

MDX Queries & KPI Report
Data Warehouses – Task 6
Success Academy – School System
Warehouses

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Queries:

1. **Compare the grades from exams conducted in the morning to the exams conducted in the noon**

```
SELECT
    { [Measures].[Average Grade] } ON COLUMNS,
    { [Time].[Time Of Day].[Morning], [Time].[Time Of Day].[Afternoon] } ON ROWS
FROM [DW Schema School]
```

2. **Which class achieves the lowest scoring?**

```
SELECT
    [Measures].[Average Grade] ON COLUMNS,
    { BOTTOMCOUNT([Class].[Name].Members, 1, SUM([Measures].[Average Grade])) } ON ROWS
FROM [DW Schema School]
```

3. **Compare the scoring of the students that are not living the same city as the school is located to those who are living the same city**

```
SELECT

{ [Measures].[Average Grade] } ON COLUMNS,

{
    FILTER(
        [Students].[City].[City].Members,
        [Students].[City].CurrentMember.Name <> "Gdansk"
    )
}
```

```
)  
} ON ROWS  
  
FROM [DW Schema School]
```

4. Teachers from which districts grade the highest?

```
SELECT  
  
{ [Measures].[Average Grade] } ON COLUMNS,  
  
{ ORDER([Teachers].[District].[District].Members, [Measures].[Average Grade],  
BDESC) } ON ROWS  
  
FROM [DW Schema School]
```

5. Which of the teachers grading the exams from the previous month managed to give students the highest grades?

```
SELECT  
  
{ [Measures].[Average Grade] } ON COLUMNS,  
  
{ TOPCOUNT([Teachers].[T Index].[T Index].Members, 3, AVG([Measures].[Average  
Grade]))} ON ROWS  
  
FROM [DW Schema School]  
WHERE (  
[Date].[Year].[2021],  
[Date].[Month].[March]  
)
```

6. What type of exam achieves the highest average satisfaction?

```
SELECT
  {[Measures].[Average Satisfaction]} ON COLUMNS,
  {
    TopCount(
      [Exam].[Type].[Type].Members,
      1,
      [Measures].[Average Satisfaction]
    )
  } ON ROWS
FROM [DW Schema School]
```

7. Which class specialization has the highest average satisfaction?

```
WITH
  MEMBER [Measures].[Highest Avg Satisfaction] AS
    MAX([Class].[Specialization].[Specialization].Members, [Measures].[Average
  Satisfaction])
```

```
SELECT
  {[Measures].[Highest Avg Satisfaction]} ON COLUMNS,
  TOPCOUNT(
    [Class].[Specialization].[Specialization].Members,
    1,
    [Measures].[Highest Avg Satisfaction]
  ) ON ROWS
FROM [DW Schema School]
```

8. Does the average satisfaction from the exam differ when the supervisor was a Female or Male?

```
SELECT
  {[Measures].[Average Satisfaction]} ON COLUMNS,
  {[Supervisor].[Gender].[Gender].Members} ON ROWS
```

FROM [DW Schema School]

9. Does average satisfaction differentiate between genders?

```
SELECT
    {[Measures].[Average Satisfaction]} ON COLUMNS,
    {[Students].[Gender].[Gender].Members} ON ROWS
FROM [DW Schema School]
```

10. Compare the average satisfaction from diagnostic exams from the previous month compared to the current month, grouped by title of the teacher

```
WITH
    MEMBER [Measures].[February Avg Satisfaction] AS
        AVG(
            [Date].[Month].[February],
            [Measures].[Average Satisfaction]
        )
    MEMBER [Measures].[March Avg Satisfaction] AS
        AVG(
            [Date].[Month].[March],
            [Measures].[Average Satisfaction]
        )
SELECT
    {
        [Measures].[February Avg Satisfaction],
        [Measures].[March Avg Satisfaction]
    } ON COLUMNS,
    {[Teachers].[Title].[Title].Members} ON ROWS
FROM [DW Schema School]
WHERE (
    [Date].[Year].[2021]
```

)

11. Compare the students' average satisfaction from the grade based on their age

SELECT

{ [Measures].[Average Satisfaction] } ON COLUMNS,

{ [Students].[Age Category].[Age Category].Members } ON ROWS

FROM [DW Schema School]

12. Compare the average writing time based on the type of the exam

SELECT

{ [Measures].[AverageWritingTime] } ON COLUMNS,

{ [Exam].[Type].[Type].Members } ON ROWS

FROM [DW Schema School]

KPIs:

The increase in the average satisfaction from the grade at a level not less than 1% compared to the previous month.

AverageSatisfactionKPI

Value Expression:

[Measures].[Average Satisfaction]

Goal Expression:

*(KPIValue("AverageSatisfactionKPI"), ParallelPeriod ([Date].[Grading Date Hierarchy].[Month], 1, [Date].[Grading Date Hierarchy].CurrentMember)) * 1.01*

Status Expression:

IIf (KPIVALUE("AverageSatisfactionKPI") > KPIGoal("AverageSatisfactionKPI"), 1, -1)

Trend Expression:

IIf (KPIValue("AverageSatisfactionKPI") > (KPIValue("AverageSatisfactionKPI"), ParallelPeriod (

[Date].[Grading Date Hierarchy].[Month], 1,

[Date].[Grading Date Hierarchy].CurrentMember)), 1, -1)

The increase in the overall average grade from the exam at a level not less than 1% compared to the previous month.

AverageGradeKPI

Value Expression:

[Measures].[Average Grade]

Goal Expression:

(KPIValue("AverageGradeKPI"), ParallelPeriod (

[Date].[Grading Date Hierarchy].[Month], 1,

*[Date].[Grading Date Hierarchy].CurrentMember)) * 1.01*

Status Expression:

If (KPIVALUE("AverageGradeKPI") > KPIGoal("AverageGradeKPI"), 1, -1)

Trend Expression:

If (KPIValue("AverageGradeKPI") > (KPIValue("AverageGradeKPI"), ParallelPeriod (

[Date].[Grading Date Hierarchy].[Month], 1,

[Date].[Grading Date Hierarchy].CurrentMember)), 1, -1)

