Кафедра компьютерных технологий и программной инженерии

ОТЧЁТ
ЗАЩИЩЁН С ОЦЕНКОЙ

ПРЕПОДАВАТЕЛЬ

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Отчёт по лабораторной работе №5

по курсу: Проектирование баз данных

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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
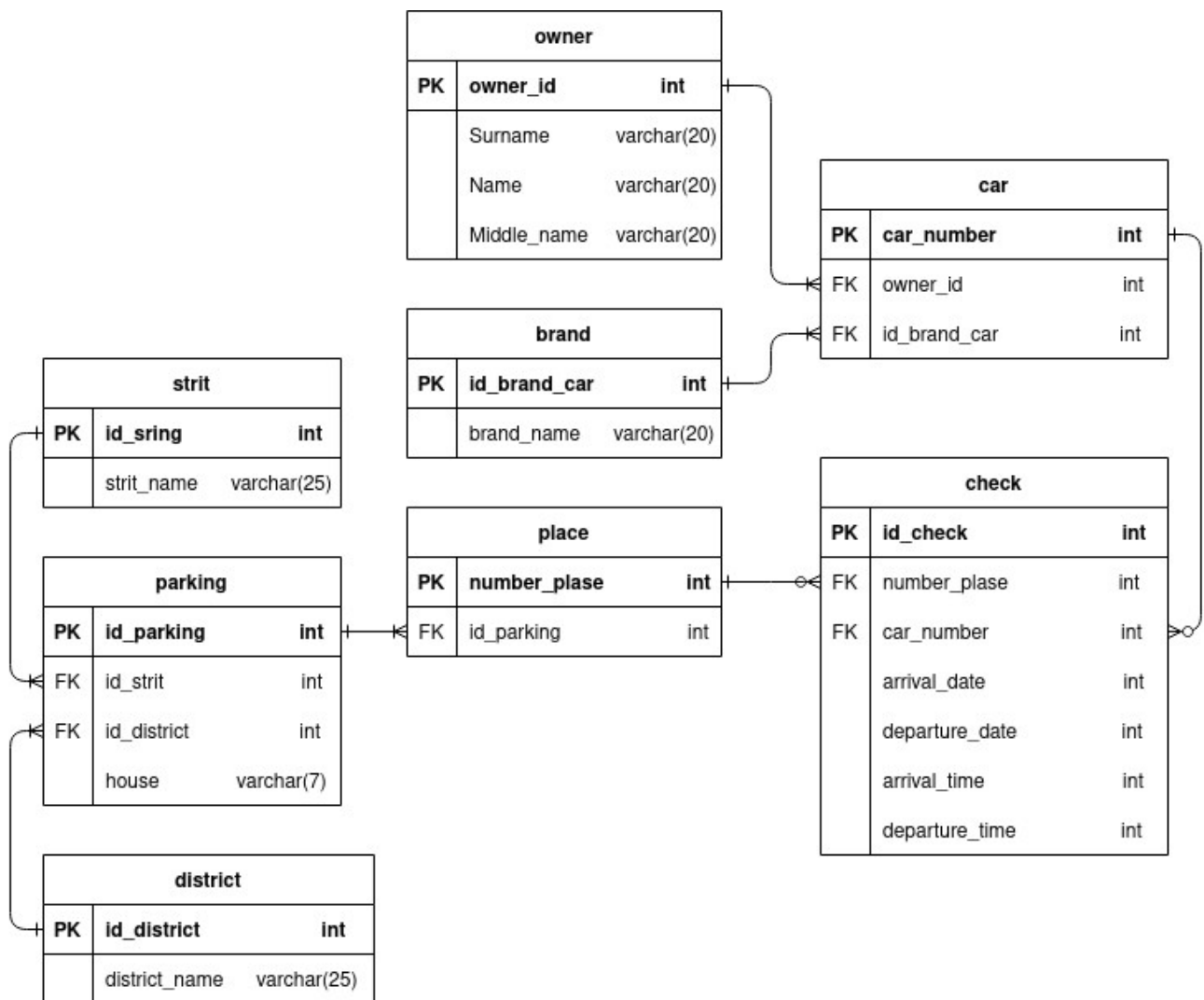
г. владелец машин, заезжавший позже всех

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.*, CAST( CAST(arrival_date as DATETIME) + arrival_time AS DATETIME ) AS dt
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) + `check`.arrival_time AS DATETIME)  >= ALL
(
    SELECT CAST( CAST(arrival_date as DATETIME) + arrival_time AS DATETIME )
    FROM `check`
)
```

id_owner	Surname	Name	Middle_name	arrival_date	arrival_time
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
join place p on p.number_place = `check`.number_place
GROUP BY car.car_number HAVING COUNT(distinct p.id_parking) = (
    SELECT MIN(t.count)
    FROM (
        SELECT `check`.car_number, COUNT(distinct p2.id_parking) 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 `check`.car_number
    ) as t
)
```

id_owner	Surname	Name	Middle_name
2	Петров	Пётр	Пертрович

Запрос Е

```sql
SELECT parking.*
FROM parking
JOIN district d on d.id_district = parking.id_district
WHERE d.district_name = "Московский";

SELECT car.car_number
FROM car
WHERE NOT EXISTS
(
    SELECT parking.*
    FROM parking
    JOIN district d on d.id_district = parking.id_district
```

```sql
  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	1

Запрос Ж

```sql
## 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 = 'Московский 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 = 'Невский пр.'
);

## EXCEPT
(
    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 = 'Московский пр.'
)
```

```sql
EXEPT
(
    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 = 'Невский 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 = 'Московский 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 = 'Невский 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	Иванович