1.create table salary:

```
create table salary(payscale integer primary key,
                    salary integer);
```

```
postgres=# create table salary(payscale integer primary key,
                  salary integer);
CREATE TABLE
```

2.create table department:

```
create table department(dno varchar primary key,
                        dname varchar);
```

```
postgres=# create table department(dno varchar primary key,
                   dname varchar);
CREATE TABLE
```

3.create table employee:

```
create table employee(eno varchar primary key,
                      ename varchar,
                      dob date,
                      gender varchar,
                      permanent boolean,
                      payscale integer references salary(payscale),
                      dno varchar references department(dno),
                      joindatetime timestamp);
```

```
postgres=# create table employee(eno varchar primary key,
                  ename varchar,
                  dob date,
                  gender varchar,
                  permanent boolean,
                  payscale integer references salary(payscale),
                  dno varchar references department(dno),
                  joindatetime timestamp);
CREATE TABLE
```

3.insert into employee,salary,department:

```
insert into salary(payscale,salary) values
(1,120000),
```

```
(2,90000),
(3,75000),
(4,50000);

insert into department(dno,dname) values
('ds901','HR'),
('ds902', 'Operations'),
('ds903', 'Implementation'),
('ds904', 'Development');

insert into employee(eno, ename, dob, gender, permanent, payscale, dno, joindatetime) values
('p3s101', 'Shiva', '2002-12-17', 'M', true, 3, 'ds904', now()),
('p3s102', 'Balan', '2001-12-23', 'M', true, 4, 'ds902', now()),
('p3s103', 'Ram', '1998-08-05', 'M', true, 2, 'ds903', now()),
('p3s104', 'Prasath', '1996-03-09', 'M', true, 1, 'ds901', now()),
('p3s105', 'Thambi', '1995-01-12', 'M', false, 2, 'ds902', now()),
('p3s106', 'Velu', '1993-05-22', 'M', true, 3, 'ds904', now()),
('p3s107', 'Guna', '1999-07-11', 'M', true, 1, 'ds901', now()),
('p3s108', 'Sekar', '1992-11-18', 'M', false, 4, 'ds903', now()),
('p3s109', 'Rajan', '2000-10-30', 'M', true, 3, 'ds904', now()),
('p3s110', 'Ravi', '1988-02-17', 'M', true, 1, 'ds901', now()),
('p3s111', 'Mohan', '1994-04-25', 'M', false, 2, 'ds902', now()),
('p3s112', 'Arun', '1997-06-03', 'M', true, 4, 'ds902', now());
```

4.join employee and salary

4.a.inner join

```
select e.eno, e.ename, s.salary
from employee e
inner join salary s on e.payscale = s.payscale;
```

```
postgres=# select e.eno, e.ename, s.salary
from employee e
inner join salary s on e.payscale = s.payscale;
  eno   |  ename  | salary
--------+---------+--------
 p3s101 | Shiva   |  75000
 p3s102 | Balan   |  50000
 p3s103 | Ram     |  90000
 p3s104 | Prasath | 120000
 p3s105 | Thambi  |  90000
 p3s106 | Velu    |  75000
 p3s107 | Guna    | 120000
```

```
 p3s108 | Sekar   |  50000
 p3s109 | Rajan   |  75000
 p3s110 | Ravi    | 120000
 p3s111 | Mohan   |  90000
 p3s112 | Arun    |  50000
(12 rows)
```

4.b.left join

```
select e.eno,e.ename,d.dname
from employee e
left join department d on e.dno = d.dno;
```

```
postgres=# select e.eno,e.ename,d.dname
from employee e
left join department d on e.dno = d.dno;
  eno   |  ename  |     dname
--------+---------+----------------
 p3s101 | Shiva   | Development
 p3s102 | Balan   | Operations
 p3s103 | Ram     | Implementation
 p3s104 | Prasath | HR
 p3s105 | Thambi  | Operations
 p3s106 | Velu    | Development
 p3s107 | Guna    | HR
 p3s108 | Sekar   | Implementation
 p3s109 | Rajan   | Development
 p3s110 | Ravi    | HR
 p3s111 | Mohan   | Operations
 p3s112 | Arun    | Operations
(12 rows)
```

4.c.right join

```
select e.eno,e.ename,d.dname
from employee e
right join department d on e.dno = d.dno;
```

```
postgres=# select e.eno,e.ename,d.dname
from employee e
right join department d on e.dno = d.dno;
  eno   |  ename  |     dname
--------+---------+----------------
 p3s101 | Shiva   | Development
```

```
 p3s102 | Balan   | Operations
 p3s103 | Ram     | Implementation
 p3s104 | Prasath | HR
 p3s105 | Thambi  | Operations
 p3s106 | Velu    | Development
 p3s107 | Guna    | HR
 p3s108 | Sekar   | Implementation
 p3s109 | Rajan   | Development
 p3s110 | Ravi    | HR
 p3s111 | Mohan   | Operations
 p3s112 | Arun    | Operations
(12 rows)
```

4.d.full outer join

```
select e.eno,e.ename,d.dname
from employee e
full outer join department d on e.dno = d.dno;
```

```
postgres=# select e.eno,e.ename,d.dname
from employee e
full outer join department d on e.dno = d.dno;
  eno   |  ename  |     dname
--------+---------+---------------
 p3s101 | Shiva   | Development
 p3s102 | Balan   | Operations
 p3s103 | Ram     | Implementation
 p3s104 | Prasath | HR
 p3s105 | Thambi  | Operations
 p3s106 | Velu    | Development
 p3s107 | Guna    | HR
 p3s108 | Sekar   | Implementation
 p3s109 | Rajan   | Development
 p3s110 | Ravi    | HR
 p3s111 | Mohan   | Operations
 p3s112 | Arun    | Operations
(12 rows)
```

4.e.inner join

```
select e.eno,e.ename,d.dname,s.salary
from employee e
join salary s on e.payscale = s.payscale
join department d on e.dno = d.dno;
```

```
postgres=# select e.eno,e.ename,d.dname,s.salary from employee e join salary s on e.payscale
= s.payscale join department d on e.dno = d.dno;
eno | ename | dname | salary
--------+---------+----------------+--------
p3s101 | Shiva | Development | 75000
p3s102 | Balan | Operations | 50000
p3s103 | Ram | Implementation | 90000
p3s104 | Prasath | HR | 120000
p3s105 | Thambi | Operations | 90000
p3s106 | Velu | Development | 75000
p3s107 | Guna | HR | 120000
p3s108 | Sekar | Implementation | 50000
p3s109 | Rajan | Development | 75000
p3s110 | Ravi | HR | 120000
p3s111 | Mohan | Operations | 90000
p3s112 | Arun | Operations | 50000
(12 rows)
```

5.using where

```
select eno,ename from employee where permanent=true;
```

```
postgres=# select eno,ename from employee where permanent=true;
  eno   |  ename
--------+---------
 p3s101 | Shiva
 p3s102 | Balan
 p3s103 | Ram
 p3s104 | Prasath
 p3s106 | Velu
 p3s107 | Guna
 p3s109 | Rajan
 p3s110 | Ravi
 p3s112 | Arun
(9 rows)
```

6.employee with salary <75000

```
select e.eno,e.ename,s.salary
from employee e
join salary s on e.payscale = s.payscale
where s.salary < 75000;
```

```
postgres=# select e.eno,e.ename,s.salary
from employee e
join salary s on e.payscale = s.payscale
where s.salary < 75000;
  eno   | ename | salary
--------+-------+--------
 p3s102 | Balan |  50000
 p3s108 | Sekar |  50000
 p3s112 | Arun  |  50000
(3 rows)
```

7.top 5 employee with highest salary

```
select e.eno,e.ename,s.salary
from employee e
join salary s on e.payscale = s.payscale
order by s.salary desc
limit 5;
```

```
postgres=# select e.eno,e.ename,s.salary
from employee e
join salary s on e.payscale = s.payscale
order by s.salary desc
limit 5;
  eno   |  ename  | salary
--------+---------+--------
 p3s110 | Ravi    | 120000
 p3s107 | Guna    | 120000
 p3s104 | Prasath | 120000
 p3s103 | Ram     |  90000
 p3s105 | Thambi  |  90000
(5 rows)
```

8.top 2 nd employee with highest salary

```
select e.eno,e.ename,s.salary
from employee e
join salary s on e.payscale = s.payscale
order by s.salary desc
offset 1 limit 1;
```

```
postgres=# select e.eno,e.ename,s.salary
```

```
from employee e
join salary s on e.payscale = s.payscale
order by s.salary desc
offset 1 limit 1;
  eno   | ename | salary
--------+-------+--------
 p3s107 | Guna  | 120000
(1 row)
```

9.alter table adding city coln

```
alter table employee
add column city varchar;
```

```
postgres=# alter table employee
add column city varchar;
ALTER TABLE
```

9.a.updating details

```
update employee set city ='Chennai' where eno = 'p3s101';
update employee set city ='Banglore' where eno = 'p3s102';
update employee set city ='Madurai' where eno = 'p3s103';
update employee set city ='Trichy' where eno = 'p3s104';
update employee set city ='Madurai' where eno = 'p3s105';
update employee set city ='Chennai' where eno = 'p3s106';
update employee set city ='Tuty' where eno = 'p3s107';
update employee set city ='Tuty' where eno = 'p3s108';
update employee set city ='Banglore' where eno = 'p3s109';
update employee set city ='Chennai' where eno = 'p3s110';
update employee set city ='Madurai' where eno = 'p3s111';
update employee set city ='Chennai' where eno = 'p3s112';
```

```
postgres=# update employee set city ='Chennai' where eno = 'p3s101';
update employee set city ='Banglore' where eno = 'p3s102';
update employee set city ='Madurai' where eno = 'p3s103';
update employee set city ='Trichy' where eno = 'p3s104';
update employee set city ='Madurai' where eno = 'p3s105';
update employee set city ='Chennai' where eno = 'p3s106';
update employee set city ='Tuty' where eno = 'p3s107';
update employee set city ='Tuty' where eno = 'p3s108';
update employee set city ='Banglore' where eno = 'p3s109';
update employee set city ='Chennai' where eno = 'p3s110';
```

```
update employee set city ='Madurai' where eno = 'p3s111';
update employee set city ='Chennai' where eno = 'p3s112';
UPDATE 1
UPDATE 1
UPDATE 1
UPDATE 1
UPDATE 1
UPDATE 1
UPDATE 1
UPDATE 1
UPDATE 1
UPDATE 1
UPDATE 1
UPDATE 1
```

10.count of distinct employee living in each city

```
select e.city, count(*) as empcount
from employee e
group by e.city;
```

```
postgres=# select e.city, count(*) as empcount
from employee e
group by e.city;
   city   | empcount
----------+----------
 Trichy   |        1
 Tuty     |        2
 Chennai  |        4
 Banglore |        2
 Madurai  |        3
(5 rows)
```

11. min sal, max sal

```
select min(s.salary) as minsal, max(s.salary) as maxsal
from employee e
join salary s on e.payscale = s.payscale;
```

```
postgres=# select min(s.salary) as minsal, max(s.salary) as maxsal
from employee e
join salary s on e.payscale = s.payscale;
 minsal | maxsal
--------+--------
```

```
  50000 | 120000
(1 row)
```

12.create a view to view all the details

```
create view empdetails as
select e.eno, e.ename, e.dob, e.gender, e.permanent, d.dname as department, s.salary,
e.joindatetime
from employee e
join salary s on e.payscale = s.payscale
join department d on e.dno = d.dno;
```

```
postgres=# create view empdetails as
select e.eno, e.ename, e.dob, e.gender, e.permanent, d.dname as department, s.salary,
e.joindatetime
from employee e
join salary s on e.payscale = s.payscale
join department d on e.dno = d.dno;
CREATE VIEW

  eno   |  ename  |    dob     | gender | permanent |   department   | salary |       joindatetime
--------+---------+------------+--------+-----------+----------------+--------+----------------------------
 p3s101 | Shiva   | 2002-12-17 | M      | t         | Development    |  75000 | 2025-07-22
16:13:35.126714
 p3s102 | Balan   | 2001-12-23 | M      | t         | Operations     |  50000 | 2025-07-22
16:13:35.126714
 p3s103 | Ram     | 1998-08-05 | M      | t         | Implementation |  90000 | 2025-07-22
16:13:35.126714
 p3s104 | Prasath | 1996-03-09 | M      | t         | HR             | 120000 | 2025-07-22
16:13:35.126714
 p3s105 | Thambi  | 1995-01-12 | M      | f         | Operations     |  90000 | 2025-07-22
16:13:35.126714
 p3s106 | Velu    | 1993-05-22 | M      | t         | Development    |  75000 | 2025-07-22
16:13:35.126714
 p3s107 | Guna    | 1999-07-11 | M      | t         | HR             | 120000 | 2025-07-22
16:13:35.126714
 p3s108 | Sekar   | 1992-11-18 | M      | f         | Implementation |  50000 | 2025-07-22
16:13:35.126714
 p3s109 | Rajan   | 2000-10-30 | M      | t         | Development    |  75000 | 2025-07-22
16:13:35.126714
 p3s110 | Ravi    | 1988-02-17 | M      | t         | HR             | 120000 | 2025-07-22
16:13:35.126714
```

```
 p3s111 | Mohan   | 1994-04-25 | M      | f        | Operations     |  90000 | 2025-07-22
16:13:35.126714
 p3s112 | Arun    | 1997-06-03 | M      | t        | Operations     |  50000 | 2025-07-22
16:13:35.126714
(12 rows)
```

13.city wise avg salary

```
select e.city, avg(s.salary) as avgsal
from employee e
join salary s on e.payscale = s.payscale
group by e.city;
```

```
postgres=# select e.city, avg(s.salary) as avgsal
from employee e
join salary s on e.payscale = s.payscale
group by e.city;
   city   |       avgsal
----------+--------------------
 Trichy   | 120000.000000000000
 Tuty     |  85000.000000000000
 Chennai  |  80000.000000000000
 Banglore |  62500.000000000000
 Madurai  |  90000.000000000000
(5 rows)
```

14. create studentdb

```
create table student(
                rollno integer primary key,
                name varchar,
                math integer,
                sci integer,
                soc integer,
                eng integer,
                lang integer,
                total integer);
```

15.function to make total

```
create function make_total()
returns trigger as $$
begin
        new.total := new.math + new.sci + new.soc + new.eng + new.lang;
```

```
        return new;
end;
$$ language plpgsql;

create trigger insert
before insert on student
for each row
execute function make_total();

insert into student (rollno,name,math,sci,soc,eng,lang) values
(20259001,'Shiva',100,98,97,90,100),
(20259002, 'Balan', 89,  95,  88, 91, 87),
(20259003, 'Ram', 100, 100, 100, 90, 95),
(20259004, 'Prasath', 70,  75,  80, 85, 90),
(20259005, 'Thambi', 90,  92,  93, 94, 95),
(20259006, 'Guna',100, 100, 60, 70, 65),
(20259007, 'Velu',80,  88,  84, 90, 91),
(20259008, 'Sekar',55,  60,  65, 70, 75),
(20259009, 'Rajan',90,  100, 100, 80, 85),
(20259010, 'Anbu',100, 95,  100, 88, 89);
```

16.select students who have scored 100 in 2 subjects

```
select rollno,name
from student
where ( case when math = 100 then 1 else 0 end +
        case when sci = 100 then 1 else 0 end +
        case when soc = 100 then 1 else 0 end +
        case when eng = 100 then 1 else 0 end +
        case when lang = 100 then 1 else 0 end ) >= 2;
postgres=# select rollno,name
from student
where ( case when math = 100 then 1 else 0 end +
      case when sci = 100 then 1 else 0 end +
      case when soc = 100 then 1 else 0 end +
      case when eng = 100 then 1 else 0 end +
      case when lang = 100 then 1 else 0 end ) >= 2;
  rollno  | name
----------+-------
 20259001 | Shiva
 20259003 | Ram
 20259006 | Guna
 20259009 | Rajan
```

 20259010 | Anbu
(5 rows)