Healthcare Analysis

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INTRODUCTION

As a Healthcare Analyst entrusted with examining hospital records to monitor the trajectory of prevalent illnesses, my objective is to contribute valuable insights to inform a public health program. By meticulously analyzing the data encompassing various illnesses, we can identify trends, patterns, and potential areas of concern. Through this analysis, we aim to bolster public health initiatives and enhance preventative measures to mitigate the impact of these illnesses on the community. Let's delve into the hospital records to gain a comprehensive understanding of the prevailing health landscape.

Introduction to Hospital

TABLES

Patients

patient_id	patient_name	age	gender	city
1	John Smith	45	Male	Seattle
2	Jane Doe	32	Female	Miami
3	Mike Johnson	50	Male	Seattle
4	Lisa Jones	28	Female	Miami
5	David Kim	60	Male	Chicago

Visits

visit_id	patient_id	symptom_id	diagnosis_id	visit_date
1	1	1	2	1/1/22
2	2	2	1	2/1/22
3	3	3	3	2/1/22
4	4	1	4	3/1/22
5	5	2	5	3/1/22
6	1	4	1	13/5/22
7	3	4	1	20/5/22
8	3	2	1	20/5/22
9	2	1	4	19/8/22
10	1	2	5	1/12/22

Symptoms

symptom_id	symptom_name
1	Fever
2	Cough
3	Difficulty Breathing
4	Fatigue
5	Headache

Diagnoses

diagnosis_id	diagnosis_name
1	Common Cold
2	Influenza
3	Pneumonia
4	Bronchitis
5	COVID-19

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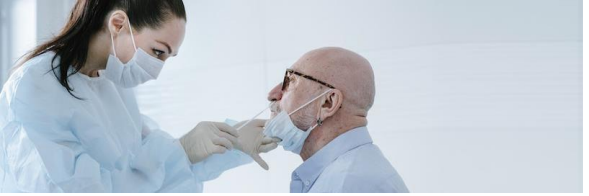
1. Write a SQL query to retrieve all patients who have been diagnosed with COVID-19?

```sql
SELECT p.*, d.diagnosis_name
FROM visits AS v
JOIN patients AS p USING(patient_id)
JOIN diagnoses AS d USING(diagnosis_id)
WHERE d.diagnosis_name = 'COVID-19';
```

patient_id	patient_name	age	gender	city	diagnosis_name
5	David Kim	60	Male	Chicago	COVID-19
1	John Smith	45	Male	Seattle	COVID-19

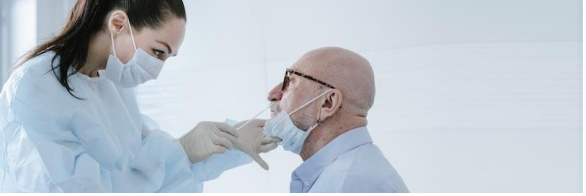


Introduction to Hospital

2. Write a SQL query to retrieve the number of visits made by each patient, ordered by the number of visits in descending order.?

```sql
SELECT p.patient_id, p.patient_name, COUNT(visit_id) AS number_of_visits
FROM visits AS v
JOIN patients AS p USING (patient_id)
GROUP BY p.patient_id, p.patient_name
ORDER BY number_of_visits DESC;
```

patient_id	patient_name	number_of_visits
1	John Smith	3
3	Mike Johnson	3
2	Jane Doe	2
4	Lisa Jones	1
5	David Kim	1



Introduction to Hospital

3. Write a SQL query to calculate the average age of patients who have been diagnosed with Pneumonia?

```sql
SELECT  p.patient_name , round(avg(p.age),2) as avg_age , d.diagnosis_name
FROM  patients as p
JOIN visits as v using (patient_id)
JOIN diagnoses as d using (diagnosis_id)
WHERE  diagnosis_name = "Pneumonia"
GROUP BY  1;
```

	patient_name	avg_age	diagnosis_name
▶	Mike Johnson	50.00	Pneumonia

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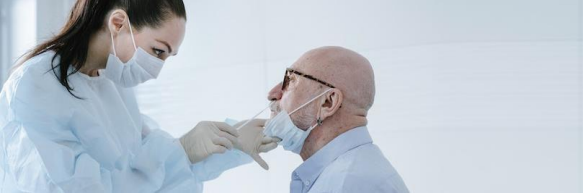
4. Write a SQL query to retrieve the top 3 most common symptoms among all visits.?

```sql
SELECT s.symptom_name, COUNT(v.symptom_id) AS count_of_symptoms
FROM symptoms s
JOIN visits v ON s.symptom_id = v.symptom_id
GROUP BY s.symptom_name
ORDER BY count_of_symptoms DESC
LIMIT 3;
```

symptom_name	count_of_symptoms
Cough	4
Fever	3
Fatigue	2



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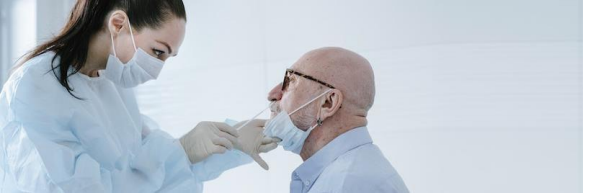
5. Write a SQL query to retrieve the patient who has the highest number of different symptoms reported.?

```sql
SELECT p.patient_id, p.patient_name, COUNT(DISTINCT v.symptom_id) AS num_symptoms
FROM patients p
JOIN visits v ON p.patient_id = v.patient_id
GROUP BY p.patient_id, p.patient_name
ORDER BY num_symptoms DESC
LIMIT 1;
```

	patient_id	patient_name	num_symptoms
▶	1	John Smith	3



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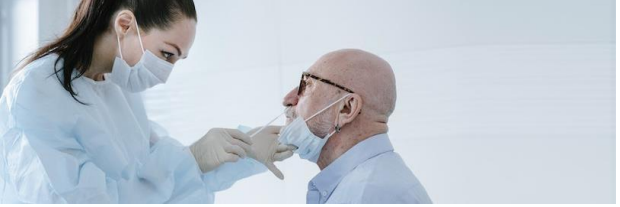
6. Write a SQL query to calculate the percentage of patients who have been diagnosed with COVID-19 out of the total number of patients.?

```sql
SELECT COUNT(DISTINCT p.patient_id) AS total_patients,
COUNT(DISTINCT CASE WHEN d.diagnosis_name = 'COVID-19' THEN p.patient_id END)
    AS covid_patients,
(COUNT(DISTINCT CASE WHEN d.diagnosis_name = 'COVID-19' THEN p.patient_id END) / CAST(COUNT(DISTINCT p.patient_id) AS FLOAT))*100
    AS percentage_covid_patients
FROM patients p
LEFT JOIN visits v ON p.patient_id = v.patient_id
LEFT JOIN diagnoses d ON v.diagnosis_id = d.diagnosis_id;
```

total_patients	covid_patients	percentage_covid_patients
5	2	40



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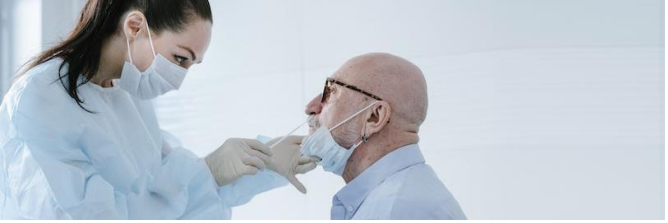
7. Write a SQL query to retrieve the top 5 cities with the highest number of visits, along with the count of visits in each city.?

```sql
SELECT city, COUNT(*) AS visit_count
FROM patients p
JOIN visits v ON p.patient_id = v.patient_id
GROUP BY city
ORDER BY visit_count DESC
LIMIT 5;
```

city	visit_count
Seattle	6
Miami	3
Chicago	1



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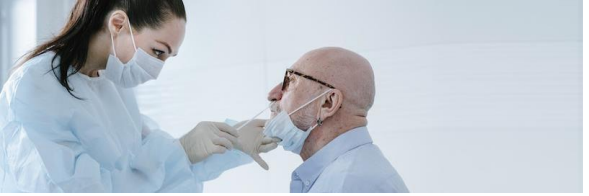
8. Write a SQL query to find the patient who has the highest number of visits in a single day, along with the corresponding visit date.?

```sql
SELECT P.patient_id, P.patient_name, V.visit_date ,COUNT(*) AS visit_count
FROM patients AS p
JOIN visits AS v Using(patient_id)
GROUP BY P.patient_id, P.patient_name, V.visit_date
ORDER BY visit_count DESC
LIMIT 1 ;
```

patient_id	patient_name	visit_date	visit_count
3	Mike Johnson	2022-05-20	2



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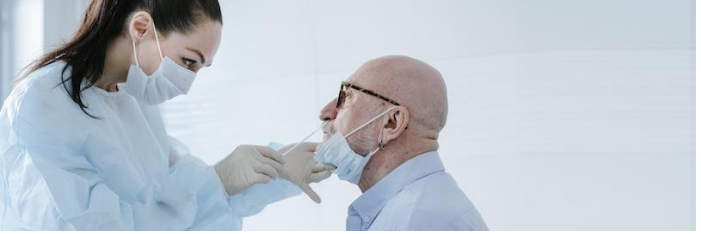
9. Write a SQL query to retrieve the average age of patients for each diagnosis, ordered by the average age in descending order.?

```sql
SELECT d.diagnosis_name, round(AVG(p.age),2) AS average_age
FROM visits v
JOIN diagnoses d ON v.diagnosis_id = d.diagnosis_id
JOIN patients p ON v.patient_id = p.patient_id
GROUP BY d.diagnosis_name
ORDER BY average_age DESC;
```

diagnosis_name	average_age
COVID-19	52.50
Pneumonia	50.00
Influenza	45.00
Common Cold	44.25
Bronchitis	30.00



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10. Write a SQL query to calculate the cumulative count of visits over time, ordered by the visit date.?

```sql
SELECT v.visit_date,
       COUNT(*) AS daily_visits,
       SUM(COUNT(*)) OVER (ORDER BY v.visit_date) AS cumulative_visits
FROM visits v
GROUP BY v.visit_date
ORDER BY v.visit_date;
```

visit_date	daily_visits	cumulative_visits
2022-01-01	1	1
2022-01-02	2	3
2022-01-03	2	5
2022-05-13	1	6
2022-05-20	2	8
2022-08-19	1	9
2022-12-01	1	10