

מערכות בסיסי נתונים

ממן 11

א' הגדרת היחסים

פקחים תברואתיים--

```
create table inspector(
    iid int,
    iname varchar(50),
    bdate date,
    sdate date,
    phone numeric(9,0),
    primary key (iid));
```

מסעדות--

```
create table restaurant(
    lno int,
    rname varchar(50),
    address varchar(100),
    city varchar(30),
    phone numeric(9,0),
    odate date,
    mid int,
    primary key (lno),
    foreign key (mid) REFERENCES manager);
```

מנהלי מסעדות--

```
create table manager(
    mid int,
    mname varchar(50),
    address varchar(100),
    city varchar(30),
    mobile numeric(9,0),
    email varchar(40),
    primary key (mid));
```

בדיקות תברואתיות--

```
create table inspection(
    lno int,
    idate date,
    iid int,
    stime time,
    passed integer,
    violations VARCHAR(200),
    primary key (lno, idate),
    FOREIGN KEY (iid) REFERENCES inspector,
    check (passed between 0 and 1));
```

ב' טריגר

```
create or replace function trigf1() returns trigger as $$
begin
```

```
then return new;

end if;

raise notice 'must fill violations if inspection has not passed';

return null;

end;

$$language plpgsql;
```

אופציה 2 (בלי coalesce):

```
begin

    if new.passed = 0 and new.violations != NULL and new.violations != '' then return new;

end if;

raise notice 'must fill violations if inspection has not passed';

return null;

end;

$$language plpgsql;
```

```
create trigger T1
before insert on inspection
for each row
execute procedure trigf1();
```

ג' טעינת הנתונים

```
INSERT INTO INSPECTOR
VALUES (111, 'dan cohen', '1995-04-12', '2020-03-15', 123456789),
       (222, 'ronit levi', '1990-05-16', '2005-01-01', 98754321),
       (333, 'mika barnet', '1995-02-22', '2011-06-12', 456789012);
```

```
INSERT INTO manager
VALUES (999, 'tal chen', 'soto 33', 'Eilat', 989898989, 'talchen@talchen.net'),
       (888, 'keren or', 'vine 98', 'Karmiel', 787878787, 'kerenor@kerenor.net'),
       (777, 'may luk', 'corn 13', 'Karmiel', 454545454, 'mayluk@mayluk@mayluk.net');
```

```
INSERT INTO restaurant
```

VALUES (123, 'best restaurant ever', 'pico 12', 'Haifa', 765432109, '2015-03-19', 888),

(234, 'fast pizza', 'palm 15', 'Eilat', 654321098, '2010-05-03', 999),

(345, 'food is good', 'forest 45', 'Naharia', 543210987, '2010-10-10', 888),

(456, 'my salad', 'gold 2', 'Karmiel', 321098765, '2007-11-11', 777),

(567, 'foodeli', 'queen 11', 'Haifa', 210987654, '2007-08-09', 777);

INSERT INTO inspection

VALUES (234, '2020-01-06', 333, '16:00:00', 1, ''),

(123, '2020-02-07', 333, '12:15:00', 0, 'rats'),

(234, '2020-02-07', 333, '17:00:00', 0, 'bugs'),

(456, '2021-03-01', 222, '20:00:00', 1, ''),

(234, '2021-03-10', 333, '16:00:00', 1, ''),

(567, '2021-03-24', 333, '17:00:00', 1, ''),

(345, '2021-04-09', 222, '18:00:00', 0, 'rats'),

(345, '2021-04-30', 222, '18:00:00', 1, ''),

(123, '2021-05-11', 111, '19:40:00', 0, 'mold'),

(567, '2021-05-15', 111, '19:00:00', 1, ''),

(345, '2021-05-17', 222, '19:00:00', 1, ''),

(456, '2021-05-19', 111, '17:00:00', 0, 'bats'),

(123, '2021-06-13', 222, '13:00:00', 1, ''),

(456, '2021-06-16', 333, '21:00:00', 0, 'mold');

ד' שאילות

1. פקחים שעובדים 5 שנים לפחות

select * from inspector i

where i.sdate <= now()-interval '5 years'

לא ידעתי אם מותר להשתמש בפונקציה interval, לכן דרך נוספת:

select * from inspector i

where i.sdate <= ('2016-07-23');

2. מנהל המסעדה גר בעיר של המסעדה, בכתובת שונה

select r.rname, m.mname from manager m

join restaurant r

on r.mid = m.mid

3. מספר הבדיקות בשנה שעברה

דרך א':

```
select r.rname, count(i.idate) as num_inspection from restaurant r
join inspection i
on i.lno = r.lno
where date_part('year', i.idate) = date_part('year', current_date) -1
group by r.rname
```

דרך ב':

```
select r.rname, count(i.idate) as num_inspection from restaurant r
join inspection i
on i.lno = r.lno
where i.idate between date(date_trunc('year', now())- interval '1 year')) and date(date_trunc('year', now()) - interval
'1 day')
group by r.rname
```

4. מנהלי מסעדה בכרמיאל אך אין מסעדה שם שהם מנהלים שלה בעיר

```
select m.mname, m.mobile
from manager m
where m.city = 'Karmiel' and
not exists
(select from restaurant r where r.mid = m.mid and r.city = 'Karmiel' )
```

5. פקחים עם מספר בדיקות גבוה ביותר

```
with all_months(month_ins, iid, num) as
(select date_part('month', i.idate) month_ins, i.iid, count(*) num from inspection i
where date_part('year', i.idate) = '2021'
group by date_part('month', i.idate), i.iid)
```

```
select m.month_ins, max(m.num) num_inspections, i.* from all_months m
join inspector i
on i.iid = m.iid
group by m.month_ins, i.iid
having max(m.num) >= any (select max(al.num) from all_months al
```

6. פקחים שבצעו בדיקה תברואתית לכל אחת מהמסעדות בחיפה

```
select i.* from inspector i
where not exists (select r.lno from restaurant r
                  where r.city = 'Haifa' and r.lno not in(
                    select ins.lno from inspection ins
                    where ins.iid = i.iid))
```

7. פקח שלא ביצע בדיקה למסעדה באילת, הפקח שהכשיל את מס' הבדיקות הגדול ביותר

```
with all_ins(iid, num) as
(select i.iid, count(passed) from inspector i
join inspection ins
on ins.iid = i.iid
where i.iid not in (select distinct ei.iid from inspection ei join restaurant r
                   on ei.lno = r.lno
                   where r.city = 'Eilat')
and passed = 0
group by i.iid)
```

```
select i.* from inspector i
join all_ins m
on i.iid = m.iid
group by i.iid
having max(m.num)>= all (select max(num) from all_ins)
```