Analysis of Hospital Data

- Show first name, last name, and gender of patients whose gender is 'M'

  SELECT first_name,last_name,gender FROM patients where gender='M'

- Show first name and last name of patients who does not have allergies. (null)

  SELECT first_name,last_name FROM patients where allergies is null

- Show first name of patients that start with the letter 'C'

  SELECT first_name FROM patients where first_name like 'C%'

- Show first name and last name of patients that weight within the range of 100 to 120 (inclusive)

  SELECT first_name,last_name FROM patients where weight between 100 and 120

- 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

- Show first name and last name concatinated into one column to show their full name.

  select concat(first_name,' ',last_name) from patients

- 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
join province_names
on patients.province_id=
province_names.province_id**

- Show how many patients have a birth_date with 2010 as the birth year.

  select count(*) from patients where year(birth_date)=2010

- Show the first_name, last_name, and height of the patient with the greatest height.

  select first_name,last_name,max(height) from patients

- 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)

- Show the total number of admissions

  select count(*) from admissions

- 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

- Show the patient id and the total number of admissions for patient_id 579.

  select patient_id,count(*) from admissions where patient_id=579

- 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'

- 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

  select first_name,last_name, birth_date from patients where height > 160 and weight>70

- Write a query to find 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'

- Show unique birth years from patients and order them by ascending.

  select distinct YEAr(birth_date) from patients order by 1

- 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.

  select first_name from patients group by first_name
  having count(*)<2

- 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' and first_name like '_____%'

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

  Primary diagnosis is stored in the admissions table.

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

- 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 len(first_name), first_name

- 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_count,
  (select count (*) from patients where gender ='F')as Female_count

- 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.

  select first_name, last_name, allergies from patients where allergies in ('Penicillin','Morphine') order by allergies,first_name,last_name

- 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

- 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 patients from patients group by city order by patients desc,city

- 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

- Show all allergies ordered by popularity. Remove NULL values from query.

  select allergies, count(*) as pop from patients

  where allergies is not null

  group by allergies order by pop desc

- 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

- 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 decending order
  EX: SMITH,jane

  select

  concat(upper(last_name),',',lower(first_name)) from patients

  order by first_name desc

- 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 province_id, sum(height) as total_height
from patients
group by province_id
having total_height>=7000
```

- Show the difference between the largest weight and smallest weight for patients with the last name 'Maroni'

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

- 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 dayy, count(*)  as countt
from admissions
group by dayy
order by countt desc
```

- Show all columns for patient_id 542's most recent admission_date.

```
select patient_id,max(admission_date)as admission_date,
discharge_date,diagnosis,attending_doctor_id
from admissions
where patient_id =542
```

- Show patient_id, attending_doctor_id, and diagnosis for admissions that match one of the two criteria:
  1. patient_id is an odd number and attending_doctor_id is either 1, 5, or 19.
  2. 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!=0 and attending_doctor_id
in(1,5,19)
)
or
(attending_doctor_id like '%2%' and
len(patient_id)=3)
```

- Show first_name, last_name, and the total number of admissions attended for each doctor.

Every admission has been attended by a doctor.

```
select first_name, last_name, count(*) as countt
from doctors
join  admissions on
doctors.doctor_id =
admissions.attending_doctor_id
group by doctor_id
```

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

```
select
    doctor_id,
    first_name || ' '|| last_name as full_name ,
  min(admission_date) as first_admission_date,
  max(admission_date) as last_admission_date

from  doctors
```

```sql
join admissions on
doctors.doctor_id =
admissions.attending_doctor_id
group by doctor_id
```

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

```sql
select province_name , count(*) as total from
patients join
province_names on
province_names.province_id=patients.province_id
group by province_name
order by total desc
```

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

```sql
select p.first_name||' '|| p.last_name as
patients_full_name,
        diagnosis,d.first_name||' '||d.last_name
from patients as p
join admissions as a on
a.patient_id = p.patient_id
join doctors as d on
d.doctor_id = a.attending_doctor_id
```

- display the first name, last name and number of duplicate patients based on their first name and last name.

  Ex: A patient with an identical name can be considered a duplicate.

```sql
select first_name, last_name , count(*) as c
from
```

patients group by first_name, last_name having c>1

- 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.

select 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 = 'M' then 'Male'
when gender = 'F' then 'Female' end as gender
from patients

- Show patient_id, first_name, last_name from patients whose does not have any records in the admissions table. (Their patient_id does not exist in any admissions.patient_id rows.)

select patients.patient_id as patient_id,
first_name,last_name from patients left join
admissions on patients.patient_id =
admissions.patient_id
where admissions.patient_id is null

- 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
count(*) as patients,floor(weight/10)*10 as
weight_group

```
from patients
where weight
group by weight_group
order by weight_group desc
```

- 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
```

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

- 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
      distinct p.patient_id,
      concat(p.patient_id,len(last_name),year(birth_date))
   as temp_password

from patients as p join
admissions as a on
p.patient_id = a.patient_id
```

- 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
sum(case when patient_id%2=0 then 10
      else 50 end) as admission_total,

      case when patient_id%2=0 then 'Yes'
      else 'No' end as has_insurance
   from admissions
   group by has_insurance
```

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

  select province_name from province_names as pro join

  patients as p on pro.province_id = p.province_id group by province_name

  having count(case when gender='M' then 1 end)> count(case when gender='F' then 1 end)

- 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'

  select * from patients

  where first_name like '__r%'

  and gender='F' and month(birth_date) in(2,5,12)

  and weight between 60 and 80

  and patient_id%3=0 and city='Kingston'

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

  select round(cast((select count(*) from patients where gender ='M') as float)/ (select count(*) from patients)*100,2)||'%' as percentage

- 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 day,

```sql
    count(admission_date) -
lag(count(admission_date))
    over (order by admission_date) from
admissions
    group by admission_date
    order by admission_date
```

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

```sql
select province_name
    from province_names
    order by (case  when province_name='Ontario'
then 0
    else 1 end),
    province_name
```

- 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.

```sql
select doctor_id,
    first_name||' '||last_name as
doctor_full_name,
    specialty,
    year(admission_date) as yr,
    count(*) as total_admissions
from doctors as d left join admissions as a on
a.attending_doctor_id= d.doctor_id
group by yr,doctor_id
```