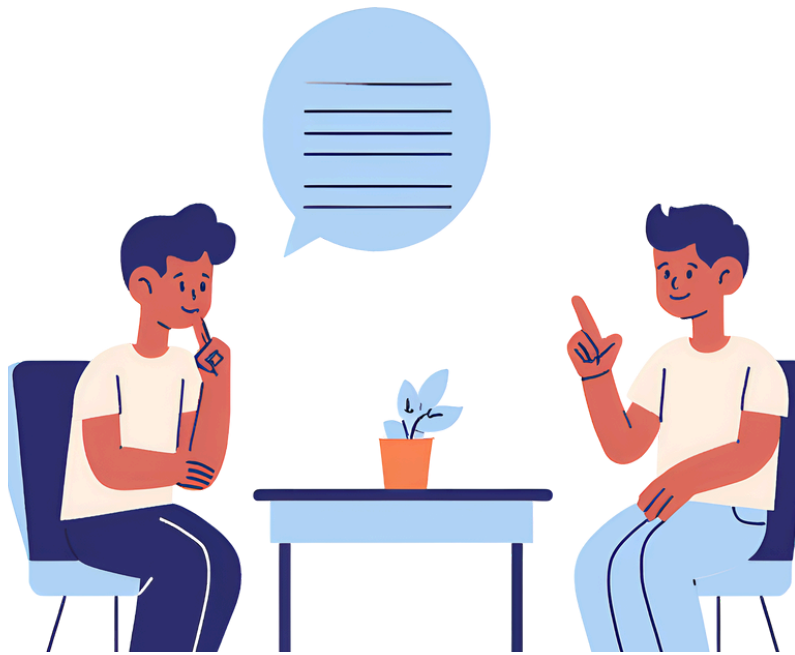# SQL INTERVIEW
QUESTION AND ANSWER

MySQL

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

Ans. SELECT first_name, last_name, gender
FROM patients
where gender = "M";

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

Ans.SELECT first_name, last_name
FROM patients
WHERE allergies IS NULL;

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

Ans. SELECT first_name
FROM patients
where first_name like "C%";

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

Ans. SELECT first_name, last_name
FROM patients
WHERE weight BETWEEN 100 AND 120;

SQL

5.Update the patients table for the allergies column. If the patient's allergies is null then replace it with 'NKA'

Ans. UPDATE patients
SET allergies = 'NKA'
WHERE allergies IS NULL;

6. Show first name and last name concatenated into one column to show their full name:

Ans. SELECT CONCAT(first_name, ' ', last_name) AS full_name
FROM patients;

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

Ans. SELECT COUNT(birth_date)
FROM patients
WHERE birth_date LIKE '%2010%';

7. Show first name, last name, and the full province name of each patient:

Ans. SELECT first_name, last_name, province_name
FROM patients

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

Ans. SELECT first_name, last_name, MAX(height)
FROM patients
GROUP BY first_name, last_name
ORDER BY MAX(height) DESC
LIMIT 1;
OR if you want to use AS
SELECT *
 FROM patients
 WHERE patient_id IN (1, 45, 534, 879, 1000);

10. Show all columns for patients who have one of these patient_ids: 1, 45, 534, 879, 1000

Ans. SELECT *
FROM patients
WHERE patient_id IN (1, 45, 534, 879, 1000);

11.Show the total number of admissions.

Ans.SELECT COUNT(admission_date)
FROM admissions;

12.Show all the columns from admissions where the patient was admitted and discharged on the same day.

Ans. select *
from admissions
where admission_date = discharge_date;

13. To show unique cities for patients in province 'NS':

Ans..SELECT DISTINCT(city)
FROM patients
WHERE province_id = 'NS';

14.To find the first name, last name, and birth date of patients with height greater than 160 and weight greater than 70:

Ans.SELECT first_name, last_name, birth_date
FROM patients
WHERE height > 160 AND weight > 70;

15. To find the first name, last name, and allergies of patients from 'Hamilton' with non-null allergies:

Ans.SELECT first_name, last_name, allergies
FROM patients
WHERE allergies IS NOT NULL AND city = 'Hamilton';

MEDIUM

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

Ans. select distinct(year(birth_date)) as
birth_year
from patients
order by birth_year;

17. 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 thern in the output.

Ans. select first_name
from patients
group by first_name

OR
 SELECT patient_id, first_name
FROM patients
WHERE first_name LIKE 's"-s%';

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

Ans. SELECT p.patient_id, p.first_name, p.last_name
FROM patients AS p
JOIN admissions AS a ON p.patient_id = a.patient_id
WHERE diagnosis = 'Dementia';

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

Ans. SELECT first_name
FROM patients
ORDER BY LENGTH(first_name), first_name ASC;

20. 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.

Ans. SELECT COUNT(CASE WHEN gender = 'M' THEN 1 END) AS Male,
     COUNT(CASE WHEN gender = 'F' THEN 1 END) AS Female
FROM patients;

21.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.

Ans. SELECT first_name, last_name, allergies
FROM patients
WHERE allergies = 'Penicillin' OR allergies = 'Morphine'
ORDER BY allergies, first_name, last_name;

22. Show patient \ _id, diagnosis from admissions. Find patients admitted multiple times for the same diagnosis.

Ans.SELECT patient_id, diagnosis
FROM admissions
GROUP BY patient_id, diagnosis
HAVING COUNT(patient_id = diagnosis) > 1;

13. Show the city and the total number of patients in the city. Order from most to least patients and then by city name ascending.

Ans. SELECT city, COUNT(*) AS number_of_patients
FROM patients
GROUP BY city
ORDER BY number_of_patients DESC, city;

14.Show first name, last name, and role of every person that is either patient or doctor. The roles are either "Patient" or "Doctor."

Ans. SELECT first_name, last_name, "Patient" AS role
FROM patients
UNION ALL
SELECT first_name, last_name, "Doctor" AS role
FROM doctors;

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

Ans. SELECT allergies, COUNT(*) AS
popular_allergies
FROM patients
WHERE allergies IS NOT NULL
GROUP BY allergies
ORDER BY popular_allergies DESC;

16. 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.

Ans. SELECT first_name, last_name, birth_date
FROM patients
WHERE birth_date LIKE "%197%"
ORDER BY birth_date asc;

17. Displays each patient's full name in a single column, formatting the last name in uppercase and the first name in lowercase, separated by a comma. The results are ordered by first name in descending order.

Ans.   select concat(upper(last_name), ",",
lower(first_name)) as full_name
    from patients
    order by first_name desc;

18. Retrieves province IDs and the sum of patient heights for those provinces where the total height sum is greater than or equal to 7,000.

Ans.   Select province_id, sum(height)
    From patients
    Group By province_id
    Having sum(height) >= 7000;

19. Calculates the difference between the maximum and minimum weight for patients with the last name 'Maroni'.

Ans.   select (max(weight) - min(weight)) as
weight_diff
    from patients
    where last_name = "Maroni";

20.Shows the count of admission dates for each day of the month (1-31), ordered by the number of admissions in descending order.

Ans. select day(admission_date) as day_num, count(patient_id) as num_of_addmission
   from admissions
   group by day_num
   order by num_of_addmission Desc;

21. Retrieves all columns for patient ID 542's most recent admission date.

Ans.   select *
   from admissions
   where patient_id = 542
   order by admission_date desc
   limit 1;

22. This query retrieves the first name, last name, and the total number of admissions attended by each doctor.

Ans.   SELECT d.first_name, d.last_name, COUNT(a.admission_date) AS admissions_attended
   FROM admissions a
   JOIN doctors d ON a.attending_doctor_id = d.doctor_id
   GROUP BY d.doctor_id;

23. This query displays each doctor's ID, full name, and the first and last admission dates they attended.

Ans   SELECT d.doctor_id,
       CONCAT(d.first_name, ' ', d.last_name) AS full_name,
       MIN(a.admission_date) AS first_date_attended,
       MAX(a.admission_date) AS last_date_attended
   FROM admissions a
   JOIN doctors d ON a.attending_doctor_id = d.doctor_id
   GROUP BY d.doctor_id;

24. This query shows the total number of patients for each province, ordered in descending order.

Ans.
   SELECT pr.province_name, COUNT(p.patient_id) AS total_patients
   FROM patients p
   JOIN province_names pr ON p.province_id = pr.province_id
   GROUP BY pr.province_name
   ORDER BY total_patients DESC;

25.This query retrieves the patient's full name, admission diagnosis, and the full name of the doctor who diagnosed the problem for every admission.

Ans   SELECT CONCAT(p.first_name, ' ', p.last_name) AS patient_full_name,
        a.diagnosis,
        CONCAT(d.first_name, ' ', d.last_name) AS doc_full_name
    FROM patients p
    JOIN admissions a ON p.patient_id = a.patient_id
    JOIN doctors d ON a.attending_doctor_id = d.doctor_id;

Ans.   select first_name, last_name, count(*) as num_of_duplicates
    from patients
    group by first_name, last_name
    having count(*) > 1;

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