**Отчет по практической работе №4.1 и №4.2**

**Выборка данных из базы данных. Команда SELECT**

**1. Информация о студенте**

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Группа: ЭФБО-09-23*

**2. Задание**

1. Вывести список квартир с площадью равной указанному значению.

2. Вывести список объектов недвижимости, расположенных в указанном районе стоимостью «ОТ» и «ДО».

3. Вывести список квартир с площадью более указанного значения, расположенных в указанном районе.

4. Вывести квартиры, расположенные в панельном доме на 2 этаже стоимостью менее указанного значения.

5. Вывести фамилии и инициалы риэлторов, которые продали двухкомнатные объекты недвижимости. Отсортировать в алфавитном порядке.

6. Выбрать список квартир, проданных риэлтором выше указанной продажной стоимости.

7. Выбрать все оценки объекта недвижимости по указанному адресу.

8. Вывести разницу между заявленной и продажной стоимостью объектов недвижимости, расположенных на 2 этаже. Отсортировать в порядке возрастания разницы.

9. Вывести структуру объекта недвижимости. Отсортировать в порядке убывания площади.

10. Продажная стоимость объекта недвижимости вычисляется с учетом комиссии риэлтора. Вывести стоимость, которую получит продавец на руки (за вычетом комиссии риэлтора).

11. Вывести объекты недвижимости, у которых продажная стоимость равна сумме заявленной стоимости + комиссия риэлтора.

12. Рассчитать премию, которую получит риэлтор за каждый проданный объект недвижимости.

13. Вывести дома, которые продавались больше 4 месяцев

14. Вывести фамилии риэлторов, телефоны которых не введены в базу.

15. Отсортировать риэлторов по количеству символов в ФИО. Вывести первые три фамилии риэлторов.

16. Отсортировать проданные объекты недвижимости по дате продажи. Вывести с третьего по шестой объект недвижимости.

17. Рассчитать долю площади каждой комнаты объекта недвижимости в процентах.

18. Вывести фамилии риэлторов, фамилии которых не начинается с буквы от «А» до «Г» или с буквы «С».

19. Вывести названия районов, в названии которых третья буква – «а», а предпоследняя – «и».

20. Вывести фамилии риэлторов, фамилии которых начинаются с букв от «К» до «П».

**3. Процесс решения:**

1.

SELECT address, price, (SELECT name FROM districts WHERE id = real\_estate\_object.district\_id) AS district\_name

FROM real\_estate\_object

WHERE area > 30 AND type\_id = (SELECT id FROM type WHERE name = 'Квартира');

2.

SELECT address, area, floor, (SELECT name FROM type WHERE id = real\_estate\_object.type\_id) AS type\_name

FROM real\_estate\_object

WHERE price BETWEEN 5000000 AND 20000000

AND district\_id = (SELECT id FROM districts WHERE name = 'Южный');

3.

SELECT address, price / area AS price\_per\_m2

FROM real\_estate\_object

WHERE area > 70

AND district\_id = (SELECT id FROM districts WHERE name = 'Южный')

AND type\_id = (SELECT id FROM type WHERE name = 'Квартира');

4.

SELECT address, rooms

FROM real\_estate\_object

WHERE floor = 2

AND price < 20000000

AND building\_material\_id = (SELECT id FROM building\_materials WHERE name = 'Кирпич')

AND type\_id = (SELECT id FROM type WHERE name = 'Квартира');

5.

SELECT last\_name || ' ' || LEFT(first\_name, 1) || '.' || COALESCE(' ' || LEFT(middle\_name, 1) || '.', '') AS realtor\_name

FROM realtor

WHERE id IN (SELECT realtor\_id FROM sale WHERE real\_estate\_id IN (SELECT id FROM real\_estate\_object WHERE *rooms* = 2))

ORDER BY last\_name;

6.

SELECT address, floor, price / area AS price\_per\_m2

FROM real\_estate\_object

WHERE id IN (SELECT real\_estate\_id FROM sale WHERE price > 2000000 AND *realtor\_id* = (SELECT id FROM realtor WHERE last\_name = 'Иванов'))

AND type\_id = (SELECT id FROM type WHERE name = 'Квартира');

7.

SELECT (SELECT name FROM evaluation\_criteria WHERE *id* = evaluations.criteria\_id) AS criteria\_name, score

FROM evaluations

WHERE real\_estate\_id IN (SELECT id FROM real\_estate\_object WHERE address LIKE 'ул. Ленина%');

8.

SELECT

    address,

    (SELECT price FROM real\_estate\_object WHERE id = sale.real\_estate\_id) - price AS price\_difference,

    ((SELECT price FROM real\_estate\_object WHERE id = sale.real\_estate\_id) - price) \* 100

    / (SELECT price FROM real\_estate\_object WHERE id = sale.real\_estate\_id) AS percentage\_difference

FROM sale

WHERE real\_estate\_id IN (SELECT id FROM real\_estate\_object WHERE *floor* = 2)

ORDER BY price\_difference;

9.

SELECT (SELECT name FROM room\_types WHERE *id* = real\_estate\_structure.room\_type\_id) AS room\_type, area

FROM real\_estate\_structure

WHERE real\_estate\_id IN (SELECT id FROM real\_estate\_object WHERE address LIKE 'ул. Ленина%')

ORDER BY area DESC;

10.

SELECT

    address,

    (SELECT price - (price \* commission / 100) FROM sale WHERE real\_estate\_id = real\_estate\_object.id) AS seller\_amount

FROM real\_estate\_object

WHERE id IN (SELECT real\_estate\_id FROM sale);

11.

SELECT address

FROM real\_estate\_object

WHERE id IN (

    SELECT real\_estate\_id

    FROM sale

    WHERE *price* = (SELECT price FROM real\_estate\_object WHERE id = sale.real\_estate\_id)

                 + ((SELECT price FROM real\_estate\_object WHERE id = sale.real\_estate\_id) \* commission / 100)

);

12.

SELECT

    (SELECT last\_name || ' ' || LEFT(first\_name, 1) || '.' ||

        LEFT(middle\_name, 1) || '.'

     FROM realtor WHERE id = sale.realtor\_id) AS realtor\_name,

    (SELECT address FROM real\_estate\_object WHERE id = sale.real\_estate\_id) AS address,

    (price - (SELECT price FROM real\_estate\_object WHERE id = sale.real\_estate\_id)) \* 0.1 AS bonus

FROM sale;

13.

SELECT address

FROM real\_estate\_object

WHERE id IN (

    SELECT real\_estate\_id

    FROM sale

    WHERE real\_estate\_id IN (

        SELECT id FROM real\_estate\_object WHERE *type\_id* = (SELECT id FROM type WHERE name = 'Дом')

    )

    AND sale\_date > (SELECT announcement\_date + INTERVAL '4 days' FROM real\_estate\_object WHERE id = sale.real\_estate\_id)

);

14.

SELECT last\_name FROM realtor WHERE middle\_name IS NULL;

15.

SELECT last\_name

FROM realtor

ORDER BY LENGTH(last\_name || first\_name || COALESCE(middle\_name, ''))

LIMIT 3;

16.

SELECT address FROM real\_estate\_object

WHERE id IN (SELECT real\_estate\_id FROM sale ORDER BY sale\_date LIMIT 4 OFFSET 2);

17.

SELECT

    (SELECT name FROM room\_types WHERE id = real\_estate\_structure.room\_type\_id) AS room\_type,

    (area \* 100.0 / (SELECT SUM(area) FROM real\_estate\_structure

                     WHERE real\_estate\_id IN (SELECT id FROM real\_estate\_object WHERE address LIKE 'ул. Ленина%')))

    AS percentage\_area

FROM real\_estate\_structure

WHERE real\_estate\_id IN (SELECT id FROM real\_estate\_object WHERE address LIKE 'ул. Ленина%')

ORDER BY percentage\_area DESC;

18.

SELECT last\_name FROM realtor

WHERE last\_name NOT LIKE 'А%' AND last\_name NOT LIKE 'Б%' AND last\_name NOT LIKE 'В%'

AND last\_name NOT LIKE 'Г%' AND last\_name NOT LIKE 'С%';

19.

SELECT name FROM districts

WHERE name LIKE '\_\_н%' AND name LIKE '%ы\_';

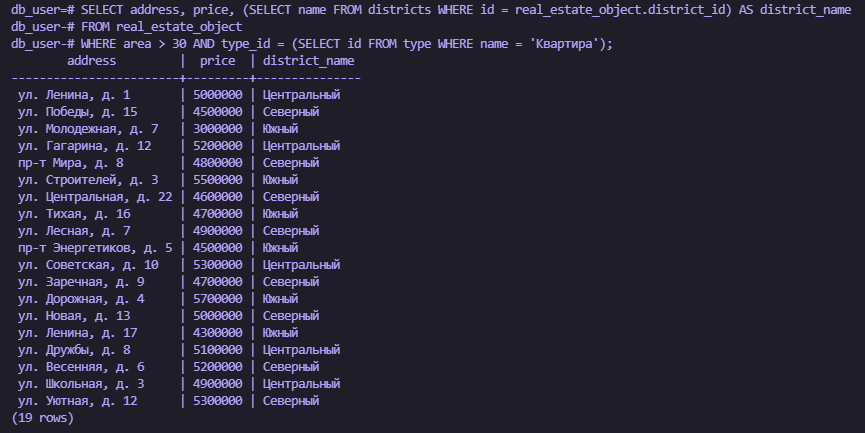
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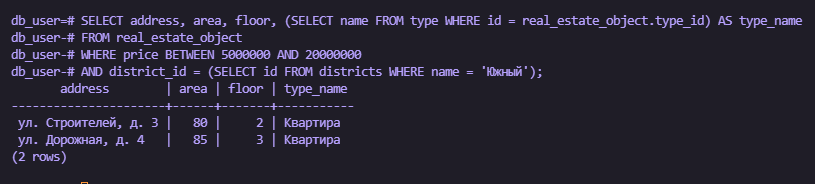
SELECT last\_name FROM realtor

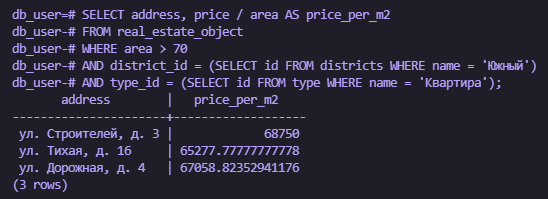
WHERE last\_name LIKE 'К%' OR last\_name LIKE 'Л%' OR last\_name LIKE 'М%'

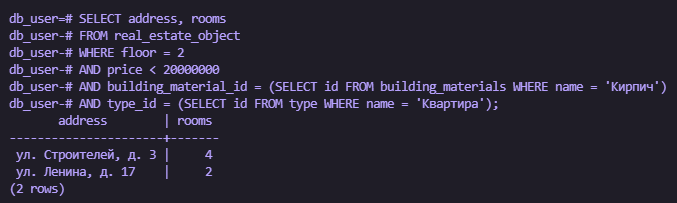
OR last\_name LIKE 'Н%' OR last\_name LIKE 'О%' OR last\_name LIKE 'П%';

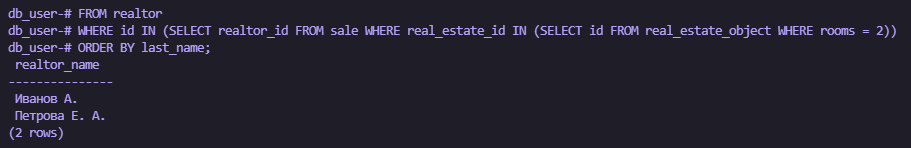
**4. Результат**

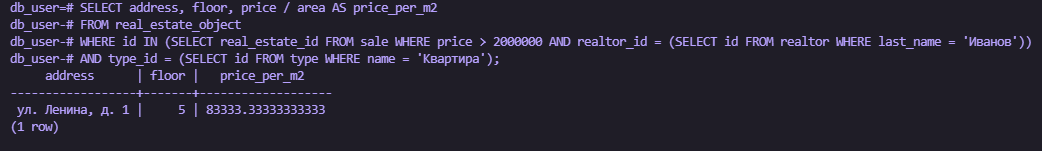


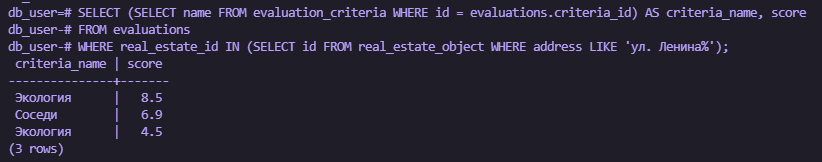


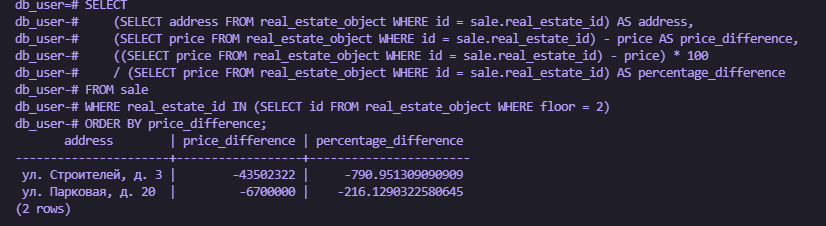


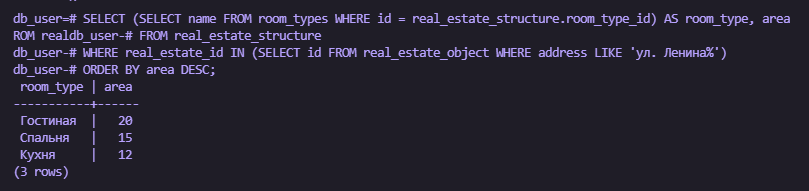


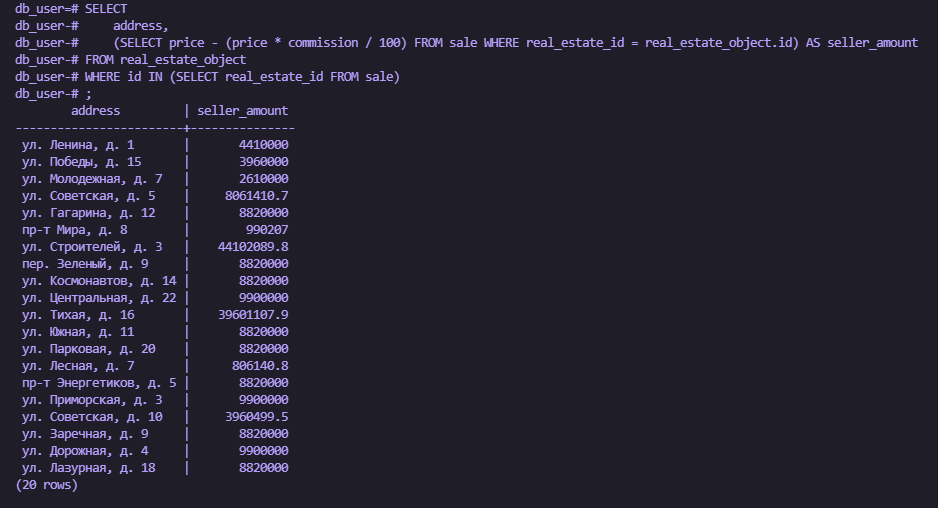


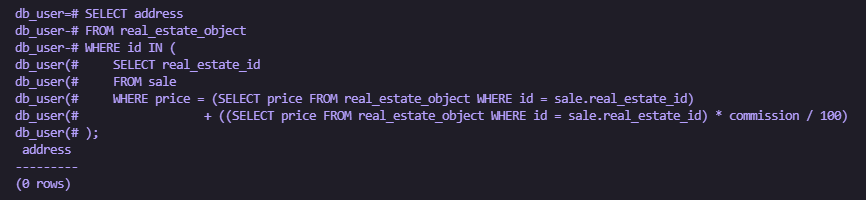


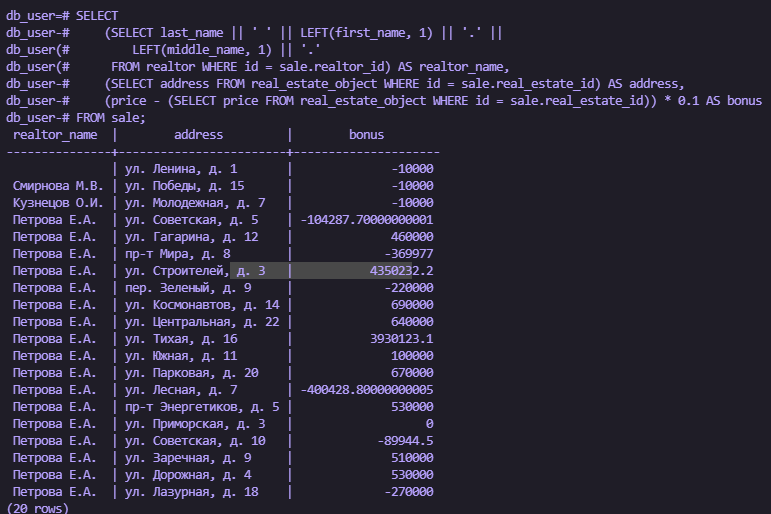


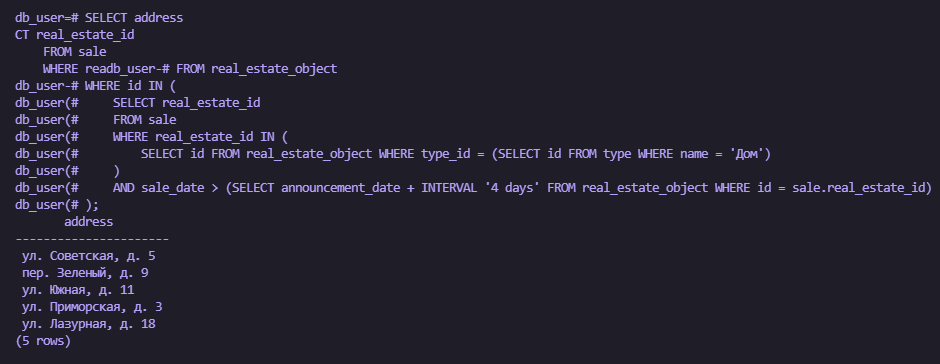


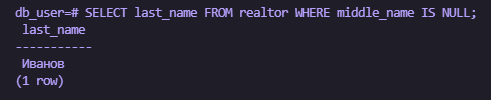


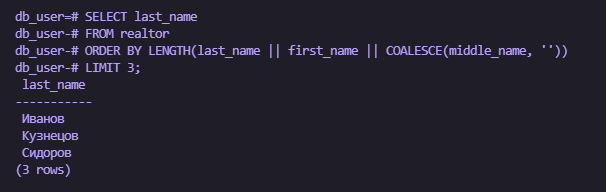


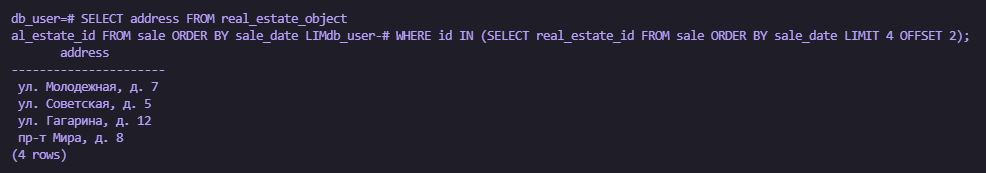


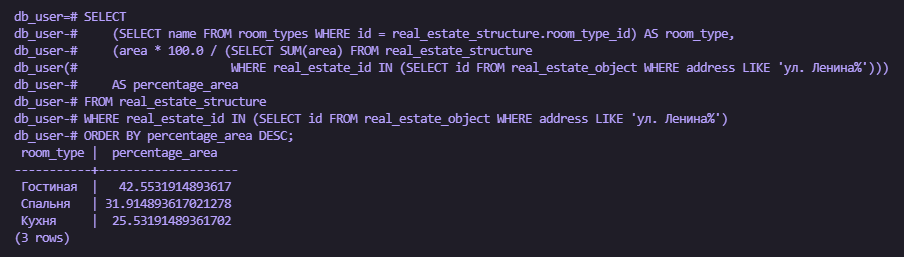


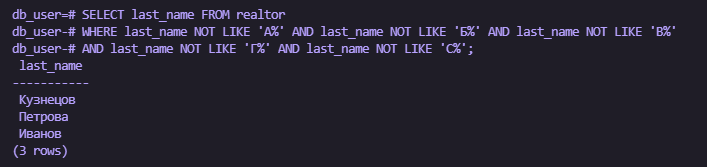


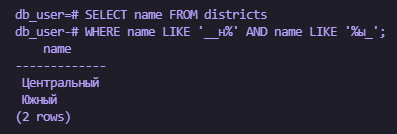


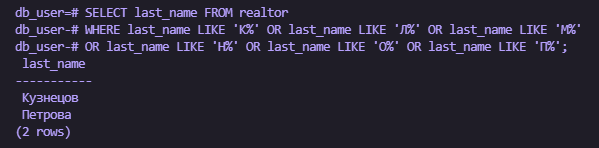












**4.2 Процесс решения:**

1.

SELECT COUNT(\*)

FROM real\_estate\_object

WHERE floor = 2;

2.

SELECT AVG(price)

FROM real\_estate\_object

WHERE type\_id = (SELECT id FROM type WHERE name = 'Дом')

AND id IN (

    SELECT real\_estate\_id

    FROM real\_estate\_structure

    GROUP BY real\_estate\_id

    HAVING COUNT(\*) > 2 AND SUM(area) > 30

);

3.

SELECT MAX(price), MIN(price)

FROM sale

WHERE realtor\_id IN (

    SELECT id

    FROM realtor

    WHERE *last\_name* = 'Петрова'

);

4.

SELECT AVG(price / (SELECT area FROM real\_estate\_object WHERE id = sale.real\_estate\_id))

FROM sale

WHERE real\_estate\_id IN (

    SELECT id

    FROM real\_estate\_object

    WHERE *type\_id* = (SELECT id FROM type WHERE name = 'Квартира')

)

AND sale\_date BETWEEN '2025-03-10' AND '2025-03-15';

5.

SELECT COUNT(\*)

FROM sale

WHERE realtor\_id IN (

    SELECT id

    FROM realtor

    WHERE *last\_name* = 'Петрова'

);

6.

SELECT MAX(area)

FROM real\_estate\_object

WHERE price > 10000000;

7.

SELECT

    MAX((SELECT price FROM real\_estate\_object WHERE id = sale.real\_estate\_id) - price) AS max\_difference,

    MIN((SELECT price FROM real\_estate\_object WHERE id = sale.real\_estate\_id) - price) AS min\_difference

FROM sale

WHERE real\_estate\_id IN (

    SELECT id FROM real\_estate\_object

)

AND sale\_date >= '2024-01-01'

AND sale\_date < '2025-04-01';

8.

SELECT AVG(score)

FROM evaluations

WHERE criteria\_id = (SELECT id FROM evaluation\_criteria WHERE name = 'Экология')

AND real\_estate\_id IN (

    SELECT id

    FROM real\_estate\_object

    WHERE *type\_id* = (SELECT id FROM type WHERE name = 'Дом')

)

AND real\_estate\_id IN (

    SELECT real\_estate\_id

    FROM sale

    WHERE *realtor\_id* = (SELECT id FROM realtor WHERE last\_name = 'Петрова')

);

9.

SELECT

    MIN((sale\_date - announcement\_date) / 7) AS min\_sale\_duration\_weeks,

    MAX((sale\_date - announcement\_date) / 7) AS max\_sale\_duration\_weeks

FROM

    sale, real\_estate\_object

WHERE

    sale.real\_estate\_id = real\_estate\_object.id;

10.

SELECT COUNT(\*)

FROM sale

WHERE (SELECT price FROM real\_estate\_object WHERE *id* = sale.real\_estate\_id) \* 0.8 > price;

11.

SELECT

    (SUM(price \* commission / 100)) AS bonus

FROM sale

WHERE realtor\_id = (SELECT id FROM realtor WHERE last\_name = 'Иванов')

AND sale\_date >= CURRENT\_DATE - INTERVAL '1 month';

12.

SELECT real\_estate\_id, SUM(area)

FROM real\_estate\_structure

GROUP BY real\_estate\_id;

13.

SELECT MAX(price / area)

FROM real\_estate\_object

WHERE type\_id = (SELECT id FROM type WHERE name = 'Квартира')

AND area > 30

AND district\_id = (SELECT id FROM districts WHERE name = 'Южный');

14.

SELECT COUNT(\*)

FROM districts

WHERE name LIKE '%ый'

AND name NOT LIKE '%чный';

15.

SELECT (SELECT MAX(area) FROM real\_estate\_object) / (SELECT MIN(area) FROM real\_estate\_object) AS raznitsa;

16.

SELECT address

FROM real\_estate\_object

WHERE price / area < (SELECT AVG(price / area) FROM real\_estate\_object WHERE district\_id = real\_estate\_object.district\_id);

17.

SELECT last\_name, first\_name, middle\_name

FROM realtor

WHERE id NOT IN (

    SELECT realtor\_id

    FROM sale

    WHERE sale\_date >= '2025-03-15'

);

18.

SELECT real\_estate\_id

FROM real\_estate\_structure

GROUP BY real\_estate\_id

HAVING SUM(area) <> (SELECT area FROM real\_estate\_object WHERE id = real\_estate\_structure.real\_estate\_id);

19.

SELECT id, address

FROM real\_estate\_object

WHERE area > ANY (SELECT area FROM real\_estate\_object WHERE *type\_id* = (SELECT id FROM type WHERE name = 'Квартира'));

20.

SELECT id, address

FROM real\_estate\_object

WHERE price > ALL (

    SELECT price

    FROM real\_estate\_object

    WHERE *type\_id* = (SELECT id FROM type WHERE name = 'Квартира')

    AND *rooms* = 2

    AND *building\_material\_id* = (SELECT id FROM building\_materials WHERE name = 'Панель')

);

21.

SELECT address

FROM real\_estate\_object

WHERE district\_id IN (

    SELECT district\_id

    FROM real\_estate\_object

    WHERE area > 100

);

**4.2 Результат:**