Assignment#3 Report

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Roll no: 21I0390

Section: A

BS(CS)

## Functional Dependencies:

The functional dependencies in different tables are listed as follows:

**Players:**

*Player\_id ->First\_Name, Last\_Name, Nationality, DOB, Team\_id, Jersey\_Number, Height, Weight, Foot*

This is a full functional dependency.

*Jersey\_Number->Position*

This is also a full functional dependency.

Player\_id has partial functional dependency with position.

**Teams:**

*Team\_Id ->Team\_Name, Country, Home\_stadium\_id*

This is a full functional dependency.

**Stadiums:**

*Stadium\_id -> Name, Country, Capacity*

This is full functional dependency.

*City -> Country*

This is also a full functional dependency.

*Stadium\_id -> City*

This is partial functional dependency.

**Managers:**

*Manager\_Id -> First\_Name, Last\_Name, Nationality, DOB, Team\_id*

This is full functional dependency.

**Matches:**

*Match\_id -> Season, Date\_time, Home\_team\_id, Away\_team\_id, Stadium\_id, Home\_team\_score, Away\_team\_score, Penalty\_shoot\_out, Attendance*

This is full functional dependency.

**Goals:**

*Goal\_id -> Match\_id, Pid, Duration, Assist, Goal\_Desc*

This is a full functional dependency.

*{Match\_id, Pid} -> Goal\_id, Duration, Assist, Goal\_Desc*

This is also a full functional dependency.

## Normalization:

The normal forms and normalization for all tables are as follows:

**1NF:**

The given tables in the data set are already in 1st normal form because no multivalued attributes.

**2NF:**

To remove partial dependencies from Players table and Stadiums table we can make separate tables for City and Jersey.

Where the City table has columns City\_Name and Country\_Name.

And the Jersey table has columns Jersey\_Number and Position.

This will render our tables into the 2nd normal form.

**3NF:**

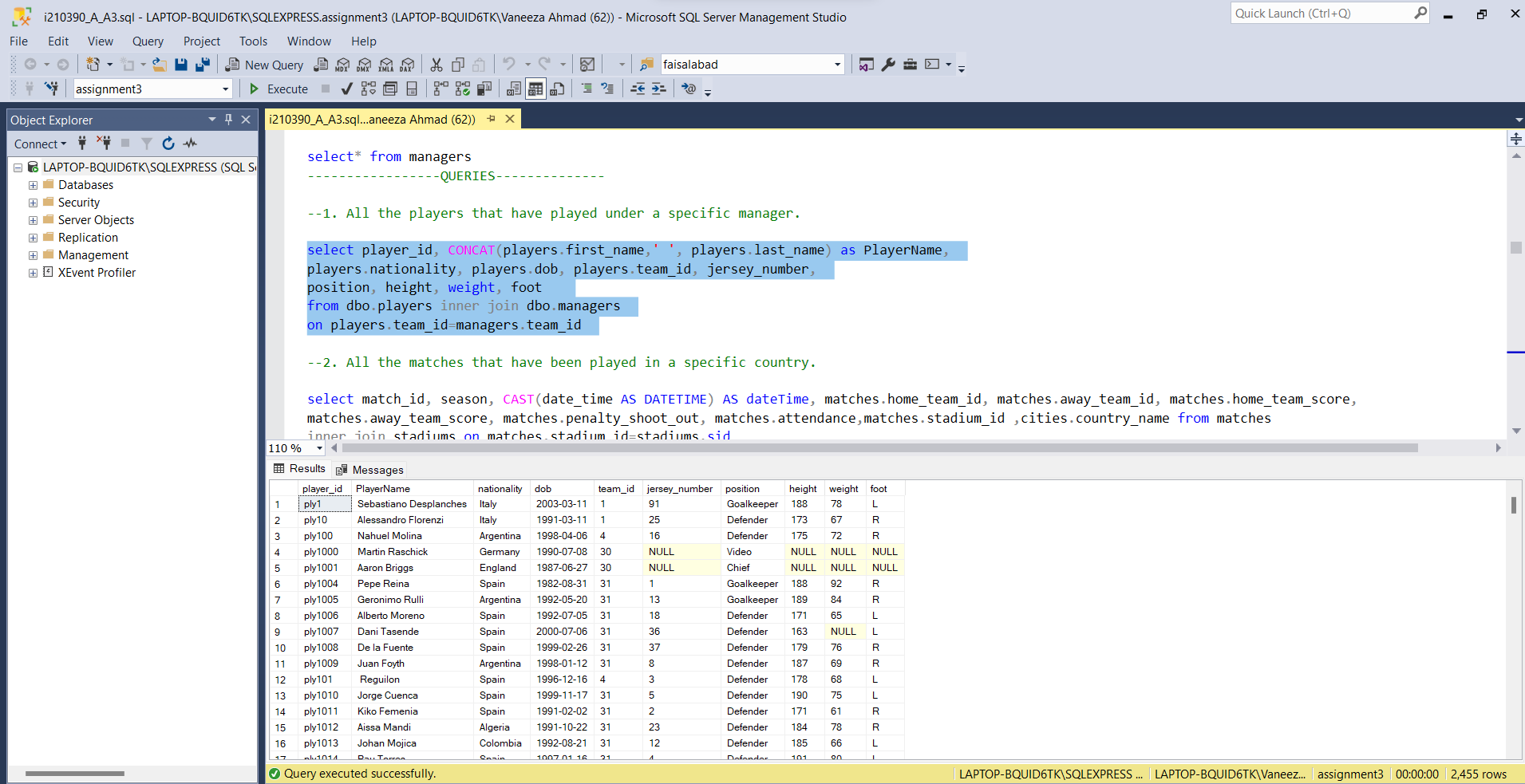
There are no transitional dependencies in the tables, hence all the tables are in 3rd normal form.

**BCNF:**

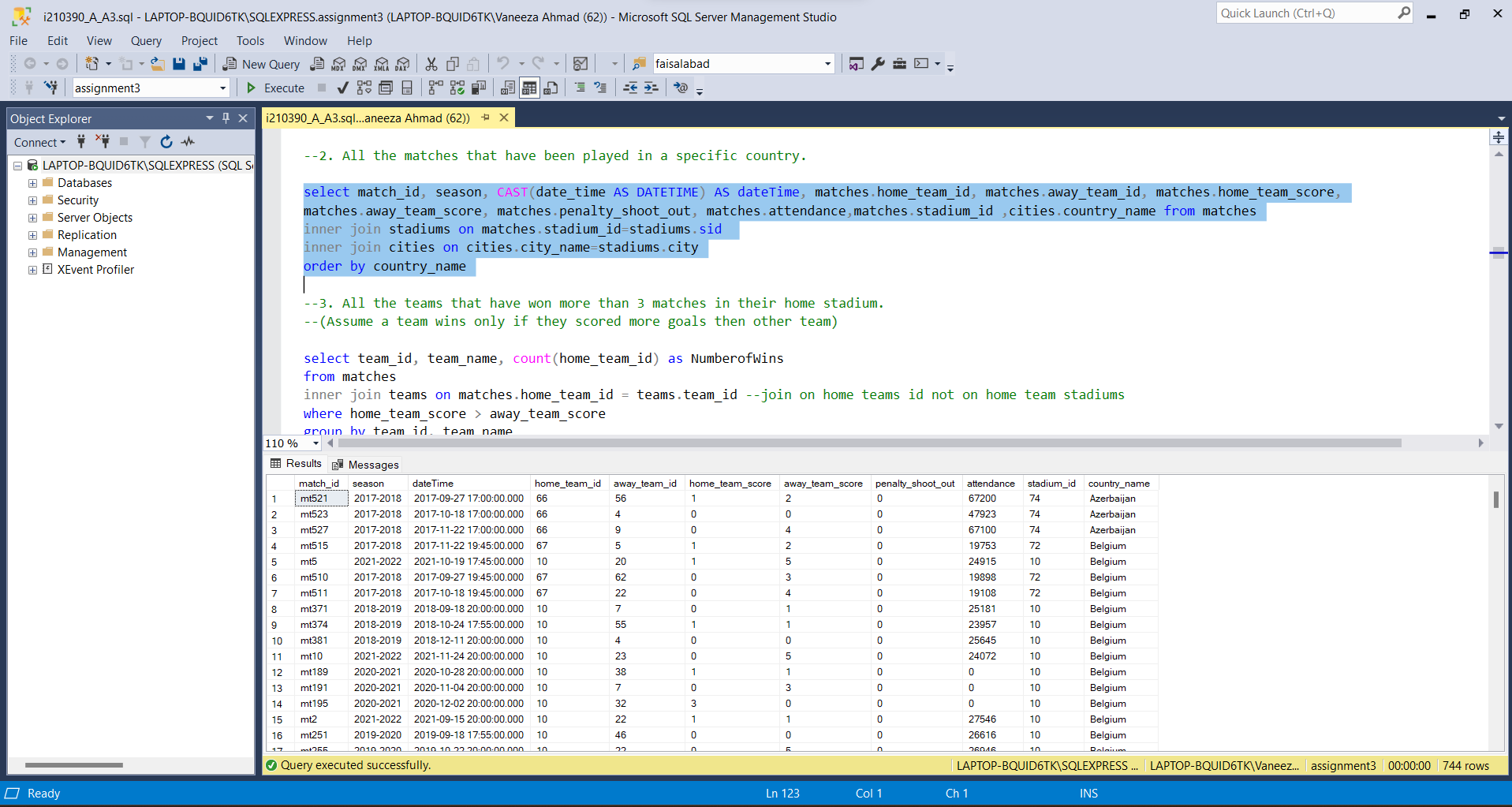
For all the above functional dependencies, the relationship, X->Y , when Y is prime attribute, X cannot be prime attribute, holds true. Hence the tables are in BCNF.

**QUERIES**

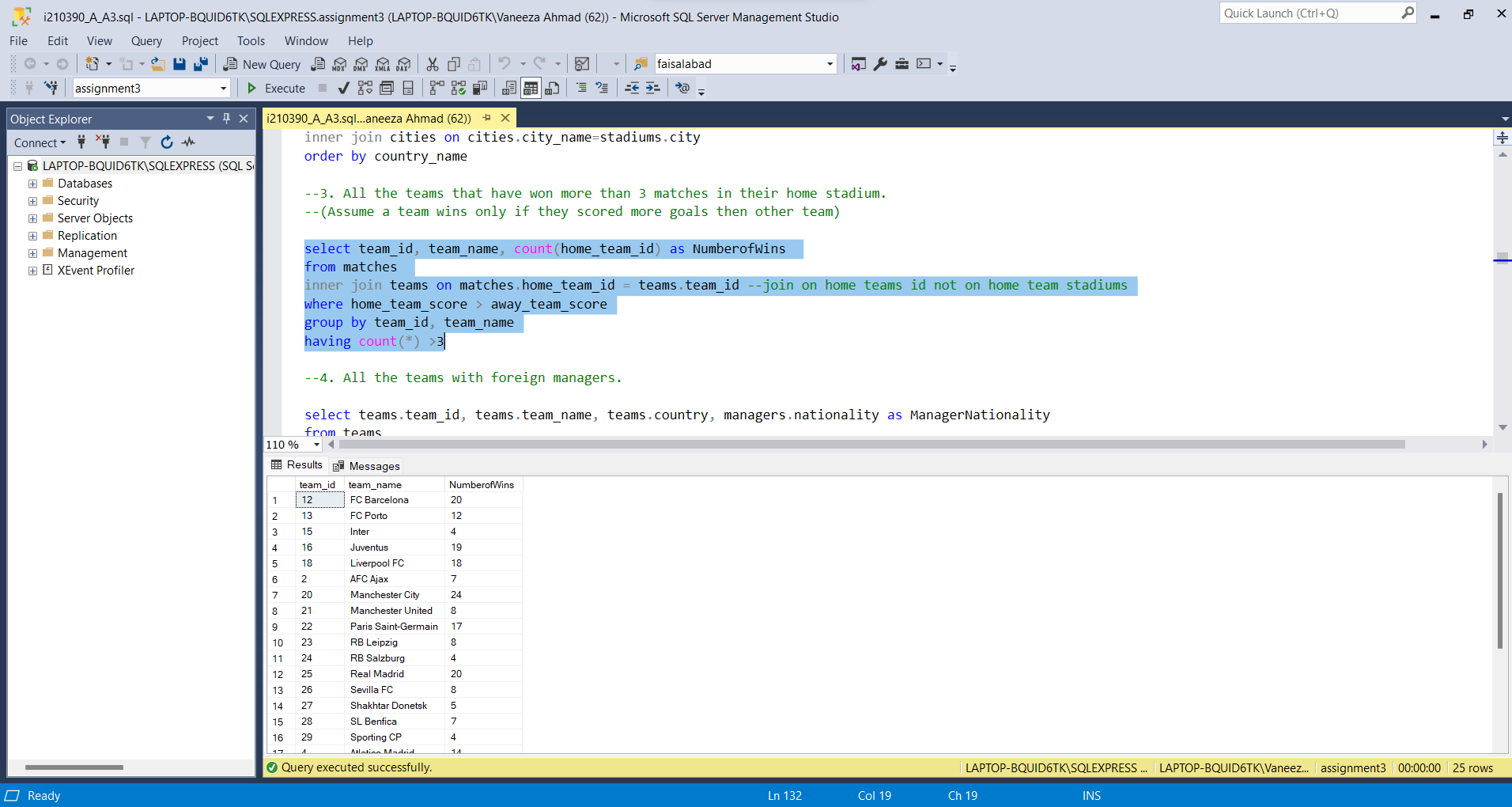
**QUERY 1:**

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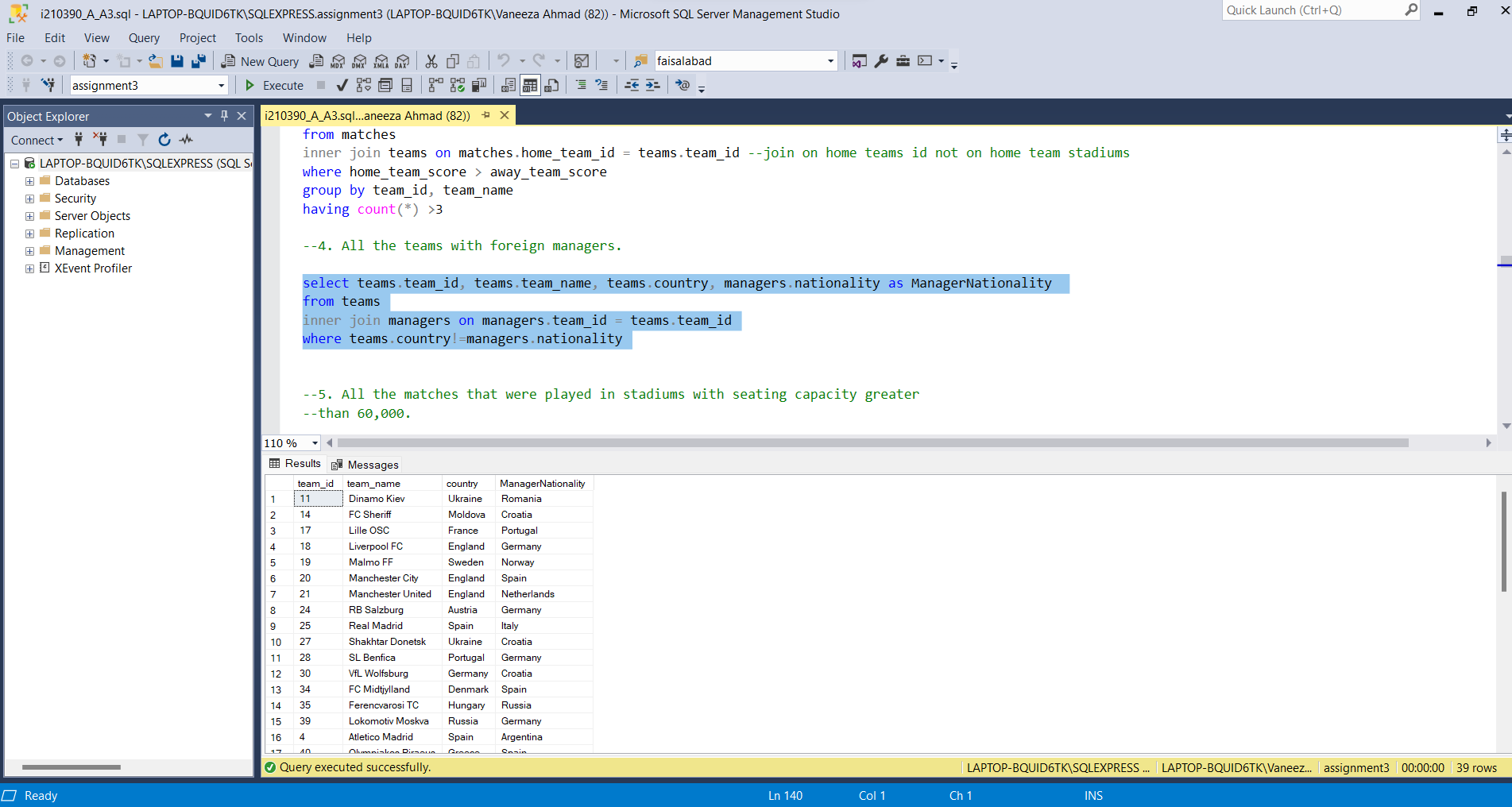
QUERY:2



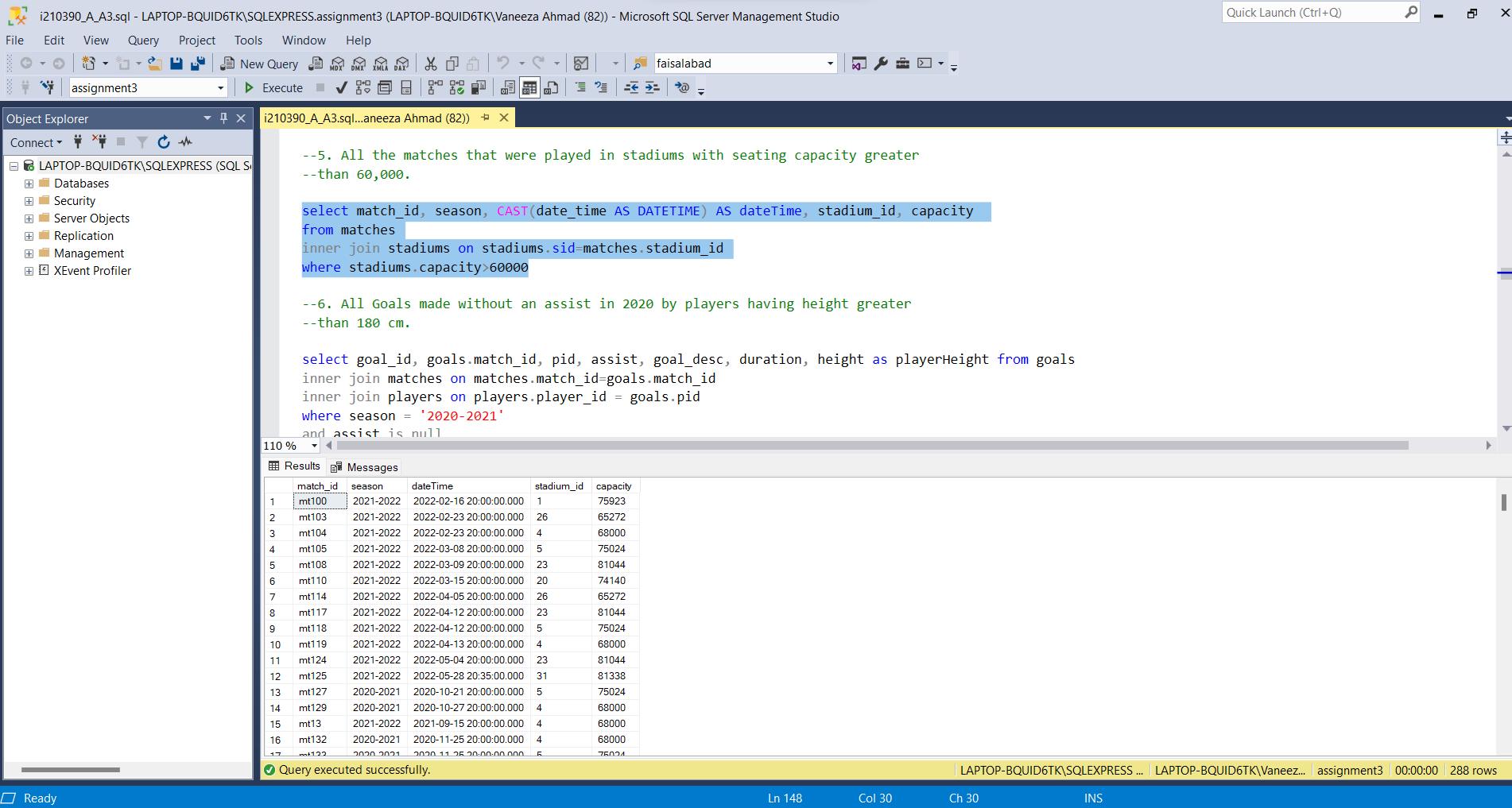
QUERY:3



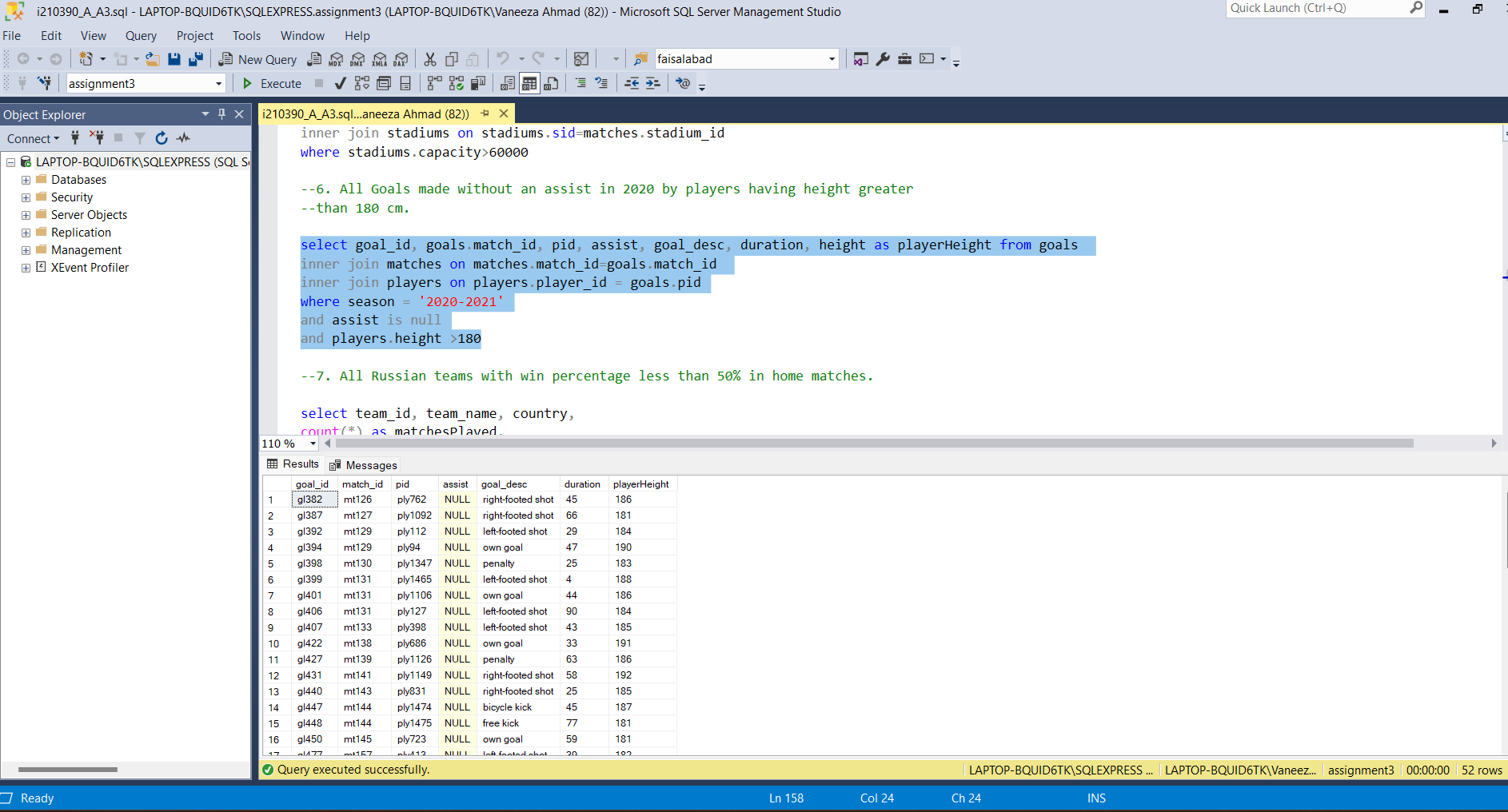
QUERY4:



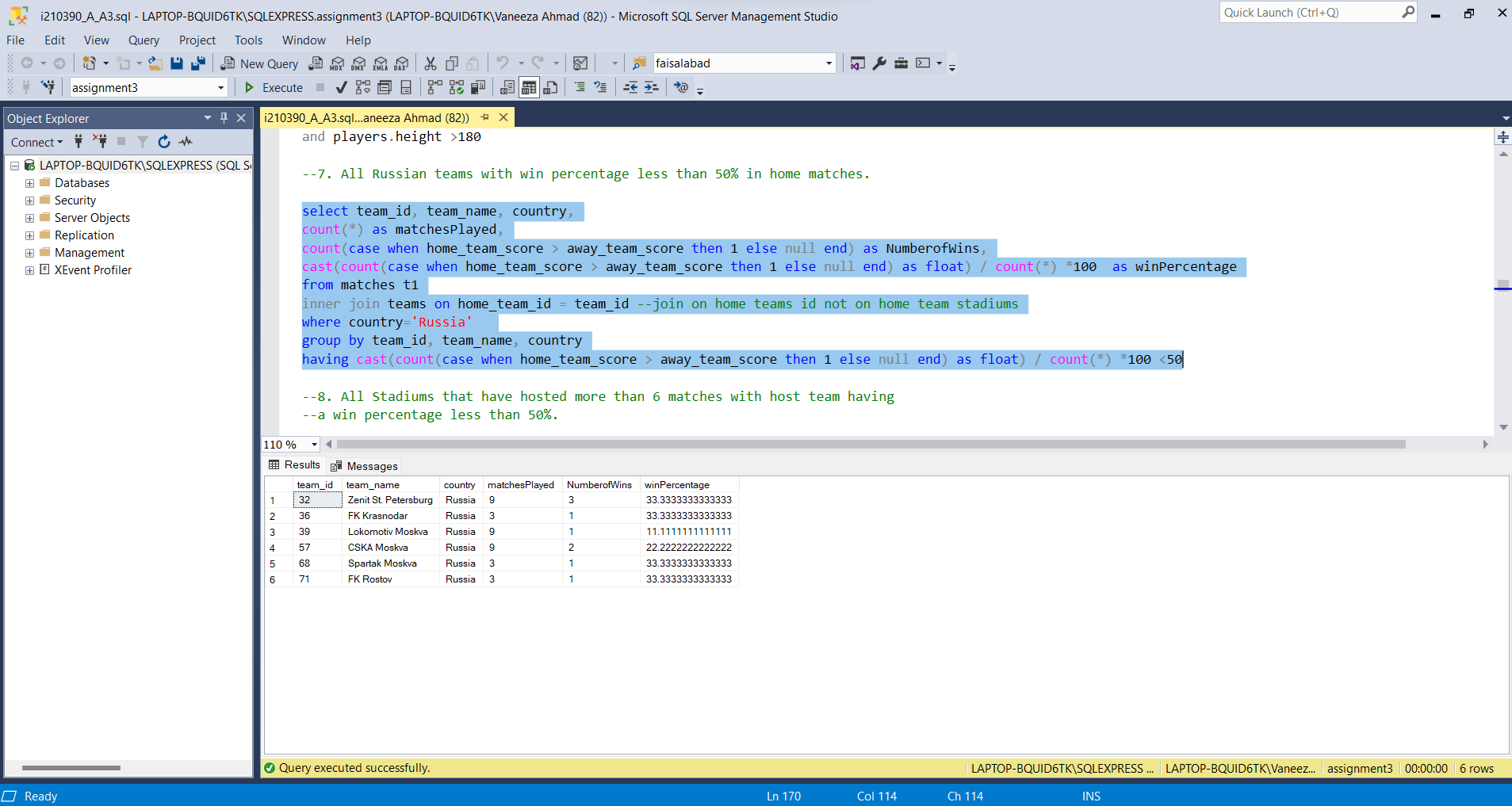
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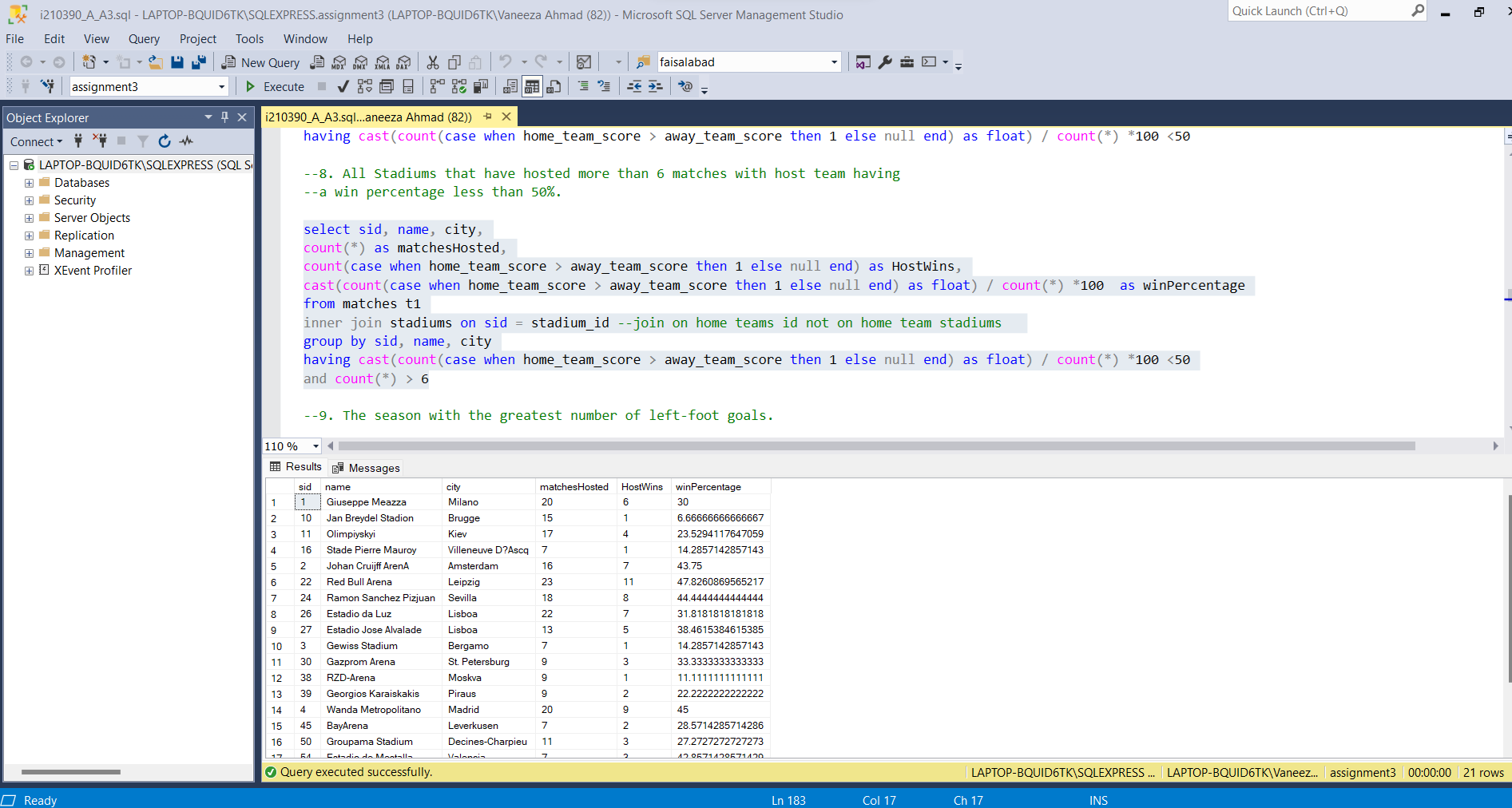


QUERY6:

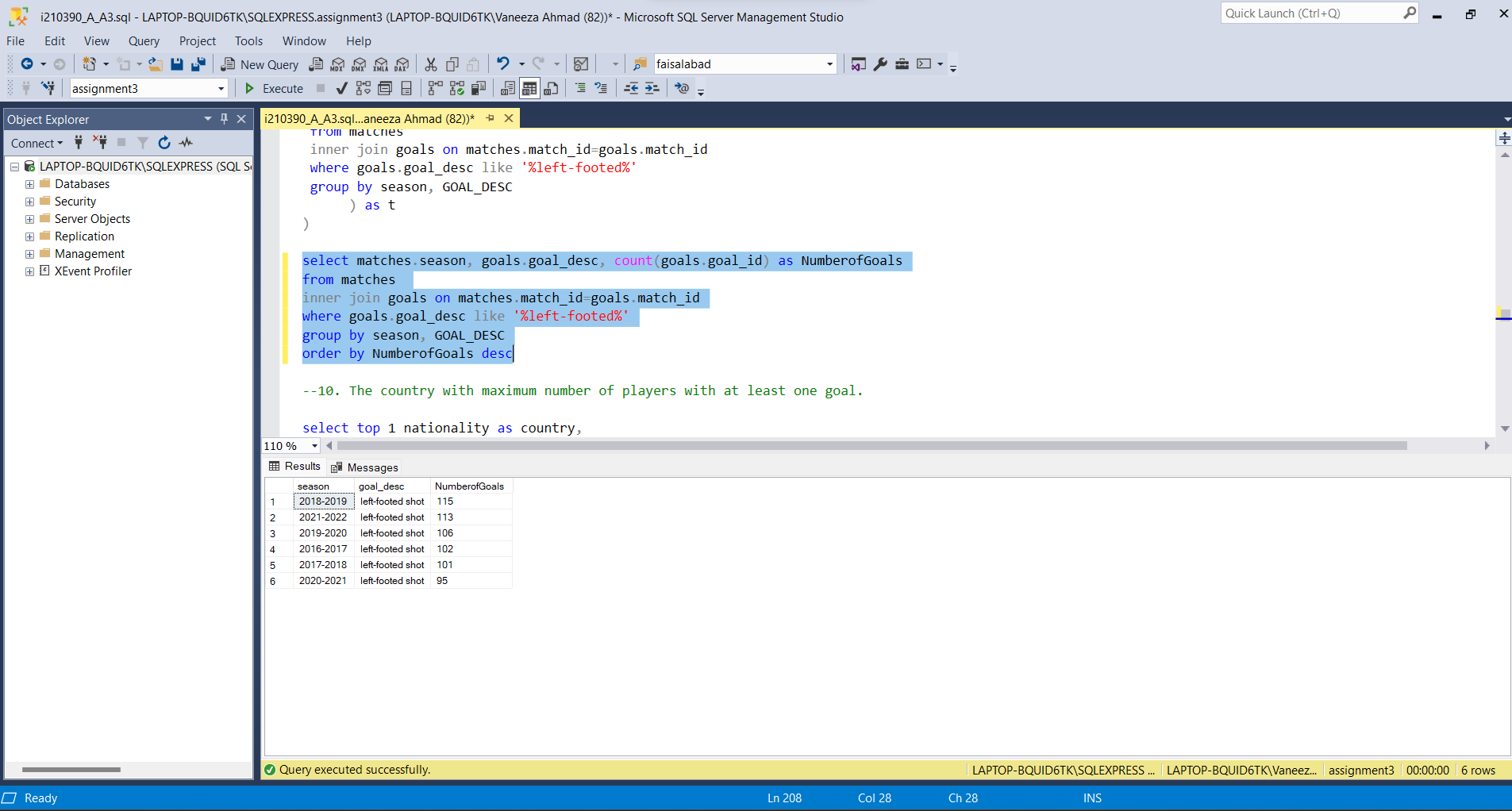


QUERY7:

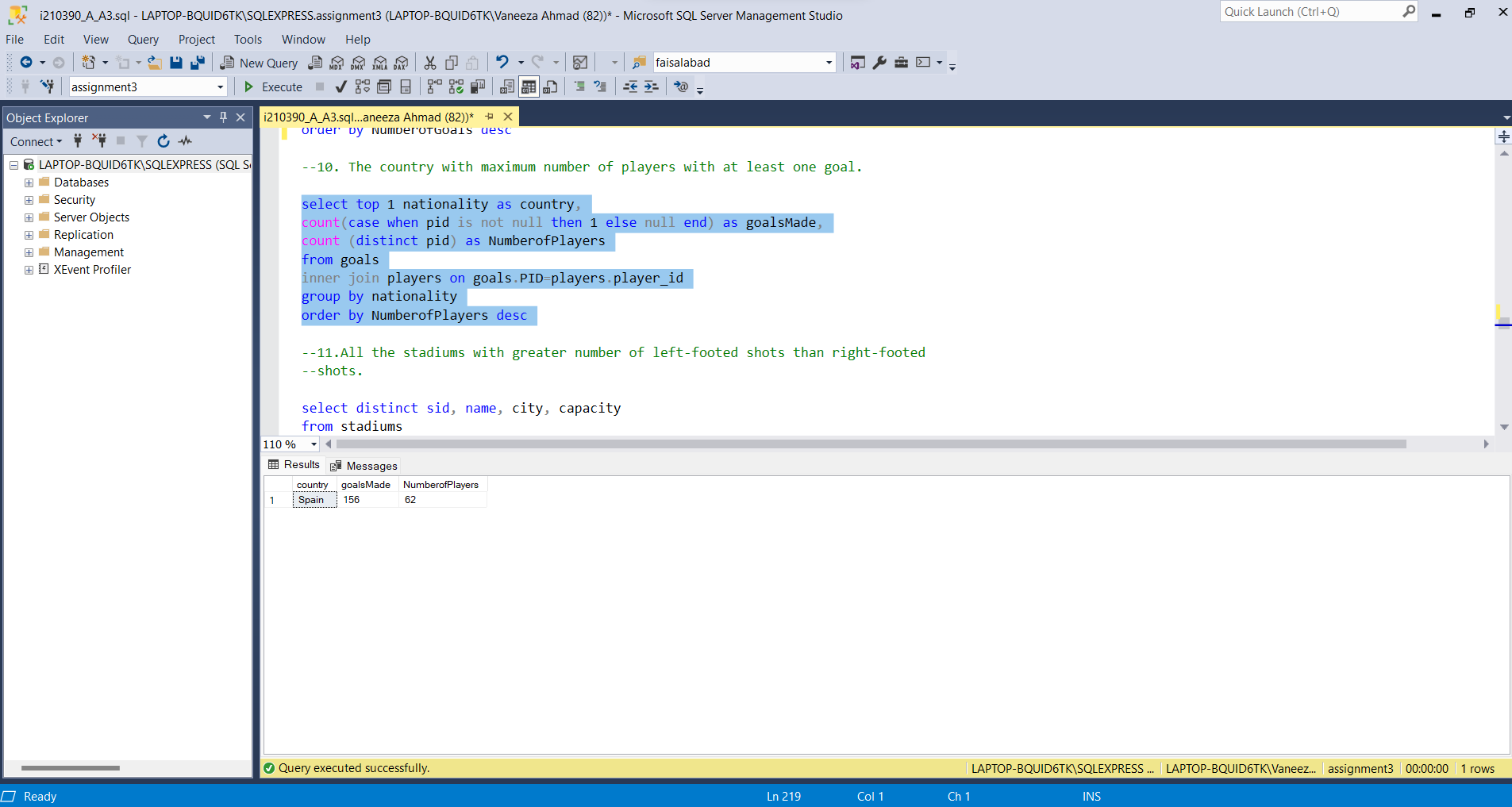


QUERY8:  


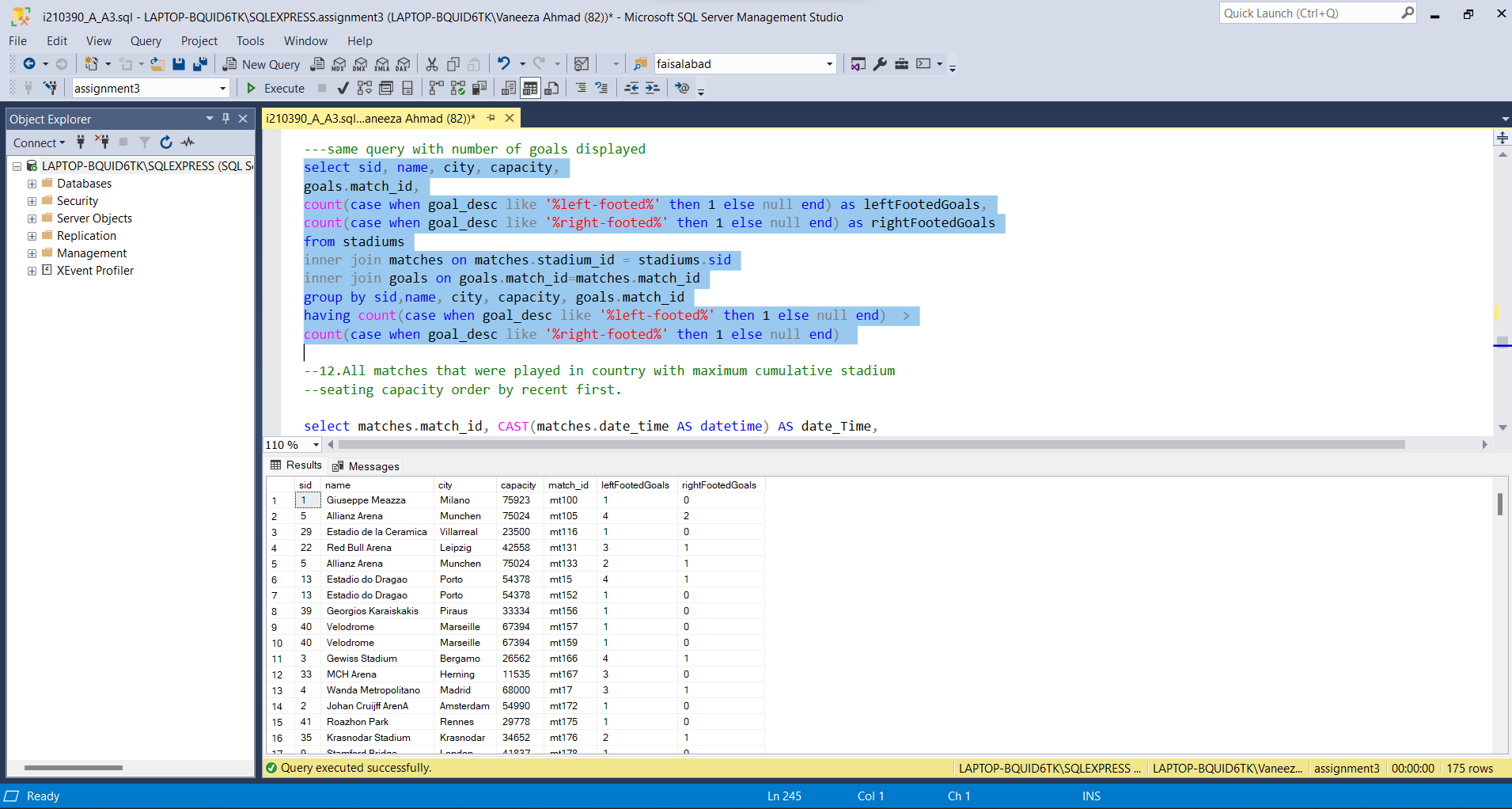
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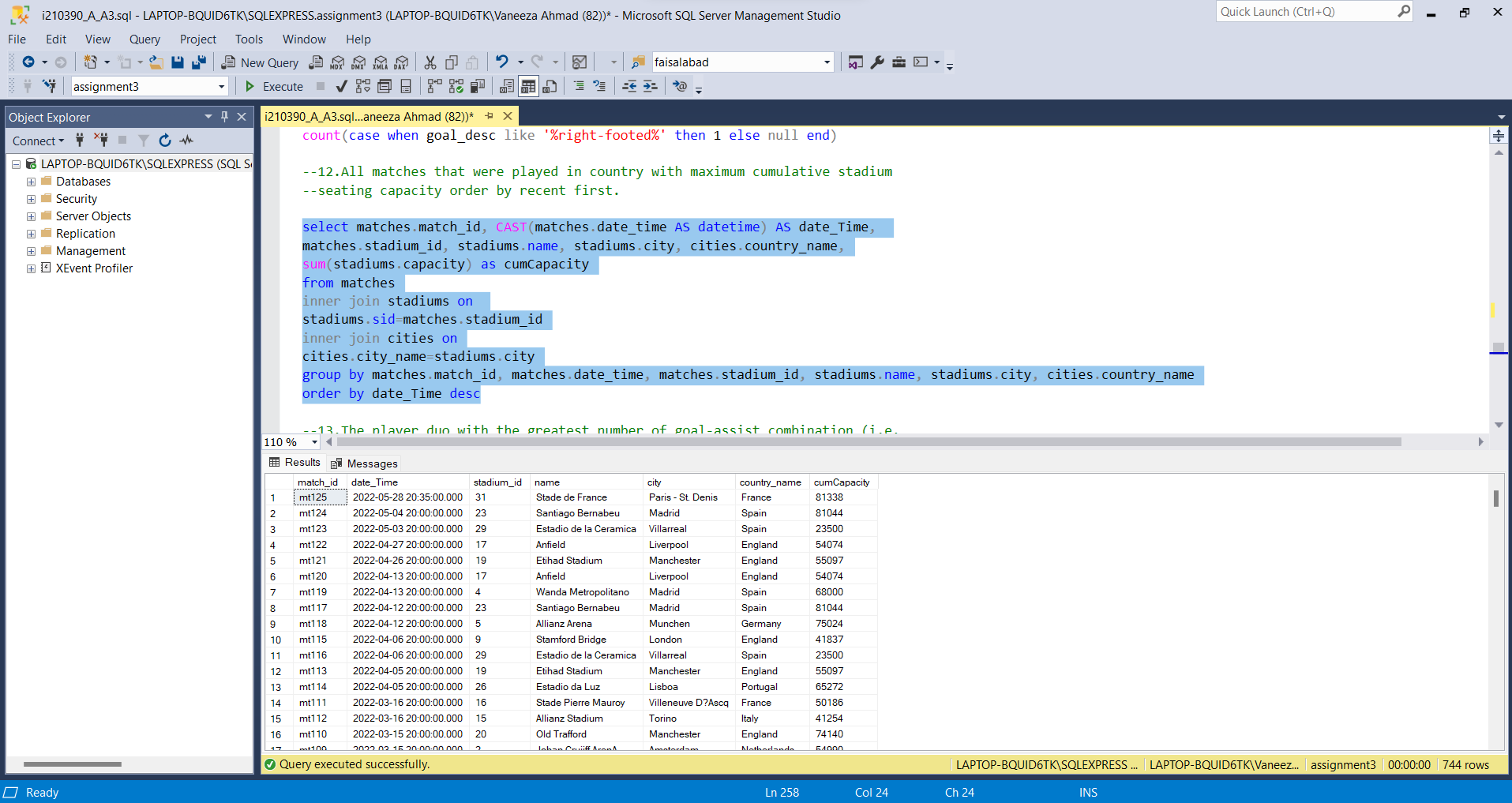
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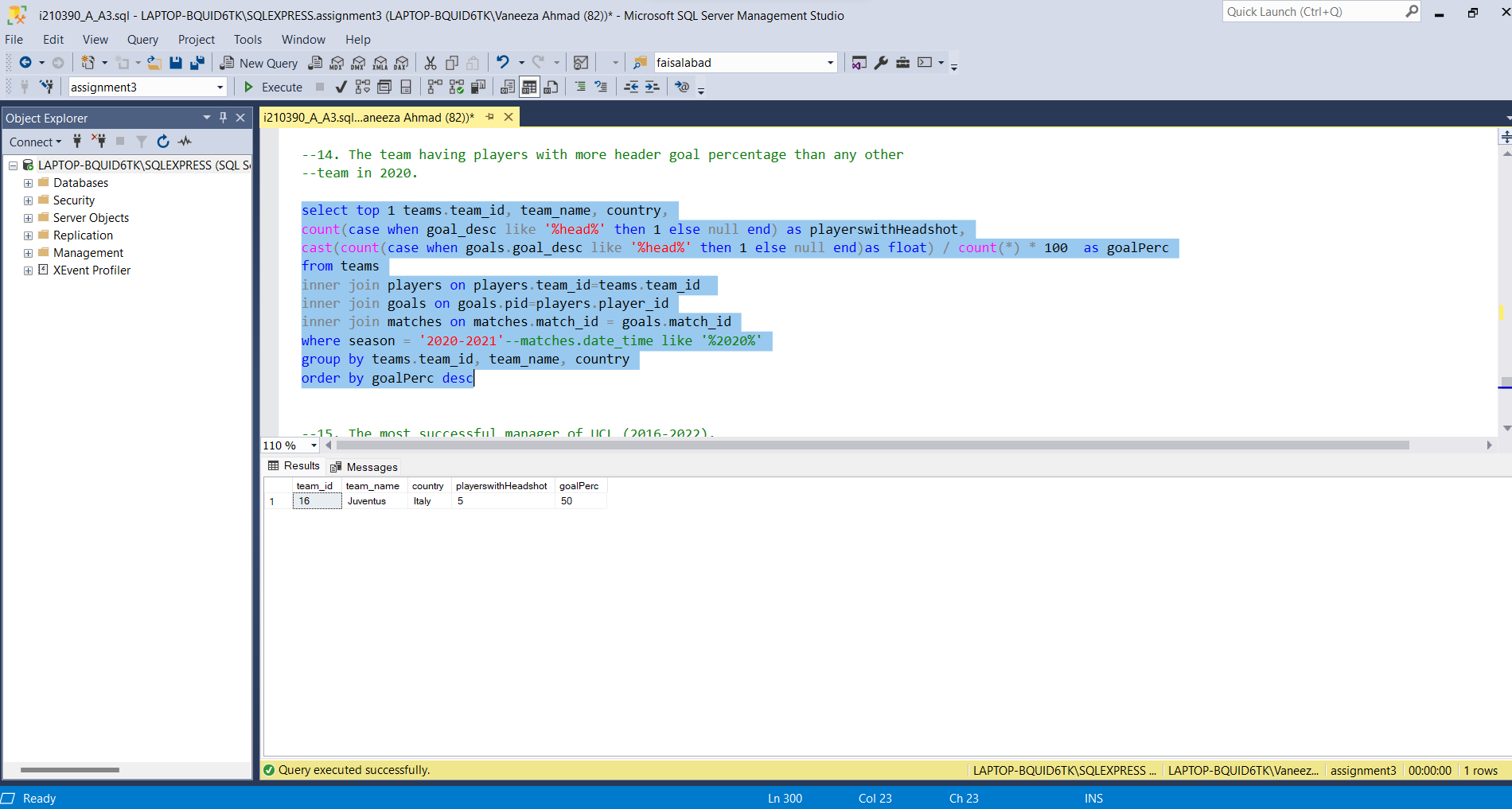
QUERY11:

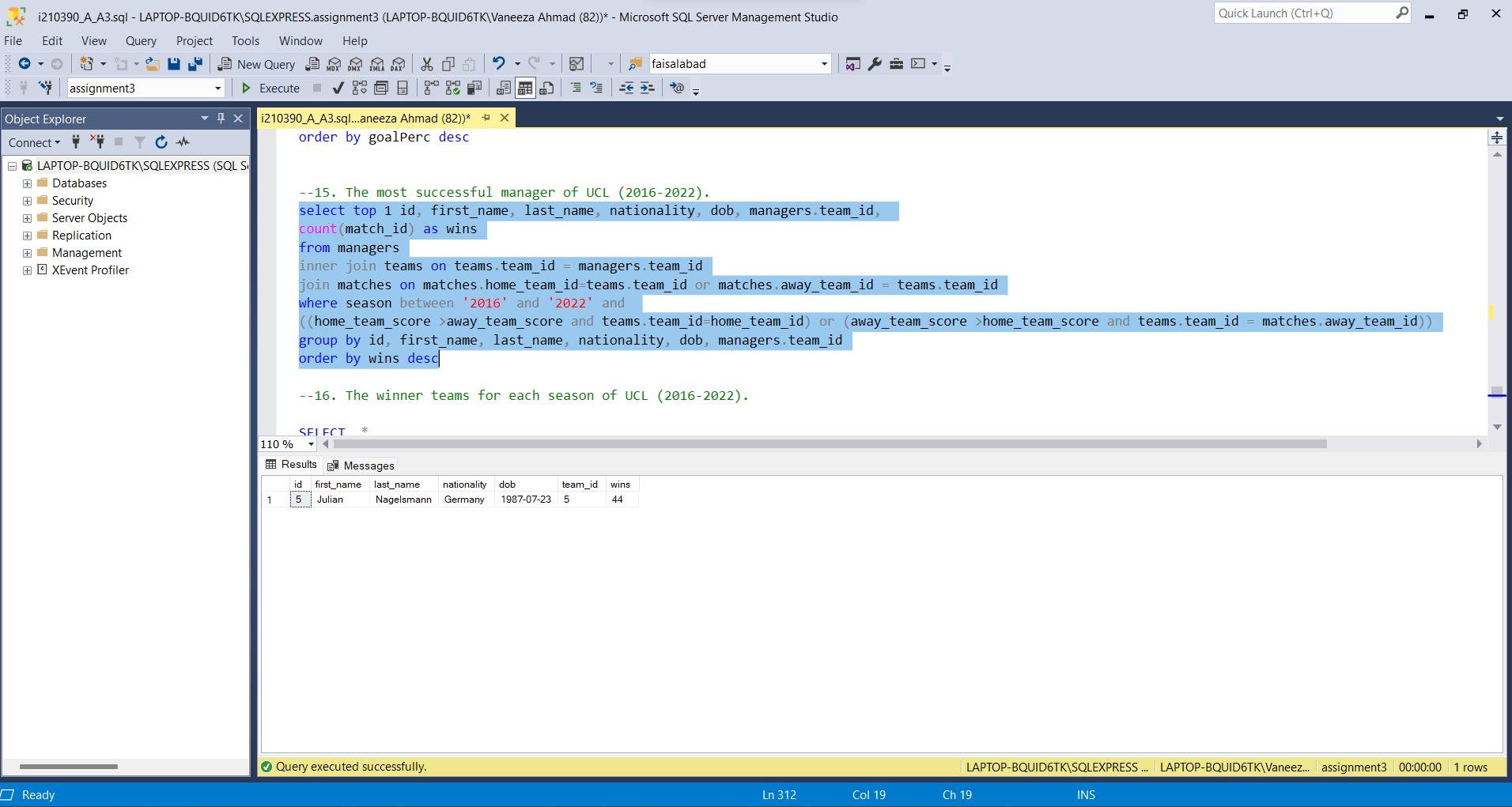


QUERY12:



QUERY14:



QUERY15:  


QUERY16:  
