**SECTION 1**

Q1. (C).

select \* from (select a.emp\_id, a.emp\_name, a.salary, b.dept\_id, b.dept\_name, DENSE\_RANK() over(partition by dept\_id order by salary desc) as rank\_1 from emp\_details a inner join dept\_details b on a.emp\_id = b.emp\_id ) as c where rank\_1= 4

Q2. (D.)

select \* from Alumni where student\_id in (select a.student\_id from Evaluation a inner join Curriculum b on a.class\_id = b.class\_id where class\_name = 'Calculus' and a.Grade > 16 )

Q3. (B.)

select \* from sales\_team\_details where salesman\_id in ( select a.salesman\_id from sales\_team\_details a inner join transaction\_details b on a.salesman\_id = b.salesman\_id where purchase\_amount > (select max(purchase\_amount) from transaction\_details group by (ord\_date) having ord\_date = '2012-10-10'))

Q4. (C.)

select customer\_id, order\_id, min(a.order\_date) as first\_transaction\_date, max(b.order\_date) as last\_transaction\_date from customer\_orders\_table as a inner join customer\_orders\_table as b on a.customer\_id = b.customer\_id group by customer\_id;

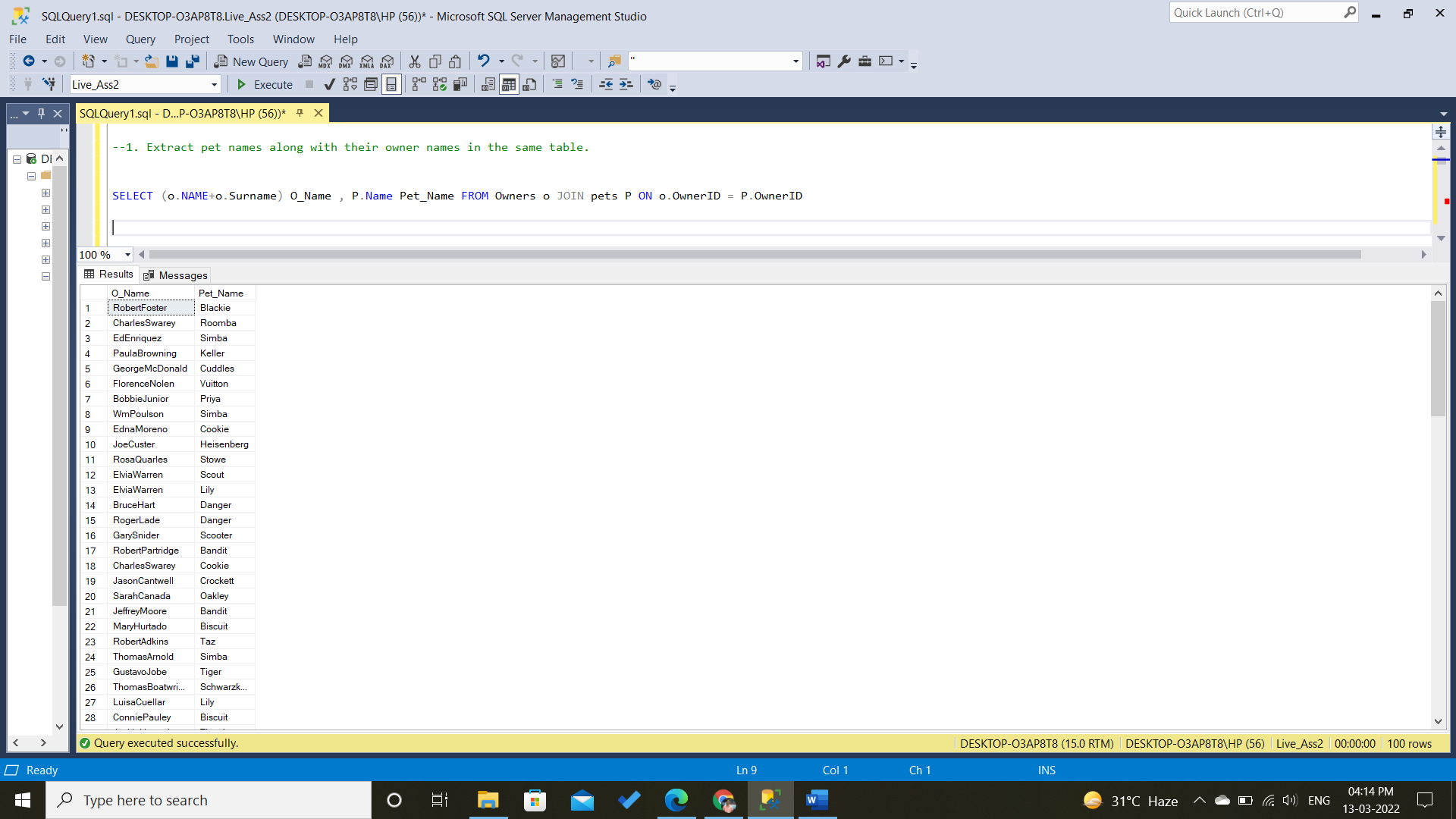
Q5. (A.) One table with unique values be related to a table that has multiple values for each of the original values.

**SECTION 2**

1. Extract pet names along with their owner names in the same table.

Ans.

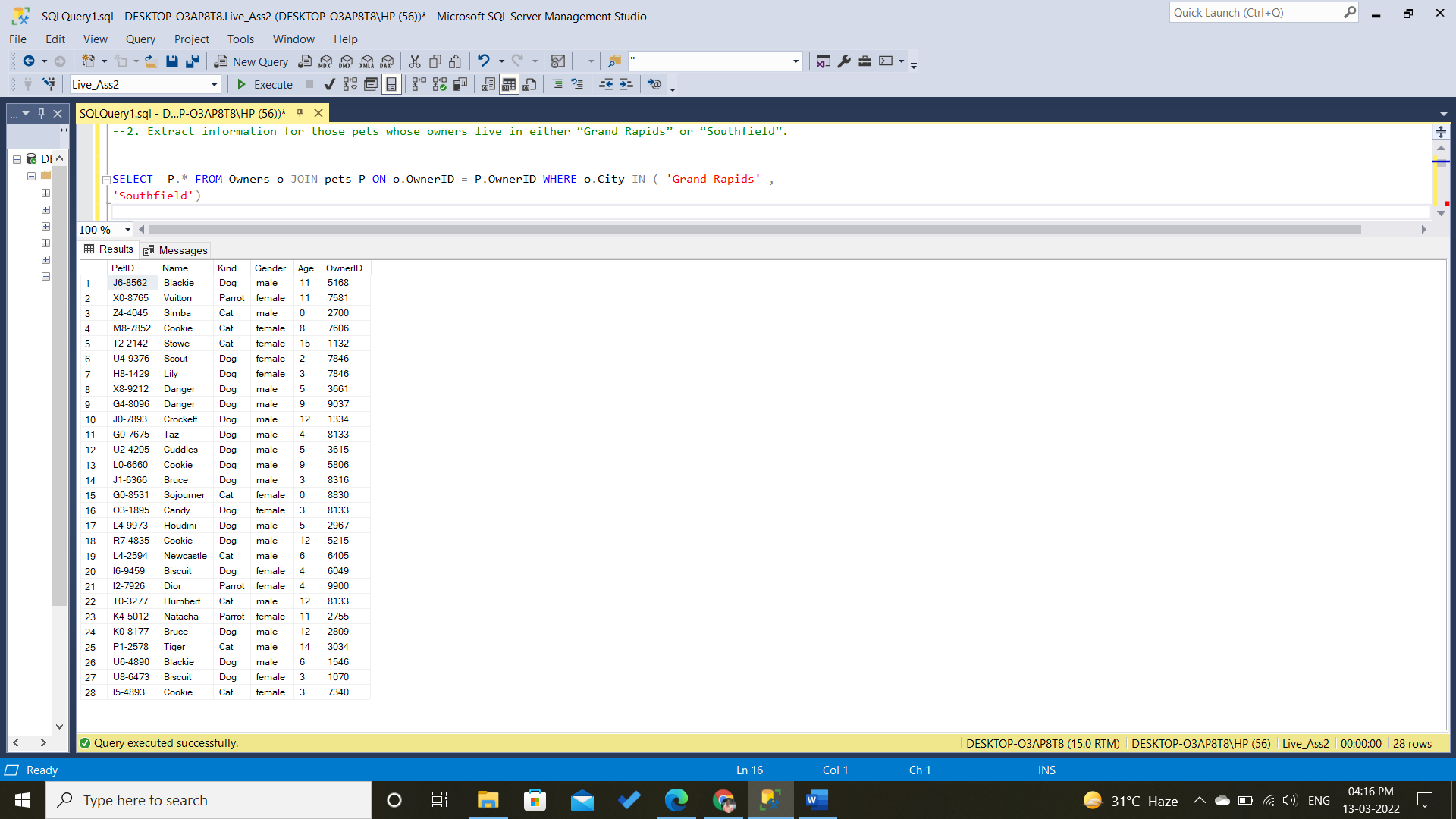
SELECT (o.NAME+o.Surname) O\_Name , P.Name Pet\_Name FROM Owners o JOIN pets P ON o.OwnerID = P.OwnerID



1. Extract information for those pets whose owners live in either “Grand Rapids” or “Southfield”.

Ans.

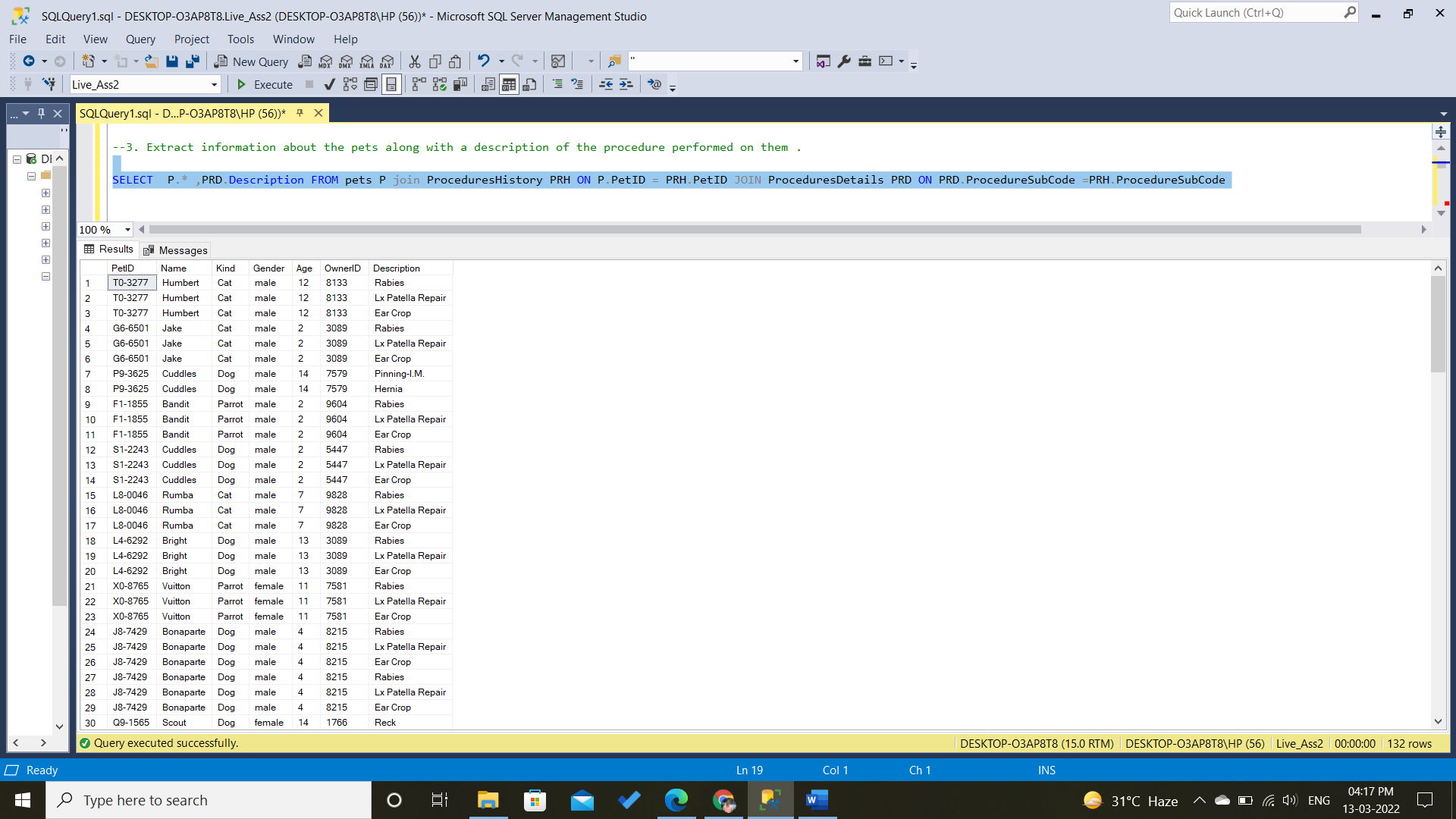
SELECT P.\* FROM Owners o JOIN pets P ON o.OwnerID = P.OwnerID WHERE o.City IN ( 'Grand Rapids' , 'Southfield')



1. Extract information about the pets along with a description of the procedure performed on them.

Ans.

SELECT P.\* ,PRD.Description FROM pets P join ProceduresHistory PRH ON P.PetID = PRH.PetID JOIN ProceduresDetails PRD ON PRD.ProcedureSubCode =PRH.ProcedureSubCode



1. Same as 3 but only keep those pet ids which are present in pets.csv.
2. Find the sum of the price incurred on each pet’s procedure but only consider those pets whose name starts with ‘C’.

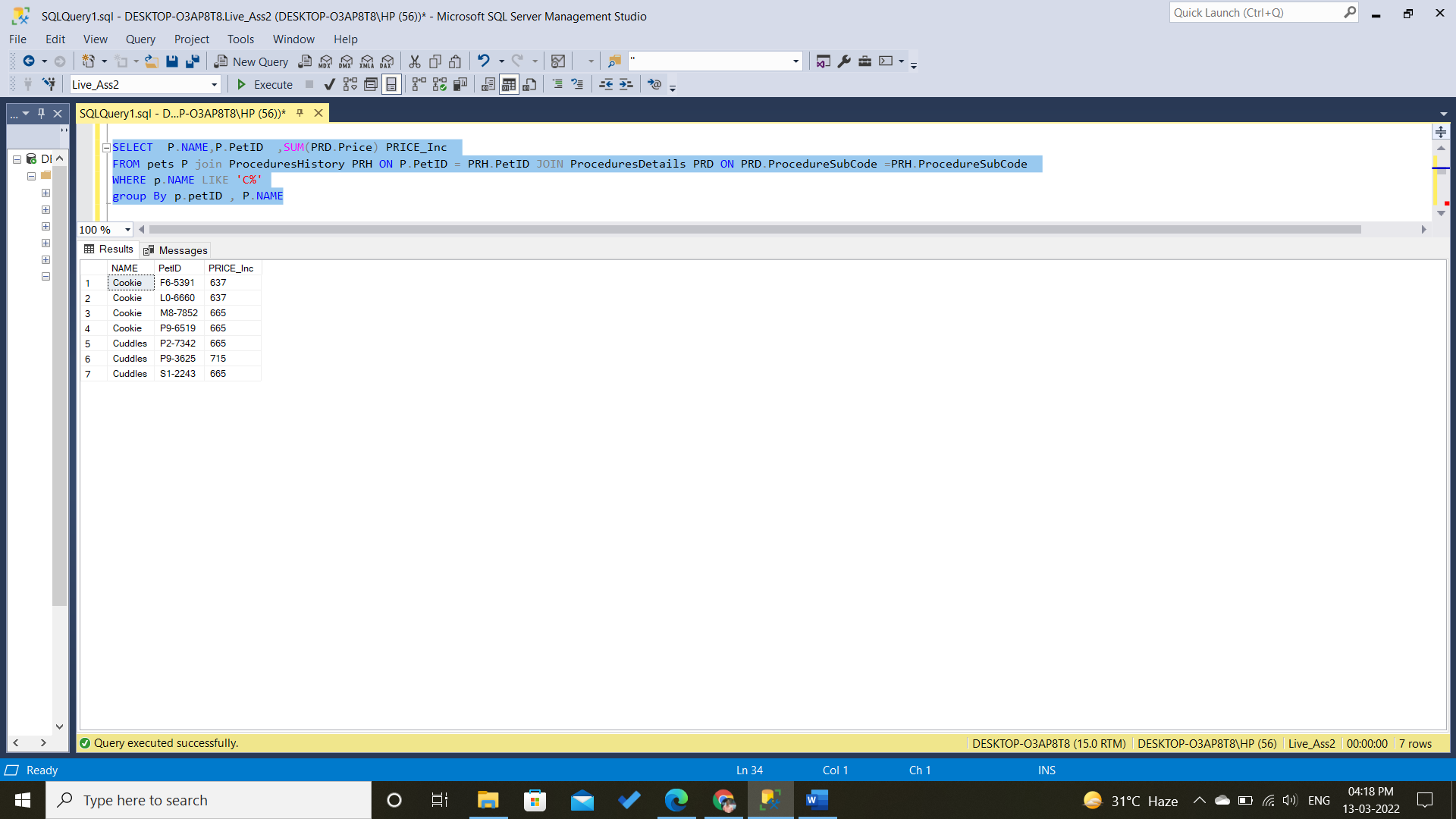
Ans.

SELECT P.NAME,P.PetID ,SUM(PRD.Price) PRICE\_Inc

FROM pets P join ProceduresHistory PRH ON P.PetID = PRH.PetID JOIN ProceduresDetails PRD ON PRD.ProcedureSubCode =PRH.ProcedureSubCode

WHERE p.NAME LIKE 'C%'

group By p.petID , P.NAME

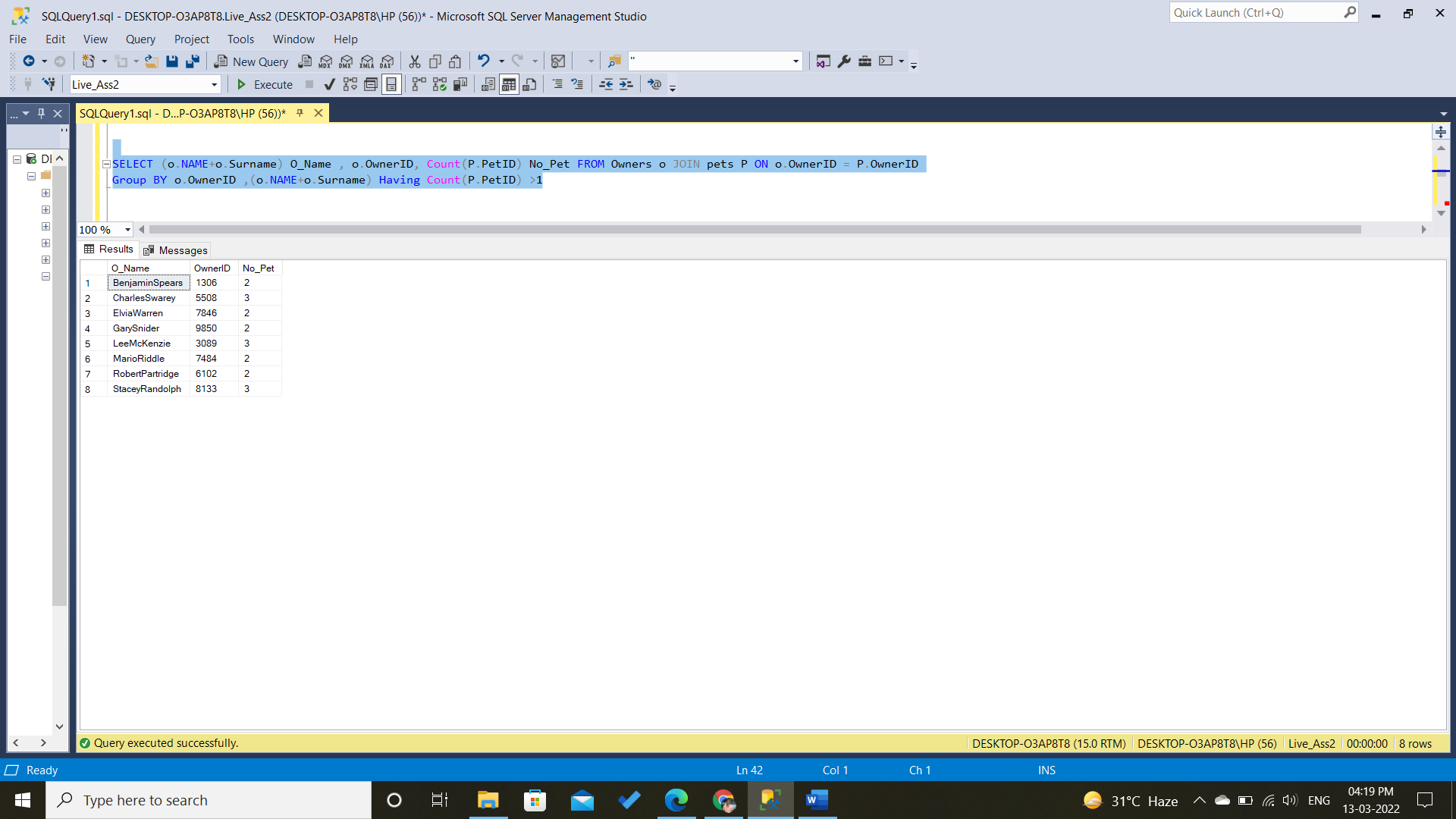


1. Find the owner names who own more than 1 pet, if there are any.

Ans.

SELECT (o.NAME+o.Surname) O\_Name , o.OwnerID, Count(P.PetID) No\_Pet FROM Owners o JOIN pets P ON o.OwnerID = P.OwnerID

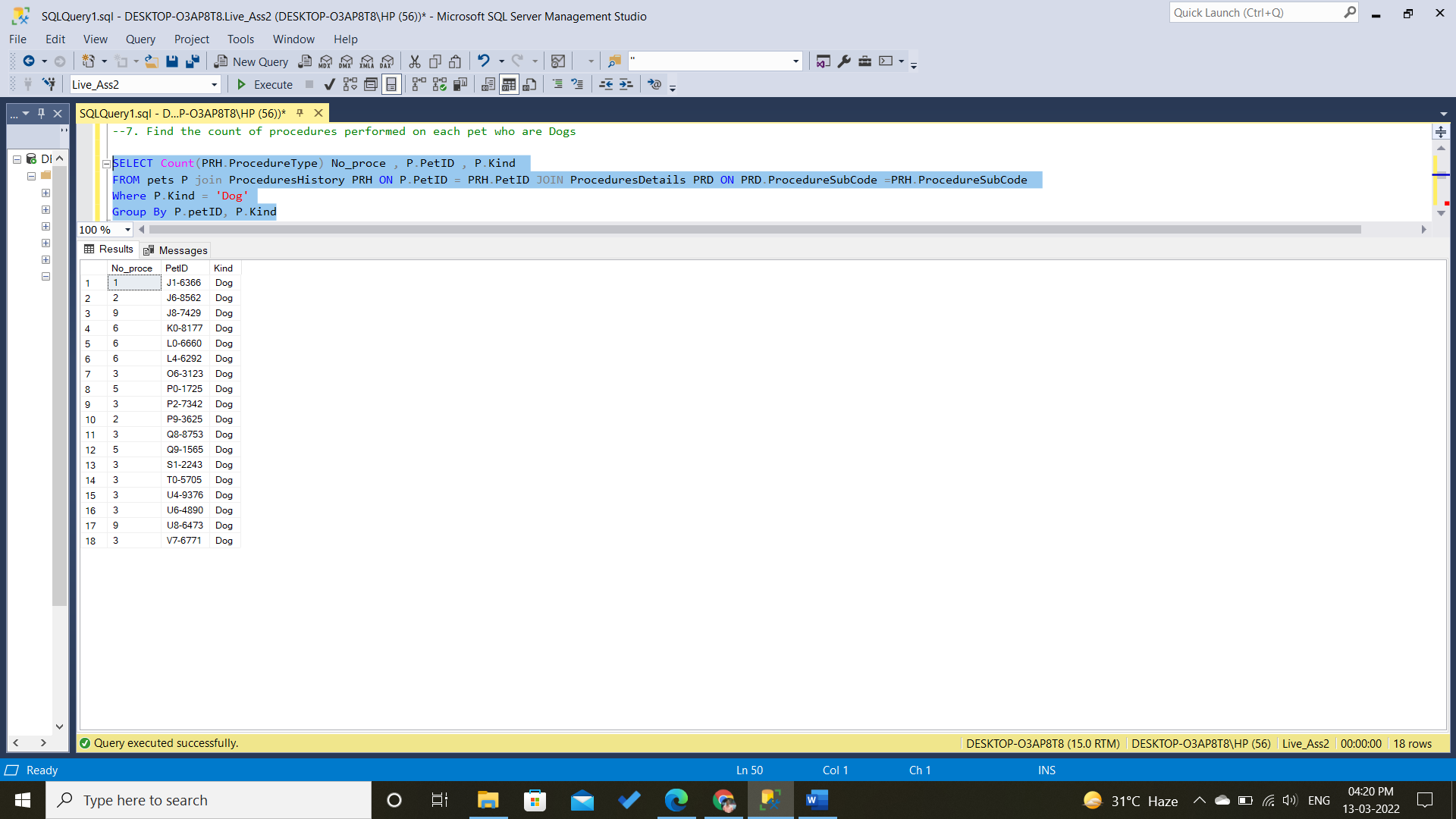
Group BY o.OwnerID ,(o.NAME+o.Surname) Having Count(P.PetID) >1



1. Find the count of procedures performed on each pet who are Dogs.

Ans.

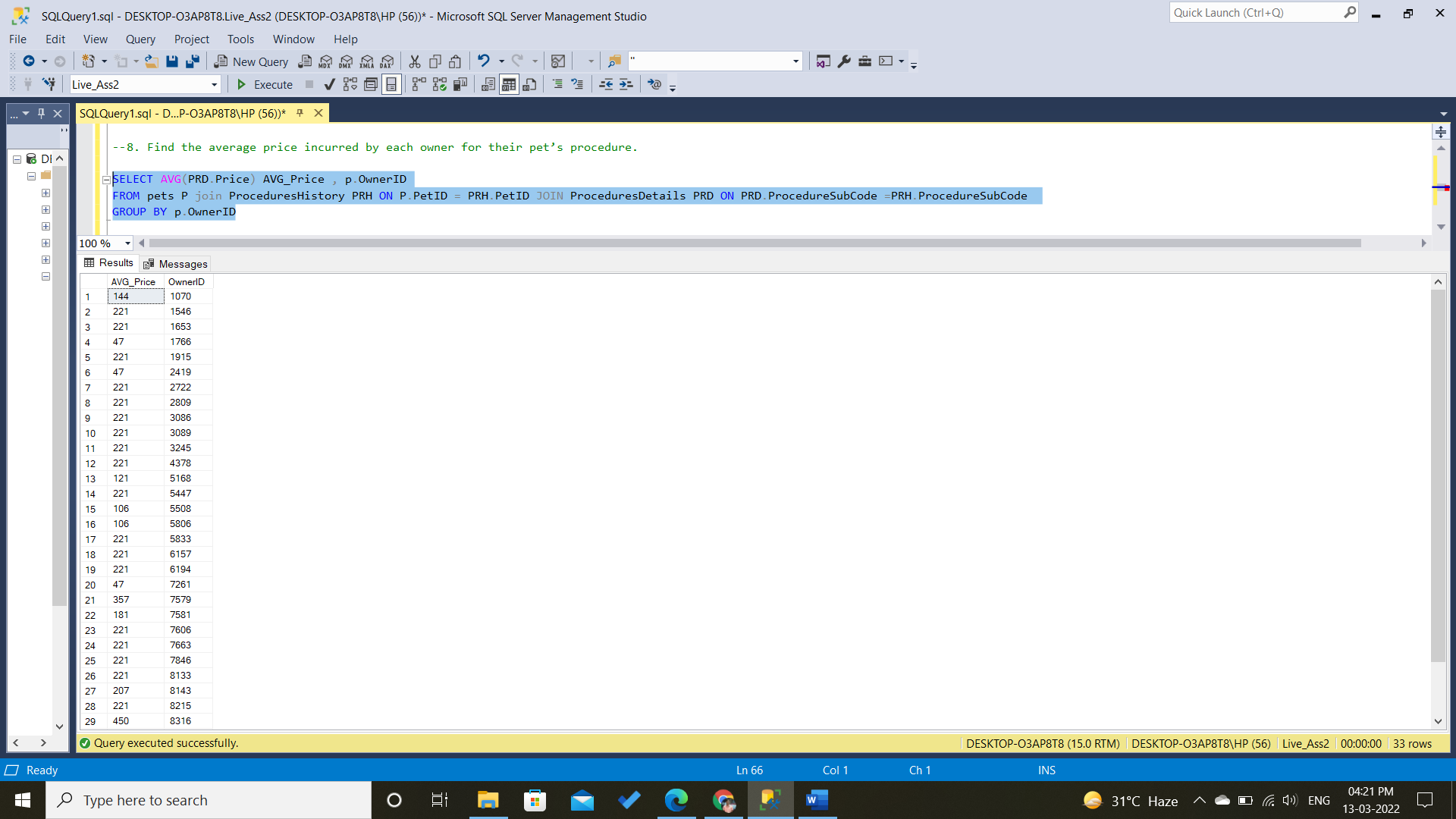
SELECT Count(PRH.ProcedureType) No\_proce , P.PetID , P.Kind FROM pets P join ProceduresHistory PRH ON P.PetID = PRH.PetID JOIN ProceduresDetails PRD ON PRD.ProcedureSubCode =PRH.ProcedureSubCode Where P.Kind = 'Dog'Group By P.petID, P.Kind



1. Find the average price incurred by each owner for their pet’s procedure.

Ans.

SELECT AVG(PRD.Price) AVG\_Price , p.OwnerIDFROM pets P join ProceduresHistory PRH ON P.PetID = PRH.PetID JOIN ProceduresDetails PRD ON PRD.ProcedureSubCode =PRH.ProcedureSubCode GROUP BY p.OwnerID

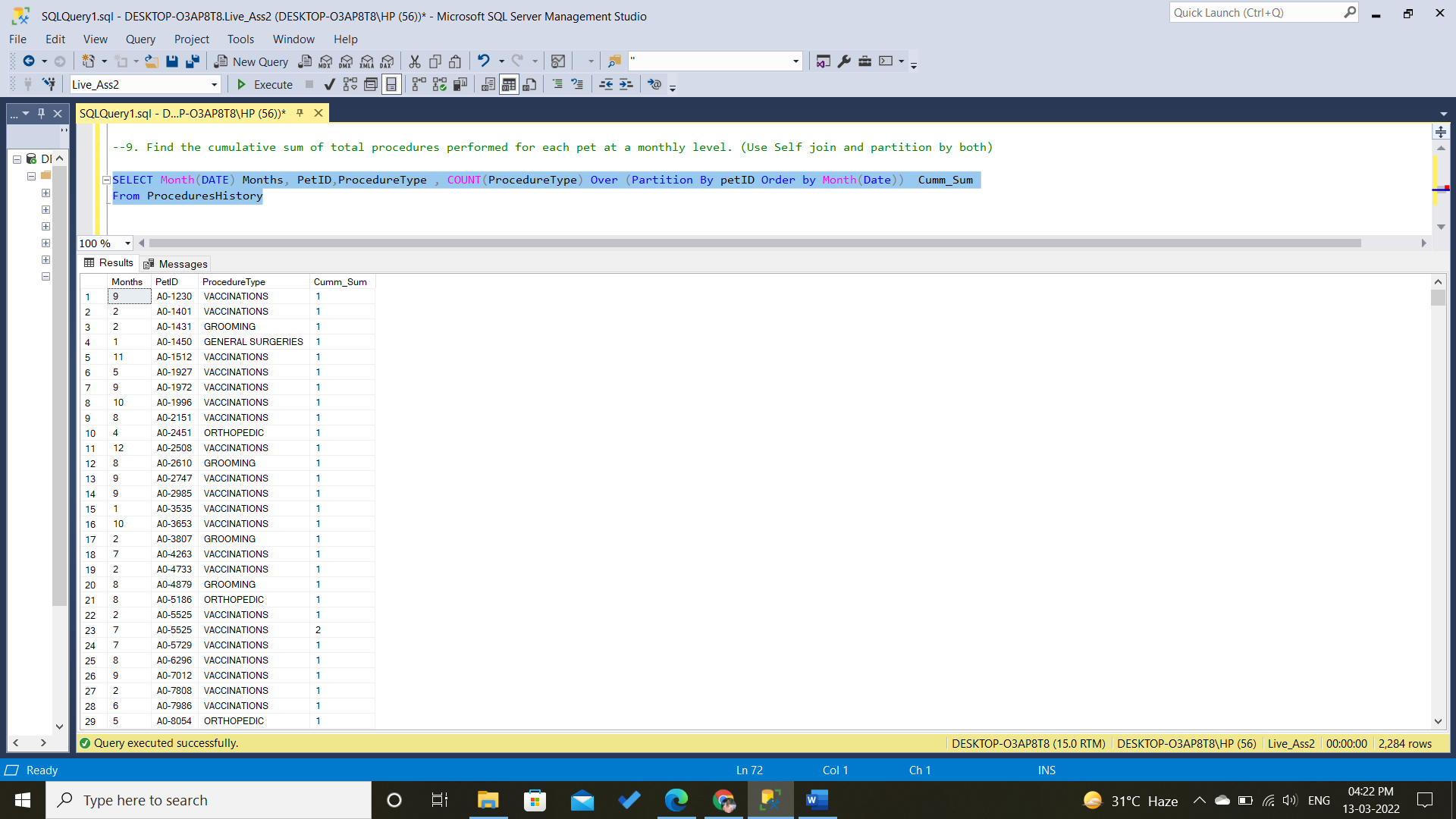


1. Find the cumulative sum of total procedures performed for each pet at a monthly level. (Use Self join and partition by both) .

Ans.

SELECT Month(DATE) Months, PetID,ProcedureType , COUNT(ProcedureType) Over (Partition By petID Order by Month(Date)) Cumm\_Sum

From ProceduresHistory

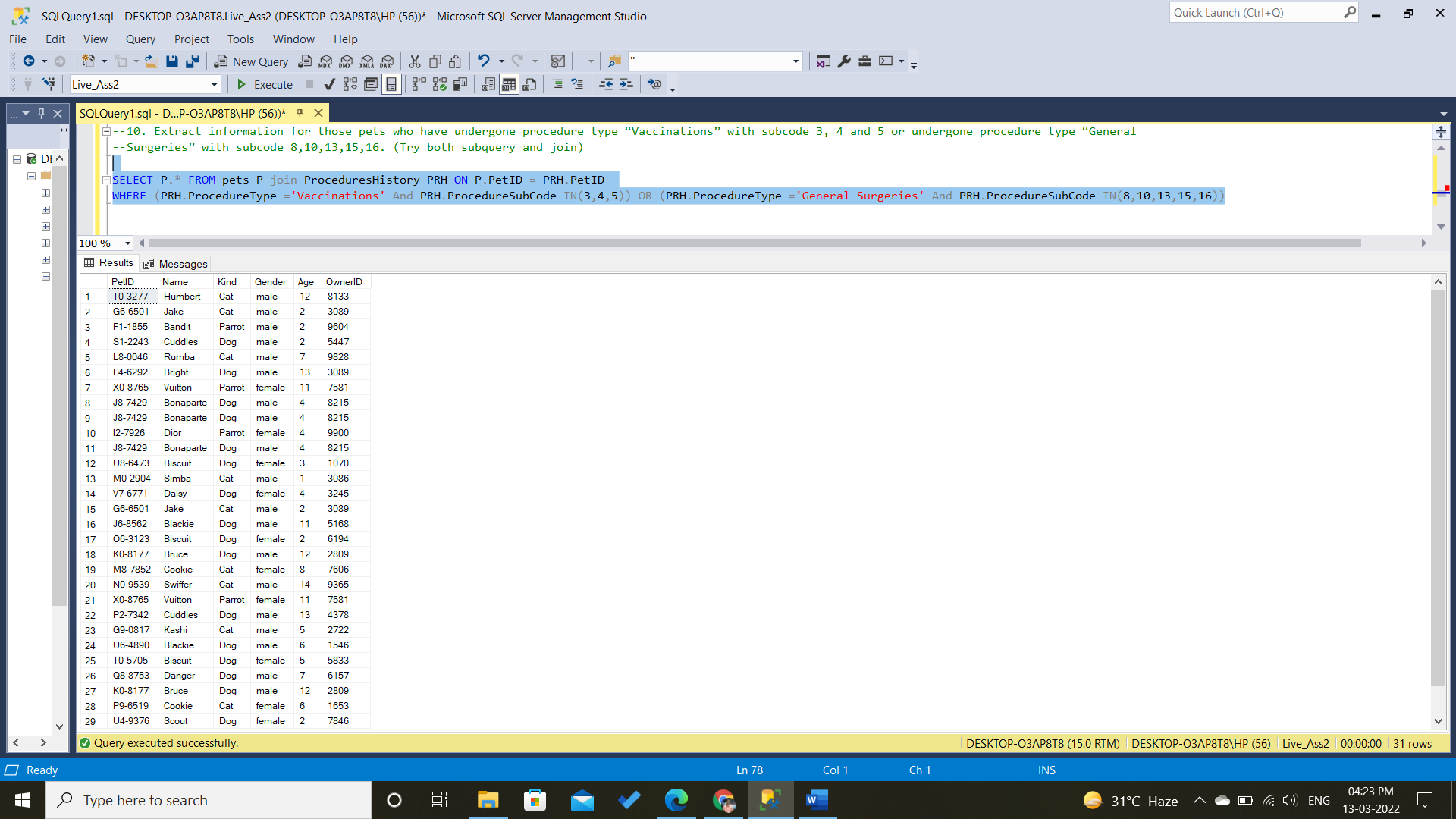


1. Extract information for those pets who have undergone procedure type “Vaccinations” with subcode 3, 4 and 5 or undergone procedure type “General Surgeries” with subcode 8,10,13,15,16. (Try both subquery and join).

ANS.

SELECT P.\* FROM pets P join ProceduresHistory PRH ON P.PetID = PRH.PetID

WHERE (PRH.ProcedureType ='Vaccinations' And PRH.ProcedureSubCode IN(3,4,5)) OR (PRH.ProcedureType ='General Surgeries' And PRH.ProcedureSubCode IN(8,10,13,15,16))



1. Find the top 5 pets in terms of fees paid for all the procedures performed.

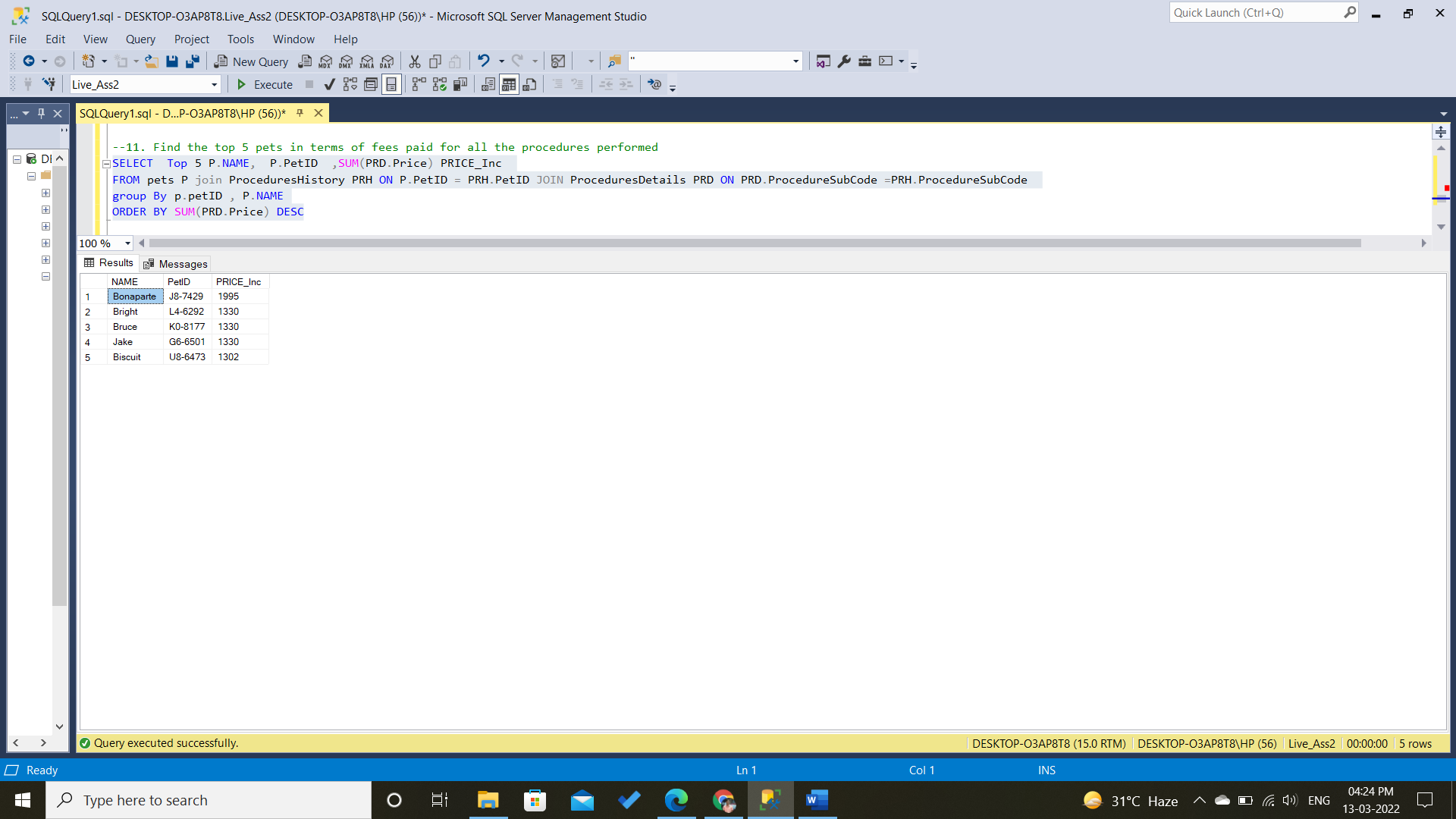
Ans.

SELECT Top 5 P.NAME, P.PetID ,SUM(PRD.Price) PRICE\_Inc

FROM pets P join ProceduresHistory PRH ON P.PetID = PRH.PetID JOIN ProceduresDetails PRD ON PRD.ProcedureSubCode =PRH.ProcedureSubCode

group By p.petID , P.NAME

ORDER BY SUM(PRD.Price) DESC



1. Find 4 owners who paid the least fees for procedures performed on all their pets.

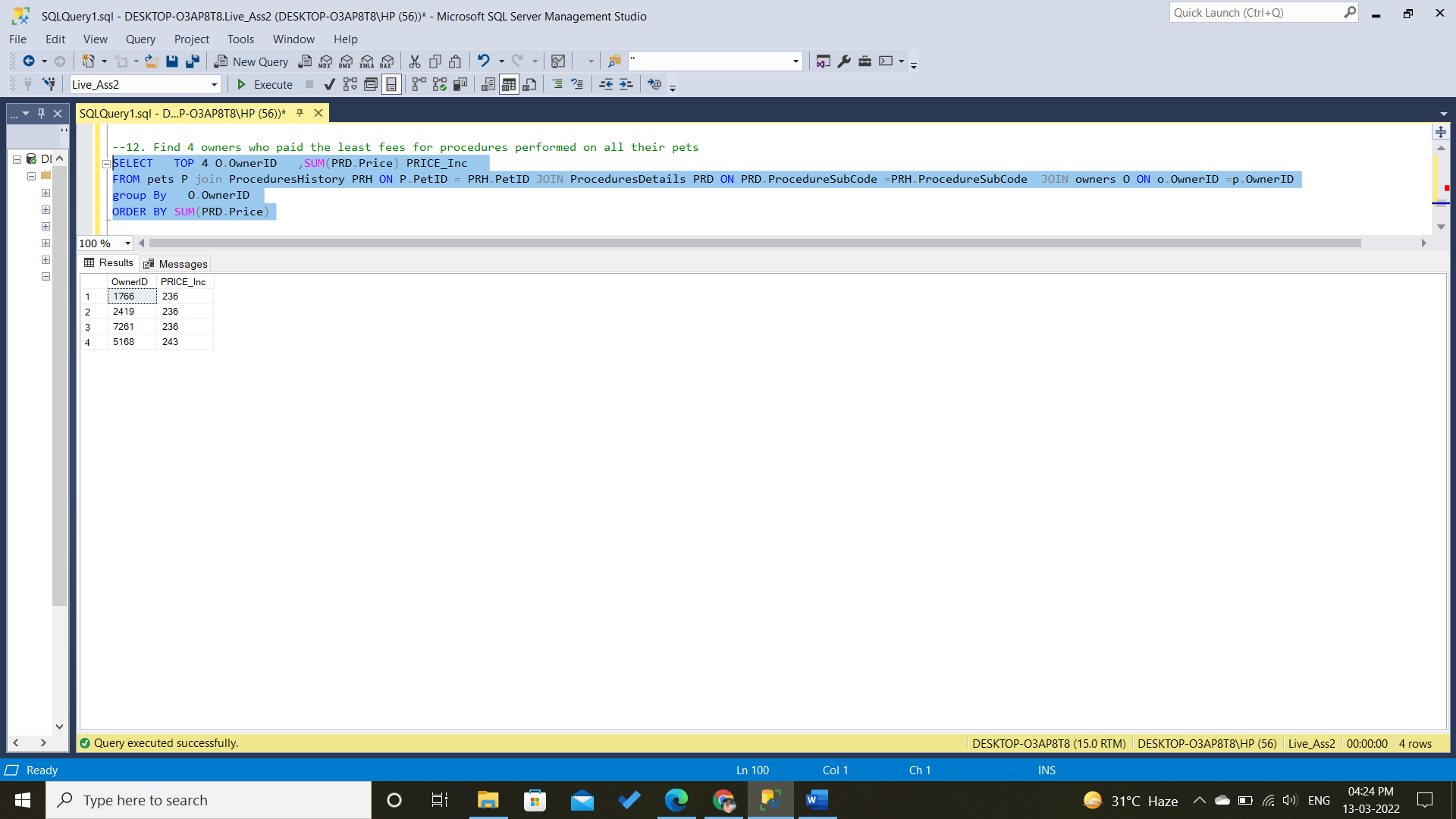
Ans.

SELECT TOP 4 O.OwnerID ,SUM(PRD.Price) PRICE\_Inc

FROM pets P join ProceduresHistory PRH ON P.PetID = PRH.PetID JOIN ProceduresDetails PRD ON PRD.ProcedureSubCode =PRH.ProcedureSubCode JOIN owners O ON o.OwnerID =p.OwnerID

group By O.OwnerID

ORDER BY SUM(PRD.Price)



1. Find first and last date of procedure performed on each of the pets. The output should have columns (Pet Name, First Procedure Date, Last Procedure Date).

Ans.

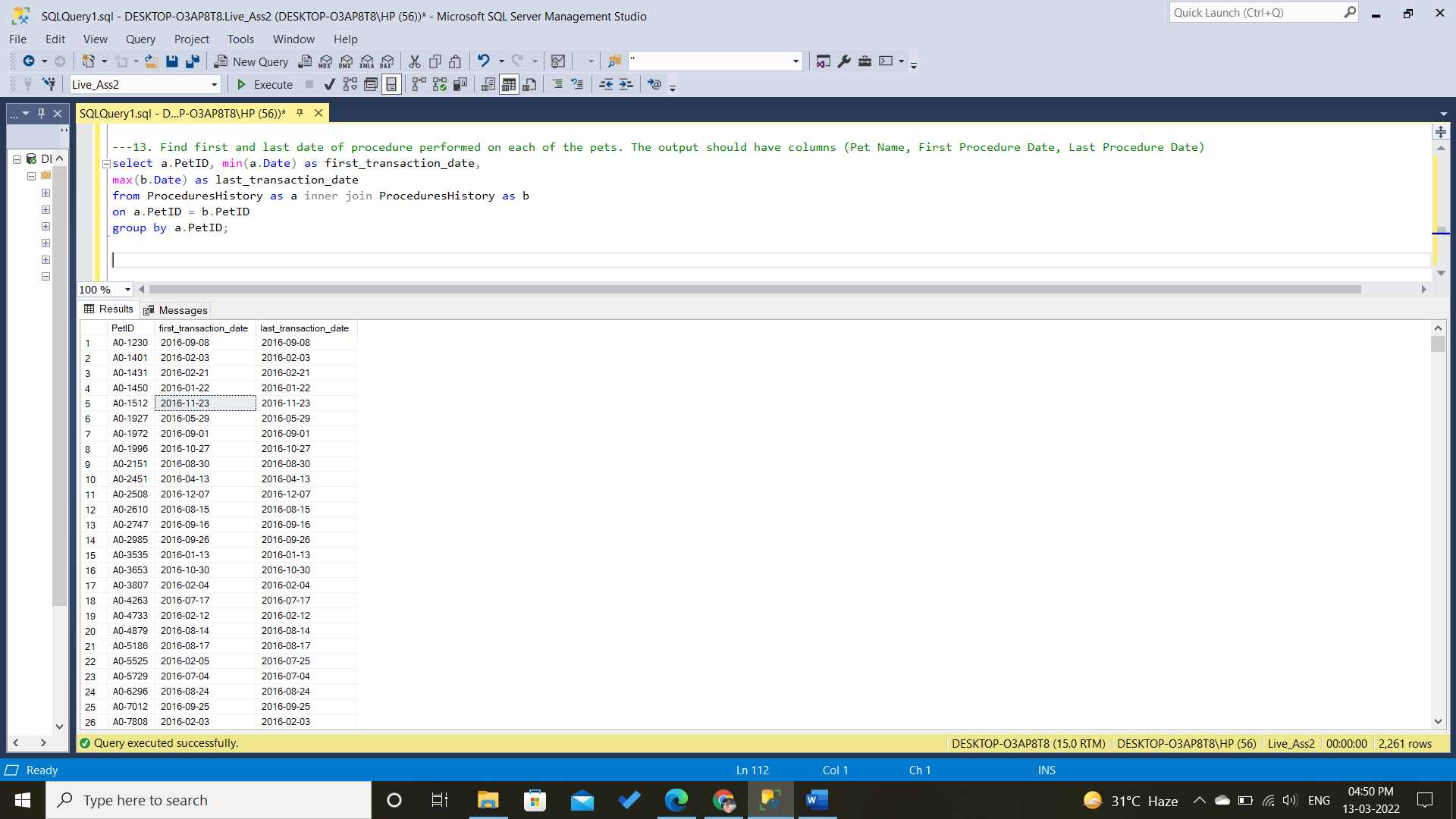
select a.PetID, min(a.Date) as first\_transaction\_date,

max(b.Date) as last\_transaction\_date

from ProceduresHistory as a inner join ProceduresHistory as b

on a.PetID = b.PetID

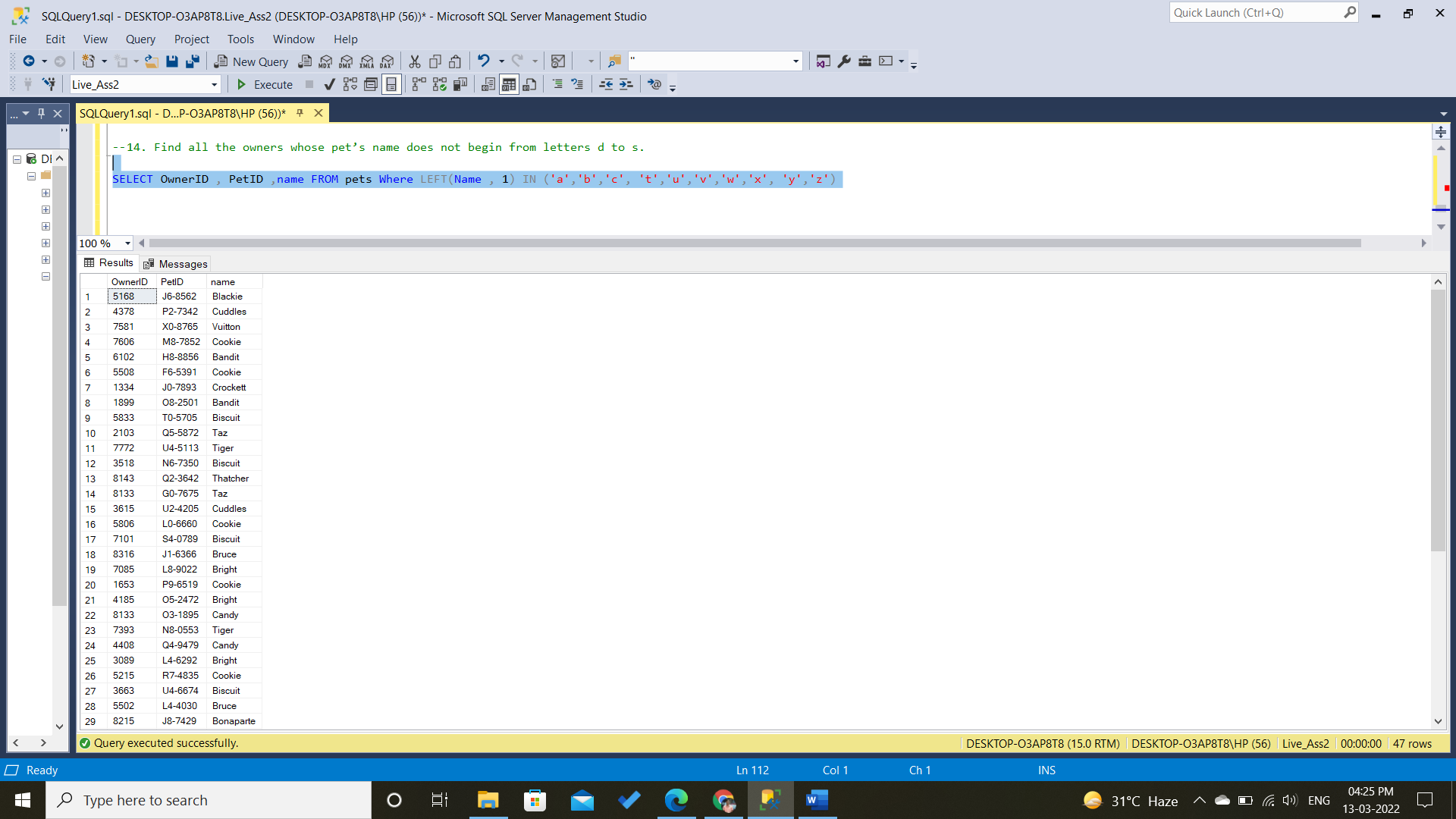
group by a.PetID;



1. Find all the owners whose pet’s name does not begin from letters d to s.

Ans.

SELECT OwnerID , PetID ,name FROM pets Where LEFT(Name , 1) IN ('a','b','c', 't','u','v','w','x', 'y','z')



1. Find 4 day rolling average price incurred by each pet Id.

Ans.

SELECT PRH.PetID ,Prh.Date, AVG(PRD.Price) OVER( Partition BY Prh.PetId ORDER BY PRH.DATE ROWS BETWEEN 3 PRECEDING AND CURRENT ROW) roll\_avg

FROM ProceduresHistory PRH JOIN ProceduresDetails PRD ON PRD.ProcedureSubCode =PRH.ProcedureSubCode

