Task

The company you work for has been organizing an annual programming competition for 50 years. On this occasion, they want to send souvenirs to those participants who took part for at least three consecutive years at any point in the competition's history.

Your task is to find all such participants.

You are given a table `participation` with the following structure:

```
create table participation (
      name varchar(30) not null,
      year int not null,
      unique (name, year)
);
```

Each record in this table contains a "`name`" for each participant and the "`year`" in which they participated.

Write an SQL query that returns a table containing one column,

"`name`". Each record should contain the name of a participant who took part for at least three years in a row. The result table should be sorted alphabetically by the "`name`" column.

Examples:

1. Given table:

```
+-------+------+
|  name | year |
+-------+------|
|  John | 2003 |
|  Lyla | 1994 |
| Faith | 1996 |
|  John | 2002 |
| Carol | 2000 |
| Carol | 1999 |
|  John | 2001 |
| Carol | 2002 |
|  Lyla | 1996 |
|  Lyla | 1997 |
| Carol | 2001 |
|  John | 2009 |
+-------+------+
```

your query should return:

```
+-------+
|  name |
+-------+
| Carol |
|  John |
+-------+
```

Carol participated for four years in a row: 1999, 2000, 2001, 2002. John participated for three years in a row: 2001, 2002, 2003. Note that John also participated in 2009, but this does not count as part of the streak. Lyla participated in 1994, 1996 and 1997 but these were not three consecutive years. Faith participated only once.

2. Given table:

```
+-------+------+
|  name | year |
+-------+------|
| Kerry | 1980 |
| Kerry | 1981 |
| Kerry | 1983 |
| Blair | 1983 |
| Blair | 1982 |
| Blair | 1981 |
+-------+------+
```

your query should return:

```
+-------+
|  name |
+-------+
| Blair |
+-------+
```

Note that Kerry skipped participation in 1982 and thus cannot receive a souvenir.

3. Given table:

```
+--------+------+
|   name | year |
+--------+------+
|  Leigh | 1999 |
| Raylee | 1980 |
|   Alex | 1983 |
|   Alex | 1981 |
| Raylee | 1982 |
| Raylee | 1978 |
|  Leigh | 2001 |
|   Alex | 1985 |
|  Leigh | 2003 |
+--------+------+
```

Your query should return:

```
+------+
| name |
+------+
```

Each participant participated every second year.

Assume that:

- column year contains only integers within the range [1970..2020].

Solution:

```sql
-- Implement your solution here
WITH count1 AS (
    SELECT *, year - ROW_NUMBER() OVER (PARTITION BY name ORDER BY year) AS grp
    FROM participation
), count2 AS (
    SELECT *, COUNT(*) OVER (PARTITION BY name, grp) AS grp_count
    FROM count1
)
SELECT DISTINCT name
FROM count2
WHERE grp_count >= 3
ORDER BY name
```

Compilation successful.

Example test: (First example test.)
Returned value:

```
+-------+
| Carol |
|  John |
+-------+
```

OK

Example test: (Second example test.)
Returned value:

```
+-------+
| Blair |
+-------+
```

OK

Example test: (Third example test.)
Returned value:

OK

```
Your test case:
insert into participation values ('John', 2003);
insert into participation values ('Lyla', 1994);
insert into participation values ('Faith', 1996);
insert into participation values ('John', 2002);
insert into participation values ('Carol', 2000);
insert into participation values ('Carol', 1999);
insert into participation values ('John', 2001);
insert into participation values ('Carol', 2002);
insert into participation values ('Lyla', 1996);
insert into participation values ('Lyla', 1997);
insert into participation values ('Carol', 2001);
insert into participation values ('John', 2009);

Returned value:
+-------+
| Carol |
|  John |
+-------+
```

Your code is syntactically correct and works properly on the example test.
Note that the example tests are not part of your score. On submission at least 8 test cases not shown here will assess your solution.

Task 2

SQL (PostgreSQL)

Task score
100%

Correctness
100%

Performance
—

Example test cases
Passed 3 out of 3

Correctness test cases
Passed 9 out of 9

Submission date
2023-02-16 23:17 EET