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**Week4 DBMS Lab Deliverables**

**DISCLAIMER: The Database name and table name contain the last 3 digits of my SRN PES1UG19CS123.**

**PROBLEM STATEMENT 1.**

**CREATE TABLE EMPLOYEE WITH PRIMARY KEY:**

```
week4_lab_123=# create table employee_123 (  
Fname varchar(50) not null,  
Minit char,  
Lname varchar(15) not null,  
Ssn char(10) primary key not null,  
Bdate date check (Bdate < '1985-01-01') not null,  
Address text not null,  
Sex varchar(50),  
Salary decimal(15,2) not null,  
Super_ssn char(10),  
Dno int not null  
);  
CREATE TABLE  
week4_lab_123=#
```

**CREATE TABLE DEPARTMENT WITH PRIMARY KEY:**

```
week4_lab_123=# create table department_123(  
Dname varchar(15) not null,  
Dnumber int not null primary key,  
Mgr_ssn char(10) not null,  
Mgr_start_date date  
);
```

## ADD FOREIGN KEY CONSTRAINT USING ALTER

```
week4_lab_123=# alter table employee_123
week4_lab_123=# add constraint fk_2
week4_lab_123=# Foreign Key (Super_ssn)
week4_lab_123=# References employee_123 (ssn);
ALTER TABLE
```

```
week4_lab_123=# alter table employee_123
add constraint fk_1
Foreign key (Dno)
References Department_123 (Dnumber)
;
ALTER TABLE
week4_lab_123=#
```

## CREATE TABLE DEPARTMENT LOCATIONS

```
week4_lab_123=# create table dept_locations_123(
week4_lab_123(# Dnumber int not null unique,
week4_lab_123(# Dlocation varchar(50) not null unique,
week4_lab_123(# primary key (Dnumber,Dlocation),
week4_lab_123(# foreign key (Dnumber) references department_123(Dnumber)
week4_lab_123(# );
CREATE TABLE
week4_lab_123=#
```

## ADD FOREIGN KEY CONSTRAINT

```
week4_lab_123=# alter table department_123
week4_lab_123=# add constraint fk_1
week4_lab_123=# Foreign key (Mgr_ssn)
week4_lab_123=# References employee_123 (Ssn);
ALTER TABLE
week4_lab_123=#
```

## CREATE TABLE PROJECT WITH PRIMARY KEY:

```
week4_lab_123=# create table project_123(  
week4_lab_123(# Pname text default 'mern_stk_proj1',  
week4_lab_123(# Pnumber int not null,  
week4_lab_123(# Plocation varchar(50) not null,  
week4_lab_123(# Dnum int,  
week4_lab_123(# primary key(Pnumber,Plocation)  
week4_lab_123(# );  
CREATE TABLE
```

## CREATE TABLE WORKS ON WITH PRIMARY KEY:

```
week4_lab_123=# create table works_on_123(  
Essn character(10) not null,  
Pno int not null,  
Hours int,  
Primary key(Essn,Pno)  
);  
CREATE TABLE
```

## ADD MULTIPLE FOREIGN KEYS:

```
CREATE TABLE  
week4_lab_123=# alter table works_on_123  
week4_lab_123-# add constraint fk_1  
week4_lab_123-# Foreign key(Essn)  
week4_lab_123-# references employee_123 (ssn),  
week4_lab_123-# add constraint fk_2  
week4_lab_123-# Foreign key(Pno)  
week4_lab_123-# references project_123(Pnumber);  
ALTER TABLE
```

## CREATE TABLE DEPENDENT

```
week4_lab_123=# create table dependent_123(  
week4_lab_123(# Essn character(10) not null,  
week4_lab_123(# Dependent_name text not null,  
week4_lab_123(# Sex text,  
week4_lab_123(# Bdate date check(Bdate < '1985-01-01') not null,  
week4_lab_123(# Relationship text not null default 'parent'  
week4_lab_123(# );  
CREATE TABLE
```

## ADD FOREIGN KEYS:

```
week4_lab_123=# alter table dependent_123  
week4_lab_123-# add constraint fk_1  
week4_lab_123-# Foreign key(Essn)  
week4_lab_123-# references employee_123(ssn)  
week4_lab_123-# ;  
ALTER TABLE
```

## PROBLEM STATEMENT 2.

### DROP TABLE

```
week4_lab_123=# create table test_table_123(
name text,
srn text
);
CREATE TABLE
week4_lab_123=# drop table test_table_123;
DROP TABLE
week4_lab_123=# \d test_table_123;
Did not find any relation named "test_table_123".
```

### TRUNCATE TABLE:

```
week4_lab_123=# create table test_table_123(
name text,
srn text
);
CREATE TABLE
week4_lab_123=# truncate table test_table_123;
TRUNCATE TABLE
week4_lab_123=# \d test_table_123;
           Table "public.test_table_123"
  Column  | Type   | Collation | Nullable | Default
-----+-----+-----+-----+-----
 name    | text   |           |          |
 srn     | text   |           |          |
```

### TRYING TO INSERT NULL VALUES INTO NOT NULL COLUMN:

```
week4_lab_123=# insert into dept_locations_123
(Dnumber)
values (3);
ERROR:  null value in column "dlocation" violates not-null constraint
DETAIL:  Failing row contains (3, null).
week4_lab_123=#
```

DEFAULT VALUE COLUMN OF PROJECT:

```
week4_lab_123=# insert into project_123(pnumber,plocation)
values (7,'abu dabhi')
;
INSERT 0 1
week4_lab_123=# select * from project_123;
      pname      | pnumber | plocation | dnum
-----+-----+-----+-----
 mern_stk_proj1 |        7 | abu dabhi |
(1 row)
```

TRYING TO VIOLATE CHECK CONSTRAINT:

```
week4_lab_123=# insert into employee_123
(fname,lname,ssn,bdate,address,salary,dno)
values ('chandradhar','.', 'abdefc123','2000-07-01','bang',100,1);
ERROR:  new row for relation "employee_123" violates check constraint "employee_123_
bdate_check"
DETAIL:  Failing row contains (chandradhar, null, ., abdefc123, 2000-07-01, bang, n
ull, 100.00, null, 1).
week4_lab_123=#
```

INSERTING VALUES INTO EMPLOYEE TABLE :

```
      fname | minit | lname |      ssn      |      bdate      | address | sex | salary | supe
r_ssn | dno
-----+-----+-----+-----+-----+-----+-----+-----+-----
-----+-----
 chandra |      | rao   | abcdefP123 | 1970-01-01 | bang   |     | 100.00 |
      | 1
 john   |      | smith | abcdefP124 | 1965-01-01 | mum    |     | 200.00 |
      | 2
 kristen |      | stewart | abcdefP127 | 1947-01-01 | hyd    |     | 300.00 |
      | 3
(3 rows)
```



## CREATE LOGICAL VIEW EMPLOYEE\_123\_PUBLIC OF ENTIRE TABLE EMPLOYEE\_123:

```
week4_lab_123=# create view employee_123_public as
week4_lab_123=# select fname,lname,ssn,dno
week4_lab_123=# from employee_123;
CREATE VIEW
```

## DISPLAY VIEW:

```
week4_lab_123=# select * from employee_123_public;
  fname  |  lname  |      ssn      | dno
-----+-----+-----+-----
 chandra |   rao   | abcdefP123    |   1
  john   |  smith  | abcdefP124    |   2
 kristen | stewart | abcdefP127    |   3
(3 rows)
```

## CREATE VIEW OF PROJECT TABLE:

```
week4_lab_123=# create view proj_123_view as
select Pname,Plocation,Dnum
from project_123;
CREATE VIEW
week4_lab_123=# select * from proj_123_view;
 pname | plocation | dnum
-----+-----+-----
(0 rows)
```

## DROP PROJECT VIEW:

```
week4_lab_123=# drop view proj_123_view;
DROP VIEW
week4_lab_123=# select * from proj_123_view;
ERROR:  relation "proj_123_view" does not exist
LINE 1: select * from proj_123_view;
                        ^
```

## DROP EMPLOYEE\_VIEW:

```
week4_lab_123=# drop view employee_123_public;
DROP VIEW
week4_lab_123=# select * from employee_123_public;
ERROR:  relation "employee_123_public" does not exist
LINE 1: select * from employee_123_public;
                        ^
```

## CREATE USER USER1 AND GRANT SELECT PRIVILEGE:

```
week4_lab_123=# create user user1 with password 'peslug19cs123' createdb;
CREATE ROLE
```

## BEFORE GRANTING PRIVILEGE FOR SELECT:

```
chandradhar@chandradhar-ASUS-Gaming-FX570UD:~$ sudo -u postgres -i
[sudo] password for chandradhar:
postgres@chandradhar-ASUS-Gaming-FX570UD:~$ psql -h localhost -d week4_lab_123 -U user1;
Password for user user1:
psql (12.8 (Ubuntu 12.8-0ubuntu0.20.04.1))
SSL connection (protocol: TLSv1.3, cipher: TLS_AES_256_GCM_SHA384, bits: 256, compression: off)
Type "help" for help.

week4_lab_123=> select * from employee_123;
ERROR:  permission denied for table employee_123
```

## GRANTING PRIVILEGE:

```
week4_lab_123=# grant select on table employee_123 to user1;
GRANT
```

## AFTER GRANTING SELECT PERMISSION:

```

 fname | minit | lname |  ssn   |  bdate   | address | sex | salary |
super_ssn | dno | joindate
-----+-----+-----+-----+-----+-----+-----+-----+
chandra |    1 |  rao   | abcdefP123 | 1970-01-01 | bang    |    | 100.00 |
john    |    2 | smith  | abcdefP124 | 1965-01-01 | mum     |    | 200.00 |
kristen |    3 | stewart | abcdefP127 | 1947-01-01 | hyd     |    | 300.00 |
(3 rows)
```



## CREATE USER USER2 AND GRANT UPDATE PERMISSION:

```
week4_lab_123=# create user user2 with password '123' createdb;  
CREATE ROLE
```

```
week4_lab_123=# grant update on table department_123 to user2;  
GRANT
```

## ONLY TABLE OWNER IS ALLOWED TO ALTER TABLE IN POSTGRES WHILE IN MYSQL WE CAN PROVIDE ALTER PERMISSION TO THE USER:

```
week4_lab_123=# alter table department_123 owner to user2;  
ALTER TABLE
```

## GRANT ALL PERMISSION ON ALL TABLES TO USER3:

```
week4_lab_123=# grant all privileges on database week4_lab_123 to user3;  
GRANT
```

```
week4_lab_123=# alter table department_123 owner to user3;  
ALTER TABLE
```

```
week4_lab_123=# alter table project_123 owner to user3;  
ALTER TABLE
```

```
week4_lab_123=# alter table employee_123 owner to user3;  
ALTER TABLE
```

```
week4_lab_123=# alter table dependent_123 owner to user3;  
ALTER TABLE
```

```
week4_lab_123=# alter table dept_locations_123 owner to user3;  
ALTER TABLE
```

## REVOKE SELECT PRIVILEGE FROM USER1 ON EMPLOYEE TABLE:

```
week4_lab_123=# revoke select on employee_123 from user1;  
REVOKE
```

```
week4_lab_123=> select * from employee_123;  
ERROR:  permission denied for table employee_123
```

## GRANT DELETE, UPDATE, AND ALTER PERMISSION ON DEPENDENT AND PROJECT TABLE TO USER 4.

```
week4_lab_123=# grant delete,update on table dependent_123 , project_123 to user  
4;  
GRANT
```

```
week4_lab_123=# alter table department_123 owner to user4;  
ALTER TABLE
```

```
week4_lab_123=# alter table project_123 owner to user4;  
ALTER TABLE
```

## ADD NEW COLUMN JOIN DATE WITH CONSTRAINT THAT JOINS DATE > BIRTH DATE OF EMPLOYEE:

```
week4_lab_123=# alter table employee_123
add joinDate date
constraint chk_jd check(joinDate > bdate);
ALTER TABLE
```

## DELETE JOIN DATE COLUMN USING ALTER:

```
week4_lab_123=# alter table employee_123
drop column joinDate;
ALTER TABLE
week4_lab_123=#
```

## ADD NEW COLUMN JOIN DATE WITH CONSTRAINT THAT AGE OF EMPLOYEE > 21 ie YEAR(JOIN\_DATE)-YEAR(BIRTH\_DATE) > 21 USING EXTRACT FUNCTION:

```
week4_lab_123=# alter table employee_123
add joinDate date
constraint chk_age check(extract(year from joinDate)-extract(year from bdate)>21);
ALTER TABLE
```

## TRYING TO INSERT EMPLOYEE WITH AGE LESS THAN 21 YEARS:

```
week4_lab_123=# insert into employee_123
(fname,lname,ssn,bdate,address,salary,dno)
values ('sachin_123','tendu','123456789b','2021-01-01','xxx',500,1);
ERROR:  new row for relation "employee_123" violates check constraint "employee_123_bdate_check"
DETAIL:  Failing row contains (sachin_123, null, tendu, 123456789b, 2021-01-01, xxx, null, 500.00, null, 1, null).
```

## INSERTING EMPLOYEE WITH AGE GREATER THAN 21:

```
week4_lab_123=# insert into employee_123
(fname,lname,ssn,bdate,address,salary,dno)
values ('chandra123','rao','123456789a','1880-01-01','xxx',300,1);
INSERT 0 1
```