Case Study

on

**DW Concept, SQL, Advance SQL**

**Case study by,**

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**1. Understandings of Case Study**

Btech-Chai-Wala is a start-up company by Vinit and his friends. Now-a-days in the advancement of the Internet and technologies and by considering the peoples locations they decided to start online streaming services instead of the Television. So, they have created the new streaming service which will allows only the beverage related contents.

They started subscriptions like weekly, monthly and Annual. Vinit has played roles in IT sectors like Data Analyst, Enterprise Data Architect, Principal Architect etc.

This case study questions and analysis will help the start-up to investment decisions and new features to improve Btech-Chai-Wala business.

**2. Database and Tables Creation and Insertion:**

**2.1 & 2.2 Queries:**

-- Creating the database

CREATE DATABASE [btech-chai-wala];

-- Using the btech-chai-wala database

USE [btech-chai-wala];

-- Creating tables plans, subsricptions and customer

-- Creating plans table

CREATE TABLE [dbo].[plans]

(

plan\_id INT NOT NULL PRIMARY KEY IDENTITY(1,1),

plan\_name VARCHAR(100),

plan\_price DECIMAL

);

-- Creating subscriptions table

CREATE TABLE [dbo].[subscriptions]

(

subscrip\_id INT NOT NULL PRIMARY KEY IDENTITY(1,1),

cust\_id INT,

plan\_id INT,

start\_date DATE,

is\_active VARCHAR(1)

);

-- Creating customer table

CREATE TABLE [dbo].[customer]

(

cust\_id INT NOT NULL PRIMARY KEY IDENTITY(1,1),

cust\_name VARCHAR(100),

cust\_city VARCHAR(100),

cust\_dob DATE

);

-- Inserting the values into the plans, subscriptions and customer tables

--plans values

SET IDENTITY\_INSERT [dbo].[plans] ON;

INSERT INTO [dbo].[plans](plan\_id,plan\_name,plan\_price) VALUES(1,'Trail',0.00);

INSERT INTO [dbo].[plans](plan\_id,plan\_name,plan\_price) VALUES(2,'Basic\_Monthly',499.00);

INSERT INTO [dbo].[plans](plan\_id,plan\_name,plan\_price) VALUES(3,'Pro\_Monthly',999.00);

INSERT INTO [dbo].[plans](plan\_id,plan\_name,plan\_price) VALUES(4,'Pro\_Annual',11998.00);

INSERT INTO [dbo].[plans](plan\_id,plan\_name,plan\_price) VALUES(5,'Chrun',NULL);

SET IDENTITY\_INSERT [dbo].[plans] OFF;

-- subscriptions values

SET IDENTITY\_INSERT [dbo].[subscriptions] ON;

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(1,1,2,'2019-08-01',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(2,1,3,'2019-08-08',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(3,5,1,'2020-01-17',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(4,5,1,'2020-03-17',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(5,5,3,'2021-03-24',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(6,5,3,'2021-03-24',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(7,5,5,'2021-04-29',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(8,5,5,'2022-04-30',1);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(9,6,1,'2020-05-31',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(10,6,2,'2020-06-07',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(11,9,1,'2020-06-22',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(12,9,3,'2020-06-29',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(13,8,1,'2020-07-06',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(14,8,3,'2020-07-13',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(15,7,1,'2020-08-01',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(16,1,1,'2020-08-07',1);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(17,7,2,'2020-08-08',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(18,9,4,'2020-08-29',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(19,2,1,'2020-09-20',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(20,2,1,'2020-09-20',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(21,2,4,'2020-09-27',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(22,2,4,'2020-09-27',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(23,6,4,'2020-10-21',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(24,2,1,'2020-11-19',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(25,10,1,'2020-11-19',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(26,2,5,'2020-11-26',1);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(27,10,5,'2021-11-26',1);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(28,3,1,'2020-12-15',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(29,3,1,'2020-12-15',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(30,3,2,'2020-12-22',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(31,4,2,'2020-12-22',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(32,4,3,'2021-03-29',1);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(33,3,3,'2021-03-29',1);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(34,6,1,'2021-05-31',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(35,6,2,'2021-06-07',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(36,9,1,'2021-06-22',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(37,9,3,'2021-06-29',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(38,8,1,'2021-07-06',0);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(39,8,3,'2021-07-13',1);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(40,7,1,'2021-08-01',1);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(41,9,4,'2022-08-29',1);

INSERT INTO [dbo].[subscriptions](subscrip\_id, cust\_id, plan\_id, start\_date, is\_active) VALUES(42,6,4,'2021-10-21',1);

SET IDENTITY\_INSERT [dbo].[subscriptions] OFF;

-- customer values

SET IDENTITY\_INSERT [dbo].[customer] ON;

INSERT INTO [dbo].[customer](cust\_id, cust\_name, cust\_city, cust\_dob) VALUES(1,'Chaitanya','Bangalore', 2001-02-02');

INSERT INTO [dbo].[customer](cust\_id, cust\_name, cust\_city, cust\_dob) VALUES(2,'Harini','Mumbai', ‘2001-07-19’);

INSERT INTO [dbo].[customer](cust\_id, cust\_name, cust\_city, cust\_dob) VALUES(3,'Indu','Chennai', '2001-01-21');

INSERT INTO [dbo].[customer](cust\_id, cust\_name, cust\_city, cust\_dob) VALUES(4,'Jameela','Hyderabad', '2002-05-01');

INSERT INTO [dbo].[customer](cust\_id, cust\_name, cust\_city, cust\_dob) VALUES(5,'Neeha','Bangalore', '2000-03-15');

INSERT INTO [dbo].[customer](cust\_id, cust\_name, cust\_city, cust\_dob) VALUES(6,'Reshma','Mumbai', '2001-02-02');

INSERT INTO [dbo].[customer](cust\_id, cust\_name, cust\_city, cust\_dob) VALUES(7,'Sahithi','Chennai', '2000-11-02');

INSERT INTO [dbo].[customer](cust\_id, cust\_name, cust\_city, cust\_dob) VALUES(8,'Sharmila','Hyderabad', '2001-04-22');

INSERT INTO [dbo].[customer](cust\_id, cust\_name, cust\_city, cust\_dob) VALUES(9,'Sreelakshmi','Bangalore', '2000-06-17');

INSERT INTO [dbo].[customer](cust\_id, cust\_name, cust\_city, cust\_dob) VALUES(10,'Subasri','Mumbai', '2002-01-30');

SET IDENTITY\_INSERT [dbo].[customer] OFF;

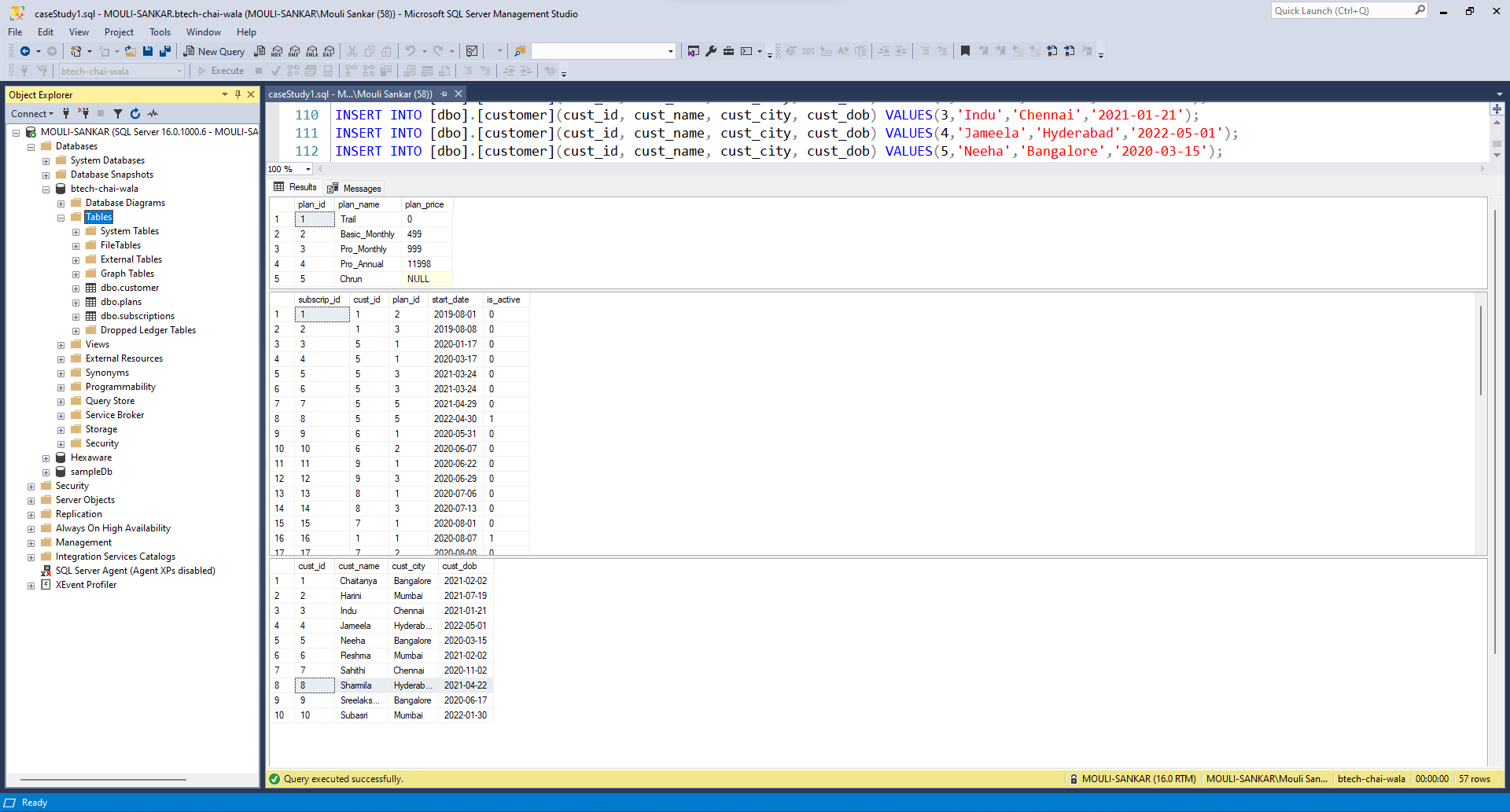
-- Verifying the values inserted properly

SELECT \* FROM [dbo].[plans];

SELECT \* FROM [dbo].[subscriptions];

SELECT \* FROM [dbo].[customer];

**Screenshots:**

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**3. Case Study Questions**

**3.1 Question 1**

**Summarize your understanding of Section 01 of this document is less than 60 words.**

Btech-Chai-Wala is a start-up company which will allows only the beverage related contents. In the advancement of the Internet and technologies and by considering the peoples locations they decided to start streaming services instead of the Television. So, started streaming service.

They started weekly, monthly and Annual subscriptions. Vinit has played roles in IT sectors need to help him to improve business.

**3.2 Question 2**

**Based on the 10 customers provided in the section 2.4 of this document refer subscriptions & customer table, customers having age 21 as of date get their onboarding dates.**

**Query:**

SELECT c.cust\_id,

c.cust\_name,

c.cust\_city,

p.plan\_name,

p.plan\_price,

s.start\_date,

s.is\_active

FROM [dbo].[customer] c

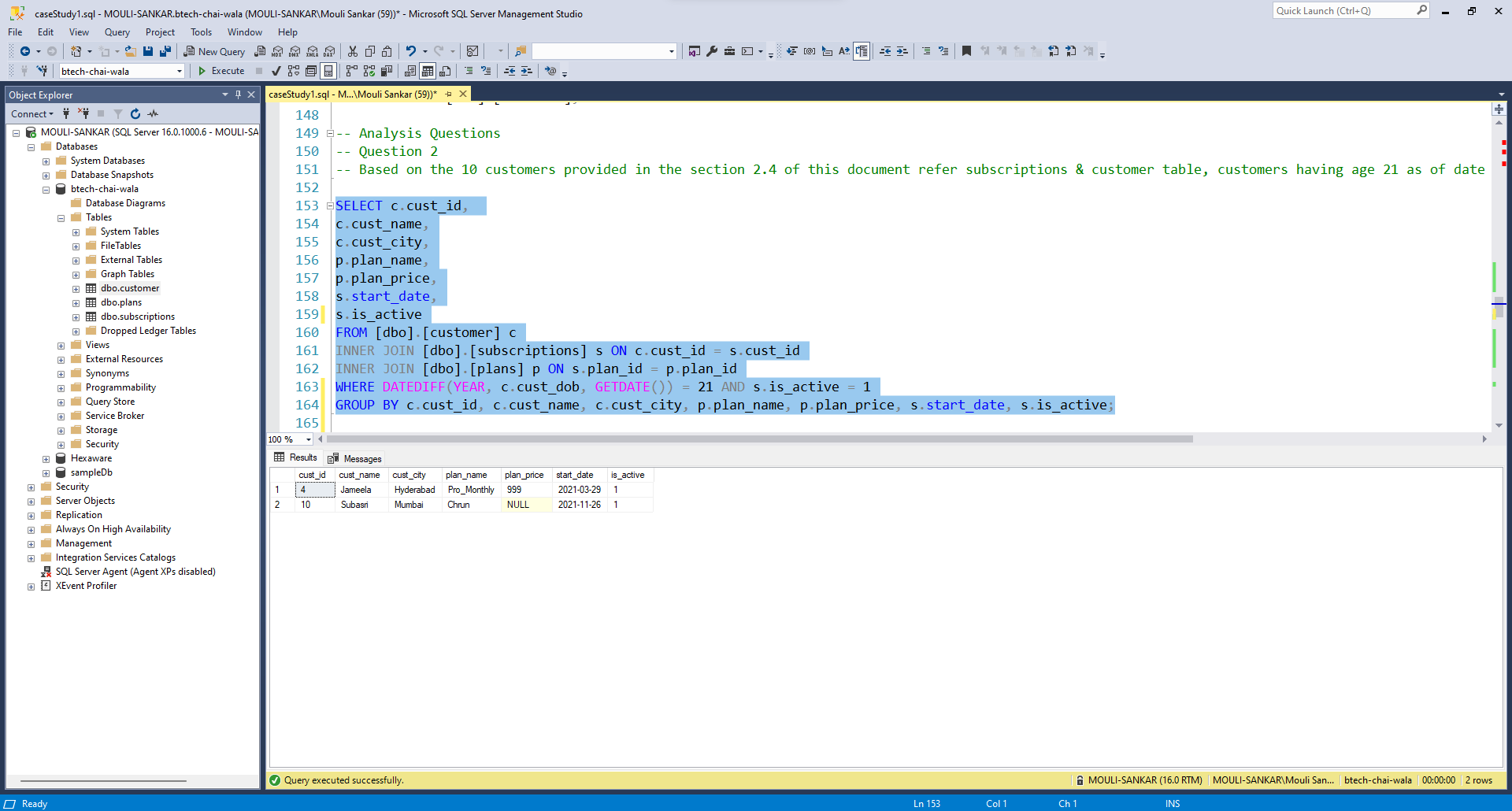
INNER JOIN [dbo].[subscriptions] s ON c.cust\_id = s.cust\_id

INNER JOIN [dbo].[plans] p ON s.plan\_id = p.plan\_id

WHERE DATEDIFF(YEAR, c.cust\_dob, GETDATE()) = 21 AND s.is\_active = 1

GROUP BY c.cust\_id, c.cust\_name, c.cust\_city, p.plan\_name, p.plan\_price, s.start\_date, s.is\_active;

**Screenshot:**

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**3.3 Question 3**

**How many customers has BTe ch-Chai-Wala with activate subscription as on 5 th May 2021?**

**Query:**

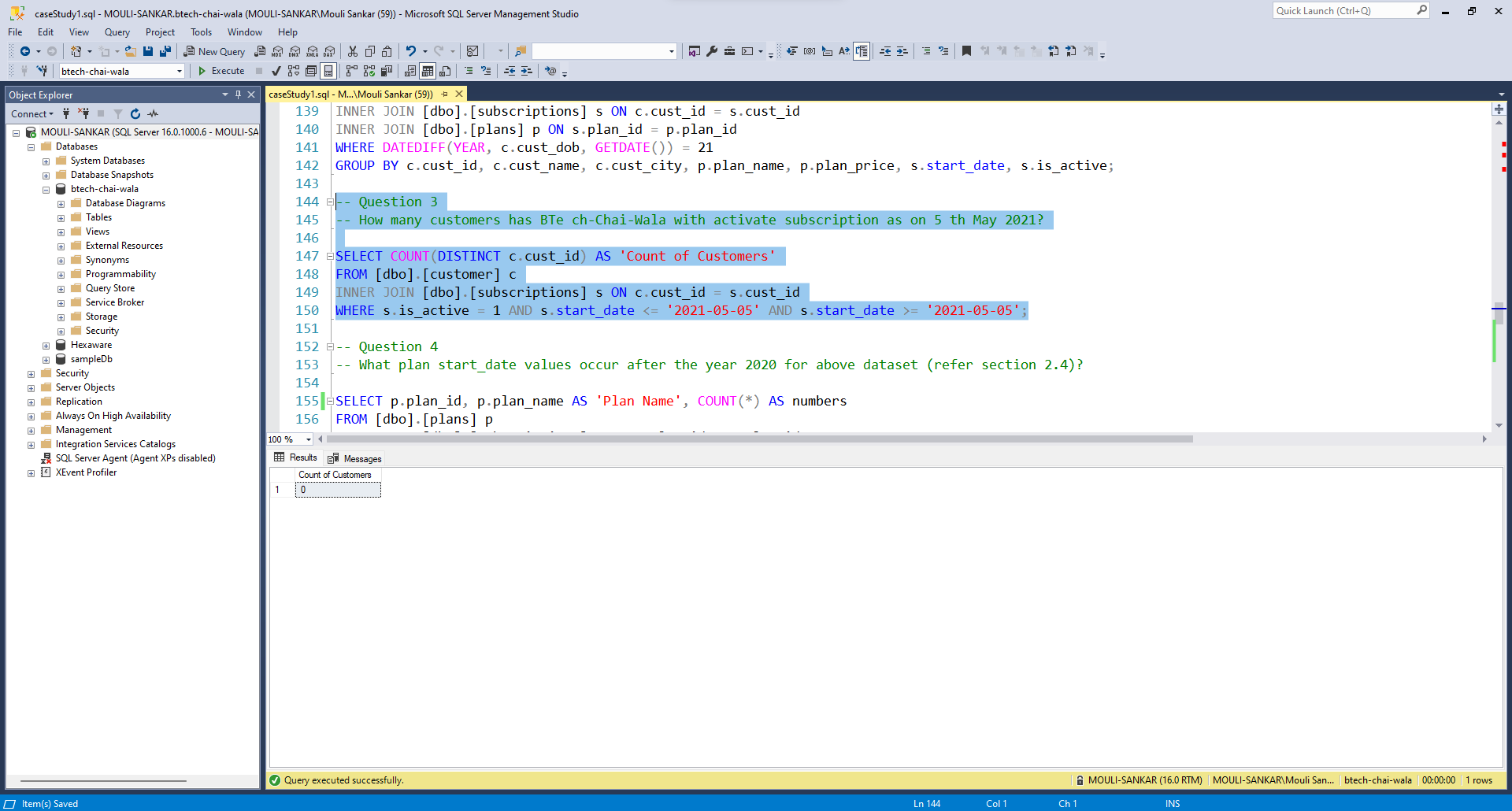
SELECT COUNT(DISTINCT c.cust\_id) AS 'Count of Customers'

FROM [dbo].[customer] c

INNER JOIN [dbo].[subscriptions] s ON c.cust\_id = s.cust\_id

WHERE s.is\_active = 1 AND s.start\_date <= '2021-05-05' AND s.start\_date >= '2021-05-05';

**Screenshot:**

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**3.4 Question 4**

**What plan start\_date values occur after the year 2020 for above dataset (refer section 2.4)?**

**Query:**

SELECT p.plan\_id, p.plan\_name AS 'Plan Name', COUNT(\*) AS numbers

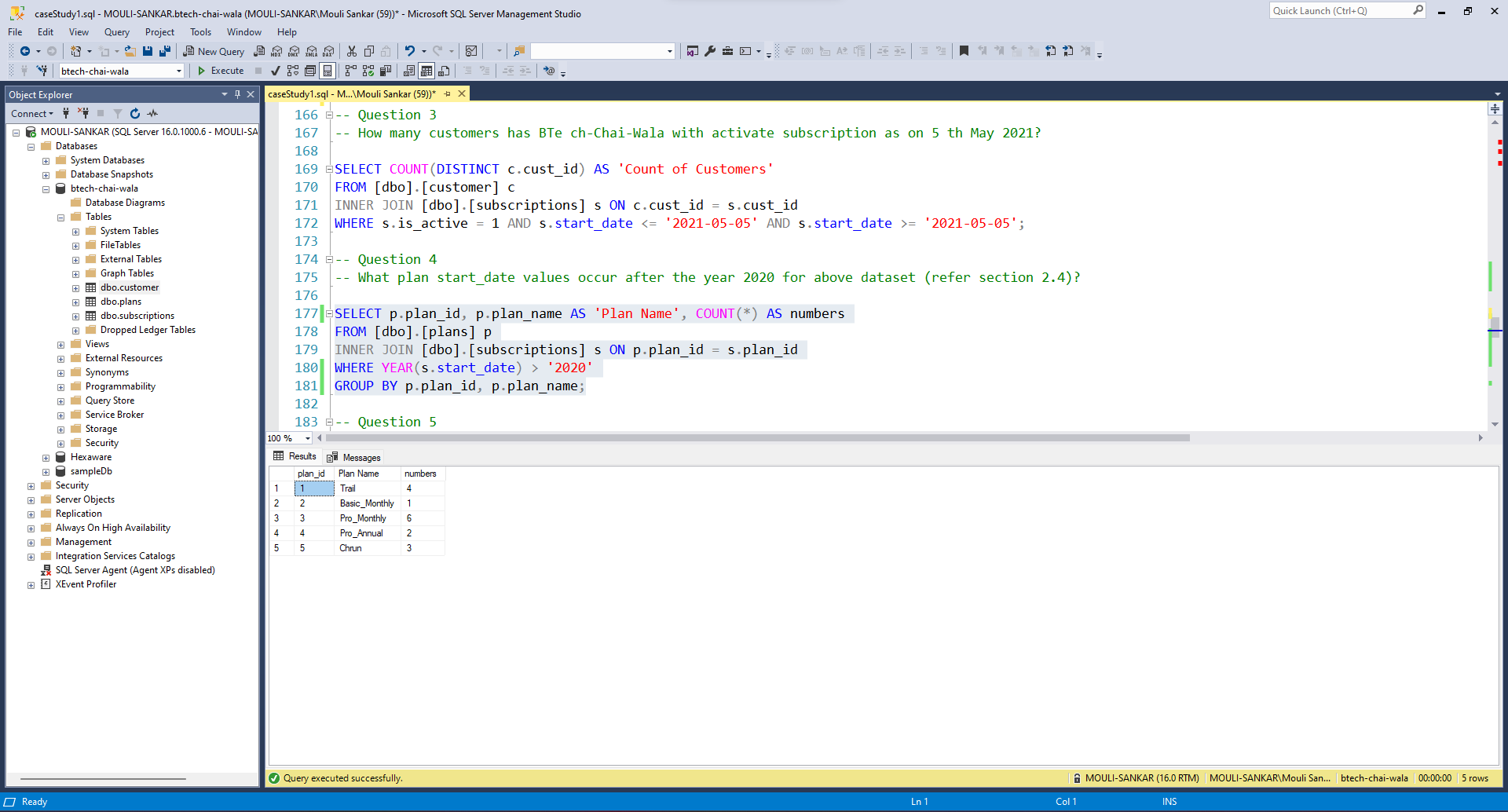
FROM [dbo].[plans] p

INNER JOIN [dbo].[subscriptions] s ON p.plan\_id = s.plan\_id

WHERE YEAR(s.start\_date) > '2020'

GROUP BY p.plan\_id, p.plan\_name;

**Screenshot:**

****

**3.5 Question 5**

**What is the customer count and percentage breakdown of all 5 plan\_name values at 2020-12-31?**

**Query:**

WITH customers\_next\_plan AS(

SELECT cust\_id, plan\_id, start\_date,

LEAD(start\_date, 1) OVER(PARTITION BY cust\_id ORDER BY start\_date) as customers\_next\_date

FROM [dbo].[subscriptions]

WHERE start\_date <= '2020-12-31'),

customer\_brkdown AS (

SELECT plan\_id, COUNT(DISTINCT cust\_id) AS customers

FROM customers\_next\_plan

WHERE (customers\_next\_date IS NOT NULL AND (start\_date < '2020-12-31' AND customers\_next\_date > '2020-12-31'))

OR (customers\_next\_date IS NULL AND start\_date < '2020-12-31')

GROUP BY plan\_id)

SELECT plan\_id,customers ,

ROUND(100 \* CAST(customers AS NUMERIC) / (

SELECT COUNT(DISTINCT cust\_id)

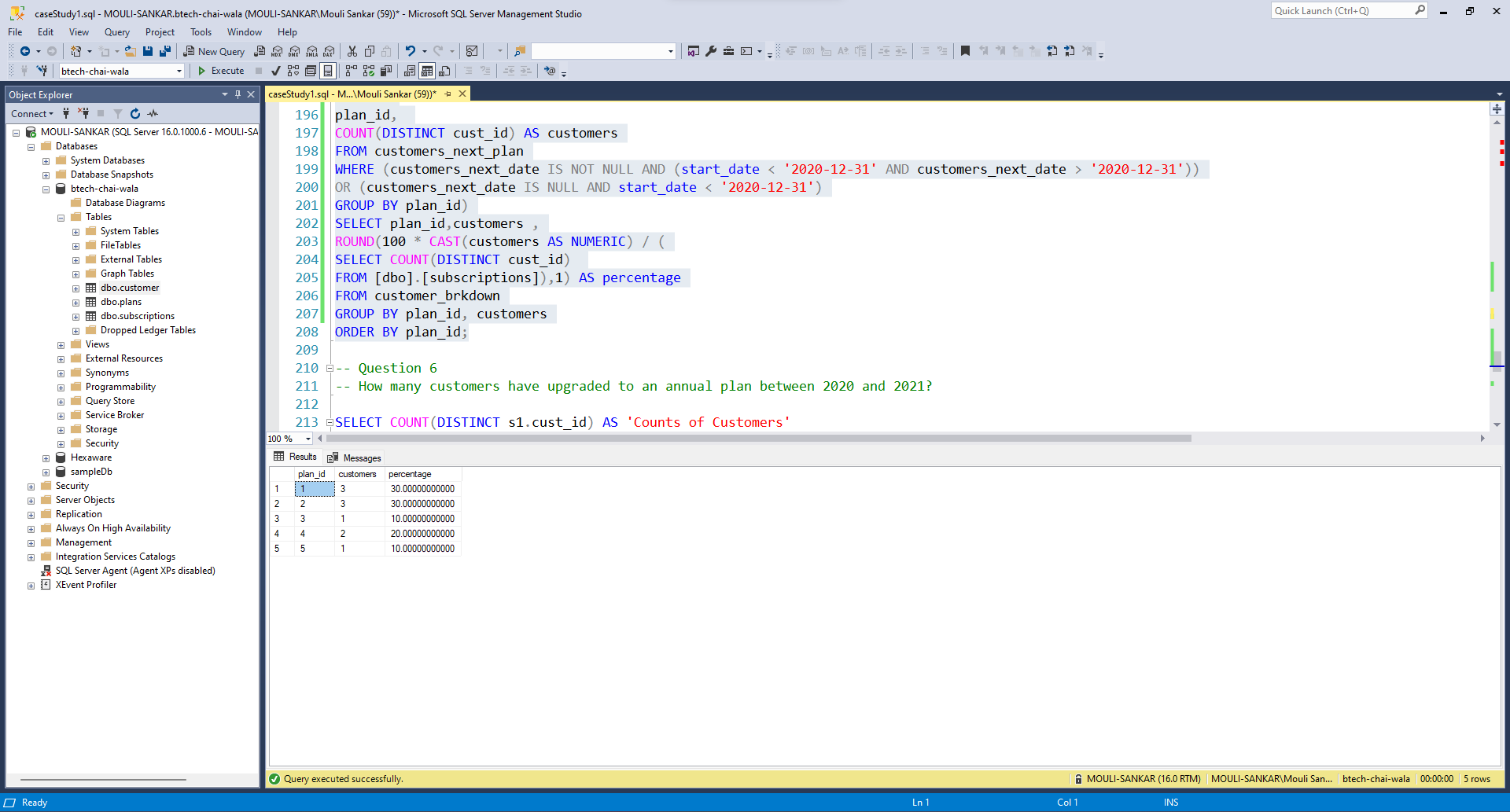
FROM [dbo].[subscriptions]),1) AS percentage

FROM customer\_brkdown

GROUP BY plan\_id, customers

ORDER BY plan\_id;

**Screenshot:**

****

**3.6 Question 6**

**How many customers have upgraded to an annual plan between 2020 and 2021?**

**Query:**

SELECT COUNT(DISTINCT s1.cust\_id) AS 'Counts of Customers'

FROM [dbo].[subscriptions] s1

INNER JOIN [dbo].[subscriptions] s2 ON s1.cust\_id = s2.cust\_id

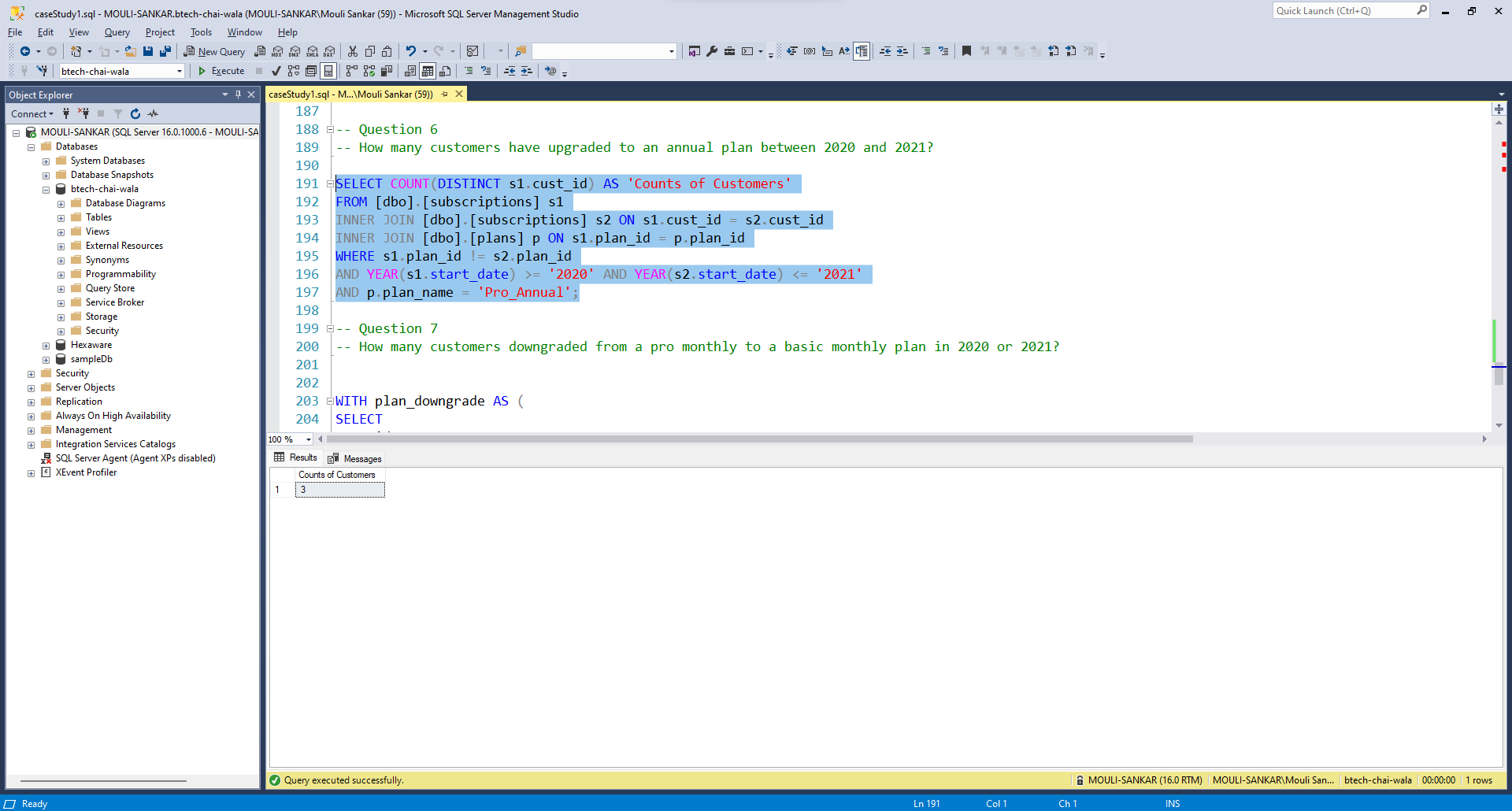
INNER JOIN [dbo].[plans] p ON s1.plan\_id = p.plan\_id

WHERE s1.plan\_id != s2.plan\_id

AND YEAR(s1.start\_date) >= '2020' AND YEAR(s2.start\_date) <= '2021'

AND p.plan\_name = 'Pro\_Annual';

**Screenshot:**

****

**3.7 Question 7**

**How many customers downgraded from a pro monthly to a basic monthly plan in 2020 or 2021?**

**Query:**

WITH plan\_downgrade AS (

SELECT

cust\_id,

plan\_id,

start\_date,

LEAD(plan\_id, 1) OVER(PARTITION BY cust\_id ORDER BY plan\_id) AS down\_plan

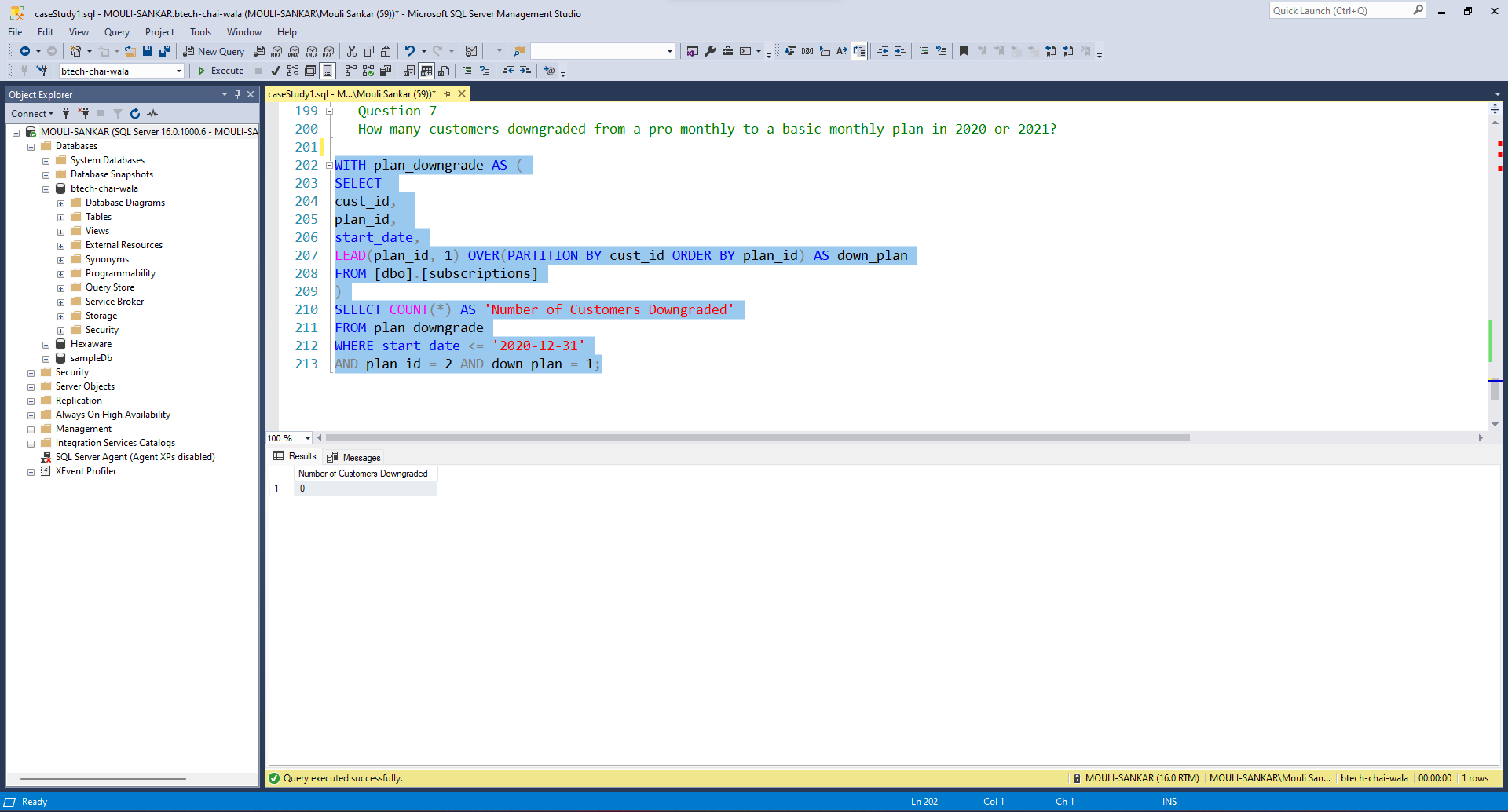
FROM [dbo].[subscriptions])

SELECT COUNT(\*) AS 'Number of Customers Downgraded'

FROM plan\_downgrade

WHERE start\_date <= '2020-12-31' AND plan\_id = 2 AND down\_plan = 1;

**Screenshot:**

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