```
create table person (pid  integer,
                     name text,
                     city text,
                     birthYear integer,
                     primary key (pid));


insert into person values
  (1,'Nick','NewYork',1990),
  (2,'Deepa','Indianapolis',1985),
  (3,'Eric','NewYork',1990),
  (4,'Ryan','Indianapolis',1995),
  (5,'Hasan','Indianapolis',1990),
  (6,'Arif','Indianapolis',1980),
  (7,'Ryan','Chicago',1980),
  (8,'Jean','SanFransisco',2000),
  (9,'Aya','SanFransisco',1985),
  (10,'Lisa','NewYork',2000),
  (11,'Arif','Chicago',1990),
  (12,'Deepa','Bloomington',1990),
  (13,'Nick','SanFransisco',1980),
  (14,'Ryan','Indianapolis',1990),
  (15,'Nick','Indianapolis',1990),
  (16,'Anna','Chicago',1980),
  (17,'Lisa','Bloomington',1990),
  (18,'Ryan','Bloomington',1995),
  (19,'Lisa','Chicago',1980),
  (20,'Danielle','Indianapolis',1985),
  (21,'Eric','Chicago',1980),
  (22,'Anna','Indianapolis',1985),
  (23,'Chris','Bloomington',1990),
  (24,'Aya','NewYork',1995),
  (25,'Arif','SanFransisco',1990),
  (26,'Anna','Bloomington',2000),
  (27,'Latha','SanFransisco',2000),
  (28,'Eric','Bloomington',2000),
  (29,'Linda','Bloomington',1990),
  (30,'Aya','NewYork',1995),
  (31,'Aya','NewYork',1996),
  (32,'Anna','Bloomington',1985);


create table knows (pid1 integer,
                    pid2 integer,
                    primary key(pid1, pid2),
                    foreign key (pid1) references person(pid),
                    foreign key (pid2) references person(pid));

insert into knows values
  (5,22),
  (15,28),
  (10,27),
  (11,27),
  (13,14),
  (11,14),
  (5,28),
  (1,26),
  (18,24),
```

(24,5),
(6,26),
(15,7),
(15,25),
(19,27),
(10,5),
(11,19),
(20,22),
(27,23),
(24,29),
(4,10),
(26,12),
(13,15),
(19,4),
(20,10),
(10,6),
(1,7),
(17,23),
(9,26),
(3,10),
(21,29),
(27,15),
(12,13),
(16,3),
(14,24),
(14,28),
(12,4),
(15,8),
(4,28),
(18,11),
(12,16),
(30,12),
(4,9),
(4,8),
(29,13),
(29,20),
(24,18),
(16,13),
(30,17),
(23,22),
(7,16),
(29,22),
(26,3),
(28,30),
(25,10),
(3,22),
(22,21),
(30,3),
(1,20),
(19,11),
(29,15),
(13,30),
(11,12),
(1,5),
(13,18),
(24,19),
(30,10),
(4,12),
(24,11),

```
  (18,22),
  (3,2),
  (4,3),
  (12,23),
  (25,24),
  (17,20),
  (28,10),
  (8,17),
  (15,13),
  (1,9),
  (6,18),
  (3,4),
  (4,19),
  (24,23),
  (27,3),
  (12,5),
  (12,2),
  (26,22),
  (30,15),
  (20,13),
  (28,14),
  (14,5),
  (1,10),
  (7,9),
  (27,22),
  (12,11),
  (16,20),
  (12,3),
  (17,7),
  (2,14),
  (18,25),
  (16,24),
  (16,15),
  (31,14),
  (32,14),
  (32,7),
  (31,7);

create table company(cname text,
                     city  text,
                     primary key (cname, city));

insert into company values
  ('Amazon','NewYork'),
  ('IBM','NewYork'),
  ('Amazon','Indianapolis'),
  ('Amazon','Bloomington'),
  ('Intel','NewYork'),
  ('Netflix','Indianapolis'),
  ('Yahoo','Indianapolis'),
  ('Google','Bloomington'),
  ('Apple','Indianapolis'),
  ('Hulu','Chicago'),
  ('Hulu','NewYork'),
  ('Yahoo','Chicago'),
  ('Intel','Bloomington'),
  ('Google','Chicago'),
  ('Zoom','Chicago'),
  ('Yahoo','NewYork'),
```

```
  ('Yahoo','Bloomington'),
  ('Netflix','Bloomington'),
  ('Microsoft','Chicago'),
  ('Netflix','NewYork'),
  ('Microsoft','Indianapolis'),
  ('Zoom','SanFransisco'),
  ('Netflix','SanFrancisco'),
  ('Yahoo','SanFrancisco'),
  ('IBM','SanFrancisco'),
  ('Uber','Bloomington');

create table worksfor(pid    integer,
                      cname  text,
                      salary integer,
                      primary key(pid),
                      foreign key (pid) references person(pid));

insert into worksfor values
  (1,'IBM',60000),
  (2,'Hulu',50000),
  (3,'Amazon',45000),
  (4,'Microsoft',60000),
  (5,'Amazon',40000),
  (6,'IBM',50000),
  (7,'IBM',50000),
  (8,'Netflix',45000),
  (9,'Yahoo',50000),
  (10,'Hulu',40000),
  (11,'Apple',40000),
  (12,'Netflix',55000),
  (13,'Apple',40000),
  (14,'IBM',50000),
  (15,'IBM',40000),
  (16,'Apple',55000),
  (17,'Google',45000),
  (18,'Amazon',45000),
  (19,'Zoom',45000),
  (20,'Microsoft',55000),
  (21,'Hulu',55000),
  (22,'IBM',40000),
  (23,'Apple',40000),
  (24,'Google',45000),
  (25,'Hulu',50000),
  (26,'Intel',55000),
  (27,'Intel',50000),
  (28,'Intel',50000),
  (29,'Google',60000),
  (30,'Intel',60000),
  (31,'Uber',50000),
  (32,'Uber',60000);

create table jobskill(skill text,
                      primary key(skill));

insert into jobskill values
  ('Programming'),
  ('Databases'),
  ('AI'),
  ('Networks'),
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```
  ('Mathematics'),
  ('Accounting');

create table personskill(pid integer,
                         skill text,
                         primary key(pid,skill),
                         foreign key (pid) references person(pid),
                         foreign key (skill) references jobskill(skill));

insert into personskill values
  (27,'Databases'),
  (27,'AI'),
  (19, 'Databases'),
  (19, 'Accounting'),
  (19,'Mathematics'),
  (27,'Programming'),
  (18,'Mathematics'),
  (10,'AI'),
  (29,'Networks'),
  (23,'AI'),
  (4,'AI'),
  (1,'Databases'),
  (10,'Networks'),
  (9,'Programming'),
  (13,'Networks'),
  (9,'AI'),
  (27,'Mathematics'),
  (20,'AI'),
  (29,'Databases'),
  (5,'Programming'),
  (26,'Databases'),
  (1,'Networks'),
  (28,'AI'),
  (15,'Programming'),
  (16,'Mathematics'),
  (12,'Databases'),
  (15,'Databases'),
  (24,'Programming'),
  (14,'AI'),
  (25,'Networks'),
  (13,'AI'),
  (12,'Programming'),
  (22,'Programming'),
  (7,'Mathematics'),
  (10,'Programming'),
  (16,'Databases'),
  (19,'Programming'),
  (7,'Programming'),
  (22,'AI'),
  (5,'Databases'),
  (2,'Mathematics'),
  (14,'Programming'),
  (26,'Networks'),
  (19,'Networks'),
  (21,'Programming'),
  (14,'Mathematics'),
  (19,'AI'),
  (2,'Networks'),
  (8,'Databases'),
```

```
  (13,'Mathematics'),
  (29,'Programming'),
  (3,'AI'),
  (16,'Networks'),
  (5,'Networks'),
  (17,'AI'),
  (24,'Databases'),
  (2,'Databases'),
  (27,'Networks'),
  (28,'Databases'),
  (30,'Databases'),
  (4,'Networks'),
  (6,'Networks'),
  (17,'Networks'),
  (23,'Programming'),
  (20,'Programming'),
  (31,'Programming'),
  (32,'Databases'),
  (32,'Accounting'),
  (6, 'Databases');

\qecho 'Question 1'
-- Find the cname of each company that employs persons who live in Bloomington or
in Indianapolis.

SELECT DISTINCT w.cname FROM worksfor w INNER JOIN person p ON w.pid = p.pid AND
p.city = 'Bloomington' OR p.city = 'Indianapolis' ORDER BY cname;

\qecho 'Question 2'
-- Find the pid and name of each person who (a) works for a company located in
`Bloomington' and (b) knows as person who lives in `Chicago'.

SELECT DISTINCT p.pid, p.name FROM person p, person p2, worksfor w, knows k,
company c WHERE p.pid = k.pid1 AND p2.pid = k.pid2 AND k.pid1 = w.pid AND w.cname =
c.cname AND c.city = 'Bloomington' AND p2.city = 'Chicago';


\qecho 'Question 3 (ASK BEFORE TURNING IN)'
-- Find each job skill that is not the job skill of any person who works for
`Yahoo' or for `Netflix'.

SELECT DISTINCT ps.skill FROM personskill ps INNER JOIN worksfor w ON ps.pid =
w.pid AND ps.skill NOT IN (SELECT ps.skill FROM worksfor w, personskill ps WHERE
w.cname = 'Netflix' OR w.cname = 'Yahoo');


\qecho 'Question 4'
-- Find the pid and name of each person who knows all the persons who (a) work at
Netflix, (b) make at least 55000, and (c) are born after 1985.

SELECT DISTINCT p.pid, p.name FROM person p, person p2, knows k, worksfor w WHERE
p.pid = k.pid1 AND p2.pid = k.pid2 AND k.pid2 = w.pid AND w.cname = 'Netflix' AND
w.salary >= 55000 AND p.birthYear = assignment4cmtidmar=# SELECT DISTINCT p.pid,
p.name FROM person p, person p2, knows k, worksfor w WHERE p.pid = k.pid1 AND
p2.pid = k.pid2 AND k.pid2 = w.pid ANary >= 55000 AND p.birthYear > 1985;


\qecho 'Question 6'
-- Find the pid and name of each person who does not know any person who has a
```

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salary strictly above 55000.

SELECT DISTINCT p.pid, p.name FROM person p, person p2, knows k, worksfor w WHERE
p.pid = k.pid1 AND p2.pid = k.pid2 AND k.pid2 = w.pid AND w.salary <= 55000 ORDER
BY pid;

\qecho 'Question 7'
-- Find the pid of each person who has a salary that is strictly below that of any
person who has the Accounting jobskill.

 SELECT DISTINCT p.pid FROM person p, person p2, worksfor w, worksfor w2,
personskill ps WHERE p.pid = w.pid AND p2.pid = w2.pid AND w2.pid = ps.pid AND
ps.skill = 'Accounting' AND w.salary < w2.salary;

\qecho 'Question 8'
-- Find the pairs (c, p) where c is the cname of a company that only employs
persons who make more than 50000 and where p is the pid of a person who works at
that company and who knows someone who works for IBM.

SELECT DISTINCT c.cname, p.pid FROM company c, worksfor w, person p, person p2,
knows k, worksfor w2 WHERE c.cname = w.cname AND w.salary > 50000 AND p.pid = w.pid
AND w.pid = k.pid1 AND p2.pid = k.pid2 AND k.pid2 = w2.pid AND w2.cname = 'IBM';


\qecho 'Question 9'
-- Find the pid and name of each person who works for IBM and who has a strictly
higher salary than some other person who he or she knows and who also works for
IBM.

SELECT DISTINCT p.pid, p.name FROM person p, person p2, worksfor w, worksfor w2,
knows k WHERE p.pid = k.pid1 AND p2.pid = k.pid2 AND k.pid1 = w.pid AND w.cname =
'IBM' AND k.pid2 = w2.pid AND w2.cname = 'IBM' AND w.salary > w2.salary;
```