тестовое_задание-valiotti-sql

Задание 1

```
-- Используется диалект PostgreSQL.

SELECT city
FROM city_population
ORDER BY population
LIMIT 1;
```

Задание 2

```
-- Используется диалект PostgreSQL.

CREATE EXTENSION IF NOT EXISTS tablefunc;

SELECT * FROM
crosstab
(
    'SELECT * FROM foo ORDER BY ID',
    'SELECT DISTINCT Name FROM foo ORDER BY Name'
) AS (ID INT, A INT, B INT, C INT)
ORDER BY ID;
```

Задание 3

```
-- Используется диалект PostgreSQL.

SELECT to_char(date_inst, 'YYYY-MM') AS month_inst,
       date_diff AS date_diff,
       SUM(ret_base) AS month_ret_base,
       SUM(cht_size) AS month_cht_size,
       SUM(ret_base)::float / SUM(cht_size)::float AS month_ret_rate
FROM
(
    WITH inst
    AS
    (
    SELECT installed_at::date as date_inst, COUNT(DISTINCT user_id) AS cht_size
    FROM user
    WHERE installed_at >= '2020-01-01'
      AND installed_at <= now()::date - interval '7 days'
    GROUP BY 1
    )
    ,
    ret
    AS
    (
    SELECT installed_at::date AS date_inst,
           created_at::date - installed_at::date AS date_diff,
           COUNT(DISTINCT user.user_id) AS ret_base
    FROM user
    LEFT JOIN client_session USING(user_id)
    WHERE installed_at >= '2020-01-01'
      AND installed_at <= now()::date - interval '7 days'
      AND created_at::date - installed_at::date IN (1, 3, 7)
    GROUP BY 1, 2
    )

    SELECT inst.date_inst AS date_inst,
           ret.date_diff AS date_diff,
           ret.ret_base AS ret_base,
           inst.cht_size as cht_size,
           ret.ret_base::float / inst.cht_size::float AS ret_rate
    FROM ret LEFT JOIN inst USING(date_inst)
) AS foo
GROUP BY 1, 2
ORDER BY 1, 2
```