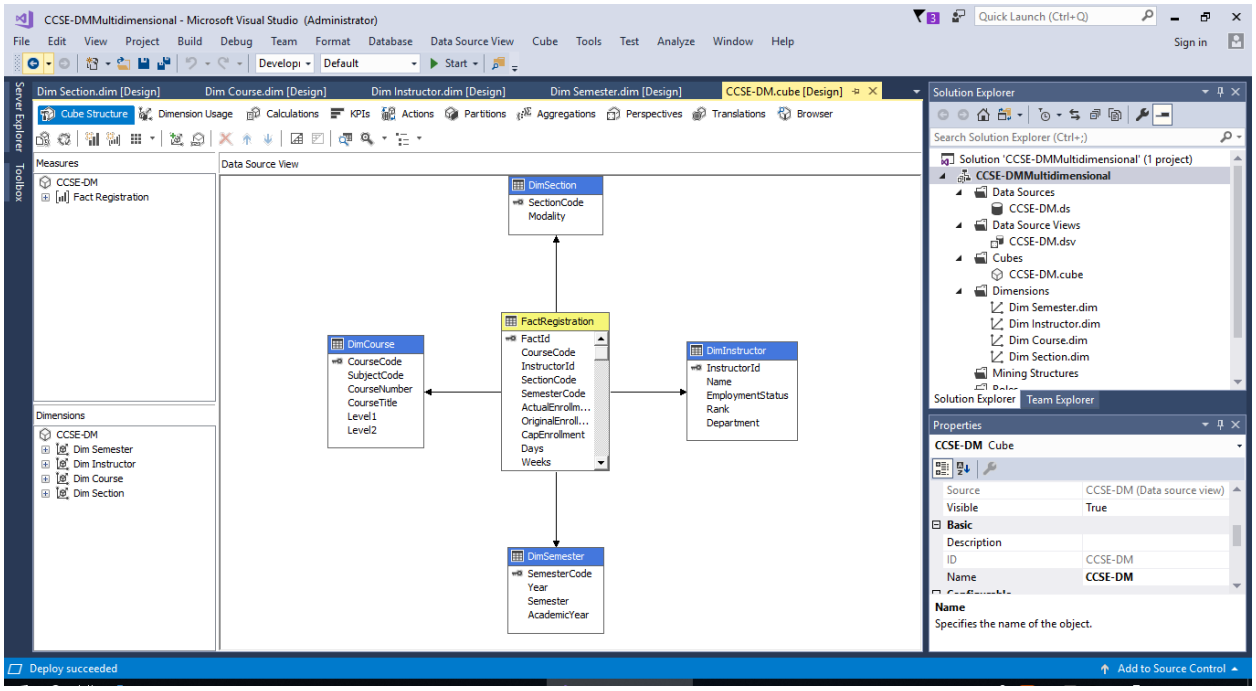
Taylor Cuffie
IT 4713
Dr. Zheng
Milestone 3

Cube Design



Pictured is the design of the data cube for the CCSE-DM database. For queries that I would need to perform I would utilize each of the dimension tables within the original database. The FactRegistration table included all of my measures for the data. The dimensions tables included all of my dimensions for the data.

Although I would not need attributes such as cap enrollment and course title for the 5 queries that I would need to perform, these attributes seemed like they would be useful if I were to access this data cube later on.

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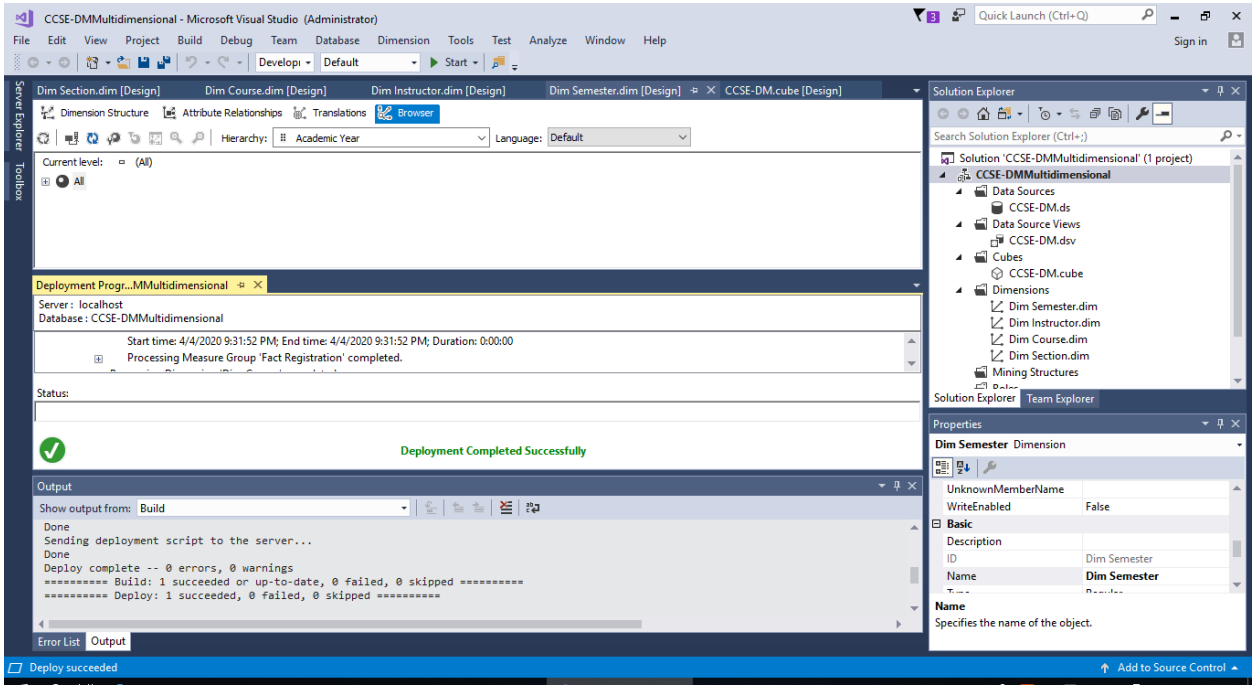
Deployment



The deployment of the data cube was a success and I was able to access the data cube within the SQL Server Management Studio.

Query 1

```
select ([Measures].[Fact Registration Count],[Dim Instructor].[Employment
Status].&[Adjunct],[Dim Instructor].[Department].[Department]) on columns,
([Dim Semester].[Semester].[Semester],[Dim Semester].[Year].[Year]) on rows
from [CCSE-DM];
```

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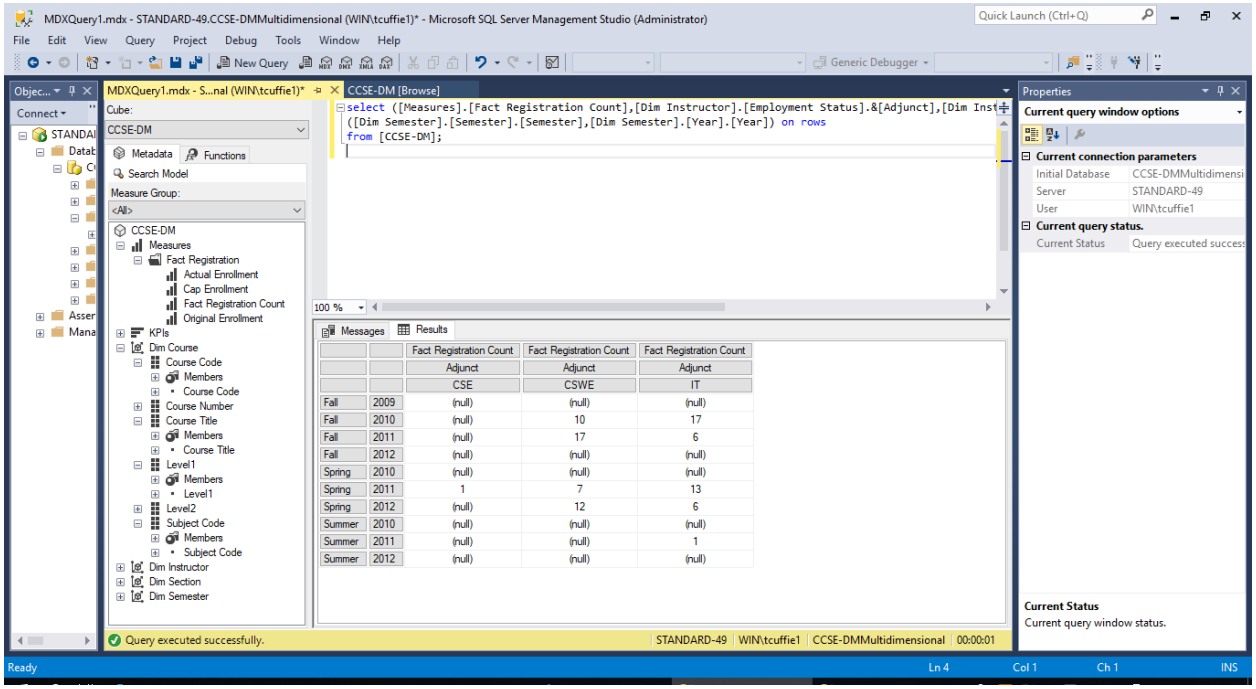

For query 1 the number of classes taught by each part time instructor by semester is returned. The columns include the part time professors designated by department. The rows designate the date by semester.

<u>Query 2</u>

select ([Measures].[Actual Enrollment],[Dim Course].[Level1].[Level1]) on columns,
[Dim Semester].[Academic Year].[Academic Year] on rows
from [CCSE-DM];

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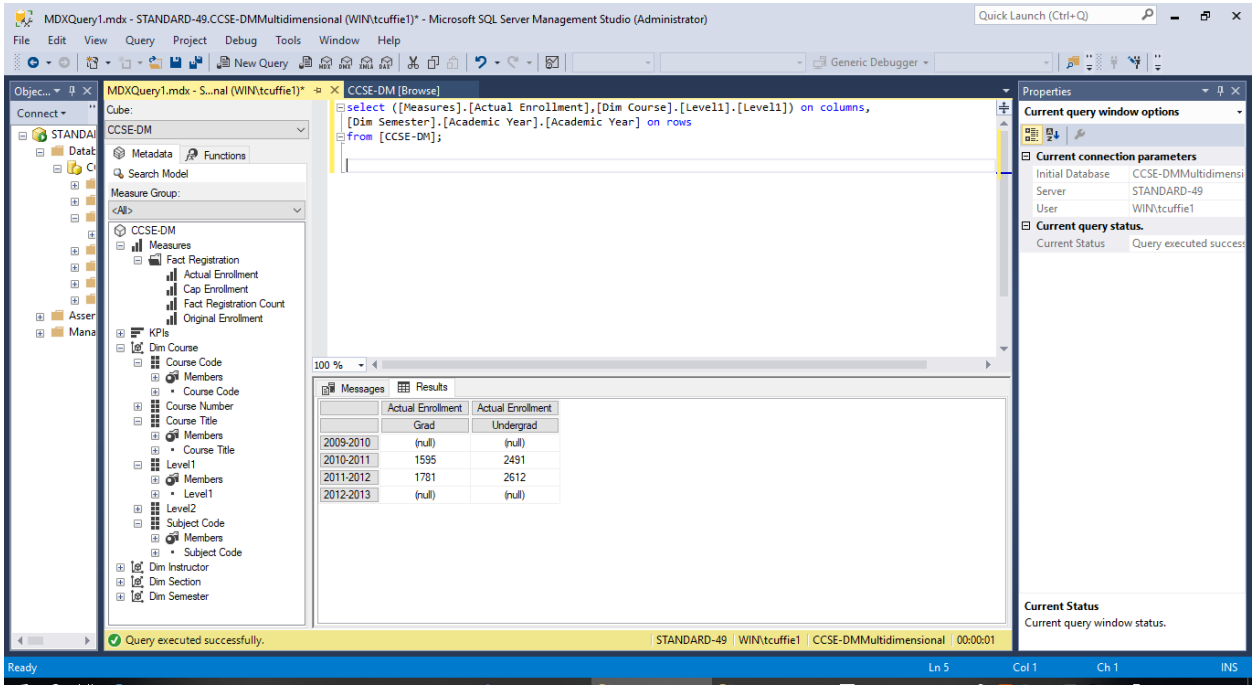

Query 2 reflects the actual enrollment for sections by level of course and academic year. The columns designate the level of the course, graduate or undergraduate. The rows designate the academic year in which the course was held.

Query 3

```
with member [Measures].[credits] as ([Measures].[Actual Enrollment]*3)
select [Measures].[credits] on columns,
[Dim Semester].[Academic Year].[Academic Year] on rows
from [CCSE-DM]
where [Dim Section].[Modality].&[Online];
```

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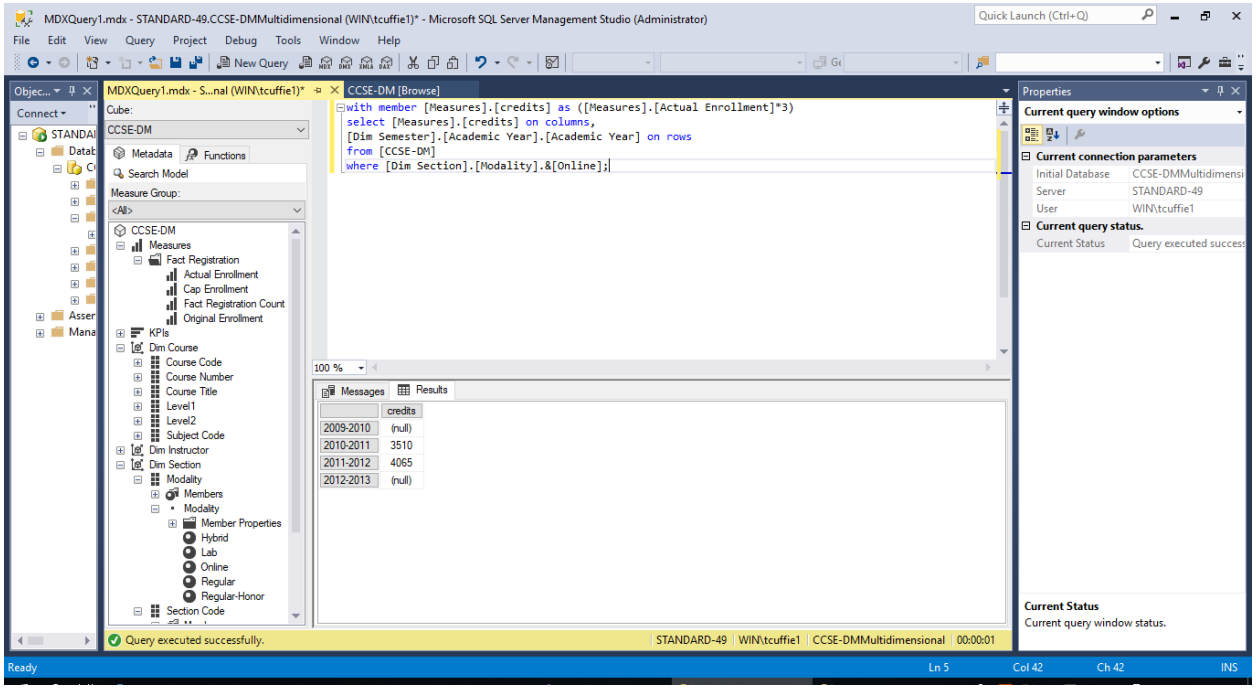

Query 3 displays the number of credits that were generated for online courses by academic year. The number of credits is the number of students enrolled multiplied by 3. The rows designate this data by academic year. The course is online where the modality of the course in the section table is listed as online.

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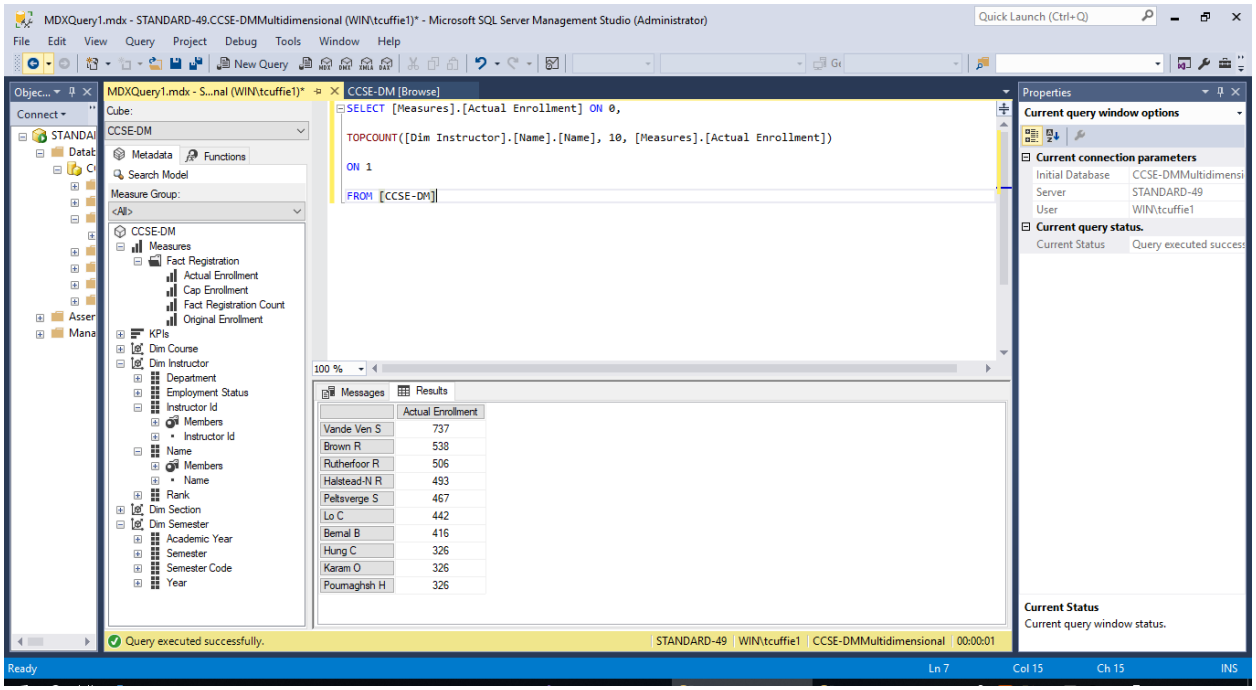
Query 4

```
SELECT [Measures].[Actual Enrollment] ON 0,

TOPCOUNT([Dim Instructor].[Name].[Name], 10, [Measures].[Actual Enrollment])

ON 1

FROM [CCSE-DM]
```



Query 4 displays the 10 instructors with the most students from most to least. The first attribute of topcount is how the data should be separated. the argument's center attribute is the number of elements that should be returned, and the final attribute is what the ranking of the data should be based on.

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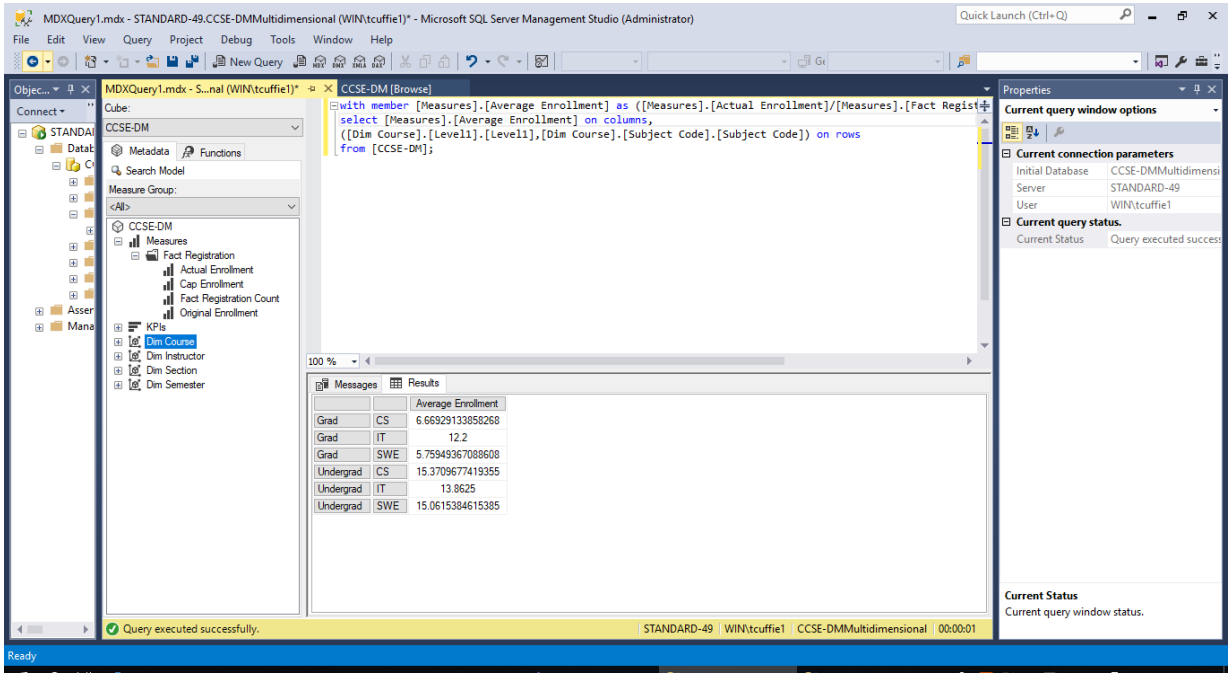
Query 5

```
with member [Measures].[Average Enrollment] as ([Measures].[Actual
Enrollment]/[Measures].[Fact Registration Count])
select [Measures].[Average Enrollment] on columns,
([Dim Course].[Level1].[Level1],[Dim Course].[Subject Code].[Subject Code]) on rows
from [CCSE-DM];
```



Query 5 returns the average enrollment of the courses by course level and subject. Average enrollment is a created member. It is the actual enrollment for a course divided by the number of sections of a course. The rows designate the course level and subject.

Bonus Query

```
with member [Measures].[Average Withdraw Rate] as (1-[Measures].[Actual
Enrollment]/[Measures].[Original Enrollment])

SELECT [Measures].[Average Withdraw Rate] ON 0,

TOPCOUNT( nonempty([Dim Course].[Course Code].[Course Code]),5, [Measures].[Average
Withdraw Rate])
```

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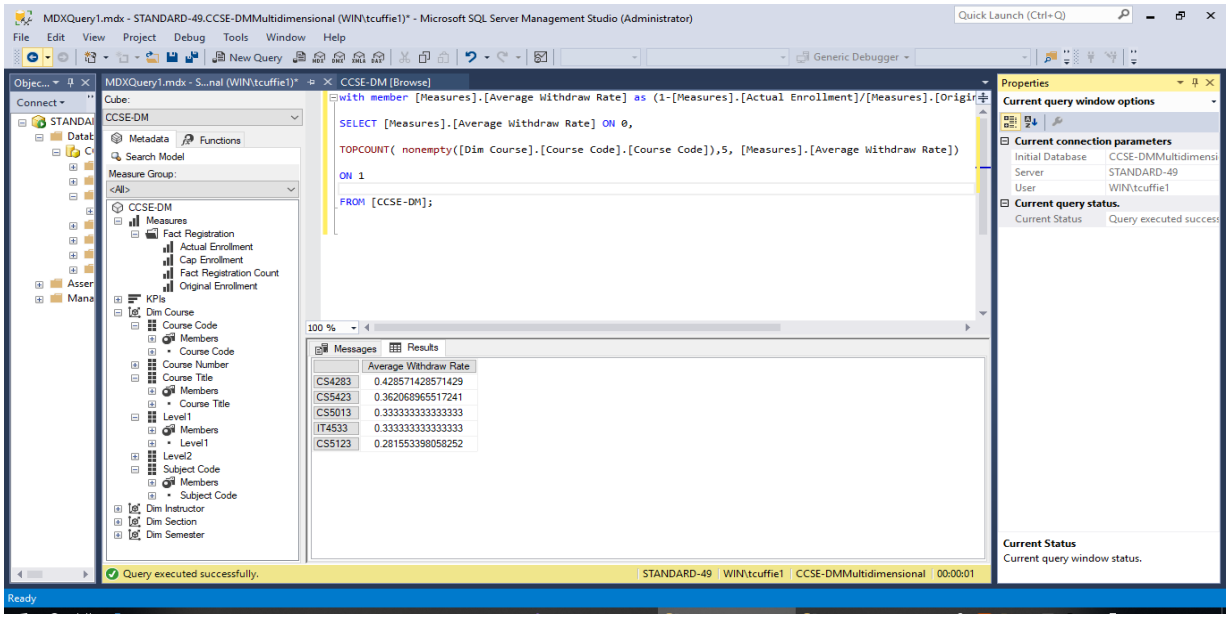
ON 1

FROM [CCSE-DM];



Query 6 lists the top 5 courses with the highest withdraw rate. The withdraw rate is a created member found by subtracting the actual enrollment divided by the original enrollment from 1. The nonempty argument is used to weed out courses that simply did not have any sections listed in the data. For these courses, the withdraw rate came out to be 1. This is inaccurate because the actual enrollment/ the original enrollment falsely appear to be zero because there are no values for these date to begin with. The original enrollment itself is zero because the course was not offered. So without the nonempty argument the top 5 courses with the highest withdraw rate included 4 courses that had a withdraw rate of 1 because they were not offered. Weeding out these courses creates a more useful picture of what courses are actually being withdrawn from most frequently.

<u>Text Queries</u>

Query 1

```
select ([Measures].[Fact Registration Count],[Dim Instructor].[Employment
Status].&[Adjunct],[Dim Instructor].[Department].[Department]) on columns,
([Dim Semester].[Semester].[Semester],[Dim Semester].[Year].[Year]) on rows
from [CCSE-DM];
```

Query 2

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```
select ([Measures].[Actual Enrollment],[Dim Course].[Level1].[Level1]) on columns,
[Dim Semester].[Academic Year].[Academic Year] on rows
from [CCSE-DM];
```

Query 3

```
with member [Measures].[credits] as ([Measures].[Actual Enrollment]*3)
select [Measures].[credits] on columns,
[Dim Semester].[Academic Year].[Academic Year] on rows
from [CCSE-DM]
where [Dim Section].[Modality].&[Online];
```

Query 4

```
SELECT [Measures].[Actual Enrollment] ON 0,

TOPCOUNT([Dim Instructor].[Name].[Name], 10, [Measures].[Actual Enrollment])

ON 1

FROM [CCSE-DM]
```

Query 5

```
with member [Measures].[Average Enrollment] as ([Measures].[Actual
Enrollment]/[Measures].[Fact Registration Count])
select [Measures].[Average Enrollment] on columns,
([Dim Course].[Level1].[Level1],[Dim Course].[Subject Code].[Subject Code]) on rows
from [CCSE-DM];
```

Bonus Query

```
with member [Measures].[Average Withdraw Rate] as (1-[Measures].[Actual
Enrollment]/[Measures].[Original Enrollment])

SELECT [Measures].[Average Withdraw Rate] ON 0,

TOPCOUNT( nonempty([Dim Course].[Course Code].[Course Code]),5, [Measures].[Average
Withdraw Rate])
ON 1
FROM [CCSE-DM];
```