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));

**--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));

**--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);

**--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

if new.passed = 0 and coalesce(new.violations, '') <> ''

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' שאילתות

## 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

where m.city = r.city and m.address <> r.address

## 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

where al.month\_ins = m.month\_ins)

## 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)