

DBMS LAB4

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Problem Statement 1:

```
SQL Shell (psql)
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
Password for user postgres:
psql (13.4)
WARNING: Console code page (437) differs from Windows code page (1252)
8-bit characters might not work correctly. See psql reference
page "Notes for Windows users" for details.
Type "help" for help.

postgres=# create database sreyahsri_lab4;
CREATE DATABASE

postgres=# \c sreyahsri_lab4
You are now connected to database "sreyahsri_lab4" as user "postgres".
```

CREATING TABLES AND ADDING CONSTRAINTS:

```
sreyahsri_lab4=# create table employee0434(fname char(20), minit char(20), lname char(20), ssn varchar(10) primary key, bdate varchar(10), address varchar(20), gender char(10), salary int, super_ssn varchar(10), dno varchar(10));
CREATE TABLE
sreyahsri_lab4=# alter table employee0434 add constraint fk foreign key(super_ssn) references employee0434(ssn);
ALTER TABLE
```

```
sreyahsri_lab4=# \d employee0434
Table "public.employee0434"
Column | Type | Collation | Nullable | Default
-----+-----+-----+-----+-----
fname | character(20) | | not null |
minit | character(20) | | |
lname | character(20) | | not null |
ssn | character varying(10) | | not null |
bdate | character varying(10) | | |
address | character varying(20) | | |
gender | character(10) | | |
salary | integer | | |
super_ssn | character varying(10) | | |
dno | character varying(10) | | |
Indexes:
    "employee0434_pkey" PRIMARY KEY, btree (ssn)
Foreign-key constraints:
    "fk" FOREIGN KEY (super_ssn) REFERENCES employee0434(ssn)
    "fk_2" FOREIGN KEY (dno) REFERENCES department0434(dnumber)
Referenced by:
    TABLE "employee0434" CONSTRAINT "fk" FOREIGN KEY (super_ssn) REFERENCES employee0434(ssn)
    TABLE "works_on0434" CONSTRAINT "fk_4" FOREIGN KEY (essn) REFERENCES employee0434(ssn)
    TABLE "dependent0434" CONSTRAINT "fk_5" FOREIGN KEY (essn) REFERENCES employee0434(ssn)
```

```
sreyahsri_lab4=# create table department0434(dname char(20) unique, dnumber varchar(10) unique, mgr_ssn char(20), mgr_start_date varchar(10));
CREATE TABLE
sreyahsri_lab4=# \d department0434
          Table "public.department0434"
  Column      |      Type      | Collation | Nullable | Default
-----+-----+-----+-----+-----
dname         | character(20)   |           |          |
dnumber       | character varying(10) |         |          |
mgr_ssn       | character(20)   |           |          |
mgr_start_date | character varying(10) |         |          |
Indexes:
    "department0434_dname_key" UNIQUE CONSTRAINT, btree (dname)
    "department0434_dnumber_key" UNIQUE CONSTRAINT, btree (dnumber)
```

```
sreyahsri_lab4=# create table dept_locations0434(dnumber varchar(10), dlocation char(20), primary key(dnumber, dlocation));
CREATE TABLE
sreyahsri_lab4=# alter table dept_locations0434 add constraint fk_1 foreign key (dnumber) references department0434(dnumber);
ALTER TABLE
sreyahsri_lab4=# \d dept_locations
Did not find any relation named "dept_locations".
sreyahsri_lab4=# \d dept_locations0434
          Table "public.dept_locations0434"
  Column      |      Type      | Collation | Nullable | Default
-----+-----+-----+-----+-----
dnumber       | character varying(10) |         | not null |
dlocation     | character(20)       |         | not null |
Indexes:
    "dept_locations0434_pkey" PRIMARY KEY, btree (dnumber, dlocation)
Foreign-key constraints:
    "fk_1" FOREIGN KEY (dnumber) REFERENCES department0434(dnumber)
```

```
sreyahsri_lab4=# alter table employee0434 add constraint fk_2 foreign key (dno) references department0434(dnumber);
ALTER TABLE
sreyahsri_lab4=# create table project0434(pname char default 'brain computing', pnumber varchar(10) unique, plocation varchar(10), dnum varchar(10), primary key(plocation));
CREATE TABLE
sreyahsri_lab4=# \d project0434
          Table "public.project0434"
  Column      |      Type      | Collation | Nullable |      Default
-----+-----+-----+-----+-----
pname         | character(1)    |           |          | 'brain computing'::bpchar
pnumber       | character varying(10) |         |          |
plocation     | character varying(10) |         | not null |
dnum          | character varying(10) |         |          |
Indexes:
    "project0434_pkey" PRIMARY KEY, btree (plocation)
    "project0434_pnumber_key" UNIQUE CONSTRAINT, btree (pnumber)
```

```
sreyahsri_lab4=# alter table project0434 add constraint fk_3 foreign key (dnum) references department0434(dnumber);
ALTER TABLE
sreyahsri_lab4=# create table works_on0434(essn varchar(10), pno varchar(10), hours int, primary key(essn,pno));
CREATE TABLE
```

```

sreyahsri_lab4=# alter table works_on0434 add constraint fk_4 foreign key (essn) references employee0434(ssn);
ALTER TABLE
sreyahsri_lab4=# alter table works_on0434 add constraint fk_5 foreign key (pno) references project0434(pnumber);
ALTER TABLE
sreyahsri_lab4=# \d works_on0434
          Table "public.works_on0434"
  Column |          Type          | Collation | Nullable | Default
-----+-----+-----+-----+-----
  essn   | character varying(10) |           | not null |
  pno    | character varying(10) |           | not null |
  hours  | integer               |           |          |
Indexes:
    "works_on0434_pkey" PRIMARY KEY, btree (essn, pno)
Foreign-key constraints:
    "fk_4" FOREIGN KEY (essn) REFERENCES employee0434(ssn)
    "fk_5" FOREIGN KEY (pno) REFERENCES project0434(pnumber)

```

```

sreyahsri_lab4=# create table dependent0434(essn varchar(10), dependent_name char(20), gender char(1), bdate date check(bdate<'1985-01-01') , relationship char(20), primary key(essn));
CREATE TABLE
sreyahsri_lab4=# alter table dependent0434 add constraint fk_5 foreign key (essn) references employee0434(ssn);
ALTER TABLE

```

```

sreyahsri_lab4=# \d dependent0434
          Table "public.dependent0434"
  Column |          Type          | Collation | Nullable |          Default
-----+-----+-----+-----+-----
  essn   | character varying(10) |           | not null |
  dependent_name | character(20)       |           |          |
  gender | character(1)         |           |          |
  bdate  | date                 |           |          |
  relationship | character(20)       |           | not null | 'parent'::bpchar
Indexes:
    "dependent0434_pkey" PRIMARY KEY, btree (essn)
Check constraints:
    "dependent0434_bdate_check" CHECK (bdate < '1985-01-01'::date)
Foreign-key constraints:
    "fk_5" FOREIGN KEY (essn) REFERENCES employee0434(ssn)

```

INSERT VALUES:

```
sreyahsri_lab4=# insert into employee0434 values('lillian','moller','gilbreth','fe1','1878-05-24','oakland',
,'female',20000);
INSERT 0 1
sreyahsri_lab4=# insert into employee0434 values('frederick','winslow','taylor','fe2','1856-03-20','germant
own','male',100000);
INSERT 0 1
sreyahsri_lab4=# insert into employee0434 values('emily','warren','roebling','fe3','1843-09-23','cold sprin
g','female',105000);
INSERT 0 1
sreyahsri_lab4=# insert into employee0434 values('apj','abdul','kalam','fe3','1931-10-15','rameswaram','mal
e',300000);
ERROR:  duplicate key value violates unique constraint "employee0434_pkey"
DETAIL:  Key (ssn)=(fe3) already exists.
sreyahsri_lab4=# insert into employee0434 values('apj','abdul','kalam','fe4','1931-10-15','rameswaram','mal
e',300000);
INSERT 0 1
sreyahsri_lab4=# insert into employee0434 values('charles','','babbage','fe5','1791-12-26','london','male',
10000);
INSERT 0 1
sreyahsri_lab4=# insert into employee0434 values('samhitha','','kasibhatta','fe6','2001-09-08','hyderabad',
'female',1000000);
INSERT 0 1
```

```
sreyahsri_lab4=# insert into department0434 values('psychologist','p200','1','2000-01-30');
INSERT 0 1
sreyahsri_lab4=# insert into department0434 values('mech','m050','2','2010-01-20');
INSERT 0 1
sreyahsri_lab4=# insert into department0434 values('civil','cv050','3','1910-01-20');
INSERT 0 1
sreyahsri_lab4=# insert into department0434 values('aerospace','ae20','4','1990-04-20');
INSERT 0 1
sreyahsri_lab4=# insert into department0434 values('cse','cs450','5','1890-04-23');
INSERT 0 1
sreyahsri_lab4=#
sreyahsri_lab4=# insert into department0434 values('eee','ee350','6','2020-06-23');
INSERT 0 1
sreyahsri_lab4=# select * from department0434;
```

dname	dnumber	mgr_ssn	mgr_start_date
psychologist	p200	1	2000-01-30
mech	m050	2	2010-01-20
civil	cv050	3	1910-01-20
aerospace	ae20	4	1990-04-20
cse	cs450	5	1890-04-23
eee	ee350	6	2020-06-23

(6 rows)

```

sreyahsri_lab4=# insert into dept_locations0434(dnumber,dlocation) values('p200','usa');
INSERT 0 1
sreyahsri_lab4=# insert into dept_locations0434(dnumber,dlocation) values('m050','usa');
INSERT 0 1
sreyahsri_lab4=# insert into dept_locations0434(dnumber,dlocation) values('cv050','usa');
INSERT 0 1
sreyahsri_lab4=# insert into dept_locations0434(dnumber,dlocation) values('ae20','india');
INSERT 0 1
sreyahsri_lab4=# insert into dept_locations0434(dnumber,dlocation) values('cs450','uk');
INSERT 0 1
sreyahsri_lab4=# insert into dept_locations0434(dnumber,dlocation) values('ee350','india');
INSERT 0 1
sreyahsri_lab4=# select * from dept_locations0434;

```

dnumber	dlocation
p200	usa
m050	usa
cv050	usa
ae20	india
cs450	uk
ee350	india

```

(6 rows)

```

```

sreyahsri_lab4=# insert into project0434 values('1' ,'psy01','mit','p200');
INSERT 0 1
sreyahsri_lab4=# insert into project0434 values('2' ,'me01','berkley','m050');
INSERT 0 1
sreyahsri_lab4=# insert into project0434 values('3' ,'cv05','kyoto','cv050');
INSERT 0 1
sreyahsri_lab4=# insert into project0434 values('4' ,'xy43','isro','ae20');
INSERT 0 1
sreyahsri_lab4=# insert into project0434 values('5' ,'frhro','stanford','cs450');
INSERT 0 1
sreyahsri_lab4=# insert into project0434 values('6' ,'ocs9','osmania','ee350');
INSERT 0 1
sreyahsri_lab4=# select * from project0434;

```

	pname	pnumber	plocation	dnum
1	psy01	mit	p200	
2	me01	berkley	m050	
3	cv05	kyoto	cv050	
4	xy43	isro	ae20	
5	frhro	stanford	cs450	
6	ocs9	osmania	ee350	

```

(6 rows)

```

```

sreyahsri_lab4=# insert into dependent0434 values('fe1','moller','F','1878-05-24');
INSERT 0 1
sreyahsri_lab4=# insert into dependent0434 values('fe2','taylor','M','1856-03-20');
INSERT 0 1
sreyahsri_lab4=# insert into dependent0434 values('fe3','warren','F','1843-09-23');
INSERT 0 1
sreyahsri_lab4=# insert into dependent0434 values('fe3','sara','F','1844-10-23');
ERROR:  duplicate key value violates unique constraint "dependent0434_pkey"
DETAIL:  Key (essn)=(fe3) already exists.
sreyahsri_lab4=# insert into dependent0434 values('fe4','sara','F','1844-10-23');
INSERT 0 1
sreyahsri_lab4=# insert into dependent0434 values('fe5','babage','M','1714-01-20');
INSERT 0 1
sreyahsri_lab4=# insert into dependent0434 values('fe6','kasibatla','M','1987-01-28');
ERROR:  new row for relation "dependent0434" violates check constraint "dependent0434_bdate_check"
DETAIL:  Failing row contains (fe6, kasibatla, M, 1987-01-28, parent ).
sreyahsri_lab4=# select * from dependent0434;

```

essn	dependent_name	gender	bdate	relationship
fe1	moller	F	1878-05-24	parent
fe2	taylor	M	1856-03-20	parent
fe3	warren	F	1843-09-23	parent
fe4	sara	F	1844-10-23	parent
fe5	babage	M	1714-01-20	parent

```

(5 rows)

```

```

sreyahsri_lab4=# insert into works_on0434 values('fe1','psy01',302);
INSERT 0 1
sreyahsri_lab4=# insert into works_on0434 values('fe2','me01',322);
INSERT 0 1
sreyahsri_lab4=# insert into works_on0434 values('fe3','cv05',922);
INSERT 0 1
sreyahsri_lab4=# insert into works_on0434 values('fe4','xy43',1222);
INSERT 0 1
sreyahsri_lab4=# insert into works_on0434 values('fe5','frhro',984);
INSERT 0 1
sreyahsri_lab4=# insert into works_on0434 values('fe6','ocs9',320);
INSERT 0 1
sreyahsri_lab4=# select * from works_on0434;

```

essn	pno	hours
fe1	psy01	302
fe2	me01	322
fe3	cv05	922
fe4	xy43	1222
fe5	frhro	984
fe6	ocs9	320

```

(6 rows)

```

Problem Statement 2:

a.

```
sreyahsri_lab4=# truncate dependent0434;
TRUNCATE TABLE
sreyahsri_lab4=# select * from dependent0434;
  essn | dependent_name | gender | bdate | relationship
-----+-----+-----+-----+-----
(0 rows)

sreyahsri_lab4=# drop table dependent;
ERROR: table "dependent" does not exist
sreyahsri_lab4=# drop table dependent0434;
DROP TABLE
sreyahsri_lab4=# \d dependent0434
Did not find any relation named "dependent0434".
sreyahsri_lab4=#
```

b.

```
sreyahsri_lab4=# create view member as select * from employee0434 where address = 'oakland';
CREATE VIEW
sreyahsri_lab4=# select * from member
sreyahsri_lab4=# ;
   fname   |   minit   |   lname   |  ssn |   bdate   | address | gender | salary | super_ssn | dno
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
  lillian  |   moller  |  gilbreth |  fe1 | 1878-05-24 | oakland | female |  20000 |           | 
(1 row)

sreyahsri_lab4=# drop view member;
DROP VIEW
sreyahsri_lab4=#
```

c.

```
SQL Shell (psql)
sreyahsri_lab4=# drop view member;
DROP VIEW
sreyahsri_lab4=# create user user1 with password 'user1' createdb;
CREATE ROLE
sreyahsri_lab4=# create user user2 with password 'user2' createdb;
CREATE ROLE
sreyahsri_lab4=# grant select on employee0434 to user1;
GRANT
sreyahsri_lab4=# select * from employee0434;
   fname   |   minit   |   lname   |  ssn |   bdate   | address | gender | salary | super_ssn | dno
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
  lillian  |   moller  |  gilbreth |  fe1 | 1878-05-24 | oakland | female |  20000 |           | 
 frederick |  winslow  |   taylor  |  fe2 | 1856-03-20 | germantown | male | 100000 |           | 
   emily   |  warren   |  roebbing |  fe3 | 1843-09-23 | cold spring | female | 105000 |           | 
    apj    |  abdul   |   kalam   |  fe4 | 1931-10-15 | rameswaram | male | 300000 |           | 
  charles  |           |  babbage  |  fe5 | 1791-12-26 | london | male |  10000 |           | 
 samhitha  |           | kasibhatta |  fe6 | 2001-09-08 | hyderabad | female | 1000000 |           | 
(6 rows)

sreyahsri_lab4=# grant insert on department0434 to user2;
GRANT
sreyahsri_lab4=# create user user3 with password 'user3' createdb;
CREATE ROLE
sreyahsri_lab4=# grant all on all tables in schema public to user3;
GRANT
sreyahsri_lab4=# create user user4 with password 'user4' createdb;
CREATE ROLE
sreyahsri_lab4=# grant select,delete,update on employee0434, department0434 to user4;
GRANT
sreyahsri_lab4=#
```

d.

```
sreyahsri_lab4=# alter table employee0434 add joinate date;
```

```
ALTER TABLE
```

```
sreyahsri_lab4=# \d employee0434
```

Table "public.employee0434"				
Column	Type	Collation	Nullable	Default
fname	character(20)		not null	
minit	character(20)			
lname	character(20)		not null	
ssn	character varying(10)		not null	
bdate	character varying(10)			
address	character varying(20)			
gender	character(10)			
salary	integer			
super_ssn	character varying(10)			
dno	character varying(10)			
joinate	date			

Indexes:

"employee0434_pkey" PRIMARY KEY, btree (ssn)

Foreign-key constraints:

"fk" FOREIGN KEY (super_ssn) REFERENCES employee0434(ssn)

"fk_2" FOREIGN KEY (dno) REFERENCES department0434(dnumber)

Referenced by:

TABLE "employee0434" CONSTRAINT "fk" FOREIGN KEY (super_ssn) REFERENCES employee0434(ssn)

TABLE "works_on0434" CONSTRAINT "fk_4" FOREIGN KEY (essn) REFERENCES employee0434(ssn)

```
sreyahsri_lab4=# alter table employee0434 drop column joinate;
```

```
ALTER TABLE
```

```
sreyahsri_lab4=# \d employee0434
```

Table "public.employee0434"				
Column	Type	Collation	Nullable	Default
fname	character(20)		not null	
minit	character(20)			
lname	character(20)		not null	
ssn	character varying(10)		not null	
bdate	character varying(10)			
address	character varying(20)			
gender	character(10)			
salary	integer			
super_ssn	character varying(10)			
dno	character varying(10)			

Indexes:

"employee0434_pkey" PRIMARY KEY, btree (ssn)

Foreign-key constraints:

"fk" FOREIGN KEY (super_ssn) REFERENCES employee0434(ssn)

"fk_2" FOREIGN KEY (dno) REFERENCES department0434(dnumber)

Referenced by:

TABLE "employee0434" CONSTRAINT "fk" FOREIGN KEY (super_ssn) REFERENCES employee0434(ssn)

TABLE "works_on0434" CONSTRAINT "fk_4" FOREIGN KEY (essn) REFERENCES employee0434(ssn)