

1. Starting year of school have an impact on average exam results?

```
SELECT
    c.Starting_year,
    AVG(m.Result) AS Average_Result
FROM
    Monitoring m
JOIN
    Classes c
ON
    m.Class_ID = c.Class_ID
GROUP BY
    c.Starting_year
ORDER BY
    c.Starting_year;
```

```
OK
+-----+-----+
| c.starting_year | average_result |
+-----+-----+
| 2014            | 87.674242424242 |
| 2015            | 69.177777777778 |
+-----+-----+
```

2. Is there any correlation between students' exam results and the level of education of the teacher who runs the course?

```
SELECT
    t.education_level,
    AVG(m.Result) AS Average_Result
FROM
    Monitoring m
JOIN
    Teachers t
ON
    m.Teacher_ID = t.Teacher_ID
GROUP BY
    t.education_level
ORDER BY
    Average_Result DESC;
```

```
OK
+-----+-----+
| t.education_level | average_result |
+-----+-----+
| Master's Degree   | 87.833333333333 |
| Vocational/Technical Training | 86.266666666667 |
| Associate's Degree | 79.055555555556 |
+-----+-----+
```

3. Compare the average exam results in relation to the family status of students.

```
SELECT
    s.Family_status,
    AVG(m.Result) AS Average_Exam_Result FROM
    Students s JOIN
    Monitoring m ON s.Student_ID = m.Student_ID GROUP BY
    s.Family_status ORDER BY
    Average_Exam_Result DESC;
```

```
+-----+-----+
| s.family_status | average_exam_result |
+-----+-----+
| not full family | 85.47311827956989    |
| full family     | 80.20238095238095    |
+-----+-----+
6 rows selected (42.616 seconds)
```

4. Who is the best teacher?

```
SELECT
    t.Teacher_ID,
    t.name,
    t.surname,
    AVG(m.Result) AS Average_Exam_Result
FROM
    Monitoring m
JOIN
    Teachers t ON m.Teacher_ID = t.Teacher_ID
GROUP BY
    t.Teacher_ID, t.name, t.surname
ORDER BY
    Average_Exam_Result DESC
LIMIT 1;
```

```
+-----+-----+-----+-----+
| t.teacher_id | t.name | t.surname | average_exam_result |
+-----+-----+-----+-----+
| 5            | Jackson | Thompson  | 87.83333333333333    |
+-----+-----+-----+-----+
```

5 What are the results of the overall best student in the 2015 and the year 2014?

```
WITH top_2014 AS (
    SELECT
        s.student_ID,
        s.name,
        s.surname,
```

```

        YEAR(d.date_date) AS Exam_Year,
        AVG(m.Result) AS Average_Exam_Result
FROM
    Students s
JOIN
    Monitoring m ON s.Student_ID = m.Student_ID
JOIN
    Dates d ON m.Date_ID = d.date_id
WHERE
    YEAR(d.date_date) = 2014
GROUP BY
    s.student_ID, s.name, s.surname, YEAR(d.date_date)
ORDER BY
    Average_Exam_Result DESC
LIMIT 1
),
top_2015 AS (
    SELECT
        s.student_ID,
        s.name,
        s.surname,
        YEAR(d.date_date) AS Exam_Year,
        AVG(m.Result) AS Average_Exam_Result
    FROM
        Students s
    JOIN
        Monitoring m ON s.Student_ID = m.Student_ID
    JOIN
        Dates d ON m.Date_ID = d.date_id
    WHERE
        YEAR(d.date_date) = 2015
    GROUP BY
        s.student_ID, s.name, s.surname, YEAR(d.date_date)
    ORDER BY
        Average_Exam_Result DESC
    LIMIT 1
)
SELECT * FROM top_2014
UNION ALL
SELECT * FROM top_2015;

```

u1.student_id	u1.name	u1.surname	u1.exam_year	u1.average_exam_result
7	Rafal	Martinez	2014	91.33333333333333
14	Fabio	Brown	2015	94.33333333333333

6. Analyze the correlation between attendance and exam results.

SELECT

Student_ID,

AVG(attendance) AS Average_Attendance,

AVG(Result) AS Average_Result

FROM

Monitoring

GROUP BY

Student_ID;

student_id	average_attendance	average_result
1	71.88888888888889	83.55555555555556
2	80.33333333333333	82.55555555555556
3	85.22222222222223	92.0
4	78.44444444444444	84.55555555555556
5	71.33333333333333	77.33333333333333
6	81.11111111111111	86.77777777777777
7	86.66666666666667	93.11111111111111
8	81.77777777777777	89.66666666666667
9	80.33333333333333	87.55555555555556
10	84.44444444444444	91.22222222222223
11	79.88888888888889	84.0
12	81.22222222222223	87.22222222222223
13	80.77777777777777	87.55555555555556
14	86.11111111111111	93.11111111111111
15	85.33333333333333	91.44444444444444
16	84.66666666666667	69.0
17	80.0	62.0
18	86.66666666666667	73.66666666666667
19	82.33333333333333	66.33333333333333
20	77.66666666666667	58.666666666666664
21	85.66666666666667	71.66666666666667
22	89.0	76.33333333333333
23	84.33333333333333	70.0
24	80.0	63.0
25	87.0	74.33333333333333
26	79.66666666666667	60.666666666666664
27	84.66666666666667	73.66666666666667
28	81.33333333333333	68.66666666666667
29	88.0	77.33333333333333
30	84.66666666666667	72.33333333333333

7. does the gender of the teacher have impact on the exam results

```
SELECT
    t.gender AS Teacher_Gender,
    AVG(m.Result) AS Average_Exam_Result
FROM
    Monitoring m
JOIN
    Teachers t ON m.Teacher_ID = t.Teacher_ID
GROUP BY
    t.gender
ORDER BY
    Average_Exam_Result DESC;
```

2024-11-21 12:11:20 End of local echo; Time

teacher_gender	average_exam_result
Male	85.2991452991453
Female	78.43333333333334

2 rows selected. (41.750 seconds)

8. does the gender of student have impact on exam results

```
SELECT
    s.gender AS Student_Gender,
    AVG(m.Result) AS Average_Exam_Result
FROM
    Monitoring m
JOIN
    Students s ON m.Student_ID = s.student_ID
GROUP BY
    s.gender
ORDER BY
    Average_Exam_Result DESC;
```

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student_gender	average_exam_result
Male	84.61904761904762
Female	80.56944444444444

2 rows selected. (42.781 seconds)

9. Identify the subjects that have the overall best and worst exam results.

SELECT

c.Subject,

AVG(m.Result) AS Average_Exam_Result FROM

Courses c JOIN

Monitoring m ON c.Course_ID = m.Course_ID GROUP BY

c.Subject ORDER BY

Average_Exam_Result DESC;

c.subject	average_exam_result
Physics	88.93333333333334
Computer Science	86.26666666666667
Mathematics	85.2280701754386
Civics	74.66666666666667
Geography	54.93333333333333

10. What is the average attendance of a class in a each course?

SELECT

c.Subject,

m.Class_ID,

AVG(m.attendance) AS Average_Attendance

FROM

Monitoring m

JOIN

Classes cl ON m.Class_ID = cl.Class_ID

JOIN

Courses c ON m.Course_ID = c.Course_ID

GROUP BY

c.Subject, m.Class_ID

ORDER BY

c.Subject, m.Class_ID;

c.subject	m.class_id	average_attendance
Civics	7	89.6
Computer Science	1	77.31111111111112
Geography	7	69.6
Mathematics	1	84.97619047619048
Mathematics	7	91.93333333333334
Physics	1	81.6