Лабораторная работа 7

Задание A:

1)

CREATE TABLE startup\_tree

(

id SERIAL NOT NULL PRIMARY KEY,

student\_id INT NOT NULL REFERENCES student(id),

manager\_id INT REFERENCES startup\_tree(id)

);

INSERT INTO startup\_tree(student\_id, manager\_id)

VALUES

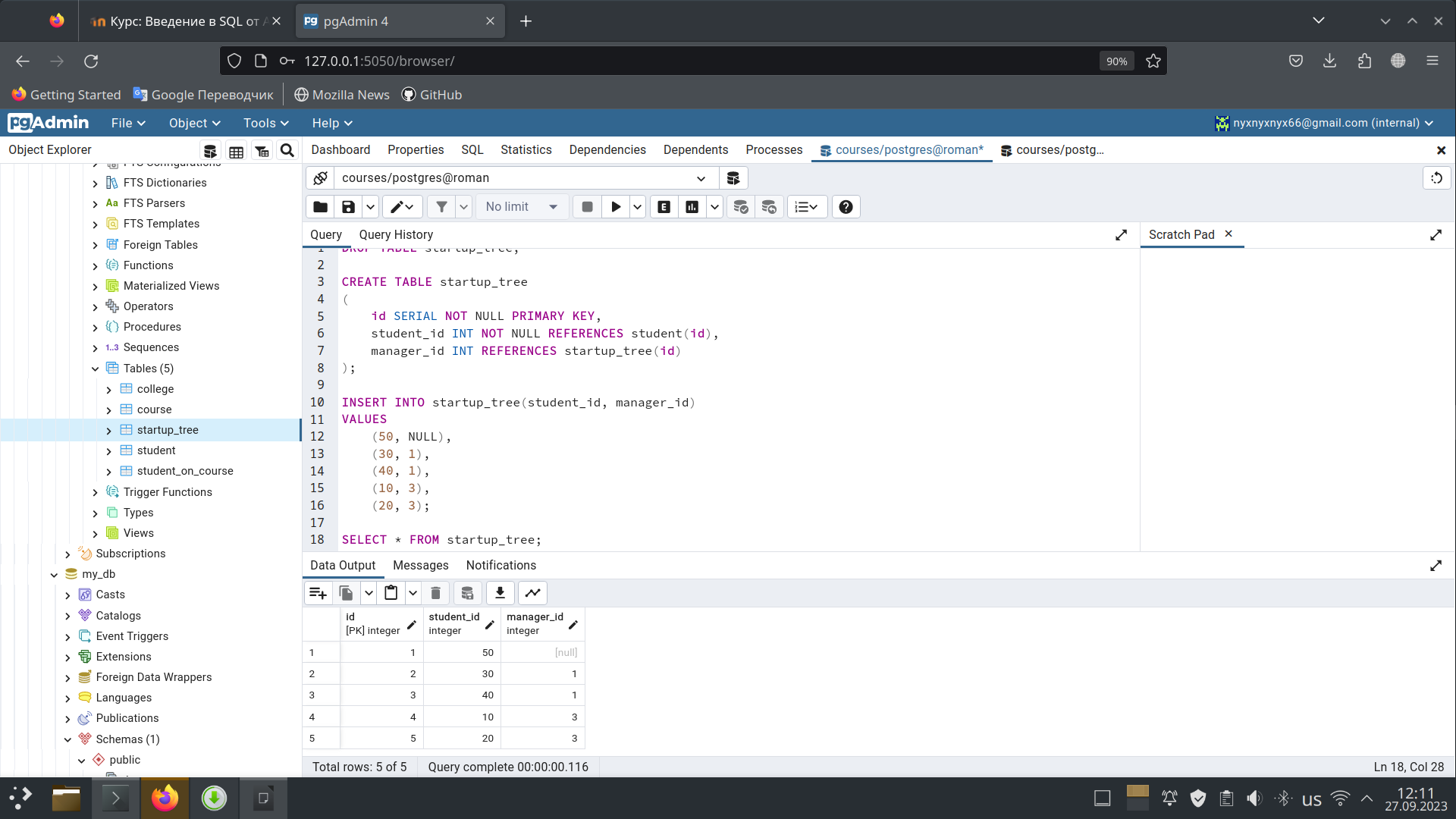
(50, NULL),

(30, 1),

(40, 1),

(10, 3),

(20, 3);

SELECT \* FROM startup\_tree;

2)

CREATE TABLE startup\_roles

(

student\_id INT NOT NULL REFERENCES student(id),

student\_role VARCHAR(20)

);

INSERT INTO startup\_roles

VALUES

(50, 'project\_leader'),

(40, 'dev\_team\_lead'),

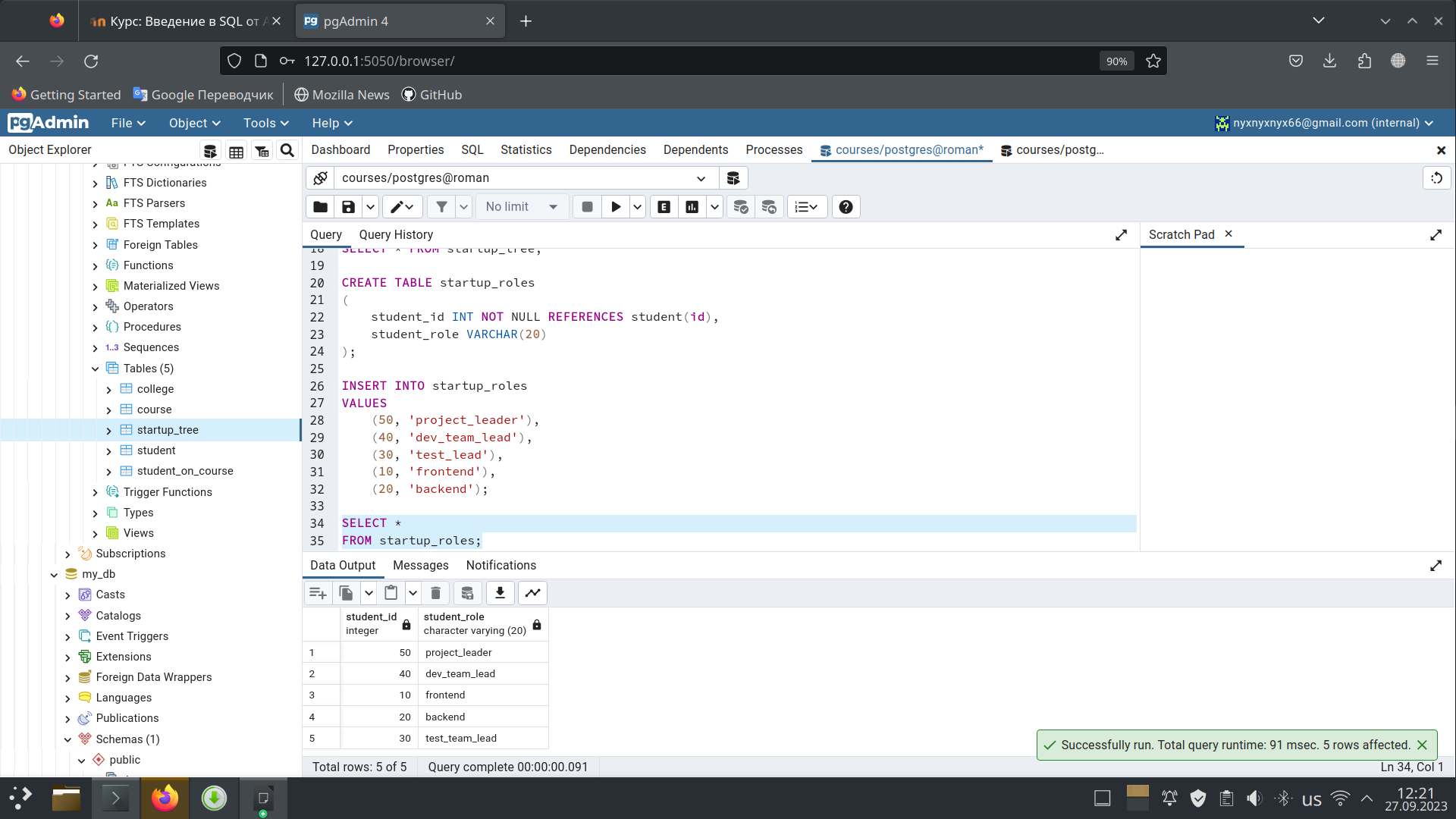
(30, 'test\_lead'),

(10, 'frontend'),

(20, 'backend');

SELECT \*

FROM startup\_roles;



Задание Б

WITH RECURSIVE \_students AS (

SELECT

startup\_tree.student\_id,

startup\_tree.manager\_id,

student.name,

1 AS level,

array[name] AS path

FROM student

INNER JOIN startup\_tree

ON student.id = startup\_tree.student\_id

WHERE startup\_tree.manager\_id IS NULL

UNION

SELECT

st1.student\_id,

st1.manager\_id,

s1.name,

level + 1 AS level,

path || s1.name AS path

FROM student as s1

INNER JOIN startup\_tree as st1

ON s1.id = st1.student\_id

INNER JOIN \_students

ON st1.manager\_id = \_students.student\_id

)

SELECT

\_students.name "студент",

startup\_roles.student\_role "роль",

\_students.level "уровень",

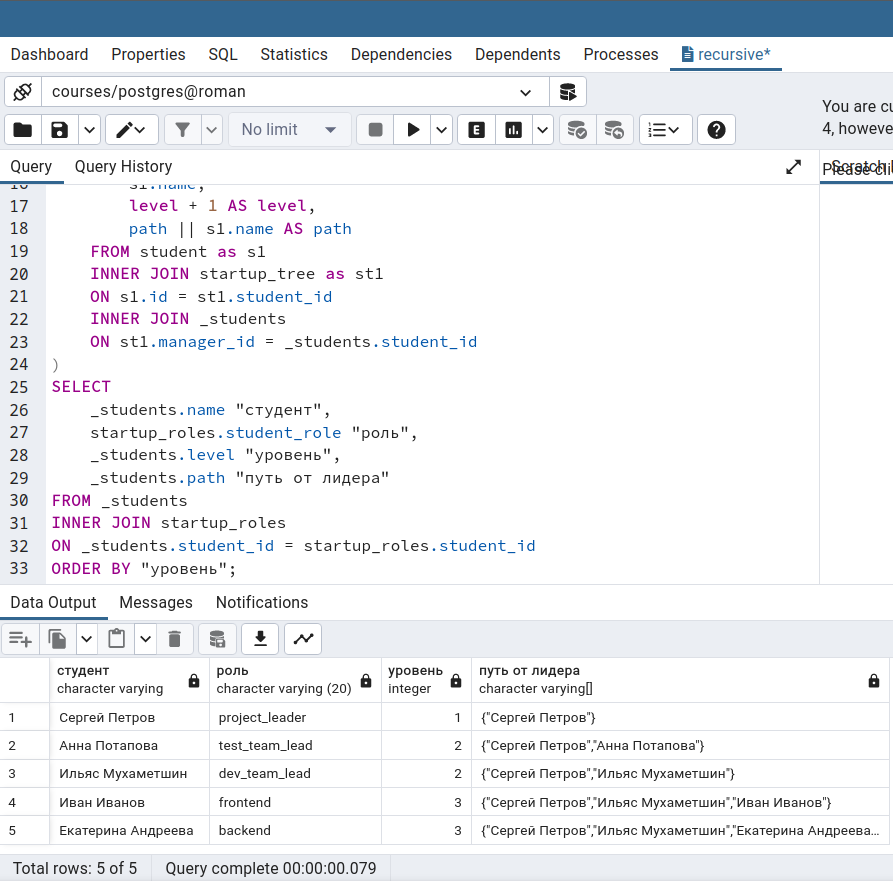
\_students.path "путь от лидера"

FROM \_students

INNER JOIN startup\_roles

ON \_students.student\_id = startup\_roles.student\_id

ORDER BY "уровень";



Задание С

WITH RECURSIVE \_students AS (

SELECT

id,

manager\_id,

student\_name,

1 AS level,

array[student\_name]::varchar[] AS path

FROM startup\_tree

WHERE startup\_tree.manager\_id IS NULL

UNION

SELECT

st1.id,

st1.manager\_id,

st1.student\_name,

level + 1 AS level,

path || st1.student\_name as path

FROM startup\_tree as st1

INNER JOIN \_students

ON st1.manager\_id = \_students.id

)

SELECT

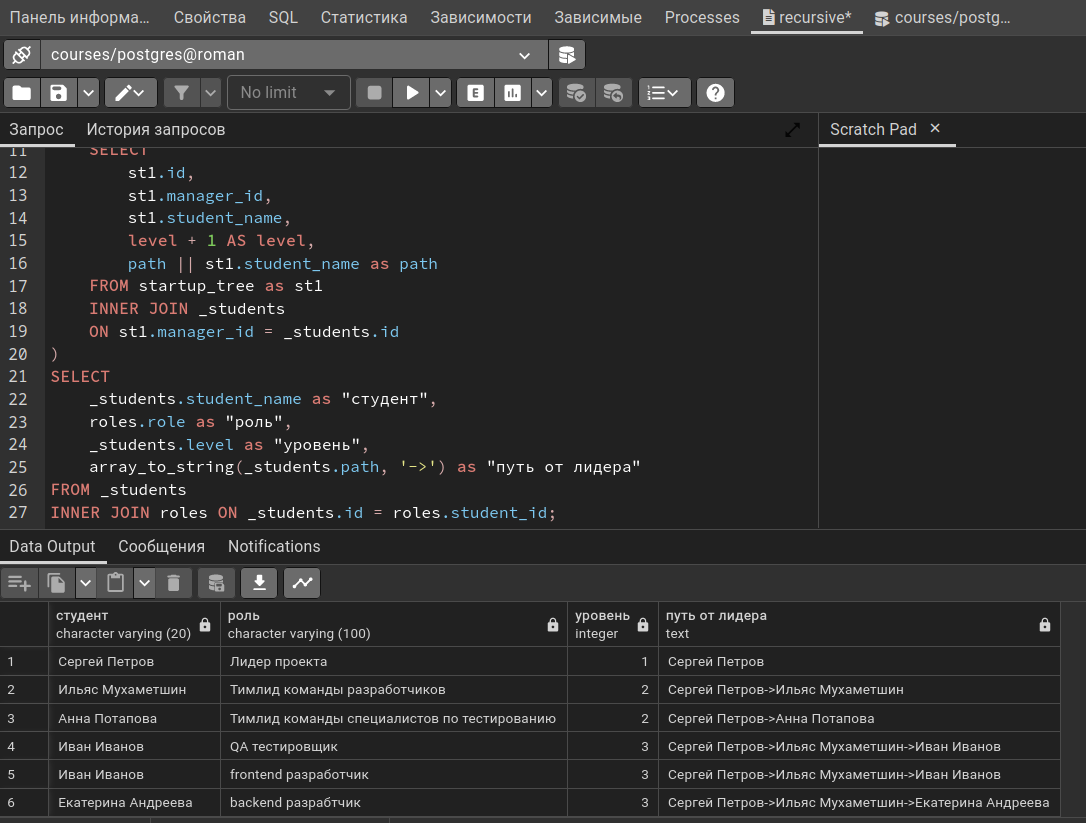
\_students.student\_name as "студент",

roles.role as "роль",

\_students.level as "уровень",

array\_to\_string(\_students.path, '->') as "путь от лидера"

FROM \_students

INNER JOIN roles ON \_students.id = roles.student\_id;

Задание D

-- транзакция 1

begin;

update college

set size = size \* 2

where id = 10

returning \*;

--Транзакция 2

begin;

update college

set size = size \* 2

where id = 20

returning \*;

--Транзакция 1

update college

set size = size \* 2

where id = 20

returning \*;

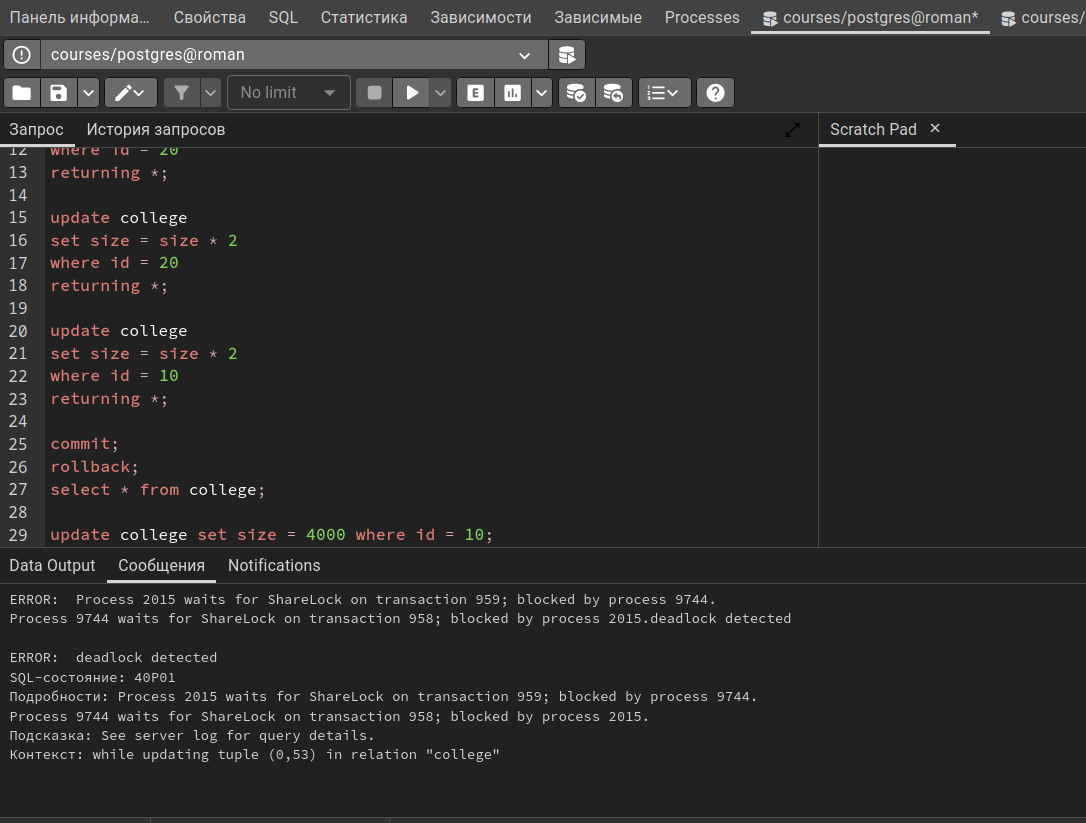
--Транзакция 2

update college

set size = size \* 2

where id = 10

returning \*;

--deadlock:

Задание E:

--Транзакция 1

begin transaction isolation level serializable;

update college

set size = size + 10

where id = 10;

--Транзакция 2

begin transaction isolation level serializable;

update college

set size = size + 10

where id = 10;

