

SQL Project

# HOSPITAL MANAGEMENT ANALYSIS

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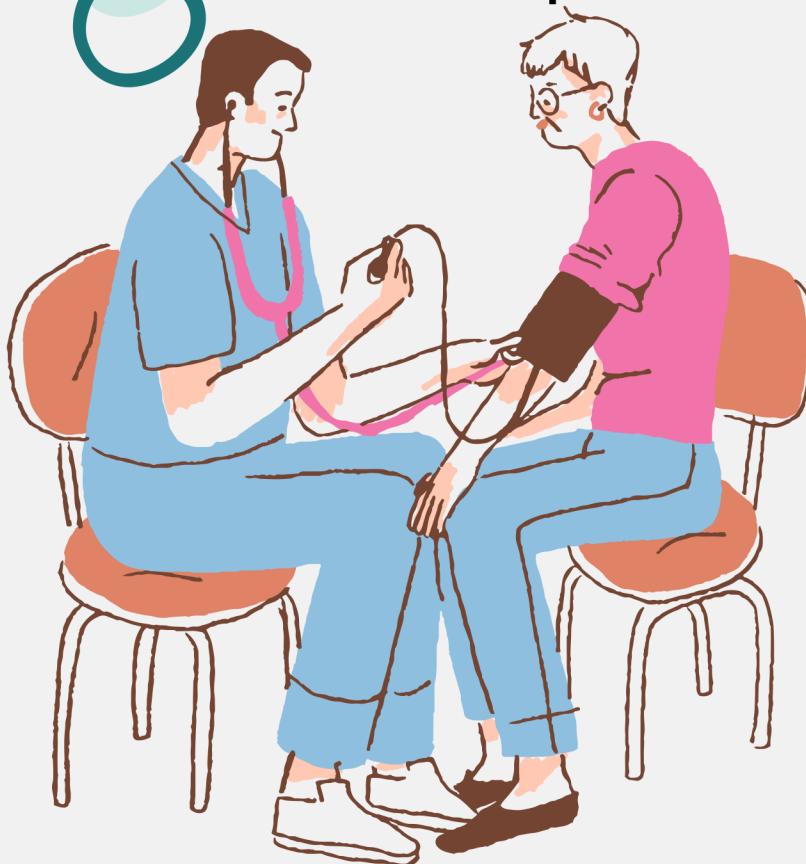
# PROJECT'S AGENDA

- Optimize the efficiency and effectiveness of healthcare delivery within a hospital or healthcare system through comprehensive SQL-based analysis.
- Assess aspects like resource allocation, patient flow, quality of care, and financial performance to enhance patient outcomes and manage costs and resources effectively.



# Question -1

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.

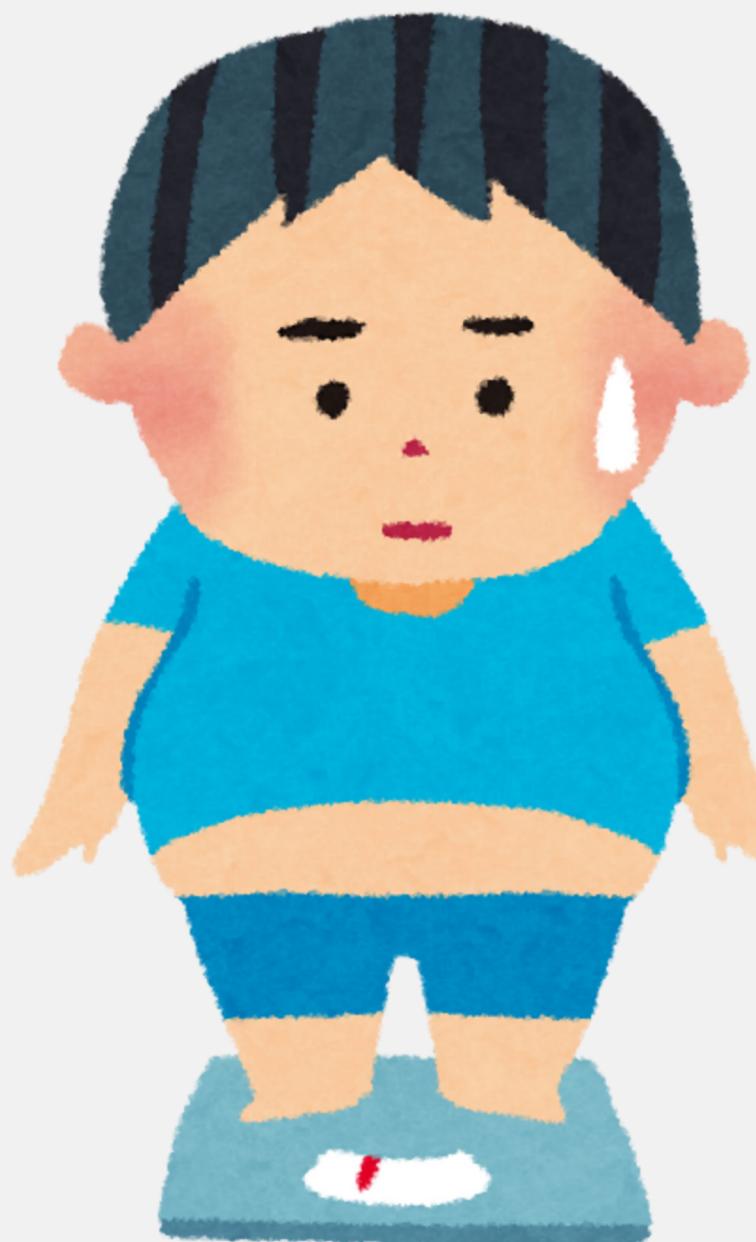


```
SELECT COUNT(*) AS countp,truncate(weight,-1)AS weight_group FROM patients  
GROUP BY weight_group  
ORDER BY weight_group DESC|
```

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

## Question -2

Show patient\_id , weight, height, is Obese from the patients table. Display is Obese as a boolean 0 or 1. Obese is defined as weight(kg)/(height(m)<sup>2</sup>) >= 30.

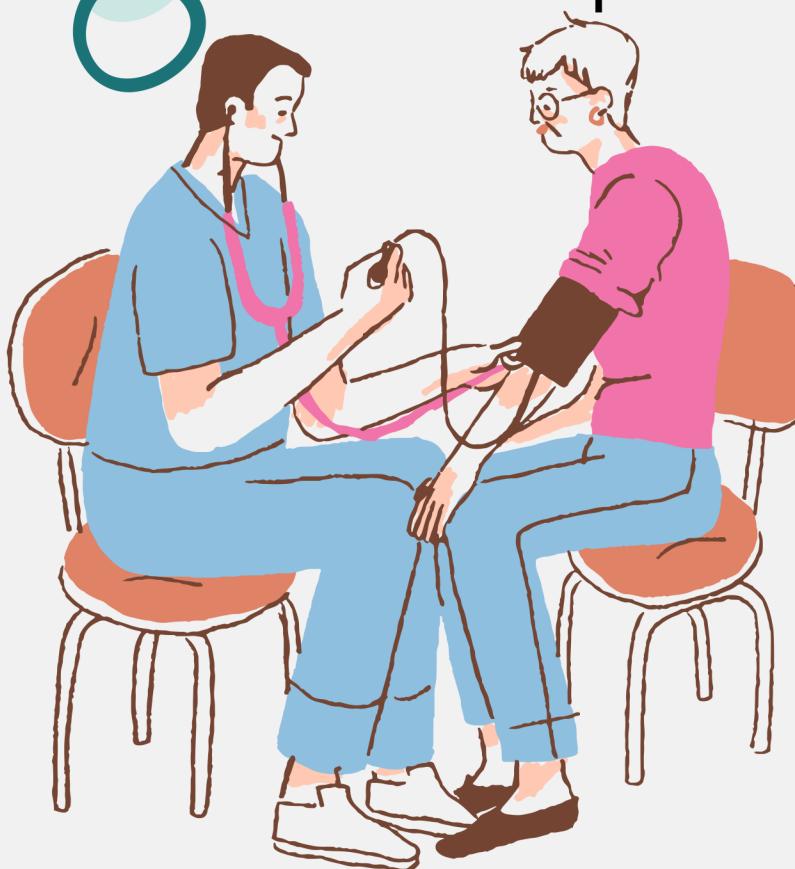


```
SELECT patient_id,weight,height, weight / POWER(CAST(height AS float) / 100, 2) >= 30  
AS obese FROM patients
```

patient_id	weight	height	obese
1	65	156	0
2	76	185	0
3	106	194	0
4	104	191	0
5	10	47	1
6	5	43	0

# Question -3

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'



```
SELECT p.patient_id,p.first_name,p.last_name,d.specialty FROM patients p JOIN admissions a ON p.patient_id= a.patient_id JOIN doctors d ON a.attending_doctor_id=d.doctor_id 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

# Question -4

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.



```
SELECT DISTINCT p.patient_id , CONCAT(p.patient_id,LEN(p.last_name),YEAR(p.birth_date)) AS password  
FROM patients p JOIN admissions a ON p.patient_id=a.patient_id
```

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

# Question -5

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 has_insurance, SUM(admission_cost) AS admission_total  
FROM  
(  
    SELECT patient_id,  
    CASE WHEN patient_id % 2 = 0 THEN 'Yes' ELSE 'No' END AS has_insurance,  
    CASE WHEN patient_id % 2 = 0 THEN 10 ELSE 50 END AS admission_cost  
    FROM admissions  
)  
GROUP BY has_insurance
```

has_insurance	admission_total
No	127800
Yes	25110



# Question -6

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



```
SELECT pr.province_name FROM patients AS pa
JOIN province_names AS pr ON pa.province_id = pr.province_id
GROUP BY pr.province_name
HAVING
    SUM(gender = 'M') > SUM(gender = 'F');
```

**province\_name**

Alberta

British Columbia

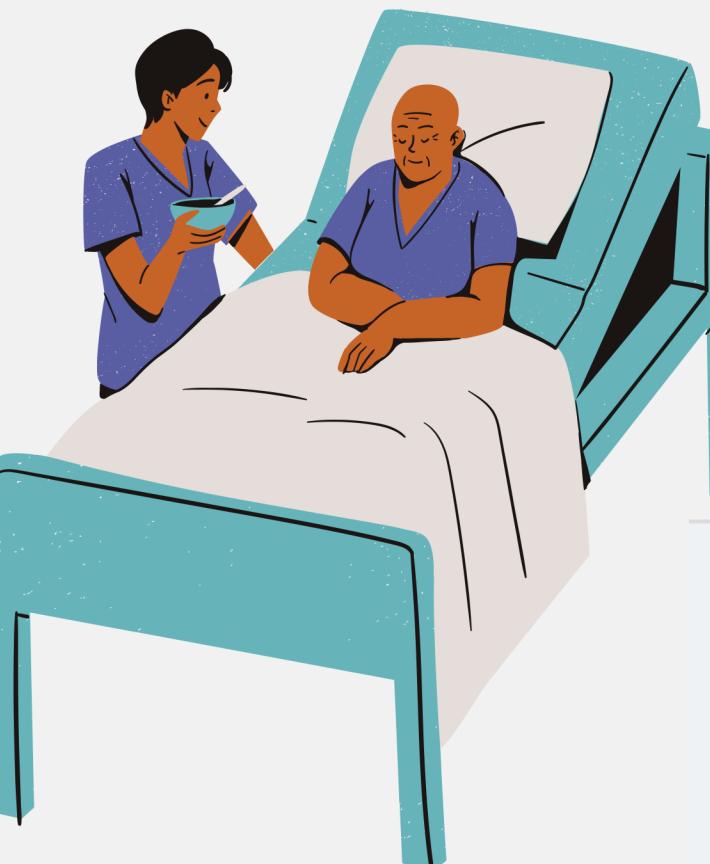
Manitoba

Newfoundland and Labrador

Nova Scotia

# Question -7

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'



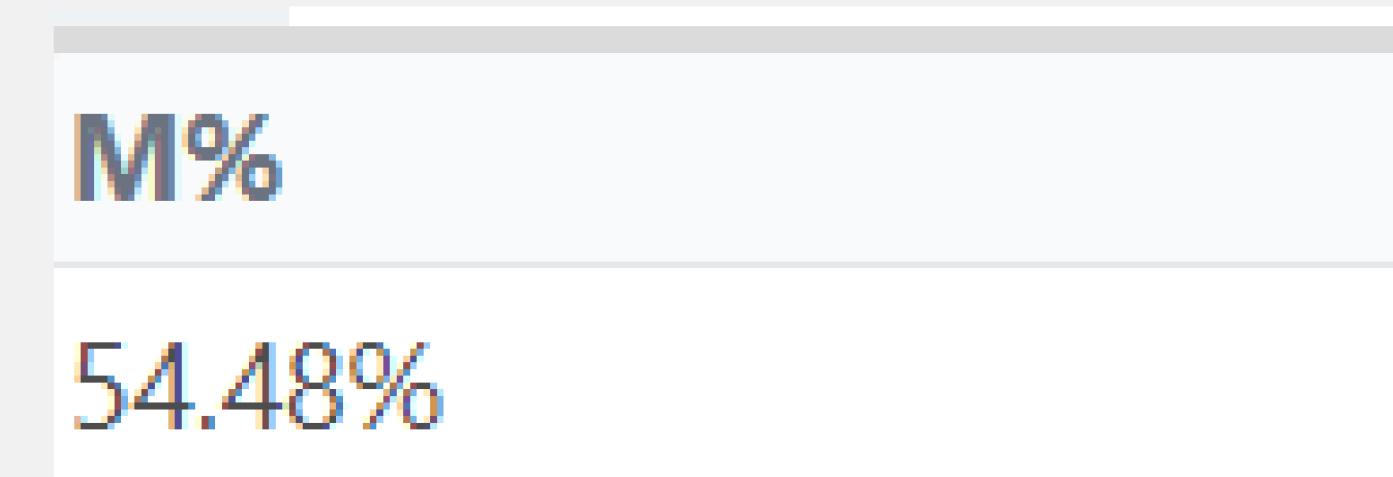
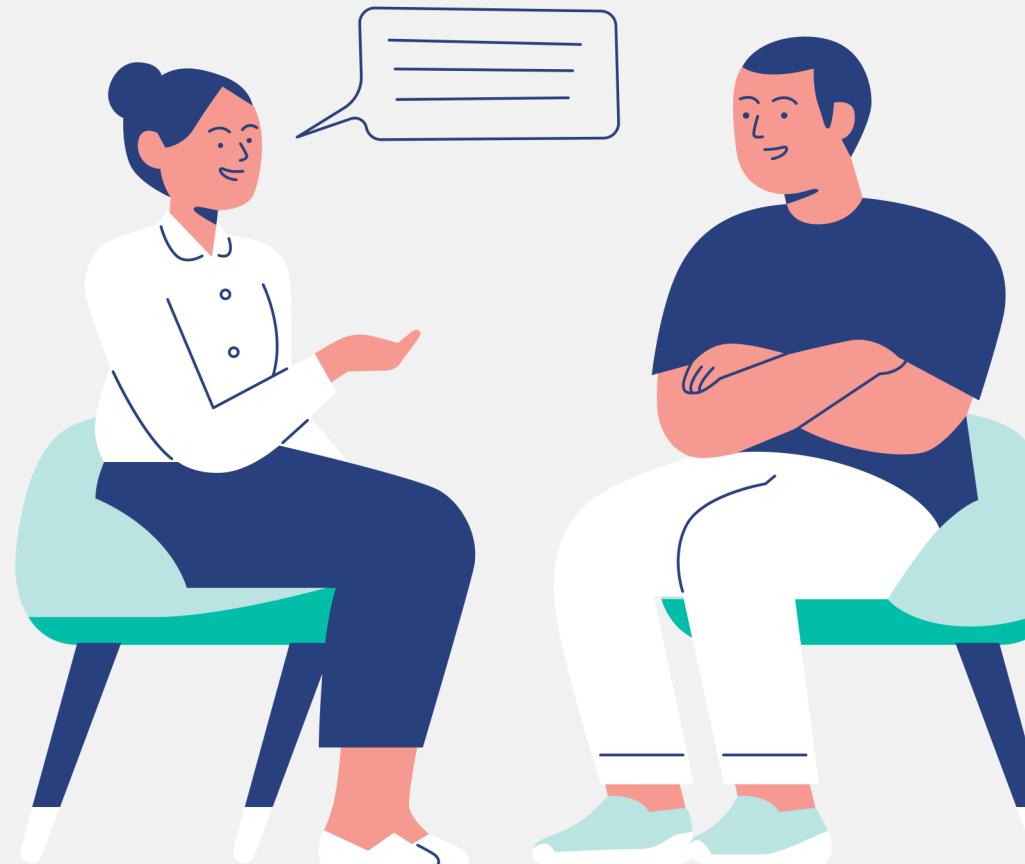
```
SELECT * FROM patients WHERE
    first_name LIKE '__r%'
    AND gender = 'F'
    AND MONTH(birth_date) IN (2, 5, 12)
    AND weight BETWEEN 60 AND 80
    AND patient_id % 2 = 1
    AND city = 'Kingston';
```

province_name
Alberta
British Columbia
Manitoba
Newfoundland and Labrador
Nova Scotia
Ontario
Saskatchewan

# Question -8

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(SUM(gender='M') / CAST(COUNT(*) AS float), 4) * 100, '%') AS 'M%'  
FROM patients;
```



# Question -9

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



```
WITH admission_counts_table AS (
    SELECT admission_date, COUNT(patient_id) AS admission_count
    FROM admissions
    GROUP BY admission_date
    ORDER BY admission_date DESC
)
SELECT
    admission_date,
    admission_count,
    admission_count - LAG(admission_count) OVER(ORDER BY admission_date) AS admission_count_change
FROM admission_counts_table
```

admission_date	admission_count	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

# Question -10

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  
province_name = 'Ontario' DESC,  
province_name
```

province_name
Ontario
Alberta
British Columbia
Manitoba
New Brunswick
Newfoundland and Labrador
Northwest Territories

# Question -11

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 AS doctor_id,  
CONCAT(d.first_name, ' ', d.last_name) AS doctor_name,  
d.specialty, YEAR(a.admission_date) AS selected_year,  
COUNT(*) AS total_admissions FROM doctors AS d  
LEFT JOIN admissions AS a ON d.doctor_id = a.attending_doctor_id  
GROUP BY  
doctor_name,  
selected_year  
ORDER BY doctor_id, selected_year
```

doctor_id	doctor_name	specialty	selected_year	total_admissions
1	Claude Walls	Internist	2018	105
1	Claude Walls	Internist	2019	109
2	Joshua Green	Cardiologist	2018	104
2	Joshua Green	Cardiologist	2019	83
3	Miriam Tregre	General Surgeon	2018	111
3	Miriam Tregre	General Surgeon	2019	57
4	James Russo	Obstetrician/Gynecologist	2018	116
4	James Russo	Obstetrician/Gynecologist	2019	81

# Question -12

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,first_name,last_name FROM patients  
LEFT JOIN admissions ON patients.patient_id = admissions.patient_id  
WHERE admissions.patient_id IS NULL
```

patient_id	first_name	last_name
2	Mickey	Baasha
4	Blair	Diaz
5	Charles	Wolfe
14	Rick	Bennett
19	John	West
25	John	Farley

# Question -13

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 CONCAT(first_name, ' ', last_name), ROUND(height/30.48,1) AS height,  
ROUND(weight*2.205,0)AS weight,birth_date,  
CASE WHEN gender= 'F' THEN 'female'ELSE 'Male' END AS genderr  
FROM patients
```

concat(first_name,' ',last_name)	height	weight	birth_date	genderr
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

# Question -14

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(*) AS nod FROM patients  
GROUP BY first_name, last_name  
HAVING nod > 1
```

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

# Question -15

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

```
SELECT CONCAT(p.first_name, ' ', p.last_name) AS fullname ,a.diagnosis,  
CONCAT(d.first_name, ' ', d.last_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
```

fullname	diagnosis	Doctors_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



*Thank You*