Problem 3642: Find Books with Polarized Opinions

Problem Information

Difficulty: Easy
Acceptance Rate: 0.00%
Paid Only: No

Problem Description

Table:

books

+-------------+---------+ | Column Name | Type | +-------------+---------+ | book_id | int | | title | varchar | | author | varchar | | genre | varchar | | pages | int | +-------------+---------+ book_id is the unique ID for this table. Each row contains information about a book including its genre and page count.

Table:

reading_sessions

+----------------+---------+ | Column Name | Type | +----------------+---------+ | session_id | int | | book_id | int | | reader_name | varchar | | pages_read | int | | session_rating | int | +----------------+---------+ session_id is the unique ID for this table. Each row represents a reading session where someone read a portion of a book. session_rating is on a scale of 1-5.

Write a solution to find books that have

polarized opinions

- books that receive both very high ratings and very low ratings from different readers.

A book has polarized opinions if it has

at least one rating ≥ 4

and

at least one rating ≤ 2

Only consider books that have

at least

5

reading sessions

Calculate the

rating spread

as (

highest_rating - lowest_rating

)

Calculate the

polarization score

as the number of extreme ratings (

ratings ≤ 2 or ≥ 4

) divided by total sessions

Only include

books where

polarization score ≥ 0.6

(at least

60%

extreme ratings)

Return

the result table ordered by polarization score in

descending

order, then by title in

descending

order

.

The result format is in the following example.

Example:

Input:

books table:

+---------+-----------------------+---------------+----------+-------+ | book_id | title | author | genre | pages | +---------+-----------------------+---------------+----------+-------+ | 1 | The Great Gatsby | F. Scott | Fiction | 180 | | 2 | To Kill a Mockingbird | Harper Lee | Fiction | 281 | | 3 | 1984 | George Orwell | Dystopian| 328 | | 4 | Pride and Prejudice | Jane Austen | Romance | 432 | | 5 | The Catcher in the Rye | J.D. Salinger | Fiction | 277 | +---------+-----------------------+---------------+----------+-------+

reading_sessions table:

+------------+---------+-------------+------------+----------------+ | session_id | book_id | reader_name | pages_read | session_rating | +------------+---------+-------------+------------+----------------+ | 1 | 1 | Alice | 50 | 5 | | 2 | 1 | Bob | 60 | 1 | | 3 | 1 | Carol | 40 | 4 | | 4 | 1 | David | 30 | 2 | | 5 | 1 | Emma | 45 | 5 | | 6 | 2 | Frank | 80 | 4 | | 7 | 2 | Grace | 70 | 4 | | 8 | 2 | Henry | 90 | 5 | | 9 | 2 | Ivy | 60 | 4 | | 10 | 2 | Jack | 75 | 4 | | 11 | 3 | Kate | 100 | 2 | | 12 | 3 | Liam | 120 | 1 | | 13 | 3 | Mia | 80 | 2 | | 14 | 3 | Noah | 90 | 1 | | 15 | 3 | Olivia | 110 | 4 | | 16 | 3 | Paul | 95 | 5 | | 17 | 4 | Quinn | 150 | 3 | | 18 | 4 | Ruby | 140 | 3 | | 19 | 5 | Sam | 80 | 1 | | 20 | 5 | Tara | 70 | 2 | +------------+---------+-------------+------------+----------------+

Output:

+---------+------------------+---------------+-----------+-------+---------------+--------------------+ | book_id | title | author | genre | pages | rating_spread | polarization_score | +---------+------------------+---------------+-----------+-------+---------------+--------------------+ | 1 | The Great Gatsby | F. Scott | Fiction | 180 | 4 | 1.00 | | 3 | 1984 | George Orwell | Dystopian | 328 | 4 | 1.00 | +---------+------------------+---------------+-----------+-------+---------------+--------------------+

Explanation:

The Great Gatsby (book_id = 1):

Has 5 reading sessions (meets minimum requirement)

Ratings: 5, 1, 4, 2, 5

Has ratings ≥ 4: 5, 4, 5 (3 sessions)

Has ratings ≤ 2: 1, 2 (2 sessions)

Rating spread: 5 - 1 = 4

Extreme ratings (≤2 or ≥4): All 5 sessions (5, 1, 4, 2, 5)

Polarization score: 5/5 = 1.00 (≥ 0.6, qualifies)

1984 (book_id = 3):

Has 6 reading sessions (meets minimum requirement)

Ratings: 2, 1, 2, 1, 4, 5

Has ratings ≥ 4: 4, 5 (2 sessions)

Has ratings ≤ 2: 2, 1, 2, 1 (4 sessions)

Rating spread: 5 - 1 = 4

Extreme ratings (≤2 or ≥4): All 6 sessions (2, 1, 2, 1, 4, 5)

Polarization score: 6/6 = 1.00 (≥ 0.6, qualifies)

Books not included:

To Kill a Mockingbird (book_id = 2): All ratings are 4-5, no low ratings (≤2)

Pride and Prejudice (book_id = 4): Only 2 sessions (< 5 minimum)

The Catcher in the Rye (book_id = 5): Only 2 sessions (< 5 minimum)

The result table is ordered by polarization score in descending order, then by book title in descending order.

Code Snippets

MySQL:

```
# Write your MySQL query statement below
```

MS SQL Server:

```
/* Write your T-SQL query statement below */
```

PostgreSQL:

```
-- Write your PostgreSQL query statement below
```

Oracle:

```
/* Write your PL/SQL query statement below */
```

Pandas:

```
import pandas as pd

def find_polarized_books(books: pd.DataFrame, reading_sessions: pd.DataFrame)
-> pd.DataFrame:
```

Solutions

MySQL Solution:

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