patients where allergies is null;

1. **Show first name of patients that start with the letter 'C'.**

SELECT first\_name FROM

patients where first\_name like 'C%';

1. **Show first name and last name of patients that weigh within the range of 100 to 120 (inclusive).**

SELECT first\_name,last\_name

FROM patients where weight >=100 and weight <=120;

1. **Update the patients table for the allergies column. If the patient's allergies are null, then replace it with 'NKA'.**

update patients

set allergies='NKA'where allergies is null;

1. **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;

1. **Show first name, last name, and the full province name of each patient. Example: 'Ontario' instead of 'ON'.**

select first\_name,last\_name,province\_name

from patients as pa

join province\_names as pn on pa.province\_id=pn.province\_id;

1. **Show how many patients have a birth\_date with 2010 as the birth year.**

select count(\*) from patients

where birth\_date like '%2010%';

1. **Show the first\_name, last\_name, and height of the patient with the greatest height.**

select first\_name, last\_name,max(height)

from patients ;

1. **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);

1. **Show the total number of admissions.**

select count(\*) from admissions ;

1. **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 ;

1. **Show the patient\_id and the total number of admissions for patient\_id 579.**

select patient\_id ,count(\*) as total

from admissions where patient\_id= 579;

1. **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';

1. **Write a query to find the first\_name, last\_name, and birth date of patients who have height greater than 160 and weight greater than 70.**

select first\_name,last\_name,birth\_date

from patients where height>160 and weight>70 ;

1. **Write a query to find a list of patients' first\_name, last\_name, and allergies where allergies are not null and are from the city of 'Hamilton'**.

select first\_name,last\_name,allergies

from patients where allergies is not null and city='Hamilton' ;

**Medium**

1. **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 asc ;

1. **Show unique first names from the patients table which only occur 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 one person is named 'Leo', then include them in the output.**

SELECT first\_name FROM patients

group by first\_name having count(first\_name)=1;

1. **Show patient\_id and first\_name from patients where their first\_name starts and ends with 's' and is at least 6 characters long.**

SELECT patient\_id, first\_name FROM patients

where first\_name like 's%s' and length(first\_name)>=6;

1. **Show patient\_id, first\_name, last\_name from patients whose diagnosis is 'Dementia'. Primary diagnosis is stored in the admissions table.**

SELECT patients.patient\_id, patients.first\_name,patients.last\_name

FROM patients join admissions

on patients.patient\_id=admissions.patient\_id

where admissions.diagnosis ='Dementia';

1. **Display every patient's first\_name. Order the list by the length of each name and then alphabetically.**

select first\_name

FROM patients order by len(first\_name),first\_name asc;

1. **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

(select count(\*)

FROM patients where gender ='M') as male\_pat,

(select count(\*)

FROM patients where gender ='F') as female\_pat;

1. **Show first and last name, allergies from patients who have allergies to either 'Penicillin' or 'Morphine'. Show results ordered ascending by allergies, then by first\_name, then by last\_name.**

select first\_name,last\_name,allergies

from patients where allergies = 'Penicillin' or allergies='Morphine'

order by allergies,first\_name,last\_name;

1. **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(\*) >1;

1. **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 pat\_count

from patients group by city

order by pat\_count desc, city asc;

1. **Show first name, last name, and role of every person that is either a patient or a 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

1. **Show all allergies ordered by popularity. Remove 'NKA' and NULL values from query.**

select allergies,count(\*)

from patients where allergies is not null group by allergies

order by count(\*) desc;

1. **Show all patients' 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 asc;

1. **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. Example: SMITH, jane.**

SELECT concat(upper(last\_name), ',' , lower(first\_name))

FROM patients order by first\_name desc;

1. **Show the province\_id(s) and sum of height where the total sum of its patient's height is greater than or equal to 7,000.**

SELECT province\_id , sum(height) as sum\_height

FROM patients group by province\_id

having sum\_height>=7000 order by sum\_height desc;

1. **Show the difference between the largest weight and smallest weight for patients with the last name 'Maroni'.**

SELECT max(weight)-min(weight) as weight\_delta

FROM patients

where last\_name='Maroni';

1. **Show all of the days of the month (1-31) and how many admission\_dates occurred on that day. Sort by the day with the most admissions to the least admissions.**

SELECT day(admission\_date), count(\*)

FROM admissions

group by day(admission\_date)

order by count(\*) desc;

1. **Show all columns for patient\_id 542's most recent admission\_date.**

select \* from admissions

where patient\_id=542

order by admission\_date desc limit 1;

1. **Show patient\_id, attending\_doctor\_id, and diagnosis for admissions that match one of the two criteria:**

**a) patient\_id is an odd number and attending\_doctor\_id is either 1, 5, or 19**

**b) attending\_doctor\_id contains a 2 and the length of patient\_id is 3 characters.**

select patient\_id,attending\_doctor\_id,diagnosis

from admissions

where

(patient\_id %2=1 and attending\_doctor\_id in (1,5,19))

or

(attending\_doctor\_id like '%2%' and len(patient\_id) =3);

1. **Show first\_name, last\_name, and the total number of admissions attended for each doctor. Every admission has been attended by a doctor.**

select doctors.first\_name,doctors.last\_name , count(patient\_id)

from doctors join admissions

on admissions.attending\_doctor\_id = doctors.doctor\_id

group by doctors.doctor\_id;

1. **For each doctor, display their id, full name, and the first and last admission date they attended.**

select doctor\_id, concat(first\_name ," ",last\_name) as full\_name,

min(admission\_date) as first\_admission\_date,

max(admission\_date) as last\_admission\_date

from doctors join admissions on admissions.attending\_doctor\_id=doctors.doctor\_id

group by doctor\_id;

1. **Display the total amount of patients for each province. Order by descending.**

select province\_name,count(\*) as pat\_count

from patients join province\_names

on patients.province\_id=province\_names.province\_id

group by province\_names.province\_id

order by pat\_count desc;

1. **For every admission, display the patient's full name, their admission diagnosis, and their doctor's full name who diagnosed their problem.**

select concat(patients.first\_name,' ',patients.last\_name) as patient\_name,

admissions.diagnosis,

concat(doctors.first\_name,' ',doctors.last\_name) as doctors\_name

from patients join admissions on patients.patient\_id=admissions.patient\_id

join doctors on admissions.attending\_doctor\_id=doctors.doctor\_id;

1. **Display the first name, last name, and number of duplicate patients based on their first name and last name.**

select first\_name,last\_name,count(\*) from patients

group by first\_name,last\_name having count(\*)>1;

1. **Display patient's full name, height in feet (rounded to 1 decimal), weight in pounds (rounded to 0 decimals), birth\_date, and gender (non-abbreviated). Convert CM to feet by dividing by 30.48. Convert KG to pounds by multiplying by 2.205.**

select concat(first\_name,' ',last\_name) as full\_name,

round((height/30.48),1) as height ,

round((weight\*2.205),0) as weight, birth\_date,

case

when gender='F' then 'Female'

when gender='M' then 'Male'

end as gender\_full

from patients ;

1. **Show patient\_id, first\_name, last\_name from patients who do not have any records in the admissions table (their patient\_id does not exist in any admissions.patient\_id rows).**

select patient\_id,first\_name,last\_name from patients

where patient\_id not in (select patient\_id from admissions);

**42. Display a single row with max\_visits, min\_visits, and average\_visits where the maximum, minimum, and average number of admissions per day is calculated. Average is rounded to 2 decimal places.**

select max(number\_of\_visits) as max\_visits,

min(number\_of\_visits) as min\_visits,

round(avg(number\_of\_visits),2) as average\_visits

from (select admission\_date,

count(\*) as number\_of\_visits

from admissions

group by admission\_date)

**HARD**

43**.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.  
 For example, 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 patients\_in\_group

from patients

group by weight\_group

order by weight\_group desc;

**44.Show patient\_id, weight, height, isObese from the patients table.  
Display isObese as a boolean 0 or 1.  
Obese is defined as weight(kg)/(height(m)2) >= 30.  
weight is in units kg.  
height is in units cm.**

select patient\_id, weight, height,

( case

when weight/power ((height /100.0 ),2) >=30

then 1

else 0

end) as isObese

from patients ;

**45.Show patient\_id, first\_name, last\_name, and attending doctor's specialty. Show only the patients who have a diagnosis as 'Dementia' 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 as p join admissions as a

on p.patient\_id=a.patient\_id

join doctors as d on a.attending\_doctor\_id=d.doctor\_id

where a.diagnosis ='Epilepsy' and d.first\_name ='Lisa';

**46.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.**

select patient\_id,concat(patient\_id,len(last\_name),year(birth\_date)) as temp\_password

from patients

where patient\_id in

(select patient\_id from admissions)

**47.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.**

select

(case when patient\_id%2=0 then 'Yes'

else 'No' end)

as has\_insurance,

sum(case when patient\_id%2=0 then 10

else 50 end) as cost\_after\_insurance

from admissions

group by has\_insurance;

**48.Show the provinces that have more patients identified as 'M' than 'F'. Must only show full province\_name.**

select pr.province\_name

from province\_names as pr

join patients as pa on pa.province\_id=pr.province\_id

group by pr.province\_name

having

sum(gender='M')> sum(gender='F');

**49.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 is between 60kg and 80kg.**
* **Their patient\_id is an odd number.**
* **They are from the city 'Kingston'.**

select \* from patients

where patient\_id%2=1 and first\_name like '\_\_r%' and gender ='F' and

month(birth\_date) in (2,5,12) and weight between 60 and 80 and

city like 'Kingston';

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

SELECT

CONCAT(

ROUND((SELECT COUNT(\*) FROM patients

WHERE gender ='M') / CAST(COUNT(\*) as float),4)\* 100,'%') as percent\_of\_male\_patients

FROM patients;

**51.For each day, display the total amount of admissions on that day. Display the amount changed from the previous date.**

select admission\_date ,

count(admission\_date) as admission\_day,

count(admission\_date)-lag(count(admission\_date))over(order by admission\_date)

as change

from admissions

group by admission\_date;

**52.Sort the province names in ascending order in such a way that the province 'Ontario' is always on top.**

select province\_name

from province\_names

order by

(case when province\_name='Ontario' then 1 else province\_name end);

**53.We need a breakdown for the total amount of admissions each doctor has started each year. Show the doctor\_id, doctor\_full\_name, specialty, year, total\_admissions for that year.**

select d.doctor\_id,

concat(d.first\_name,' ',d.last\_name) as full\_name,

d.specialty,

year(a.admission\_date) as selected\_year,

count(\*)

from doctors d

left join admissions a

on a.attending\_doctor\_id=d.doctor\_id

group by d.doctor\_id , year(a.admission\_date);