HEALTHCARE DATABASE ANALYSIS IN MYSQL
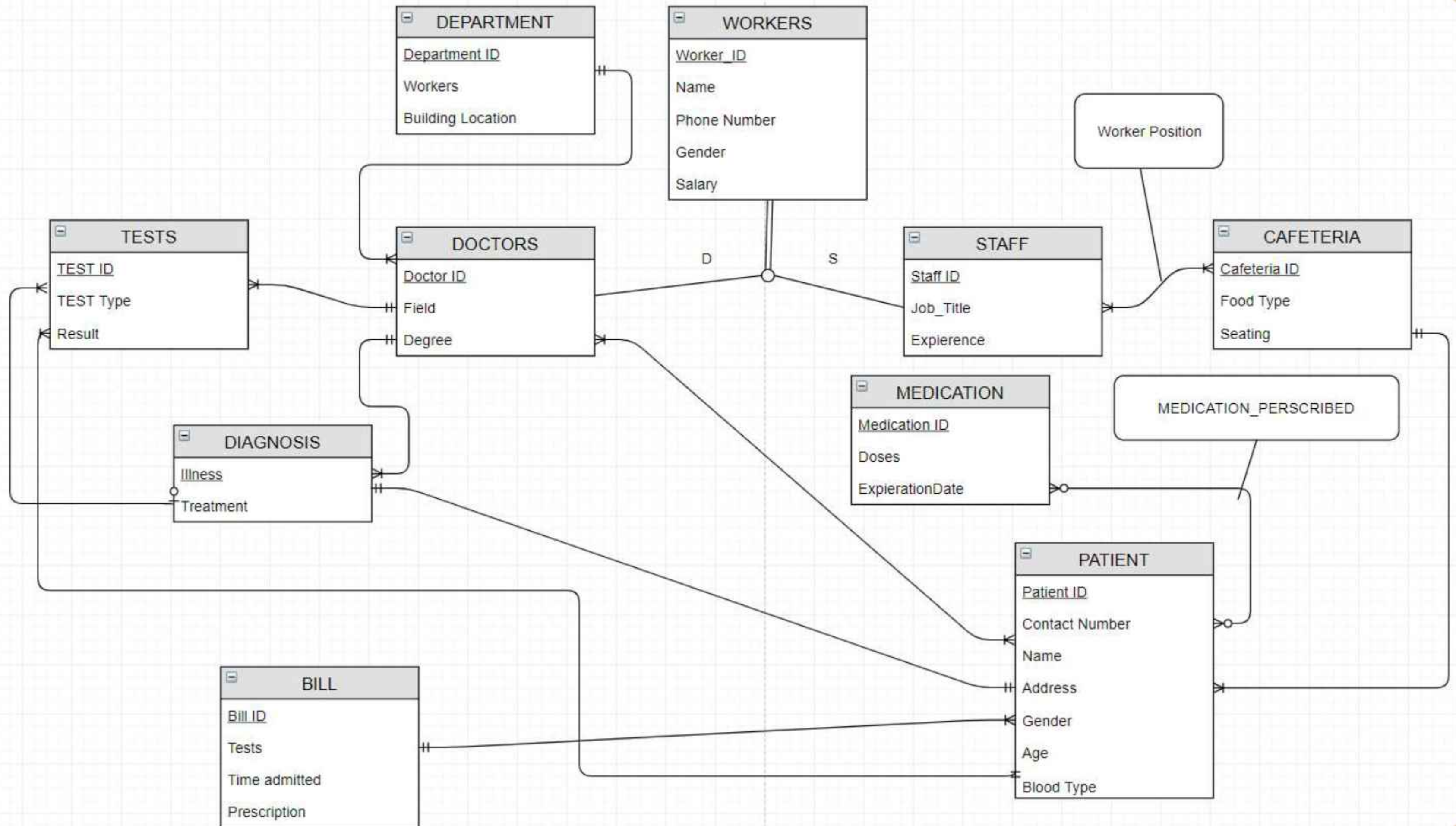
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INTRODUCTION

In this project, a comprehensive database was designed for a hospital, leveraging **SQL within MySQL Workbench** to facilitate efficient data retrieval and enhance patient care. This database provides healthcare workers with seamless access to critical information about patients, including age, blood type, medical conditions, prescribed treatments, and medication dosage requirements. By centralizing this information, the database enables staff to stay informed on patient needs in real-time, supporting precise, timely care and minimizing the risk of errors. Through advanced querying techniques, the analysis also examines aspects like doctor-patient interactions, departmental operations, and medication administration. This project underscores the essential role of data management in healthcare, enhancing decision-making, operational efficiency, and patient outcomes.

SCHEMA

DEPARTMENT
- Department ID
- Workers
- Building Location

WORKERS
- Worker_ID
- Name
- Phone Number
- Gender
- Salary

Worker Position

TESTS
- TEST ID
- TEST Type
- Result

DOCTORS
- Doctor ID
- Field
- Degree

D   S

STAFF
- Staff ID
- Job_Title
- Expierence

CAFETERIA
- Cafeteria ID
- Food Type
- Seating

MEDICATION
- Medication ID
- Doses
- ExpierationDate

MEDICATION_PERSCRIBED

DIAGNOSIS
- Illness
- Treatment

PATIENT
- Patient ID
- Contact Number
- Name
- Address
- Gender
- Age
- Blood Type

BILL
- Bill ID
- Tests
- Time admitted
- Prescription

FIND ALL DOCTORS WHO HAVE TREATED A PATIENT FOR "DIABETES."

```sql
SELECT
    doctor.doctor_id, fname, lname, gender, Illness, Patient_ID
FROM
    doctor
        JOIN
    worker ON doctor.D_Worker_ID = worker.Worker_ID
        JOIN
    diagnosis ON diagnosis.doctor_id = doctor.doctor_id
WHERE
    illness = 'Diabetes'
```

Result Grid					Filter Rows:		Export:

	doctor_id	fname	lname	gender	Illness	Patient_ID
▶	51235	Tilda	White	F	Diabetes	193258

FIND THE TOTAL NUMBER OF WORKERS IN EACH DEPARTMENT.

```sql
SELECT
    department.department_id, COUNT(worker.worker_id)
FROM
    department
        JOIN
    doctor ON department.department_id = doctor.department_id
        JOIN
    worker ON doctor.D_worker_id = worker.worker_id
GROUP BY department.department_id
```

department_id	COUNT(worker.worker_id)
Burn Center	1
ER	2
ICU	1
Pediatric	1
Pharmacy	1

Result Grid | Filter Rows:

RETRIEVE THE NAMES AND PHONE NUMBERS OF ALL PATIENTS WHO HAVE BEEN DIAGNOSED WITH "DIABETES."

```sql
SELECT
    patient.fname,
    patient.lname,
    patient.telephone,
    diagnosis.illness
FROM
    patient
        JOIN
    diagnosis ON patient.patient_id = diagnosis.patient_id
WHERE
    diagnosis.illness = 'Diabetes'
```

Result Grid | Filter Rows:

fname	lname	telephone	illness
Jenny	Tayla	(642)176-7421	Diabetes

LIST THE DETAILS OF ALL PATIENTS WHO HAVE BEEN PRESCRIBED "B205."

```sql
SELECT
    *
FROM
    patient
        JOIN
    medication_prescribed ON patient.patient_id = medication_prescribed.patient_id
WHERE
    medication_id = 'B205'
```

Patient_ID	fname	lname	Address	telephone	Gender	Age	Blood_Type	Cafeteria_ID	Bill_ID	Prescription_ID	Medication_ID	Patient_ID
975913	Harry	Sax	53 Chendogg Ave	(643)764-1256	M	21	O-	Campbell	1632	102	B205	975913

GET THE NAMES AND IDS OF ALL DOCTORS WHO WORK IN THE "ER" DEPARTMENT.

```sql
SELECT
    worker.fname AS Doctor_Fname,
    worker.lname AS Doctor_Lname,
    doctor.doctor_id
FROM
    doctor
        JOIN
    worker ON worker.worker_id = doctor.D_worker_id
WHERE
    doctor.department_id = 'ER';
```
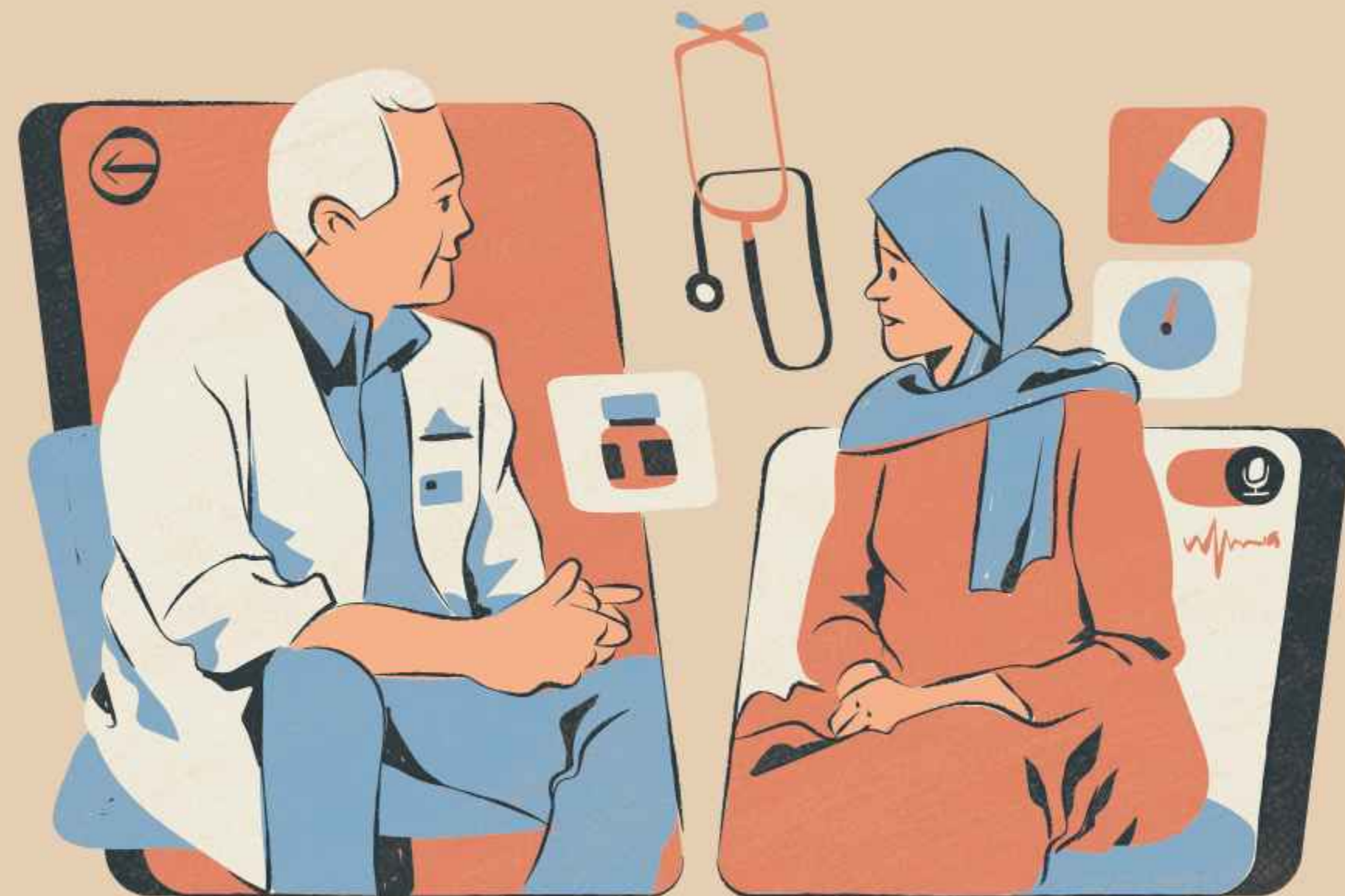
Result Grid		Filter Rows:	
	Doctor_Fname	Doctor_Lname	doctor_id
▶	Zack	Futa	15642
	Tilda	White	51235

FIND THE TOTAL SALARY EXPENDITURE FOR ALL WORKERS.

```sql
SELECT
    SUM(salary) AS Total_salary_Expenditure
FROM
    worker;
```

Result Grid		Filter Rows:
	Total_salary_Expenditure	
▶	1041000	

LIST ALL CAFETERIA STAFF ALONG WITH THEIR JOB POSITION AND THE FOOD TYPE SERVED IN THEIR ASSIGNED CAFETERIA.

```sql
SELECT
    cafeteria_staff.staff_id,
    staff.job_title,
    cafeteria_staff.position,
    cafeteria.food_type
FROM
    cafeteria_staff
        JOIN
    staff ON staff.staff_id = cafeteria_staff.staff_id
        JOIN
    cafeteria ON cafeteria_staff.cafeteria_id = cafeteria.cafeteria_id;
```

Result Grid | Filter Rows: | Export

staff_id	job_title	position	food_type
12	Cafeteria Staff	Cook	Lunchables
1834	Cafeteria Staff	Server	Mash Potatoes

FIND PATIENTS WHO HAVE BEEN TREATED BY MORE THAN ONE DOCTOR.

```sql
SELECT
    patient_id, COUNT(DISTINCT doctor_id) AS Number_of_Doctors
FROM
    doctor_patient
GROUP BY patient_id
HAVING COUNT(DISTINCT doctor_id) > 1;
```

	patient_id	Number_of_Doctors
▶	589215	2

Result Grid | Filter Rows:

SHOW DETAILS OF PATIENTS ALONG WITH THE MEDICATION THEY ARE PRESCRIBED, EVEN IF NO MEDICATION HAS BEEN PRESCRIBED.

```sql
SELECT
    *
FROM
    patient
        LEFT JOIN
    medication_prescribed ON
    patient.Patient_ID = medication_prescribed.Patient_ID
        LEFT JOIN
    medication ON
    medication_prescribed.Medication_ID = medication.Medication_ID
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Patient_ID	fname	lname	Address	telephone	Gender	Age	Blood_Type	Cafeteria_ID	Bill_ID	Prescription_ID	Medication_ID	Patient_ID	Mednation_ID	Doses	Expiration_Date
193258	Jenny	Tayla	651 Nowhre St	(642)176-7421	F	19	AB+	Dobson	1423	103	C312	193258	C312	12	2025-12-15
497598	Benjamin	Dover	63 Vancouver Way	(432)753-1274	M	72	B-	Wheeler	1744	104	D918	497598	D918	2	2024-07-04
589215	Mike	Lock	152 Main St	(135)753-2346	M	41	A+	Dobson	1537	101	A104	589215	A104	10	2026-05-12
589215	Mike	Lock	152 Main St	(135)753-2346	M	41	A+	Dobson	1537	105	E501	589215	E501	8	2025-08-29
975913	Harry	Sax	53 Chendogg Ave	(643)764-1256	M	21	O-	Campbell	1632	102	B205	975913	B205	5	2026-09-20

RETRIEVE DOCTORS BY SALARY, ORDERED FROM HIGHEST TO LOWEST.

```sql
SELECT
    doctor.doctor_id,
    worker.fname AS Doctor_FirstName,
    worker.lname AS Doctor_LastName,
    doctor.Department_ID,
    WORKER.Salary
FROM
    doctor
        JOIN
    worker ON doctor.D_worker_id = worker.Worker_ID
ORDER BY worker.Salary DESC;
```

Result Grid		Filter Rows:		Export:	Wrap Cell Content:

	doctor_id	Doctor_FirstName	Doctor_LastName	Department_ID	Salary
▶	12365	Patrick	McGuiyver	ICU	180000
	15235	Janet	Grosmen	Pediatric	150000
	67891	Henry	Fuller	Pharmacy	127000
	14263	Michelle	Haverhill	Burn Center	125000
	15642	Zack	Futa	ER	122000
	51235	Tilda	White	ER	100000

FIND THE AVERAGE AGE OF PATIENTS DIAGNOSED WITH "FLU."

```sql
SELECT
    AVG(age)
FROM
    patient
        JOIN
    diagnosis ON patient.Patient_ID = diagnosis.Patient_ID
WHERE
    diagnosis.Illness = 'Flu'
```

Result Grid	
AVG(age)
41.0000

DISPLAY PATIENT DIAGNOSES AND DEPARTMENT LOCATIONS.

```sql
SELECT
    patient.fname AS patient_firstname,
    patient.lname AS patient_lastname,
    diagnosis.illness,
    department.building_location
FROM
    patient
        JOIN
    diagnosis ON patient.patient_id = diagnosis.patient_id
        JOIN
    doctor ON diagnosis.doctor_id = doctor.doctor_id
        JOIN
    department ON doctor.department_id = department.department_id;
```

Result Grid | Filter Rows: | Export: | Wrap Cel

patient_firstname	patient_lastname	illness	building_location
Jenny	Tayla	Diabetes	Dobson
Benjamin	Dover	Pneumonia	Wheeler
Mike	Lock	Flu	Dobson
Mike	Lock	Hypertension	Campbell
Harry	Sax	Anemia	Wheeler

Thank you!