Кафедра компьютерных технологий и программной инженерии

ОТЧЁТ
ЗАЩИЩЁН С ОЦЕНКОЙ

ПРЕПОДАВАТЕЛЬ

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Отчёт по лабораторной работе №1

по курсу: Проектирование баз данных

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Санкт-Петербург
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Цель работы:

1)Реализовать запросы г) .. ж), указанные в варианте задания.

(Запрос с условием на агрегатную функцию.

Запрос получением агрегатной функции от агрегатной функции.

Запрос на «все» (реляционное деление).

Запрос на разность 2 запросов.)

Один из запросов на максимум/минимум реализовать с помощью директивы all, а второй- без.

Запрос на «все» (реляционное деление) реализовать с помощью 2 not exists

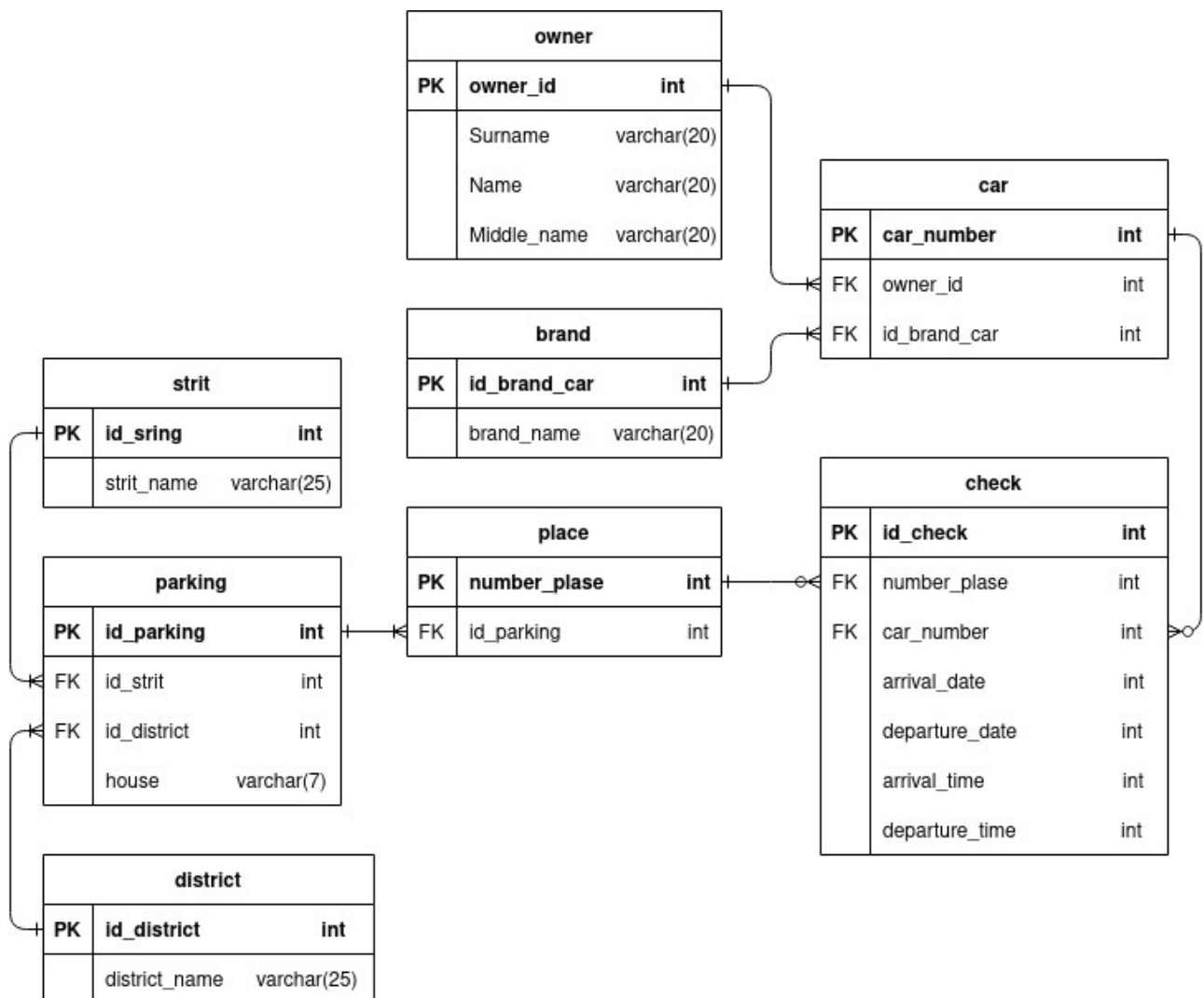Запросы на разность реализовать в 3 вариантах: Not in, except, с использованием левого/правого соединения

> г. владелец машин, заезжавший позже всех
>
> д. владелец машины, останавливавшийся на минимальном числе парковок
>
> е. машина, которая стояла на всех парковках Московского района
>
> ж. владелец, не парковавшийся на Невском проспекте, но парковавшийся на Московском

Физическая модель:

Запрос Г

```sql
SELECT owner.*
FROM owner
JOIN car on owner.id_owner = car.id_owner
JOIN `check` on car.car_number = `check`.car_number
WHERE CAST( CAST(`check`.arrival_date as DATETIME) +
CAST(`check`.arrival_time AS TIME) AS DATETIME ) >= ALL
(
    SELECT CAST( CAST(arrival_date as DATETIME) + CAST(arrival_time AS
TIME) AS DATETIME )
    FROM `check`
)
```

	id_owner	Surname	Name	Middle_name	arrival_date	arrival_time
1	2	Петров	Пётр	Пертрович	2020-10-20	20:30:00

Запрос Д

```sql
SELECT owner.*
FROM owner
JOIN car on owner.id_owner = car.id_owner
join `check` on car.car_number = `check`.car_number
GROUP BY car.car_number HAVING COUNT(`check`.car_number)
= (
    SELECT MIN(t.count)
    FROM (
        SELECT car_number, COUNT(`check`.car_number) as count
        FROM `check`
        JOIN place p on p.number_place = `check`.number_place
        JOIN parking p2 on p2.id_parking = p.id_parking
        GROUP BY p.id_parking
    ) as t
)
```

	1 row							Tx Auto	DDL	

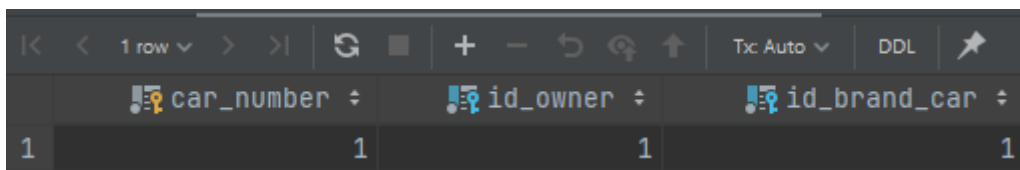|	id_owner	Surname	Name	Middle_name
1	2	Петров	Пётр	Пертрович

Запрос Е

```sql
SELECT *
FROM car
WHERE NOT EXISTS
(
    SELECT parking.*
    FROM parking
```

```
 JOIN district d on d.id_district = parking.id_district
 WHERE d.district_name = "Московский"
   AND NOT EXISTS
 (
   SELECT *
   FROM `check`
   JOIN place p on p.number_place = `check`.number_place
   WHERE p.id_parking = parking.id_parking
   AND `check`.car_number = car.car_number
 )
)
```

car_number	id_owner	id_brand_car
1	1	1

Запрос Ж

```
## NOT IN
SELECT owner.*
FROM owner
JOIN car on owner.id_owner = car.id_owner
JOIN `check` on car.car_number = `check`.car_number
JOIN place on place.number_place = `check`.number_place
JOIN parking on parking.id_parking = place.id_parking
JOIN street on street.id_street = parking.id_street
WHERE street.street_name = 'Невский пр.' AND
    owner.id_owner NOT IN
(
    SELECT o1.id_owner
    FROM owner o1
    JOIN car on o1.id_owner = car.id_owner
    JOIN `check` on `check`.car_number = car.car_number
    JOIN place on place.number_place = `check`.number_place
    JOIN parking on place.id_parking = parking.id_parking
    JOIN street st1 on parking.id_street = st1.id_street
    WHERE st1.street_name = 'Московский пр.'
);

## EXCEPT
(
    SELECT DISTINCT owner.*
    FROM owner
    JOIN car on owner.id_owner = car.id_owner
    JOIN `check` on `check`.car_number = car.car_number
    JOIN place on place.number_place = `check`.number_place
    JOIN parking on place.id_parking = parking.id_parking
```

```sql
    JOIN street on parking.id_street = street.id_street
    WHERE street_name = 'Невский пр.'
)
EXEPT
(
    SELECT DISTINCT owner.*
    FROM owner
    JOIN car on owner.id_owner = car.id_owner
    JOIN `check` on `check`.car_number = car.car_number
    JOIN place on place.number_place = `check`.number_place
    JOIN parking on place.id_parking = parking.id_parking
    JOIN street on parking.id_street = street.id_street
    WHERE street_name = 'Московский пр.'
)

## LEFT/RIGHT
SELECT A.*
FROM
(
    SELECT owner.*
    FROM owner
    JOIN car on owner.id_owner = car.id_owner
    JOIN `check` on car.car_number = `check`.car_number
    JOIN place on place.number_place = `check`.number_place
    JOIN parking on parking.id_parking = place.id_parking
    JOIN street on street.id_street = parking.id_street
    WHERE street.street_name = 'Невский пр.'
) AS A
LEFT JOIN
(
    SELECT o1.*
    FROM owner o1
    JOIN car on o1.id_owner = car.id_owner
    JOIN `check` on `check`.car_number = car.car_number
    JOIN place on place.number_place = `check`.number_place
    JOIN parking on place.id_parking = parking.id_parking
    JOIN street st1 on parking.id_street = st1.id_street
    WHERE st1.street_name = 'Московский пр.'
) AS B ON B.id_owner = A.id_owner
WHERE B.id_owner IS NULL
```

id_owner	Surname	Name	Middle_name
1	Иванов	Иван	Иваноич