

דו"ח הפרויקט - שלב ב'

שאליות ללא פרמטרים

שאליות SELECT

1. בית החולים רוצה לדעת אילו מחלקות עשויות להזדקק לתגבור של רופאים בשעת חירום, על ידי ניתוח היחס בין מספר המטופלים למספר הרופאים הגרים בטווח של 20 ק"מ, והבנת עומס העבודה בכל מחלקה.

```
SELECT
    dp.DepartmentID,
    dp.DepartmentName,
    dp.TotalBeds,
    dp.OccupiedBeds,
    COUNT(DISTINCT d.DoctorID) AS NumberOfNearbyDoctors,
    COUNT(DISTINCT p.PatientID) AS NumberOfPatients,
    (COUNT(DISTINCT p.PatientID) / NULLIF(COUNT(DISTINCT d.DoctorID), 0)) AS PatientsPerDoctor,
    (dp.OccupiedBeds / NULLIF(dp.TotalBeds, 0)) * 100 AS OccupancyRate,
    dp.HeadOfDepartment,
    dp.Phone
FROM
    Departments dp
    LEFT JOIN Doctors d ON dp.DepartmentID = d.DepartmentID AND d.DistanceFromHospital <= 20
    LEFT JOIN Patients p ON dp.DepartmentID = p.DepartmentID AND p.ReleaseDate IS NULL
WHERE
    dp.TotalBeds IS NOT NULL AND dp.OccupiedBeds IS NOT NULL
GROUP BY
    dp.DepartmentID,
    dp.DepartmentName,
    dp.TotalBeds,
    dp.OccupiedBeds,
    dp.HeadOfDepartment,
    dp.Phone
HAVING
    (COUNT(DISTINCT d.DoctorID) = 0)
    OR ((COUNT(DISTINCT p.PatientID) / NULLIF(COUNT(DISTINCT d.DoctorID), 0)) > 5)
ORDER BY
    OccupancyRate DESC,
    PatientsPerDoctor DESC;
```

	DEPARTMENTID	DEPARTMENTNAME	TOTALBEDS	OCCUPIEDBEDS	NUMBEROFNEARBYDOCTORS	NUMBEROFPATIENTS	PATIENTSPERDOCTOR	OCCUPANCYRATE	HEADOFDEPARTMENT	PHONE
1	10	Orthopedics	92	51	8	51	6.375	55.4347826086956	David Wilson	022516288
2	6	Gastroentero	89	44	5	44	8.8	49.438202247191	Sara Williams	029191634
3	14	Rheumatology	99	46	3	46	15.3333333333333	46.4646464646465	Jane Taylor	021087961
4	7	Nephrology	96	42	8	42	5.25	43.75	Alice Moore	028011507
5	12	Oncology	65	26	2	26	13	40	Jane Taylor	028265263

2. בית החולים מעוניין לחגוג ימי הולדת של רופאים בחודש הקרוב, להכיר את המטופלים שהם מטפלים בהם, ולארגן את המידע לפי מחלקות לצורך תכנון אירועים במחלקות השונות.

```

SELECT
    d.DoctorID,
    d.FirstName || ' ' || d.LastName AS DoctorName,
    dp.DepartmentID,
    dp.DepartmentName,
    EXTRACT(DAY FROM d.DateOfBirth) AS BirthDay,
    EXTRACT(MONTH FROM d.DateOfBirth) AS BirthMonth,
    COUNT(DISTINCT p.PatientID) AS NumberOfCurrentPatients
FROM
    Doctors d
    JOIN Departments dp ON d.DepartmentID = dp.DepartmentID
    LEFT JOIN PatientDoctor pd ON d.DoctorID = pd.DoctorID
    LEFT JOIN Patients p ON pd.PatientID = p.PatientID AND p.ReleaseDate IS NULL
WHERE
    EXTRACT(MONTH FROM d.DateOfBirth) = EXTRACT(MONTH FROM SYSDATE)
    OR EXTRACT(MONTH FROM d.DateOfBirth) = EXTRACT(MONTH FROM ADD_MONTHS(SYSDATE, 1))
GROUP BY
    d.DoctorID,
    d.FirstName,
    d.LastName,
    dp.DepartmentID,
    dp.DepartmentName,
    d.DateOfBirth
ORDER BY
    dp.DepartmentID,
    BirthMonth,
    BirthDay;

```

	DOCTORID	DOCTORNAME	DEPARTMENTID	DEPARTMENTNAME	BIRTHDAY	BIRTHMONTH	NUMBEROFCURRENTPATIENTS
1	309815512	Michael Moore	1	Pediatrics	2	9	0
2	305317262	James Moore	1	Pediatrics	18	9	6
3	209531628	Linda Moore	1	Pediatrics	25	9	1
4	208771808	Sara Williams	1	Pediatrics	4	10	3
5	307844344	Jane Wilson	1	Pediatrics	11	10	1

3. בית החולים מעוניין בניתוח מחלקות לפי השכר והניסיון של הרופאים שעובדים בהן - אלו מהמחלקות משלמות הכי הרבה ביחס לשנות הניסיון של רופאיה, תוך בחינת חמש המחלקות המובילות בקטגוריה זו.

```
-- Query 3: Identify departments with high patient load where most doctors have less than
-- two years of experience to assess training or staffing needs.
SELECT
    dp.DepartmentID,
    dp.DepartmentName,
    ROUND(AVG(d.Salary), 2) AS AverageSalary,
    ROUND(AVG(MONTHS_BETWEEN(SYSDATE, d.HireDate) / 12), 2) AS AverageExperience,
    ROUND((AVG(d.Salary) / NULLIF(AVG(MONTHS_BETWEEN(SYSDATE, d.HireDate) / 12), 0)), 2) AS SalaryPerYearExperience,
    COUNT(d.DoctorID) AS NumberOfDoctors
FROM
    Departments dp
    JOIN Doctors d ON dp.DepartmentID = d.DepartmentID
GROUP BY
    dp.DepartmentID,
    dp.DepartmentName
HAVING
    COUNT(d.DoctorID) > 0
ORDER BY
    SalaryPerYearExperience DESC
FETCH FIRST 5 ROWS ONLY;
```

DEPARTMENTID	DEPARTMENTNAME	AVERAGESALARY	AVERAGEEXPERIENCE	SALARYPERYEAREXPERIENCE	NUMBEROFDOCTORS
1	5 Cardiology	135664.06	11.21	12099.66	18
2	9 Pediatrics	121519.82	10.51	11562.37	17
3	14 Rheumatology	130856.33	11.86	11034.1	15
4	20 Geriatrics	111961.57	10.49	10675.76	14
5	17 Surgery	108823.59	10.46	10407.9	17

4. בית החולים מעוניין לדעת כמה רופאים מעל גיל 60 יש בכל מחלקה, להבין את העומס עליהם מבחינת מספר המטופלים, ולבחון האם יש צורך בהכשרת רופאים צעירים כדי להבטיח רציפות טיפולית לקראת פרישתם.

```
SELECT
    dp.DepartmentID,
    dp.DepartmentName,
    COUNT(d.DoctorID) AS TotalDoctors,
    COUNT(CASE WHEN FLOOR(MONTHS_BETWEEN(SYSDATE, d.DateOfBirth) / 12) >= 60 THEN d.DoctorID END) AS DoctorsOver60,
    ROUND(AVG(FLOOR(MONTHS_BETWEEN(SYSDATE, d.DateOfBirth) / 12)), 2) AS AverageAge,
    ROUND(AVG(CASE WHEN FLOOR(MONTHS_BETWEEN(SYSDATE, d.DateOfBirth) / 12) >= 60 THEN d.Salary END), 2) AS AverageSalaryOver60,
    ROUND(AVG(CASE WHEN d_over60.DoctorID IS NOT NULL THEN d_over60.NumPatients END), 2) AS AveragePatientsPerDoctorOver60
FROM
    Departments dp
    JOIN Doctors d ON dp.DepartmentID = d.DepartmentID
    LEFT JOIN (
        SELECT
            d.DoctorID,
            COUNT(DISTINCT pd.PatientID) AS NumPatients
        FROM
            Doctors d
            LEFT JOIN PatientDoctor pd ON d.DoctorID = pd.DoctorID
        WHERE
            FLOOR(MONTHS_BETWEEN(SYSDATE, d.DateOfBirth) / 12) >= 60
        GROUP BY
            d.DoctorID
    ) d_over60 ON d.DoctorID = d_over60.DoctorID
GROUP BY
    dp.DepartmentID,
    dp.DepartmentName
HAVING
    COUNT(CASE WHEN FLOOR(MONTHS_BETWEEN(SYSDATE, d.DateOfBirth) / 12) >= 60 THEN d.DoctorID END) > 0
ORDER BY
    DoctorsOver60 DESC;
```

DEPARTMENTID	DEPARTMENTNAME	TOTALDOCTORS	DOCTORSOVER60	AVERAGEAGE	AVERAGESALARYOVER60	AVERAGEPATIENTSPERDOCTOROVER60
1	3 Gastroentero	21	7	47.62	126638.43	7.43
2	7 Nephrology	22	4	44.05	139911.5	6.75
3	11 Gastroentero	26	4	45.65	168686.25	4.75
4	8 Dermatology	18	4	44.22	87559.5	3.5
5	4 Geriatrics	27	3	43.59	117333	2.33

שאלות DELETE

1. הנהלת בית החולים רוצה למחוק את הרשומות של כל מטופל ששוחרר לפני יותר מ3 שנים ולא אושפז פעם נוספת לאחר מכן, בתנאי שכל הרופאים שטיפלו בו עובדים בבית החולים יותר מ5 שנים.

לפני המחיקה

```

SELECT p.PatientID, p.FirstName, p.LastName, p.ReleaseDate
FROM Patients p
WHERE p.ReleaseDate < ADD_MONTHS(SYSDATE, -36)  -- שנים 3-שוחזרו לפני יותר מ
AND NOT EXISTS (  -- בדיקה שהמטופל לא טופל שוב לאחר השחרור
    SELECT 1
    FROM PatientDoctor pd2
    JOIN Patients p2 ON pd2.PatientID = p2.PatientID
    WHERE pd2.PatientID = p.PatientID
    AND p2.AdmissionDate > p.ReleaseDate
)
AND NOT EXISTS (  -- בדיקה אם יש רופא שלא עומד בתנאי הוותק של 5 שנים
    SELECT 1
    FROM PatientDoctor pd
    JOIN Doctors d ON pd.DoctorID = d.DoctorID
    WHERE pd.PatientID = p.PatientID
    AND d.HireDate >= ADD_MONTHS(SYSDATE, -60)  -- שנים 5-רופא שעובד פחות מ
);

```

	PATIENTID	FIRSTNAME	LASTNAME	RELEASEDATE	
▶	1	307193006	Michael Johnson	16/01/2021	...
	2	205595060	Linda Miller	18/04/2021	...
	3	207482257	Emily Brown	11/09/2020	...
	4	309606147	David Jones	10/04/2021	...

מחיקה

```
DELETE FROM Patients p
WHERE p.PatientID IN (
    SELECT p.PatientID
    FROM Patients p
    WHERE p.ReleaseDate < ADD_MONTHS(SYSDATE, -36) -- שנים 3-שוחזרו לפני יותר מ
    AND NOT EXISTS ( -- בדיקה שהמטופל לא טופל שוב לאחר השחרור
        SELECT 1
        FROM PatientDoctor pd2
        JOIN Patients p2 ON pd2.PatientID = p2.PatientID
        WHERE pd2.PatientID = p.PatientID
        AND p2.AdmissionDate > p.ReleaseDate
    )
    AND NOT EXISTS ( -- בדיקה אם יש רופא שלא עומד בתנאי הוותק של 5 שנים
        SELECT 1
        FROM PatientDoctor pd
        JOIN Doctors d ON pd.DoctorID = d.DoctorID
        WHERE pd.PatientID = p.PatientID
        AND d.HireDate >= ADD_MONTHS(SYSDATE, -60) -- שנים 5-רופא שעובד פחות מ
    )
);
```

Select patients Delete patients Select patients Rollback

אחרי המחיקה

```
SELECT p.PatientID, p.FirstName, p.LastName, p.ReleaseDate
FROM Patients p
WHERE p.ReleaseDate < ADD_MONTHS(SYSDATE, -36) -- שנים 3-שוחזרו לפני יותר מ
AND NOT EXISTS ( -- בדיקה שהמטופל לא טופל שוב לאחר השחרור
    SELECT 1
    FROM PatientDoctor pd2
    JOIN Patients p2 ON pd2.PatientID = p2.PatientID
    WHERE pd2.PatientID = p.PatientID
    AND p2.AdmissionDate > p.ReleaseDate
)
AND NOT EXISTS ( -- בדיקה אם יש רופא שלא עומד בתנאי הוותק של 5 שנים
    SELECT 1
    FROM PatientDoctor pd
    JOIN Doctors d ON pd.DoctorID = d.DoctorID
    WHERE pd.PatientID = p.PatientID
    AND d.HireDate >= ADD_MONTHS(SYSDATE, -60) -- שנים 5-רופא שעובד פחות מ
);
```

Select patients Delete patients Select patients Rollback

PATIENTID	FIRSTNAME	LASTNAME	RELEASEDATE

2. כחלק מתהליך התייעלות, בית החולים מעוניין למחוק רופאים ממחלקות פחות פעילות שאין להם מטופלים.

לפני המחיקה

```
-- Query 2:
```

```
SELECT d.DoctorID, d.FirstName || ' ' || d.LastName AS DoctorName, d.DepartmentID, dep.DepartmentName, dep.OccupiedBeds
FROM Doctors d
LEFT JOIN PatientDoctor pd ON d.DoctorID = pd.DoctorID
JOIN Departments dep ON d.DepartmentID = dep.DepartmentID
WHERE pd.PatientID IS NULL
      AND dep.OccupiedBeds < (
          SELECT AVG(OccupiedBeds) FROM Departments
      )
ORDER BY d.DepartmentID;
```

Select patients Delete patients Select patients **Select doctors** Delete doctors Select doctors Rollback

	DOCTORID	DOCTORNAME	DEPARTMENTID	DEPARTMENTNAME	OCCUPIEDBEDS
▶ 1	306029277	Emily Williams ***	4	Geriatrics	16
2	304423621	James Williams ***	4	Geriatrics	16
3	302503504	Emily Brown ***	4	Geriatrics	16
4	307245824	James Davis ***	5	Cardiology	6
5	203505934	John Miller ***	9	Pediatrics	11

מחיקה

```
DELETE FROM Doctors
WHERE DoctorID IN (
    SELECT d.DoctorID
    FROM Doctors d
    LEFT JOIN PatientDoctor pd ON d.DoctorID = pd.DoctorID
    JOIN Departments dep ON d.DepartmentID = dep.DepartmentID
    WHERE pd.PatientID IS NULL
    AND dep.OccupiedBeds < (
        SELECT AVG(OccupiedBeds) FROM Departments
    )
);
```

Select patients Delete patients Select patients Select doctors **Delete doctors** Select doctors Rollback

אחרי המחיקה

```
SELECT d.DoctorID, d.FirstName || ' ' || d.LastName AS DoctorName, d.DepartmentID, dep.DepartmentName, dep.OccupiedBeds
FROM Doctors d
LEFT JOIN PatientDoctor pd ON d.DoctorID = pd.DoctorID
JOIN Departments dep ON d.DepartmentID = dep.DepartmentID
WHERE pd.PatientID IS NULL
      AND dep.OccupiedBeds < (
          SELECT AVG(OccupiedBeds) FROM Departments
      )
ORDER BY d.DepartmentID;
```

Select patients Delete patients Select patients Select doctors Delete doctors **Select doctors** Rollback

DOCTORID	DOCTORNAME	DEPARTMENTID	DEPARTMENTNAME	OCCUPIEDBEDS
----------	------------	--------------	----------------	--------------

שאלות UPDATE

1. הנהלת בית החולים רוצה להוסיף 10% למשכורות של עשרת הרופאים שטיפלו בהכי הרבה מטופלים ב-3 השנים האחרונות.

לפני העדכון:

	DOCTORID	DOCTORNAME	SALARY	NUMPATIENTS	DEPARTMENTID	DEPARTMENTNAME
1	307029243	Michael Johnson	65501	13	14	Rheumatology
2	301084401	Robert Davis	53425	12	10	Orthopedics
3	302675506	Robert Jones	100659	12	20	Geriatrics
4	303862123	Jane Williams	145126	12	12	Oncology
5	200324112	Robert Brown	134540	11	14	Rheumatology
6	201608661	David Smith	115355	11	3	Gastroentero
7	208885586	Sara Miller	142472	11	14	Rheumatology
8	302789386	James Brown	100464	11	10	Orthopedics
9	309347888	Alice Jones	83354	11	20	Geriatrics
10	202417459	Alice Brown	99780	10	10	Orthopedics

עדכון:

```
UPDATE Doctors
SET Salary = Salary * 1.1
WHERE DoctorID IN (
  SELECT DoctorID
  FROM (
    SELECT d.DoctorID, COUNT(pd.PatientID) AS NumPatients
    FROM Doctors d
    JOIN PatientDoctor pd ON d.DoctorID = pd.DoctorID
    JOIN Patients p ON pd.PatientID = p.PatientID
    JOIN Departments dep ON d.DepartmentID = dep.DepartmentID
    WHERE EXTRACT(YEAR FROM p.AdmissionDate) BETWEEN EXTRACT(YEAR FROM SYSDATE) - 3 AND EXTRACT(YEAR FROM SYSDATE)
    GROUP BY d.DoctorID, d.DepartmentID, dep.DepartmentName
    ORDER BY NumPatients DESC, d.DoctorID ASC
    FETCH FIRST 10 ROWS ONLY
  )
);
```

Select doctors Update doctors Select doctors Rollback

לאחר העדכון:

	DOCTORID	DOCTORNAME	SALARY	NUMPATIENTS	DEPARTMENTID	DEPARTMENTNAME
1	307029243	Michael Johnson	72051	13	14	Rheumatology
2	301084401	Robert Davis	58768	12	10	Orthopedics
3	302675506	Robert Jones	110725	12	20	Geriatrics
4	303862123	Jane Williams	159639	12	12	Oncology
5	200324112	Robert Brown	147994	11	14	Rheumatology
6	201608661	David Smith	126891	11	3	Gastroentero
7	208885586	Sara Miller	156719	11	14	Rheumatology
8	302789386	James Brown	110510	11	10	Orthopedics
9	309347888	Alice Jones	91689	11	20	Geriatrics
10	202417459	Alice Brown	109758	10	10	Orthopedics

2. בית החולים רוצה לוודא שהשכר של הרופאים תואם את הוותק שלהם. רופאים שעובדים במחלקות שבהן יחס השכר הממוצע לוותק נמוך מהממוצע הכללי, יקבלו העלאה של 15% בשכרם.

לפני העדכון:

	DEPARTMENTID	DEPARTMENTNAME	AVERAGESALARY	AVERAGEEXPERIENCE	SALARYPERYEAREXPERIENCE
1	1	Pediatrics	129182.93	12.51	10328.09
2	15	Neurology	126526.62	20.51	6168.21
3	7	Nephrology	136205.55	14.33	9502.35
4	13	Nephrology	122278.19	15.26	8013.74
5	8	Dermatology	112722.17	13.89	8115
6	17	Surgery	108823.59	10.46	10402.77
7	14	Rheumatology	133139.73	11.86	11221.76
8	18	Obstetrics	93458.06	13.59	6875.47
9	4	Geriatrics	118292.07	16.56	7144.39
10	2	Rheumatology	122815.33	13.35	9202.01
11	3	Gastroentero	117576.86	17.75	6623.45
12	9	Pediatrics	121519.82	10.52	11556.79
13	10	Orthopedics	124773.05	17.54	7114.94
14	19	Endocrinol	112046.1	13.44	8335.23
15	16	Geriatrics	127269.08	13.53	9404.99
16	11	Gastroentero	136580.54	14.42	9471.05
17	5	Cardiology	135664.06	11.22	12094.19
18	20	Geriatrics	113275.93	10.49	10795.89
19	6	Gastroentero	124463.33	14.22	8750.82
20	12	Oncology	127873.2	16.85	7588.43

עדכון:

```

UPDATE Doctors d
SET d.Salary = d.Salary * 1.15
WHERE d.DepartmentID IN (
    SELECT dp.DepartmentID
    FROM Departments dp
    JOIN Doctors d2 ON dp.DepartmentID = d2.DepartmentID
    GROUP BY dp.DepartmentID
    HAVING ROUND(AVG(d2.Salary) / NULLIF(AVG(MONTHS_BETWEEN(SYSDATE, d2.HireDate) / 12), 0), 2) < (
        SELECT ROUND(AVG(d3.Salary) / NULLIF(AVG(MONTHS_BETWEEN(SYSDATE, d3.HireDate) / 12), 0), 2)
        FROM Doctors d3
    )
);

```

Select doctors
Update doctors
Select doctors
Select departments
Update doctors
Select departments
Rollback

לאחר עדכון:

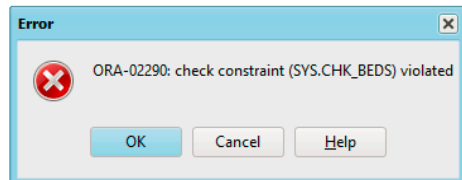
	DEPARTMENTID	DEPARTMENTNAME	AVERAGESALARY	AVERAGEEXPERIENCE	SALARYPERYEAREXPERIENCE
1	1	Pediatrics	129182.93	12.51	10328.09
2	15	Neurology	145505.69	20.51	7093.44
3	7	Nephrology	136205.55	14.33	9502.35
4	13	Nephrology	140619.94	15.26	9215.81
5	8	Dermatology	129630.5	13.89	9332.25
6	17	Surgery	108823.59	10.46	10402.77
7	14	Rheumatology	133139.73	11.86	11221.76
8	18	Obstetrics	107476.76	13.59	7906.79
9	4	Geriatrics	136035.89	16.56	8216.05
10	2	Rheumatology	122815.33	13.35	9202.01
11	3	Gastroentero	135213.43	17.75	7616.97
12	9	Pediatrics	121519.82	10.52	11556.79
13	10	Orthopedics	143488.95	17.54	8182.18
14	19	Endocrinol	128853.1	13.44	9585.52
15	16	Geriatrics	127269.08	13.53	9404.99
16	11	Gastroentero	136580.54	14.42	9471.05
17	5	Cardiology	135664.06	11.22	12094.19
18	20	Geriatrics	113275.93	10.49	10795.89
19	6	Gastroentero	124463.33	14.22	8750.82
20	12	Oncology	147054.13	16.85	8726.69

הוספת 7 אילוצים

1. בדיקה שמספר המיטות המאוישות במחלקה קטן או שווה למספר המיטות המקסימלי במחלקה

```
ALTER TABLE Departments
ADD CONSTRAINT chk_beds CHECK (TotalBeds >= OccupiedBeds);
```

```
INSERT INTO Departments (DepartmentID, DepartmentName, BuildingName, Floor, Phone, TotalBeds, OccupiedBeds, HeadOfDepartment)
VALUES (21, 'Cardiology', 'A', 1, '02-1234567', 10, 15, 'Dr. Cohen');
```



2. נגדיר שבבירת מחדל משכורת רופא היא 5000

```
ALTER TABLE Doctors
MODIFY Salary DEFAULT 5000;
```

```
INSERT INTO Doctors (DoctorID, FirstName, LastName, Specialty, Phone, DateOfBirth, HireDate, DistanceFromHospital, DepartmentID)
VALUES (123, 'John', 'Doe', 'Cardiology', '555-1234', TO_DATE('1985-06-15', 'YYYY-MM-DD'), TO_DATE('2023-09-01', 'YYYY-MM-DD'), 25.0, 1);
```

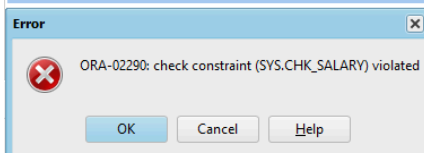
```
SELECT *
FROM Doctors
WHERE DoctorID = 123;
```

Insert doctors Select doctors											
	DOCTORID	FIRSTNAME	LASTNAME	SPECIALTY	PHONE	DATEOFBIRTH	HIREDATE	SALARY	DISTANCEFROMHOSPITAL	DEPARTMENTID	
▶ 1	123	John	Doe	Cardiology	555-1234	15/06/1985	01/09/2023	5000	25	1	

3. נגדיר בדיקה שערך משכורת רופא אינו שלילי

```
ALTER TABLE Doctors
ADD CONSTRAINT chk_salary CHECK (Salary > 0);
```

```
INSERT INTO Doctors (DoctorID, FirstName, LastName, Specialty, Phone, DateOfBirth, HireDate, Salary, DistanceFromHospital, DepartmentID)
VALUES (124, 'Jane', 'Doe', 'Neurology', '555-5678', TO_DATE('1990-04-22', 'YYYY-MM-DD'), TO_DATE('2023-09-01', 'YYYY-MM-DD'), -1000, 30.0, 2);
```



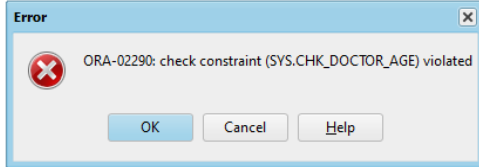
4. בדיקה שמרחק המגורים של רופא מבית החולים אינו עולה על 100 ק"מ

```
ALTER TABLE Doctors
ADD CONSTRAINT chk_doctor_distance CHECK (
    DistanceFromHospital <= 100
);
```

5. בדיקה שגילו של רופא אינו קטן מ-18

```
ALTER TABLE Doctors
ADD CONSTRAINT chk_doctor_age CHECK (
    (HireDate - DateOfBirth) / 365 >= 18
);
```

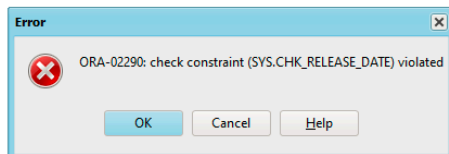
```
INSERT INTO Doctors (DoctorID, FirstName, LastName, Specialty, Phone, DateOfBirth, HireDate, Salary, DistanceFromHospital, DepartmentID)
VALUES (200, 'Young', 'Doctor', 'Surgery', '555-1234', TO_DATE('2000-01-01', 'YYYY-MM-DD'), TO_DATE('2017-09-01', 'YYYY-MM-DD'), 10000, 50, 1);
```



6. בדיקה שתאריך השחרור הוא לאחר תאריך הקבלה של חולה למחלקה או שאין תאריך שחרור

```
ALTER TABLE Patients
ADD CONSTRAINT chk_release_date CHECK (ReleaseDate >= AdmissionDate OR ReleaseDate IS NULL);
```

```
INSERT INTO Patients (PatientID, FirstName, LastName, DateOfBirth, Gender, Phone, AdmissionDate, ReleaseDate, Address, DepartmentID)
VALUES (1, 'John', 'Doe', TO_DATE('1990-01-01', 'YYYY-MM-DD'), 'M', '050-1234567', TO_DATE('2023-08-01', 'YYYY-MM-DD'), TO_DATE('2023-07-01', 'YYYY-MM-DD'),
```



7. הוספה שמחיקת מטופל תגרור את מחיקת הרשומות טיפול שלו

```
ALTER TABLE PatientDoctor
DROP CONSTRAINT fk_patient;

ALTER TABLE PatientDoctor
ADD CONSTRAINT fk_patient FOREIGN KEY (PatientID)
REFERENCES Patients(PatientID) ON DELETE CASCADE;
```

שאילתא שתדמה את זה:

```
-- Insert sample patient and doctor data
INSERT INTO Patients (PatientID, FirstName, LastName, DateOfBirth, Gender, Phone, AdmissionDate, ReleaseDate, Address, DepartmentID)
VALUES (1, 'John', 'Doe', TO_DATE('1980-01-01', 'YYYY-MM-DD'), 'M', '555-1234', SYSDATE, NULL, '123 Street', 1);

INSERT INTO Doctors (DoctorID, FirstName, LastName, Specialty, Phone, DateOfBirth, HireDate, Salary, DistanceFromHospital, DepartmentID)
VALUES (1, 'Jane', 'Smith', 'Cardiology', '555-5678', TO_DATE('1975-01-01', 'YYYY-MM-DD'), TO_DATE('2000-01-01', 'YYYY-MM-DD'), 10000, 15, 1);

-- Link the patient to the doctor in the PatientDoctor table
INSERT INTO PatientDoctor (PatientID, DoctorID)
VALUES (1, 1);

SELECT * FROM PatientDoctor WHERE PatientID = 1;

-- Delete the patient and verify if related records in PatientDoctor are deleted
DELETE FROM Patients WHERE PatientID = 1;

-- Check if the related records in PatientDoctor are deleted
SELECT * FROM PatientDoctor WHERE PatientID = 1;

ROLLBACK;
```

לפני המחיקה

[illegible]

לאחר המחיקה

Insert patients Insert doctors Insert patientdoctor Select patientdoctor Delete patients Select patientdoctor

PATIENTID DOCTORID