ЧАСТЬ 1: SQL

Задание 1: Верните пользователей с количеством бронирований больше одного. В результате должен быть идентификатор пользователя, имя, количество бронирований, первую и последнюю дату начала бронирования, общую стоимость бронирования. Отсортируйте результат по количеству бронирований, общей стоимости бронирования в порядке убывания.

```
WITH user_reservations AS (
        SELECT r.user_id,
                COUNT(1) AS amount_of_reservations,
                MIN(r.start_date) AS first_start_date,
                MAX(r.start_date) AS last_start_date,
                SUM(r.total) AS total_sum
        FROM Reservations AS r
        GROUP BY r.user_id
        HAVING COUNT(1) > 1
)
SELECT user_reservations.user_id,
        u.name,
        user_reservations.amount_of_reservations,
        user_reservations.first_start_date,
        user_reservations.last_start_date,
        user_reservations.total_sum
FROM Users AS u
        JOIN user_reservations ON u.id = user_reservations.user_id
ORDER BY user_reservations.amount_of_reservations DESC,
        user_reservations.total_sum DESC;
```

	user_id	name	amount_of_reservations	first_start_date	last_start_date	total_sum
1	12	Russell Crowe	4	2018-12-29T12:00:00.000Z	2020-05-14T10:00:00.000Z	1960
2	13	Steve Martin	3	2019-02-01T12:00:00.000Z	2019-11-04T10:00:00.000Z	945
3	21	Catherine Zeta-Jones	3	2019-11-03T09:00:00.000Z	2020-02-08T10:00:00.000Z	920
4	1	Bruce Willis	2	2018-11-13T12:00:00.000Z	2020-06-01T10:00:00.000Z	1430
5	2	George Clooney	2	2018-10-09T12:00:00.000Z	2019-11-07T10:00:00.000Z	690
6	7	Samuel L. Jackson	2	2020-01-08T13:00:00.000Z	2020-05-01T10:00:00.000Z	396

Задание 2: Посчитайте общую стоимость бронирований по годам накопительным итогом.

```
SELECT YEAR(end_date) AS year_of_booking,
        SUM(total) AS total_per_year,
```

```
    SUM(SUM(total)) OVER (ORDER BY YEAR(end_date)) AS cumulative_sum
FROM Reservations
GROUP BY YEAR(end_date)
ORDER BY year_of_booking;
```

	year_of_booking	total_per_year	cumulative_sum
1	2018	640	640
2	2019	8300	8940
3	2020	6739	15679

Задание 3: Найдите все варианты жилья с низким средним рейтингом (2 и ниже). В результате должны быть указаны данные по жилью и средний рейтинг.

```
WITH low_rated_rooms AS (
    SELECT e.room_id,
        AVG(r.rating) AS avg_rating
    FROM Reviews AS r
        JOIN Reservations AS e ON r.reservation_id = e.id
    GROUP BY e.room_id
    HAVING AVG(r.rating) <= 2
)
SELECT l.avg_rating,
    o.*
FROM Rooms AS o
    JOIN low_rated_rooms AS l ON l.room_id = o.id
ORDER BY l.avg_rating;
```

	avg_rating	id	home_type	address	has_tv	has_internet	has_kitchen	has_air_con	price	owner_id	latitude	longitude
1	1	14	Private room	10025, West 106th Street, New York	0	0	0	1	85	12	40.7983	-73.9611
2	2	39	Private room	11226, Marlborough Road, New York	0	1	0	0	150	25	40.637	-73.9633

Задание 4: По каждой шкале рейтинга от 1 до 5 посчитайте количество оценок и процентное соотношение.

```
SELECT rating,
    COUNT(1) AS amount_of_grades,
    (COUNT(1) / (SELECT COUNT(1) FROM Reviews) * 100) AS percentage_of_grades
FROM Reviews
GROUP BY rating
ORDER BY rating DESC;
```

	rating	amount_of_grades	percentage_of_grades
1	5	7	31.8182
2	4	7	31.8182
3	3	3	13.6364
4	2	4	18.1818
5	1	1	4.5455

Также для наглядности можно округлить проценты до 2 знаков после точки:

```
SELECT rating,
	COUNT(1) AS amount_of_grades,
	ROUND((COUNT(1) / (SELECT COUNT(1) FROM Reviews) * 100), 2) AS
percentage_of_grades
FROM Reviews
GROUP BY rating
ORDER BY rating DESC;
```

	rating	amount_of_grades	percentage_of_grades
1	5	7	31.82
2	4	7	31.82
3	3	3	13.64
4	2	4	18.18
5	1	1	4.55

Задание 5: Посчитайте среднюю длительность пребывания в днях по номерам

```
SELECT room_id,
	AVG(DATEDIFF(end_date, start_date)) AS avg_booking_duration_days
FROM Reservations
GROUP BY room_id
ORDER BY room_id;
```

	room_id	avg_booking_duration_days
1	1	3.4
2	2	2
3	5	1
4	7	4
5	8	2
6	13	31
7	14	4
8	16	10
9	17	2
10	19	6.3333