**МИНИСТЕРСТВО НАУКИ И ВЫСШЕГО ОБРАЗОВАНИЯ РОССИИ**

**ФГБОУ ВПО "Пензенский государственный университет"**

**Кафедра "Математическое обеспечение и применение ЭВМ"**

Отчет

по лабораторной работе №4

**«Формирование хранимых процедур в базе данных»**

Выполнили:

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ст. гр. 17ВИ1

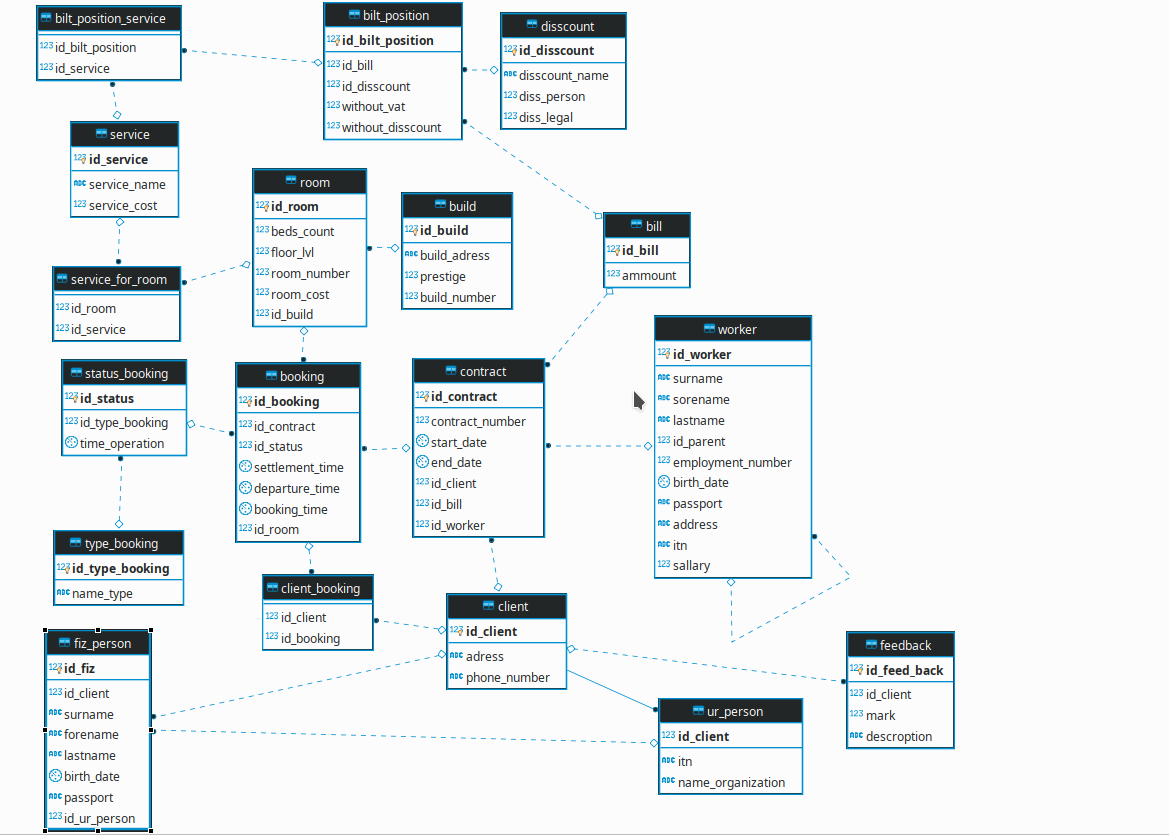
Проверил:

доцент Казакова И.А.

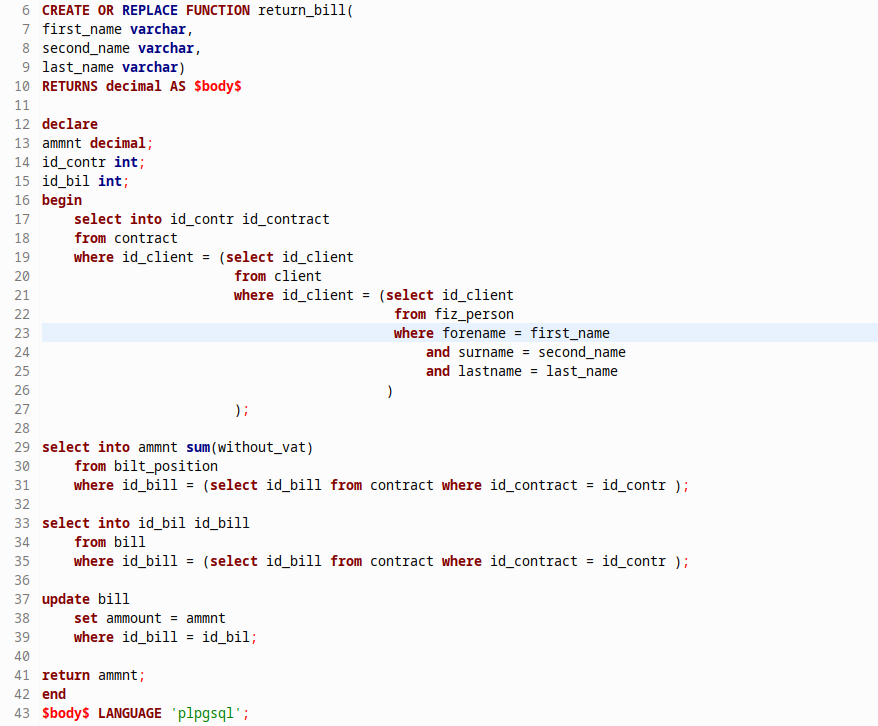
**2020**

**Лабораторная работа №4**

Диаграмма базы данных гостиничного комплекса

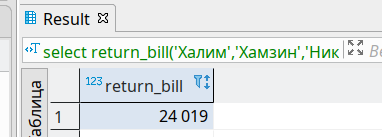


1. Предоставление итоговой суммы постояльцу:

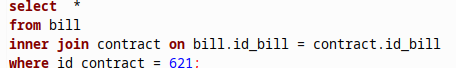


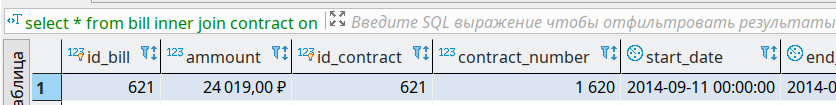
Вызов функции и результат выполнения:





Проверка наличия записи в таблице bill





2.Заключение договора с юр. лицом

create or replace function create\_contract\_with\_ur(

adrss varchar,

phone varchar,

itn\_num varchar,

name\_org varchar,

start\_dt timestamp,

end\_dt timestamp,

num\_contract int,

worker\_id int

)

RETURNS integer AS $body$

declare

bill\_id int;

client\_id int;

contract\_id int;

begin

insert into client(adress,phone\_number)

values (adrss, phone) returning client.id\_client into client\_id;

if(client\_id is NULL) then

rollback;

return 0;

end if;

insert into ur\_person(id\_client, itn, name\_organization)

values (client\_id,itn\_num, name\_org);

insert into bill(ammount) values(0) returning bill.id\_bill into bill\_id;

if(bill\_id is NULL) then

rollback;

return 0;

end if;

insert into contract(contract\_number,start\_date,end\_date,id\_client, id\_bill,id\_worker)

values(num\_contract,start\_dt,end\_dt,client\_id,bill\_id,worker\_id)

returning id\_contract into contract\_id;

if(contract\_id is NULL) then

rollback;

return 0;

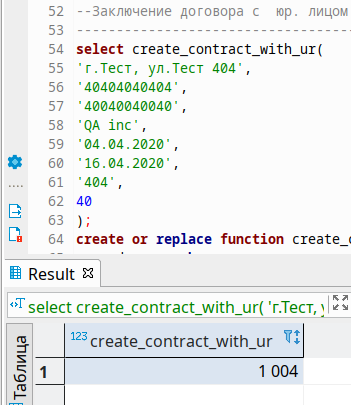
end if;

return contract\_id;

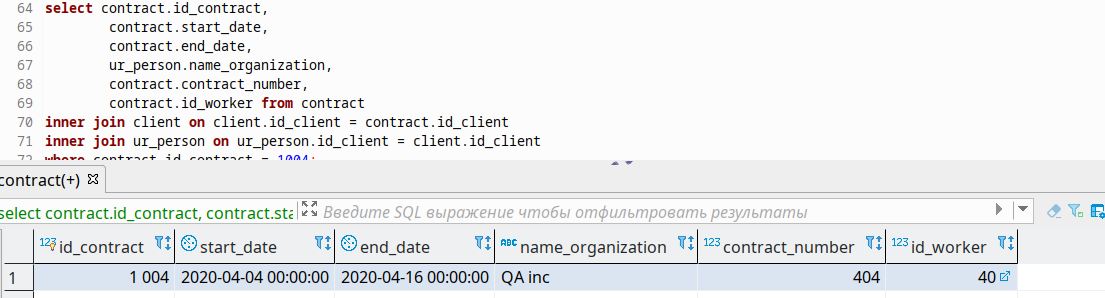
end

$body$ LANGUAGE 'plpgsql';

Вызов функции и результат выполнения:



Проверка наличия записи в базе данных:



3.Функция проверки занятости номера в определенный промежуток времени

create or replace function is\_avaibale\_room(

start\_date timestamp,

end\_date timestamp,

room\_num integer

)

returns integer as $body$

declare

is\_avaibale integer;

begin

is\_avaibale = 0;

SELECT into is\_avaibale Count(Room.Room\_number)

FROM Booking

JOIN Room ON Booking.id\_room = Room.id\_room

JOIN Build ON Build.id\_Build = Room.id\_Build

WHERE (Booking.Settlement\_time BETWEEN start\_date AND end\_date

AND

Booking.Departure\_time BETWEEN start\_date AND end\_date

AND Room.room\_number = room\_num)

OR (Booking.Settlement\_time IS NULL AND

Booking.Departure\_time IS NULL

AND Room.room\_number = room\_num);

if is\_avaibale = 0 then

SELECT into is\_avaibale Count(Room.Room\_number)

FROM Room

JOIN Build ON Build.id\_Build = Room.id\_Build

LEFT JOIN Booking ON Booking.id\_room = Room.id\_room

WHERE Booking.id\_booking is NULL AND Room.room\_number = room\_num;

if( is\_avaibale = 0) then

raise log 'the room is unavailable';

return 0;

end if;

if(is\_avaibale = 1) then

raise log 'the room is available';

return 1;

end if;

end if;

if(is\_avaibale = 1) then

raise log 'the room is available';

return 1;

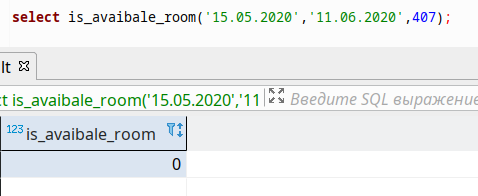
end if;

return 0;

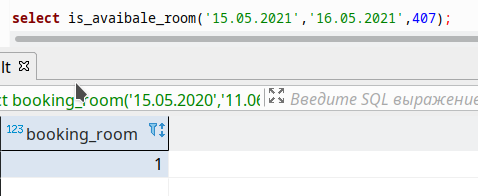
end

$body$ LANGUAGE 'plpgsql';

Вызов функции и результат выполнения:



(Комната занята в этот период времени)



(Номер свободен)

4.Функция бронирования номера

CREATE OR REPLACE FUNCTION booking\_room(

start\_date timestamp,

end\_date timestamp,

room\_nb int,

id\_contr int,

id\_type\_book int

)

RETURNS integer AS $body$

declare

now\_time timestamp;

id\_stts integer;

change\_check integer;

check\_room integer;

room\_id int;

begin

select into room\_id id\_room from Room where room.room\_number = room\_nb;

now\_time = NOW()::timestamp;

if(id\_type\_book = 1 or id\_type\_book = 3) then

select into change\_check status\_booking.id\_status

from status\_booking

inner join Booking on booking.id\_status = status\_booking.id\_status

where Booking.id\_contract = id\_contr and Booking.id\_room = room\_id;

if(change\_check is NULL) then

return 0;

end if;

update status\_booking

set (id\_type\_booking,time\_operation) = (id\_type\_book,now\_time)

where id\_status = change\_check;

return 1;

end if;

check\_room = is\_avaibale\_room(start\_date, end\_date, room\_nb);

if(check\_room = 1) then

if(id\_type\_book = 2) then

insert into status\_booking(id\_type\_booking,time\_operation)

values(id\_type\_book,now\_time);

select into id\_stts id\_status

from status\_booking

where id\_type\_booking = 2 and time\_operation = now\_time;

if(id\_stts is NULL) then

return 0;

end if;

insert into booking(id\_contract, id\_status,settlement\_time,

departure\_time, booking\_time, id\_room)

values (id\_contr, id\_stts,start\_date, end\_date, now\_time,room\_id);

return 1;

end if;

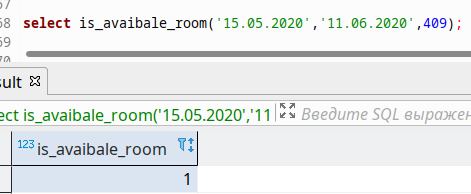
end if;;

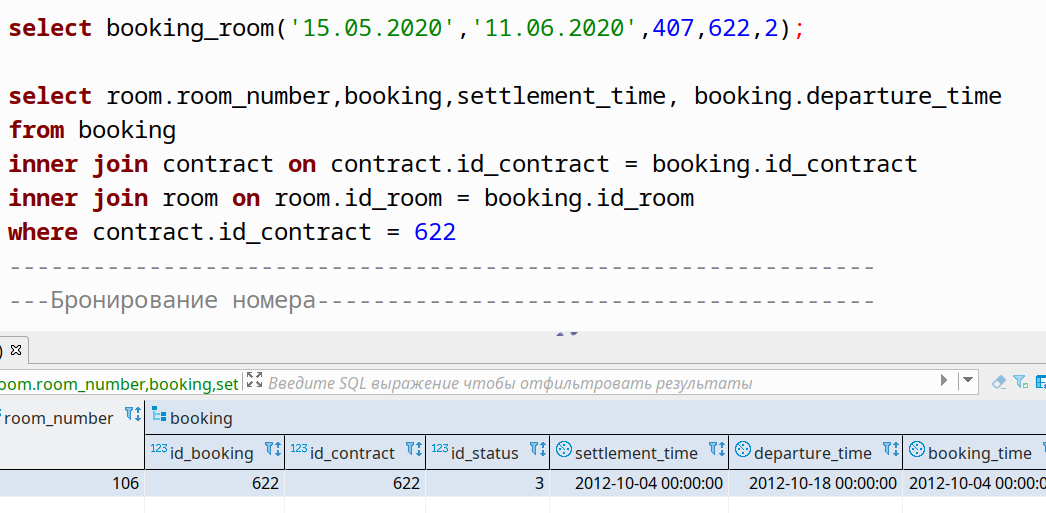
return 0;

end

$body$ LANGUAGE 'plpgsql';

Вызов функции и результат выполнения:





5.Вычисление суммы услуги или номера с учетом скидок

create or replace function update\_cost\_bilt\_position(

id\_room\_input integer,

id\_service\_input integer,

id\_discount\_input integer,

is\_fiz\_person\_input bool,

bilt\_position\_id integer

)

RETURNS integer AS $body$

declare

service\_cost\_find decimal;

room\_cost decimal;

persent\_discount\_person decimal;

persent\_discount\_legal decimal;

target\_discount decimal;

cost\_with\_discount decimal;

cost\_with\_out\_nds decimal;

begin

if (id\_room\_input = 0 and id\_service\_input = 0) then

rollback;

return 0;

end if;

if (not exists( select \* from disscount where id\_disscount = id\_discount\_input))then

raise log 'there is no discount';

rollback;

return 0;

else

select into persent\_discount\_person disscount.diss\_person from disscount

where id\_disscount = id\_discount\_input;

if (is\_fiz\_person\_input) then

target\_discount = persent\_discount\_person;

else

select into target\_discount disscount.diss\_legal

from disscount

where id\_disscount = id\_discount\_input;

end if;

end if;

if(id\_room\_input = 0) then

if( not exists(select \* from service where service.id\_service = id\_service\_input)) then

raise log 'there is no service';

rollback;

return 0;

end if;

select into service\_cost\_find service.service\_cost from service

where service.id\_service = id\_service\_input;

cost\_with\_discount := service\_cost\_find - (service\_cost\_find / 100) \* target\_discount;

cost\_with\_out\_nds := service\_cost\_find - (service\_cost\_find /100) \* 18;

update bilt\_position set

without\_vat=cost\_with\_out\_nds,

without\_disscount=service\_cost\_find,

with\_discount=cost\_with\_discount

where bilt\_position.id\_bilt\_position = bilt\_position\_id;

return 1;

else

if( not exists(select \* from room where room.id\_room = id\_room\_input)) then

raise log 'there is no rooms';

rollback;

return 0;

end if;

select room.room\_cost into room\_cost from room

where room.id\_room = id\_room\_input;

cost\_with\_discount = room\_cost - (room\_cost / 100) \* target\_discount;

cost\_with\_out\_nds = room\_cost - (room\_cost /100) \* 18;

update bilt\_position set

without\_vat=cost\_with\_out\_nds,

without\_disscount=room\_cost,

with\_discount=cost\_with\_discount

where bilt\_position.id\_bilt\_position = bilt\_position\_id;

return 1;

end if;

return 0;

end

$body$

LANGUAGE PLpgSQL;

Вызов функции и результат выполнения:

