3214. Year on Year Growth Rate Premium

Hard Topics

SQL Schema > Pandas Schema >

Table: `user_transactions`

```
+------------------+----------+
| Column Name      | Type     |
+------------------+----------+
| transaction_id   | integer  |
| product_id       | integer  |
| spend            | decimal  |
| transaction_date | datetime |
+------------------+----------+
The transaction_id column uniquely identifies each row in this table.
Each row of this table contains the transaction ID, product ID, the spend amount, and the transaction date.
```

Write a solution to calculate the **year-on-year growth rate** for the total spend **for each product**.

The result table should include the following columns:

- `year`: The year of the transaction.
- `product_id`: The ID of the product.
- `curr_year_spend`: The total spend for the current year.
- `prev_year_spend`: The total spend for the previous year.
- `yoy_rate`: The year-on-year growth rate percentage, rounded to `2` decimal places.

Return *the result table ordered by* `product_id`,`year` *in* ***ascending*** *order.*

The result format is in the following example.

Example:

Input:

`user_transactions` table:

```
+----------------+------------+---------+---------------------+
| transaction_id | product_id | spend   | transaction_date    |
+----------------+------------+---------+---------------------+
| 1341           | 123424     | 1500.60 | 2019-12-31 12:00:00 |
| 1423           | 123424     | 1000.20 | 2020-12-31 12:00:00 |
| 1623           | 123424     | 1246.44 | 2021-12-31 12:00:00 |
| 1322           | 123424     | 2145.32 | 2022-12-31 12:00:00 |
+----------------+------------+---------+---------------------+
```

Output:

```
+------+------------+----------------+----------------+----------+
| year | product_id | curr_year_spend| prev_year_spend| yoy_rate |
+------+------------+----------------+----------------+----------+
| 2019 | 123424     | 1500.60        | NULL           | NULL     |
| 2020 | 123424     | 1000.20        | 1500.60        | -33.35   |
| 2021 | 123424     | 1246.44        | 1000.20        | 24.62    |
| 2022 | 123424     | 2145.32        | 1246.44        | 72.12    |
+------+------------+----------------+----------------+----------+
```

Explanation:

- For product ID 123424:
  - In 2019:
    - Current year's spend is 1500.60
    - No previous year's spend recorded
    - YoY growth rate: NULL
  - In 2020:
    - Current year's spend is 1000.20
    - Previous year's spend is 1500.60
    - YoY growth rate: ((1000.20 - 1500.60) / 1500.60) * 100 = -33.35%
  - In 2021:
    - Current year's spend is 1246.44
    - Previous year's spend is 1000.20
    - YoY growth rate: ((1246.44 - 1000.20) / 1000.20) * 100 = 24.62%
  - In 2022:
    - Current year's spend is 2145.32
    - Previous year's spend is 1246.44
    - YoY growth rate: ((2145.32 - 1246.44) / 1246.44) * 100 = 72.12%

Note: Output table is ordered by `product_id` and `year` in ascending order.

Seen this question in a real interview before? 1/5

Yes No

Accepted **831** | Submissions **1.6K** | Acceptance Rate **51.5%**

Topics

Database

Discussion (1)