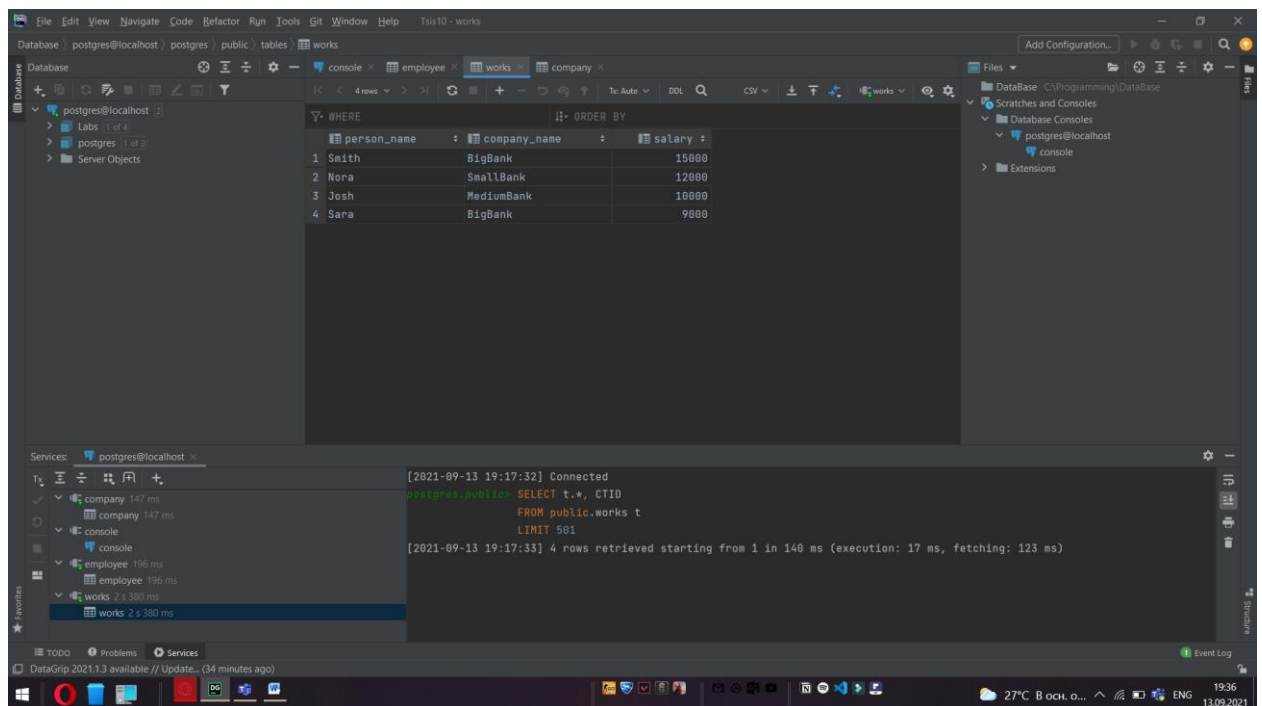
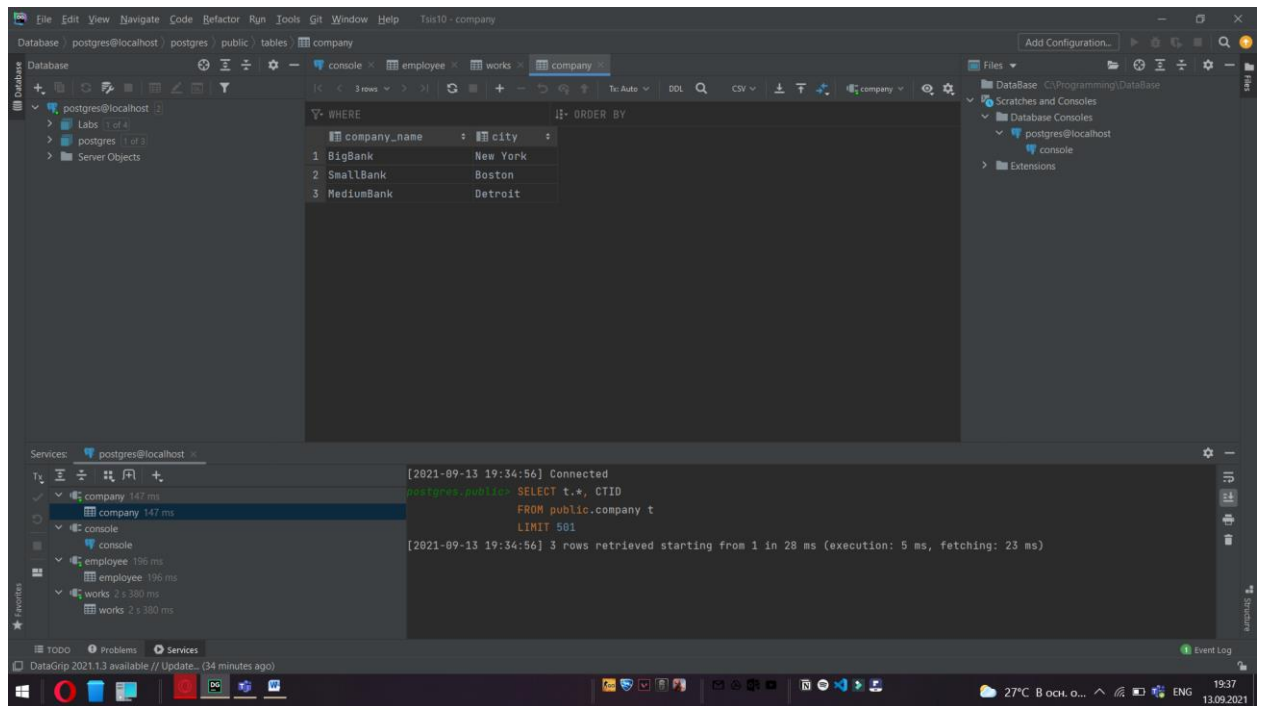


Employee



Works



Company

```

1.1 select ID, person_name from works
where company_name = 'BigBank';
  
```

$$\Pi_{id, person_name} (\sigma_{company_name = 'BigBank'} (works))$$

```

1.2 select e.ID, e.person_name, e.city from employee e, works w
where w.person_name = e.person_name and w.company_name = 'BigBank';
  
```

$$\Pi_{id, person_name, city} (\sigma_{company_name = 'BigBank' \wedge w.person_name = e.person_name} (works \bowtie employee))$$

```

1.3 select e.ID, e.person_name, e.street, e.city from employee e, works w
where w.person_name = e.person_name and w.company_name = 'BigBank' and
w.salary >= 10000;
  
```

$$\Pi_{id, person_name, street, city} (\sigma_{company_name = 'BigBank' \wedge salary > 10000 \wedge w.person_name = e.person_name} (works \bowtie employee))$$

```
1.4 select e.ID, e.person_name from employee e, works w, company c
where e.city = c.city and w.company_name = c.company_name and
w.person_name = e.person_name;
```

$\Pi_{id, person_name} (\sigma_{e.city = c.city \wedge w.company_name = c.company_name \wedge w.person_name = e.person_name} (works \bowtie employee \bowtie company))$

```
2.1 select e.ID, e.person_name from employee e, works w
where w.person_name = e.person_name and w.company_name != 'BigBank';
```

$\Pi_{id, person_name} (\sigma_{company_name \neq 'BigBank'} (works))$

```
2.2 select ID, person_name from works
where salary = (select max(salary) from works);
```

$\Pi_{id, person_name} (\sigma_{salary = \max(salary)} (works))$

```
3. insert into works (person_name, company_name, salary) values ('Travis',
'JustBank', 10000);
```

Inserting a tuple: ('Travis', 'JustBank', 10000) into the works table, where the company table does not have the company_name JustBank, would violate the foreign key constraint.

```
delete from company where company_name = 'BigBank';
```

Deleting the tuple: ('BigBank', 'New York') from the company table, where at least one works person_name tuple has company_name as BigBank, would violate the foreign key constraint.

4. the appropriate primary keys are tuples {ID} and {ID, person_name} in employee table.