

Problem 3182: Find Top Scoring Students

Problem Information

Difficulty: Medium

Acceptance Rate: 0.00%

Paid Only: No

Problem Description

Table:

students

+-----+-----+ | Column Name | Type | +-----+-----+ | student_id | int | | name | varchar | | major | varchar | +-----+-----+ student_id is the primary key (combination of columns with unique values) for this table. Each row of this table contains the student ID, student name, and their major.

Table:

courses

+-----+-----+ | Column Name | Type | +-----+-----+ | course_id | int | | name | varchar | | credits | int | | major | varchar | +-----+-----+ course_id is the primary key (combination of columns with unique values) for this table. Each row of this table contains the course ID, course name, the number of credits for the course, and the major it belongs to.

Table:

enrollments

+-----+-----+ | Column Name | Type | +-----+-----+ | student_id | int | | course_id | int | | semester | varchar | | grade | varchar | +-----+-----+ (student_id, course_id, semester) is the primary key (combination of columns with unique values) for this table. Each row of this table contains the student ID, course ID, semester, and grade received.

Write a solution to find the students who have

taken

all courses

offered in their

major

and have achieved a

grade of A

in all these courses

.

Return

the result table ordered by

student_id

in

ascending

order

.

The result format is in the following example.

Example:

Input:

students table:

student_id	name	major
1	Alice	Computer Science
2	Bob	Computer Science
3	Charlie	Mathematics
4	David	Mathematics

courses table:

course_id	name	credits	major
101	Algorithms	3	Computer Science
102	Data Structures	3	Computer Science
103	Calculus	4	Mathematics
104	Linear Algebra	4	Mathematics

enrollments table:

student_id	course_id	semester	grade
1	101	Fall 2023	A
1	102	Fall 2023	A
2	101	Fall 2023	B
2	102	Fall 2023	A
3	103	Fall 2023	A
3	104	Fall 2023	A
4	103	Fall 2023	A
4	104	Fall 2023	B

Output:

student_id	1	3
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Explanation:

Alice (student_id 1) is a Computer Science major and has taken both "Algorithms" and "Data Structures", receiving an 'A' in both.

Bob (student_id 2) is a Computer Science major but did not receive an 'A' in all required courses.

Charlie (student_id 3) is a Mathematics major and has taken both "Calculus" and "Linear Algebra", receiving an 'A' in both.

David (student_id 4) is a Mathematics major but did not receive an 'A' in all required courses.

Note:

Output table is ordered by student_id in ascending 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_top_scoring_students(enrollments: pd.DataFrame, students:
pd.DataFrame, courses: pd.DataFrame) -> pd.DataFrame:
```

Solutions

MySQL Solution:

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