

ASSIGNMENT

DBMS Lab

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Company Database



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1. Create Company Database

Create company database

1.1. Source Code

```
create database `Company-191112034`;
```

1.2. Output

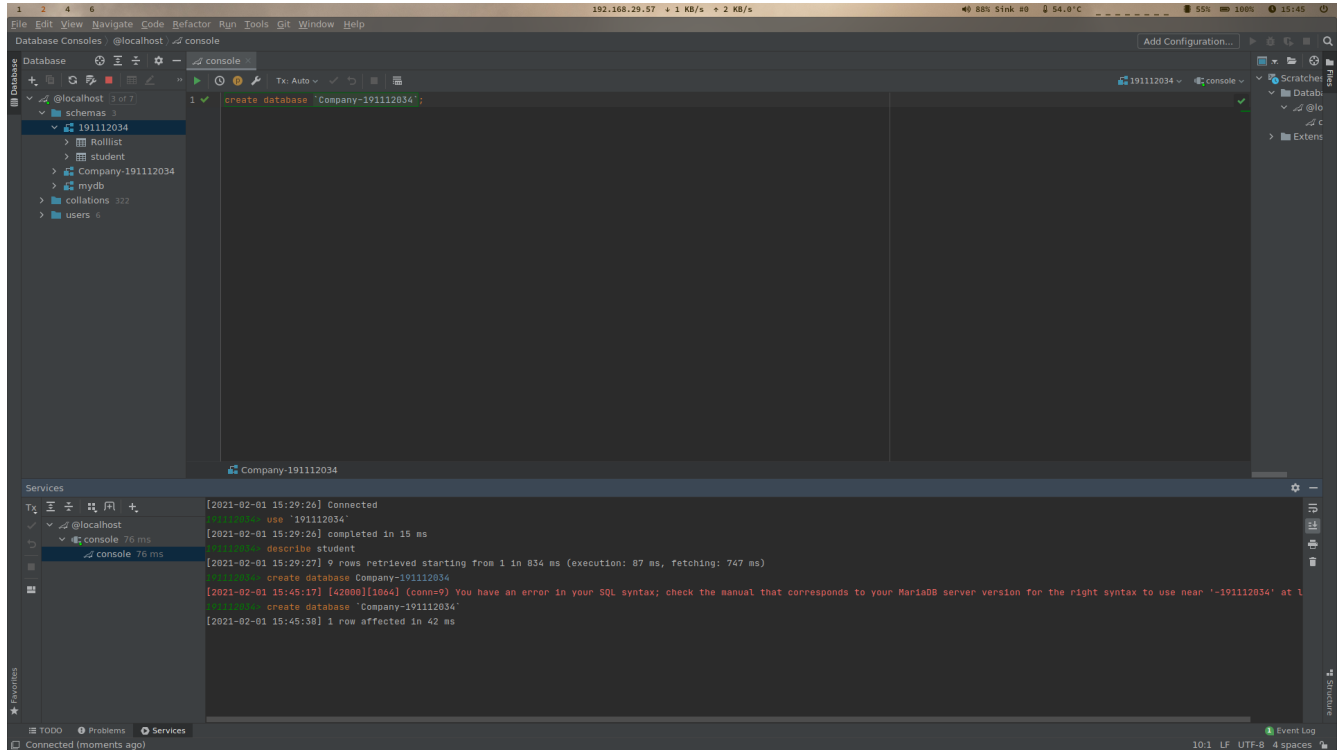


Figure 1: Create Database

2. Create Tables

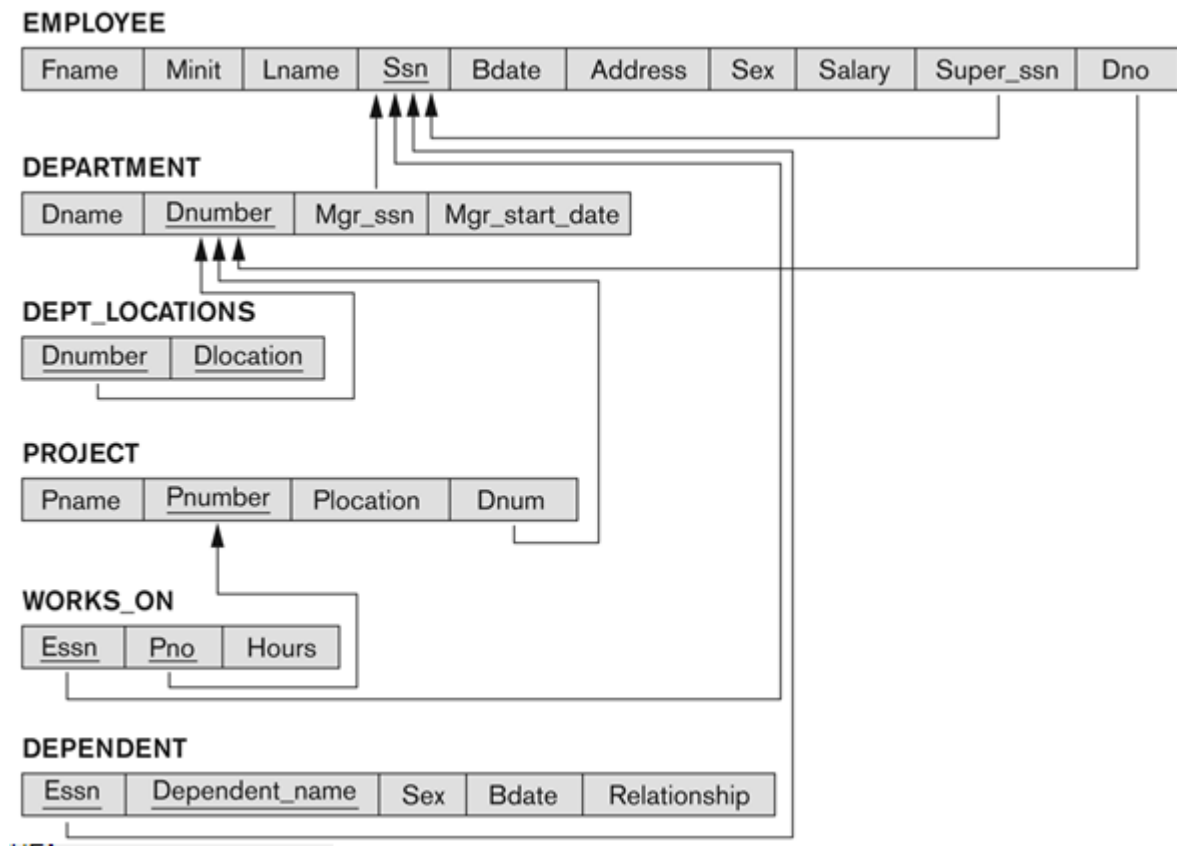


Figure 2: Database Tables

2.1. Employee Table

2.1.1. Source Code

```
create table employee
(
    Fname varchar(30) not null,
    Minit char not null,
    Lname varchar(30) not null,
    Ssn bigint not null,
    Bdate date,
    Address text,
    Sex char,
    Salary decimal,
    Super_ssn bigint,
    Dno int not null,
    primary key (Ssn)
);
```

2.1.2. Output

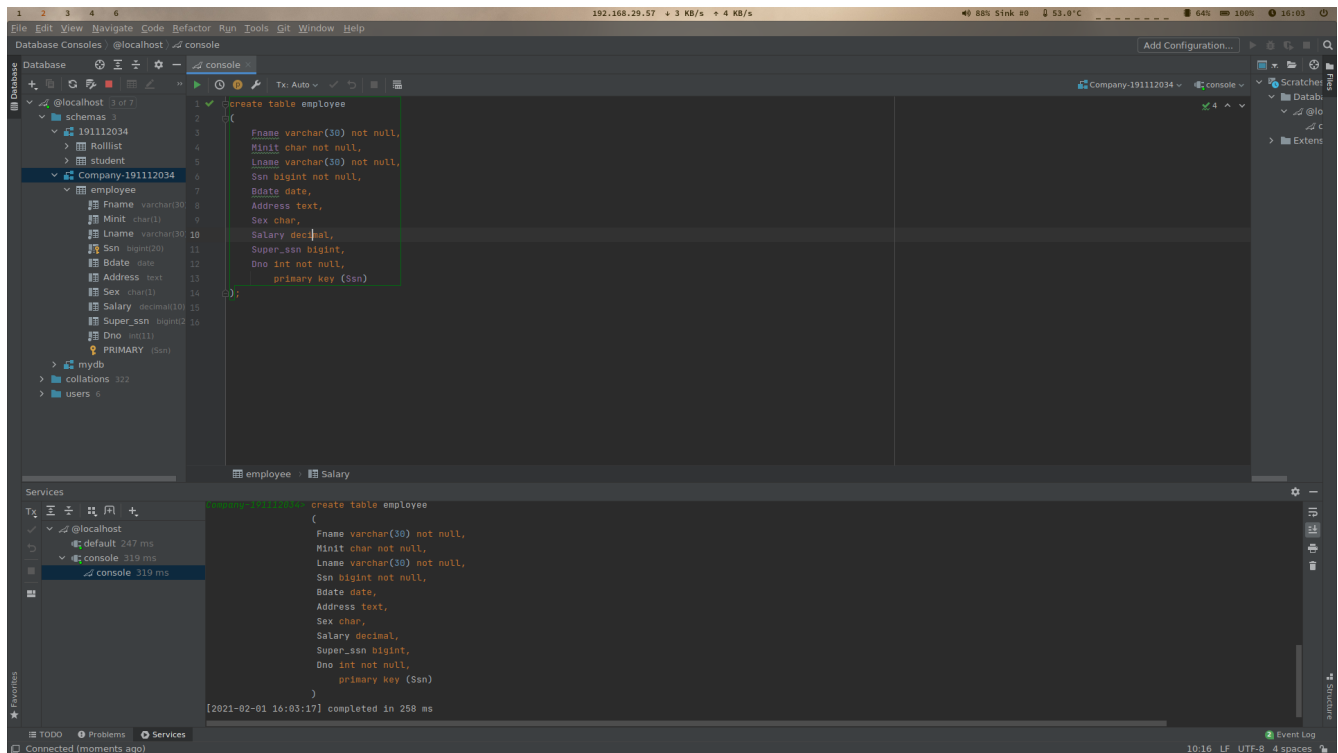


Figure 3: Table employee

2.2. Department Table

2.2.1. Source Code

```
create table department
(
    Dname varchar(30) not null,
    Dnumber int not null,
    Mgr_ssn bigint not null,
    Mgr_start_date date null,
    unique (Dname),
    primary key (Dnumber),
    foreign key (Mgr_ssn) references employee (Ssn)
);
```

2.2.2. Output

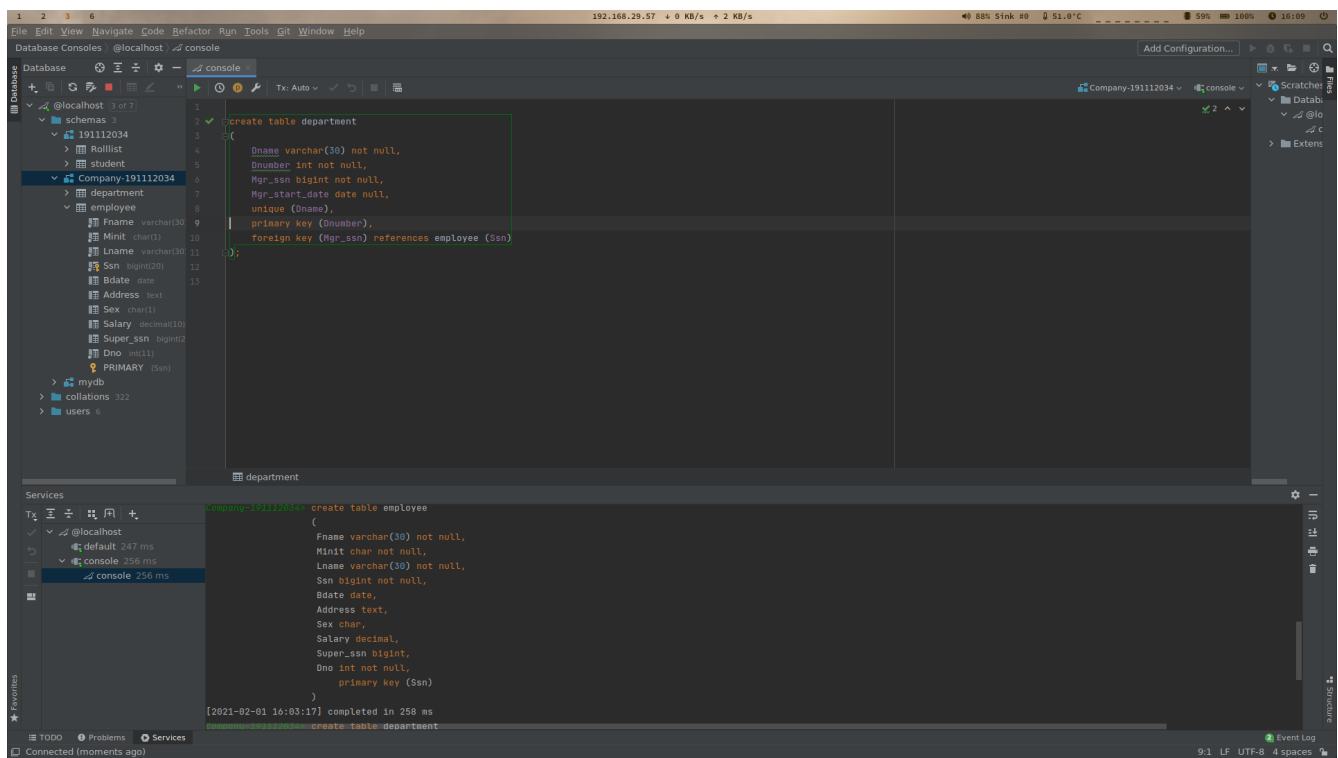


Figure 4: Table department

2.3. Department Locations Table

2.3.1. Source Code

```
create table dept_locations
(
    Dnumber int not null,
    Dlocation varchar(30) not null,
    primary key (Dnumber, Dlocation),
    foreign key (Dnumber) references department (Dnumber)
);
```

2.3.2. Output

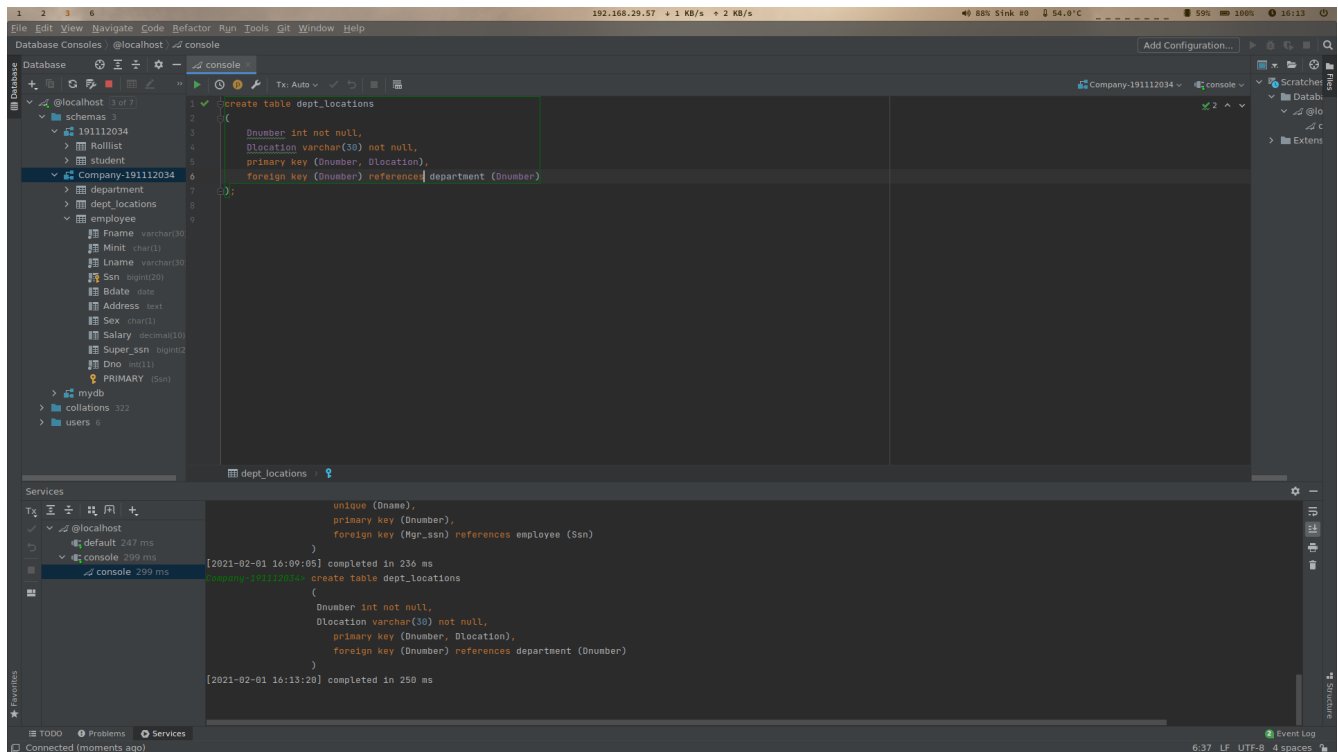


Figure 5: Table dept_locations

2.4. Project Table

2.4.1. Source Code

```
create table project
(
    Pname varchar(30) not null,
    Pnumber int not null,
    Plocation varchar(30) not null,
    Dnum int not null,
    unique(Pname),
    primary key (Pnumber),
    foreign key (Dnum) references department (Dnumber)
);
```

2.4.2. Output

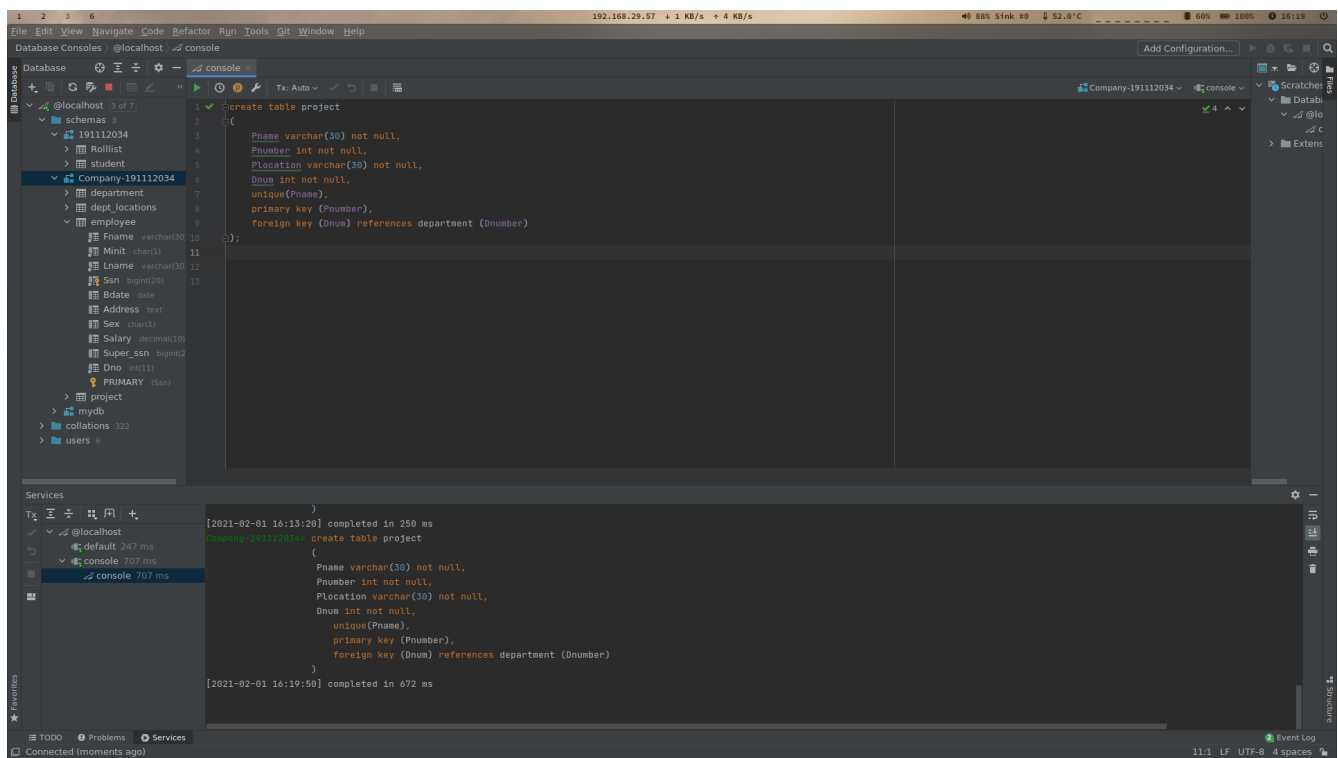


Figure 6: Table project

2.5. Works On Table

2.5.1. Source Code

```
create table works_on
(
    Essn bigint not null,
    Pno int not null,
    Hours decimal not null,
    primary key (Essn, Pno),
    foreign key (Essn) references employee (Ssn),
    foreign key (Pno) references project (Pnumber)
);
```

2.5.2. Output

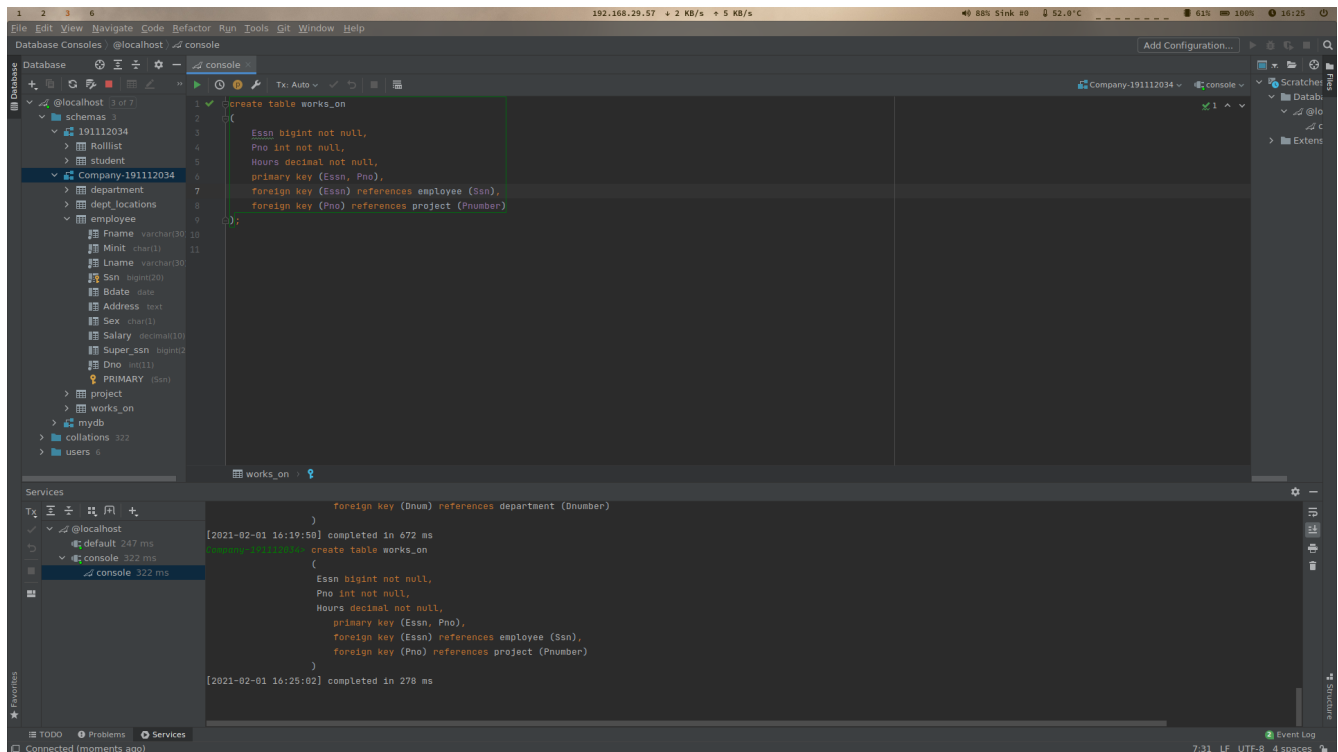


Figure 7: Table works_on

2.6. Dependent Table

2.6.1. Source Code

```
create table dependent
(
    Essn bigint not null,
    Dependent_name varchar(30) not null,
    Sex char not null,
    Bdate date null,
    Relationship varchar(30) null,
    primary key (Essn, Dependent_name),
    foreign key (Essn) references employee (Ssn)
);
```

2.6.2. Output

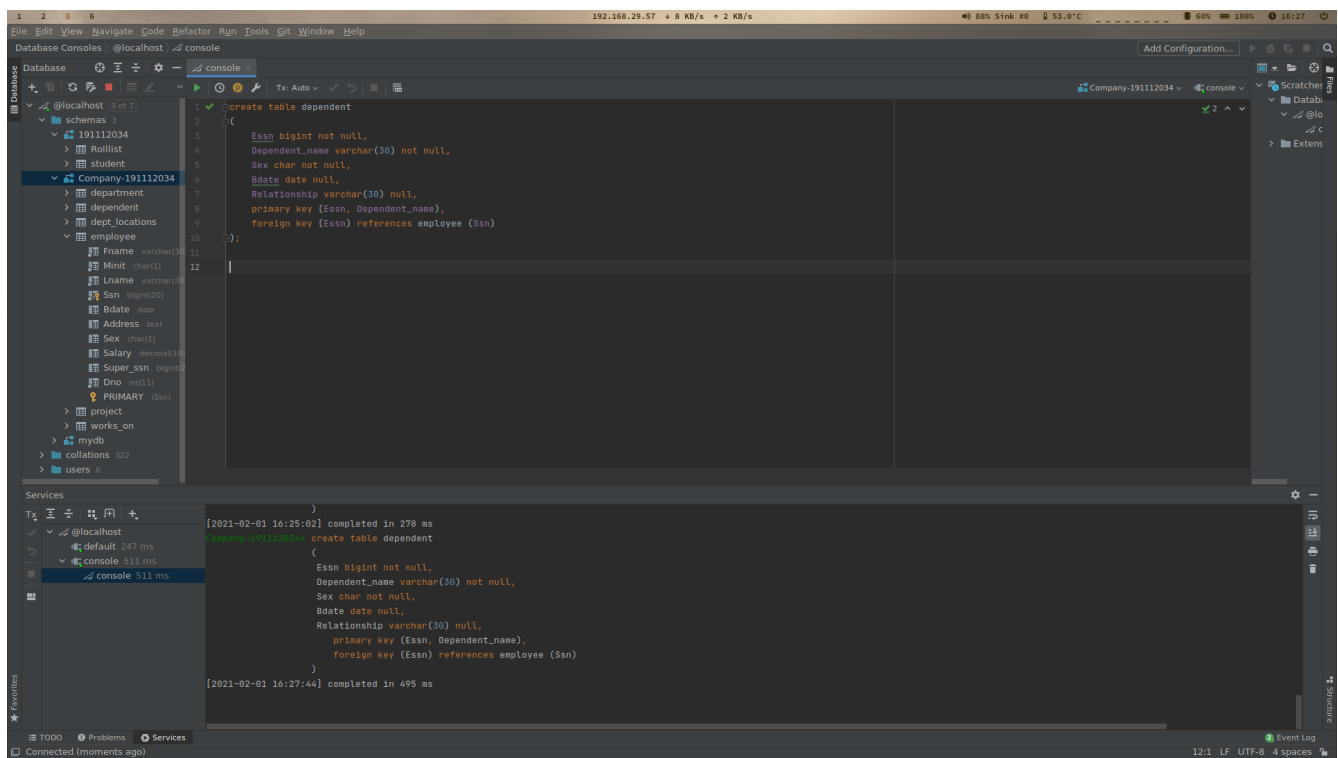


Figure 8: Table dependent

2.7. Additional Foreign Keys

2.7.1. Source Code

```

alter table department
  add constraint foreign key (Mgr_ssn) references employee (Ssn);

alter table employee
  add constraint foreign key (Super_ssn) references employee (Ssn);

alter table employee
  add constraint foreign key (Dno) references department (Dnumber);

```

2.7.2. Output

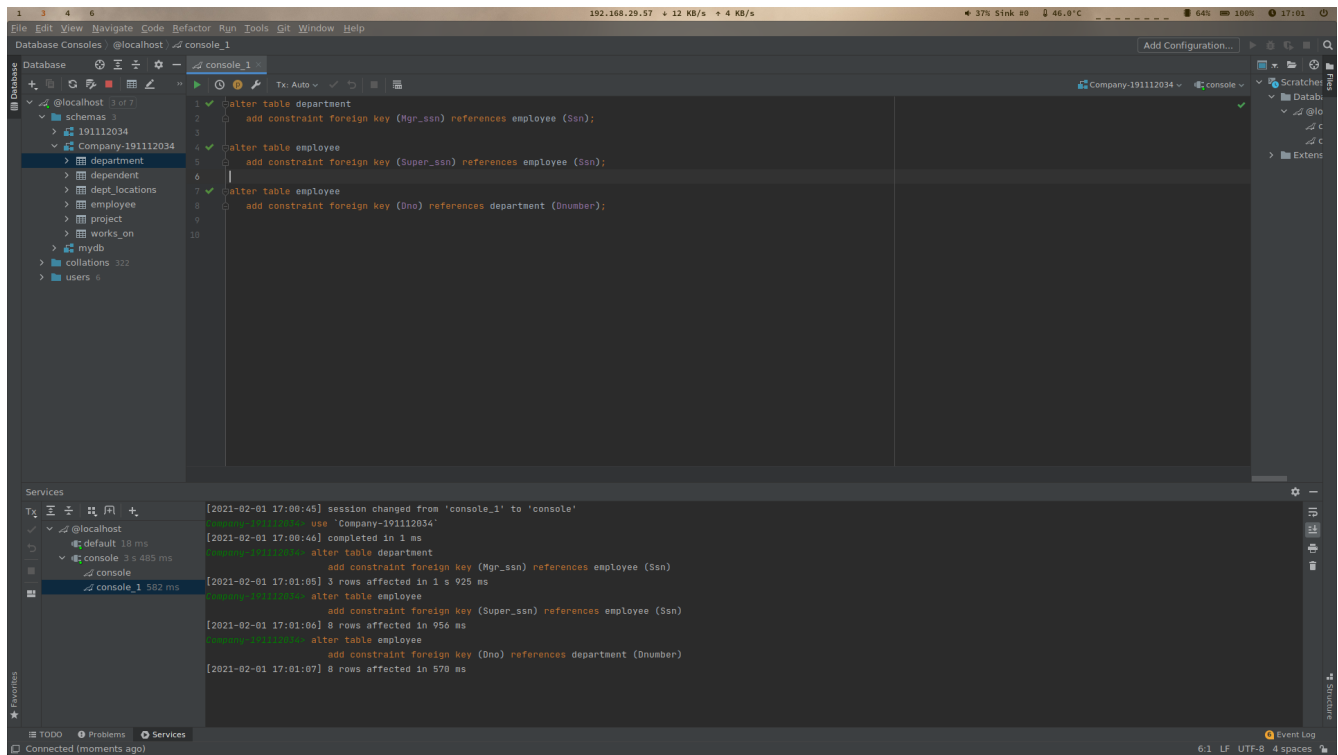


Figure 9: Foreign Keys

3. Database ER Diagram

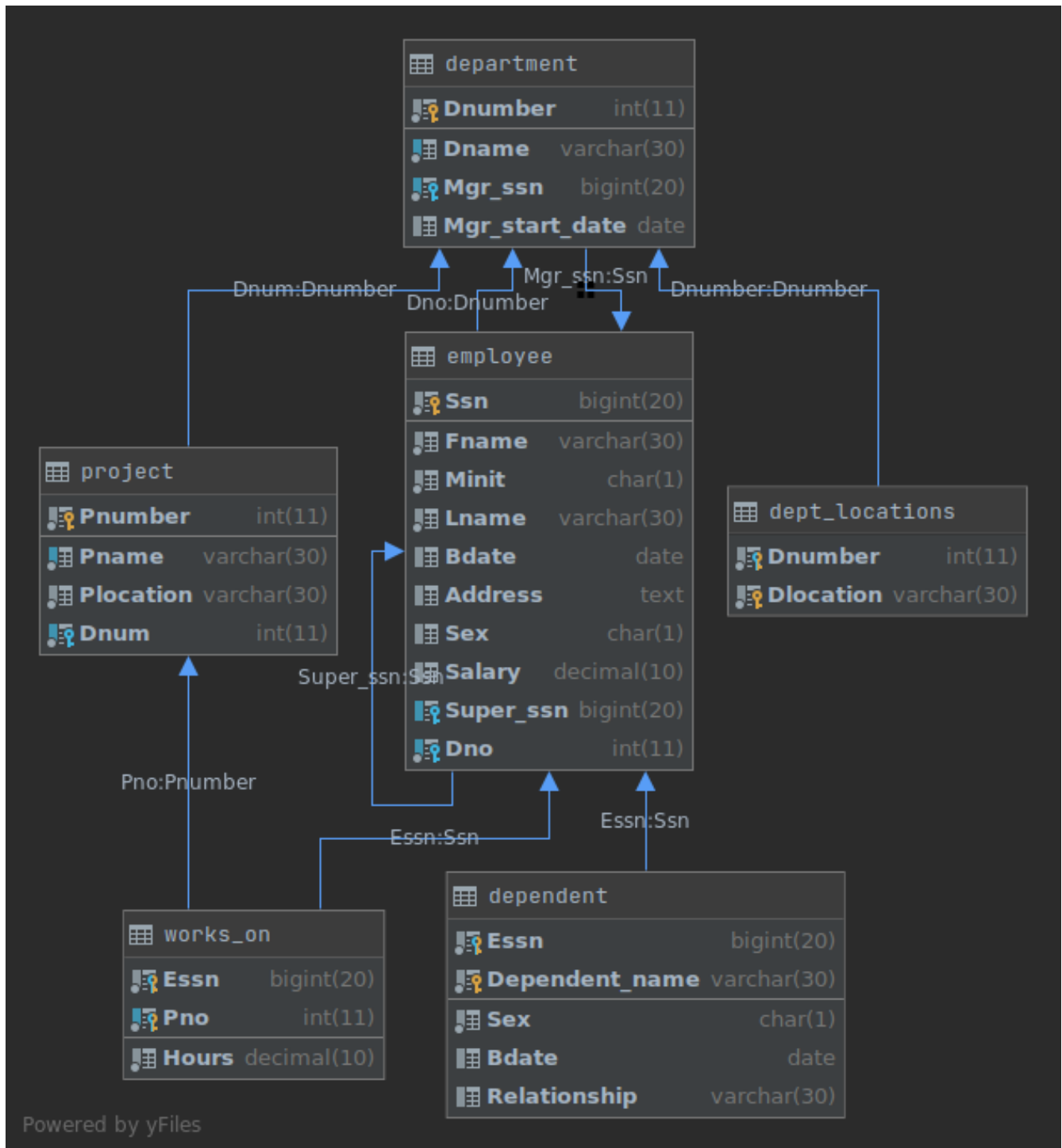


Figure 10: ER Diagram

4. Add Records

EMPLOYEE

Fname	Minit	Lname	Ssn	Bdate	Address	Sex	Salary	Super_ssn	Dno
John	B	Smith	123456789	1965-01-09	731 Fondren, Houston, TX	M	30000	333445555	5
Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	40000	888665555	5
Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring, TX	F	25000	987654321	4
Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire, TX	F	43000	888665555	4
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000	333445555	5
Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston, TX	F	25000	333445555	5
Ahmad	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston, TX	M	25000	987654321	4
James	E	Borg	888665555	1937-11-10	450 Stone, Houston, TX	M	55000	NULL	1

DEPARTMENT

Dname	Dnumber	Mgr_ssn	Mgr_start_date
Research	5	333445555	1988-05-22
Administration	4	987654321	1995-01-01
Headquarters	1	888665555	1981-06-19

DEPT_LOCATIONS

Dnumber	Dlocation
1	Houston
4	Stafford
5	Bellaire
5	Sugarland
5	Houston

WORKS_ON

Essn	Pno	Hours
123456789	1	32.5
123456789	2	7.5
666884444	3	40.0
453453453	1	20.0
453453453	2	20.0
333445555	2	10.0
333445555	3	10.0
333445555	10	10.0
333445555	20	10.0
999887777	30	30.0
999887777	10	10.0
987987987	10	35.0
987987987	30	5.0
987654321	30	20.0
987654321	20	15.0
888665555	20	NULL

PROJECT

Pname	Pnumber	Plocation	Dnum
ProductX	1	Bellaire	5
ProductY	2	Sugarland	5
ProductZ	3	Houston	5
Computerization	10	Stafford	4
Reorganization	20	Houston	1
Newbenefits	30	Stafford	4

DEPENDENT

Essn	Dependent_name	Sex	Bdate	Relationship
333445555	Alice	F	1986-04-05	Daughter
333445555	Theodore	M	1983-10-25	Son
333445555	Joy	F	1958-05-03	Spouse
987654321	Abner	M	1942-02-28	Spouse
123456789	Michael	M	1988-01-04	Son
123456789	Alice	F	1988-12-30	Daughter
123456789	Elizabeth	F	1967-05-05	Spouse

Figure 11: Data

4.1. Employee Table

4.1.1. Source Code

```
insert into employee
values
    ('John','B','Smith',123456789,'1965-01-09','731 Fondren, Houston TX','M',30000,333445555,5),
    ('Franklin','T','Wong',333445555,'1965-12-08','638 Voss, Houston TX','M',40000,888665555,5),
    ('Alicia','J','Zelaya',999887777,'1968-01-19','3321 Castle, Spring TX','F',25000,987654321,4),
    ('Jennifer','S','Wallace',987654321,'1941-06-20','291 Berry, Bellaire TX','F',43000,888665555,4),
    ('Ramesh','K','Narayan',666884444,'1962-09-15','975 Fire Oak, Humble TX','M',38000,333445555,5),
    ('Joyce','A','English',453453453,'1972-07-31','5631 Rice, Houston TX','F',25000,333445555,5),
    ('Ahmad','V','Jabbar',987987987,'1969-03-29','980 Dallas, Houston TX','M',25000,987654321,4),
    ('James','E','Borg',888665555,'1937-11-10','450 Stone, Houston TX','M',55000,null,1);
```

4.1.2. Output

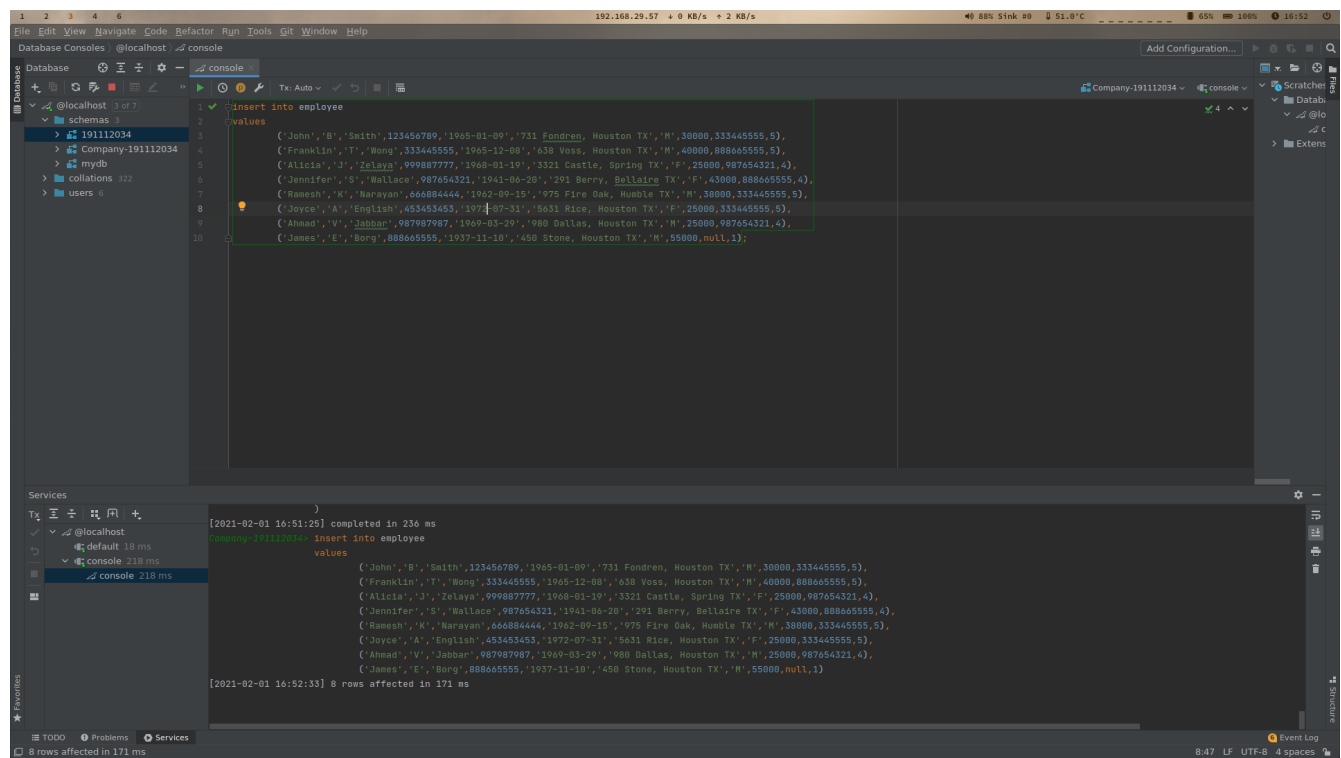


Figure 12: Table employee

4.2. Department Table

4.2.1. Source Code

```
insert into department
values
    ('Research',5,333445555,'1988-05-22'),
    ('Administration',4,987654321,'1995-01-01'),
    ('Headquarters',1,888665555,'1981-06-19');
```

4.2.2. Output

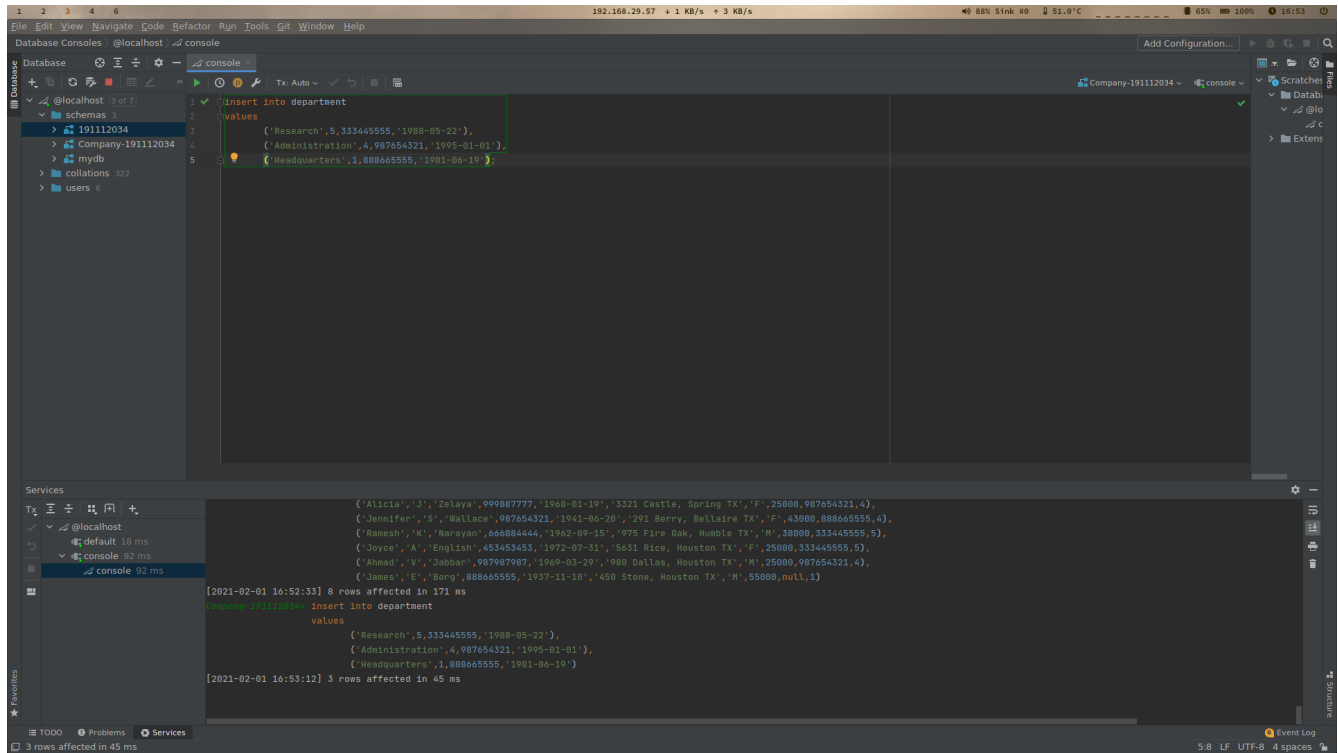


Figure 13: Table department

4.3. Department Locations Table

4.3.1. Source Code

```
insert into dept_locations
values
  (1,'Houston'),
  (4,'Stafford'),
  (5,'Bellaire'),
  (5,'Sugarland'),
  (5,'Houston');
```

4.3.2. Output

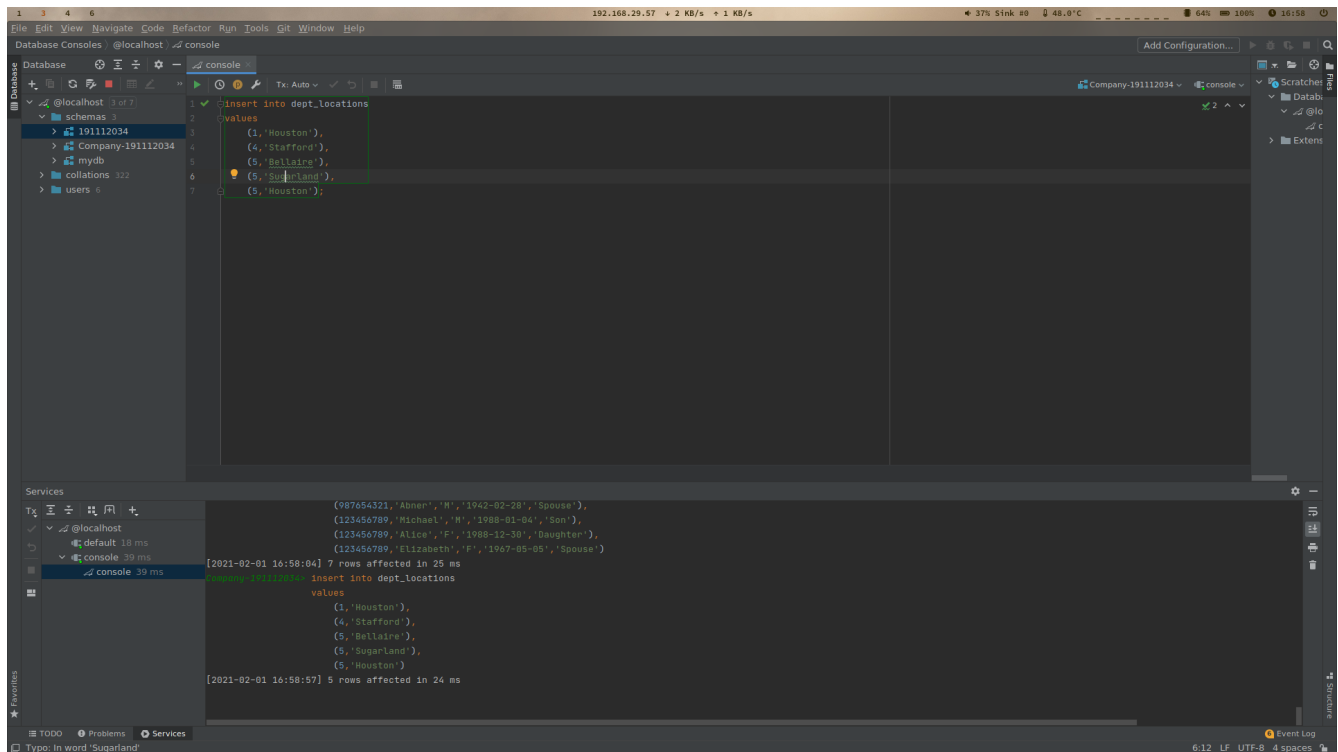


Figure 14: Table dept_locations

4.4. Project Table

4.4.1. Source Code

```
insert into project
values
    ('ProductX',1,'Bellaire',5),
    ('ProductY',2,'Sugarland',5),
    ('ProductZ',3,'Houston',5),
    ('Computerization',10,'Stafford',4),
    ('Reorganization',20,'Houston',1),
    ('Newbenefits',30,'Stafford',4);
```

4.4.2. Output

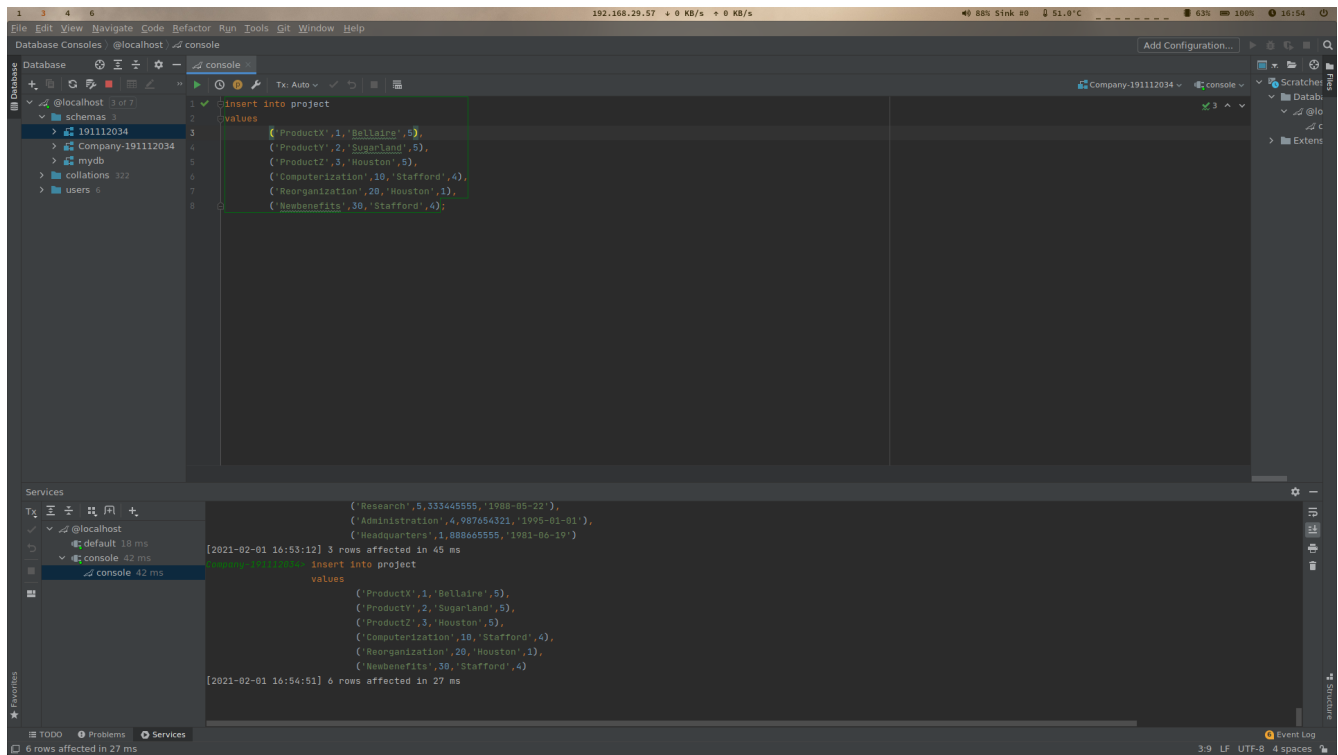


Figure 15: Table project

4.5. Works On Table

4.5.1. Source Code

```
insert into works_on
values
    (123456789,1,32.5),
    (123456789,2,7.5),
    (666884444,3,40.0),
    (453453453,1,20.0),
    (453453453,2,20.0),
    (333445555,2,10.0),
    (333445555,3,10.0),
    (333445555,10,10.0),
    (333445555,20,10.0),
    (999887777,30,30.0),
    (999887777,10,10.0),
    (987987987,10,35.0),
    (987987987,30,5.0),
    (987654321,30,20.0),
    (987654321,20,15.0),
    (888665555,20,16.0);
```

4.5.2. Output

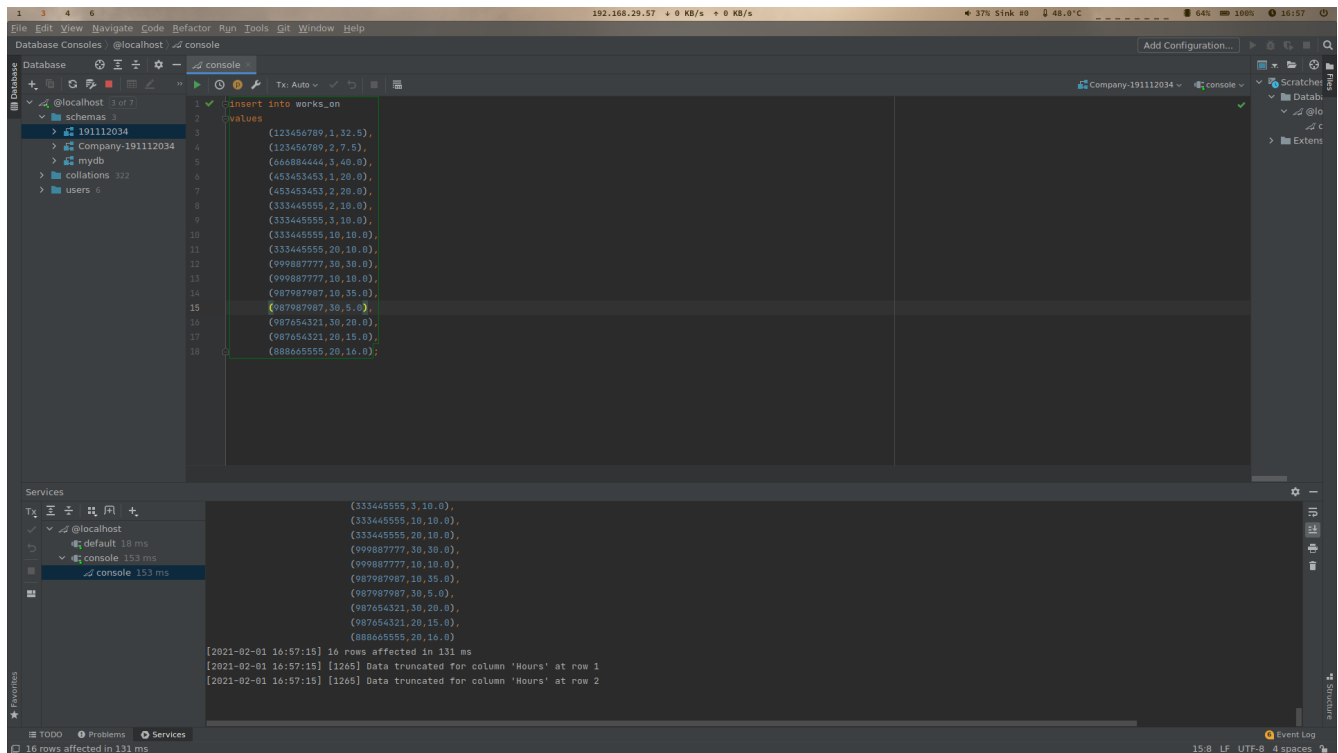


Figure 16: Table works_on

4.6. Dependent Table

4.6.1. Source Code

```
insert into dependent
values
  (333445555,'Alice','F','1986-04-04','Daughter'),
  (333445555,'Theodore','M','1983-10-25','Son'),
  (333445555,'Joy','F','1958-05-03','Spouse'),
  (987654321,'Abner','M','1942-02-28','Spouse'),
  (123456789,'Michael','M','1988-01-04','Son'),
  (123456789,'Alice','F','1988-12-30','Daughter'),
  (123456789,'Elizabeth','F','1967-05-05','Spouse');
```

4.6.2. Output

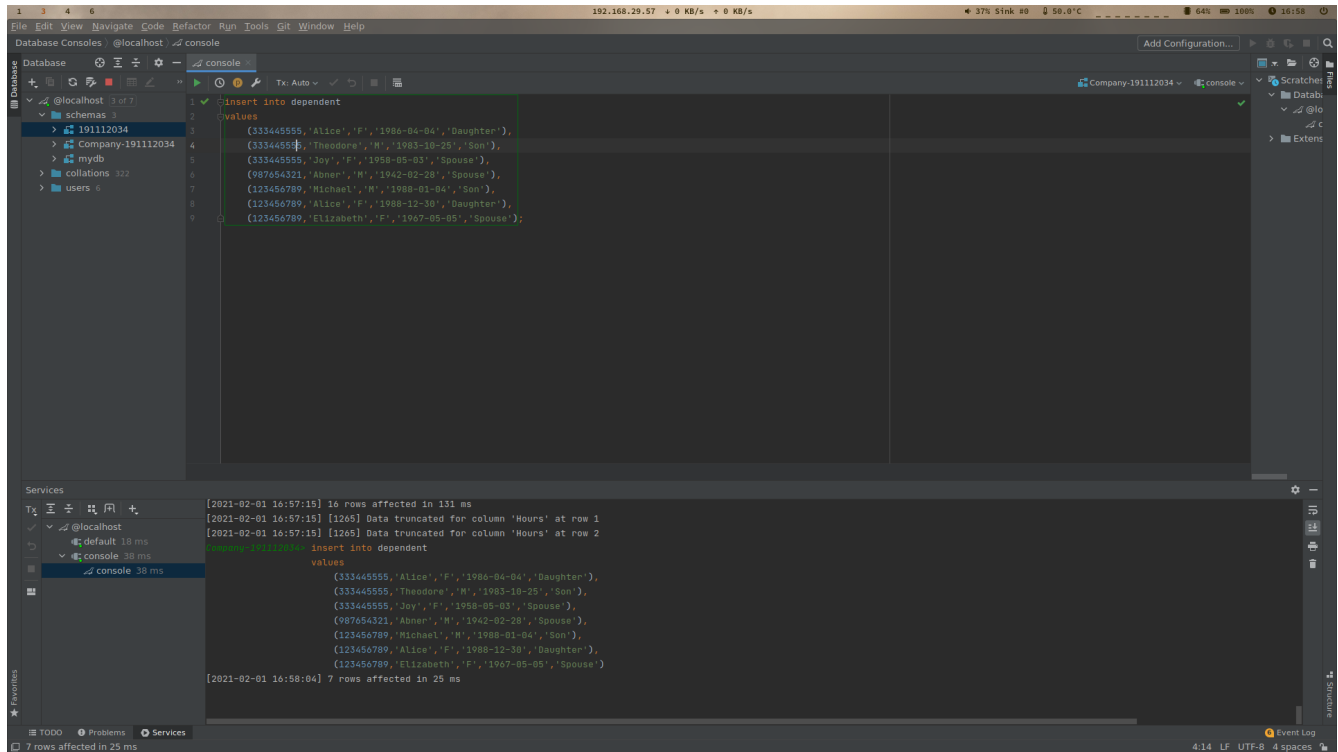


Figure 17: Table dependent

4.7. Output

The screenshot shows a database management interface with the 'employee' table selected. The table contains 8 rows of data. Below the table, the SQL query used to retrieve the data is shown in the 'Services' panel.

	Fname	Minit	Lname	Emp Id	Bdate	Address	Sex	Salary	Super_ssn	Dno
1	John	B	Smith	123456789	1965-01-09	731 Fondren, Houston TX	M	30000	333445555	5
2	Franklin	T	Wong	333445555	1965-12-08	630 Voss, Houston TX	M	40000	888665555	5
3	Joyce	A	English	45654321	1972-07-31	5621 Rice, Houston TX	F	25000	333445555	5
4	Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble TX	M	38000	333445555	5
5	James	E	Borg	888665555	1937-11-10	450 Stone, Houston TX	M	55000	30011	1
6	Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire TX	F	43000	888665555	4
7	Ahmad	V	Jabbar	987987987	1949-03-29	980 Dallas, Houston TX	M	25000	987654321	4
8	Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring TX	F	25000	987654321	4

Services

[2021-02-01 17:02:35] Connected

use 'Company-191112034'

[2021-02-01 17:02:35] completed in 1 ms

```
SELECT t.*
FROM 'Company-191112034'.employee t
LIMIT 501
```

[2021-02-01 17:02:35] 8 rows retrieved starting from 1 in 444 ms (execution: 3 ms, fetching: 441 ms)

8 rows retrieved starting from 1 in 445 ms (execution: 4 ms, fetching: 441 ms)

Figure 18: Employee Table