

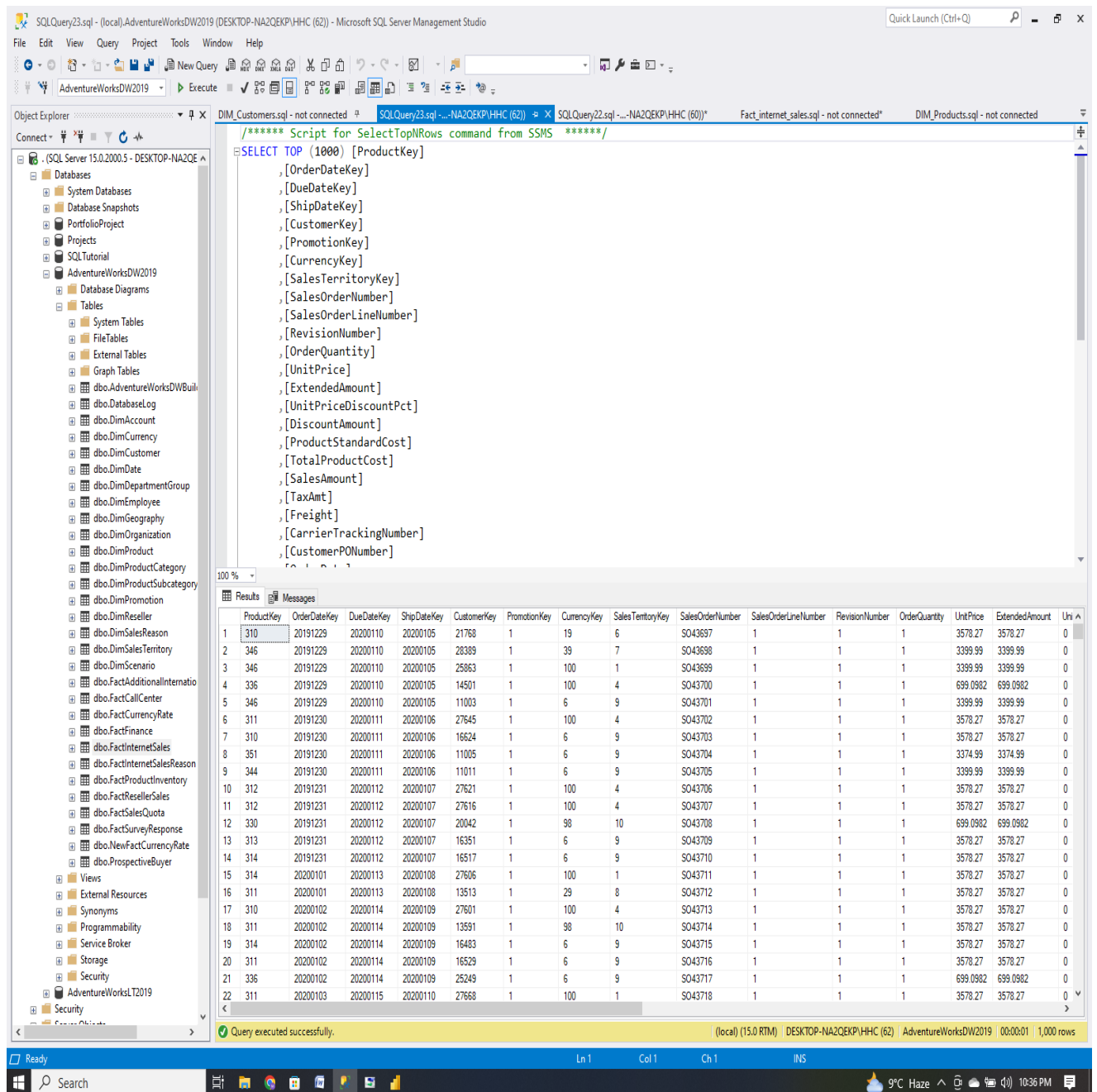
Business Request & User Stories

The business request for this data analyst project was an executive sales report for sales managers. Based on the request that was made from the business we following user stories were defined to fulfill delivery and ensure that acceptance criteria's were maintained throughout the project.

User stories:

| No. | As a (role) | I want request/demand | So that I (user value) | Acceptance criteria |
|-----|----------------------|--|--|---|
| 1. | Sales Manager | To get a dashboard overview of internet sales | Can view better which customers and products sells the best | Power bi dashboards which update the data once in a day. |
| 2. | Sales representative | A detail overview of internet sales per customer | Can follow up my customers who buy most often and w who we can sell ore to | Power bi dashboard which allow me to filter data for each customer. |
| 3. | Sales representative | A detail overview of internet sales per product | Can follow up my product who sells the most | Power bi dashboard which allow me to filter data for each product. |
| 4. | Sales manager | A dashboard overview of internet sales | Follow sales over time against budget | A power bi dashboard with graphs and KPIs comparing against budget |

Fact table and dimension table



SQLQuery23.sql - (local)AdventureWorksDW2019 (DESKTOP-NA2QEKPHHC (62)) - Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

AdventureWorksDW2019

Object Explorer

Connect

SQLQuery23.sql - (local)AdventureWorksDW2019 (DESKTOP-NA2QEKPHHC (62))

SQLQuery22.sql - (local)AdventureWorksDW2019 (DESKTOP-NA2QEKPHHC (62))

FactInternetSales.sql - not connected

DIM_Products.sql - not connected

***** Script for SelectTopNRows command from SSMS *****

```
SELECT TOP (1000) [ProductKey]
, [OrderDateKey]
, [DueDateKey]
, [ShipDateKey]
, [CustomerKey]
, [PromotionKey]
, [CurrencyKey]
, [SalesTerritoryKey]
, [SalesOrderNumber]
, [SalesOrderLineNumber]
, [RevisionNumber]
, [OrderQuantity]
, [UnitPrice]
, [ExtendedAmount]
, [UnitPriceDiscountPct]
, [DiscountAmount]
, [ProductStandardCost]
, [TotalProductCost]
, [SalesAmount]
, [TaxAmt]
, [Freight]
, [CarrierTrackingNumber]
, [CustomerPONumber]
```

Results

| | ProductKey | OrderDateKey | DueDateKey | ShipDateKey | CustomerKey | PromotionKey | CurrencyKey | SalesTerritoryKey | SalesOrderNumber | SalesOrderLineNumber | RevisionNumber | OrderQuantity | UnitPrice | ExtendedAmount | UnitPriceDiscountPct |
|----|------------|--------------|------------|-------------|-------------|--------------|-------------|-------------------|------------------|----------------------|----------------|---------------|-----------|----------------|----------------------|
| 1 | 310 | 20191229 | 20200110 | 20200105 | 21768 | 1 | 19 | 6 | SO43697 | 1 | 1 | 1 | 3578.27 | 3578.27 | 0 |
| 2 | 346 | 20191229 | 20200110 | 20200105 | 28389 | 1 | 39 | 7 | SO43698 | 1 | 1 | 1 | 3399.99 | 3399.99 | 0 |
| 3 | 346 | 20191229 | 20200110 | 20200105 | 25863 | 1 | 100 | 1 | SO43699 | 1 | 1 | 1 | 3399.99 | 3399.99 | 0 |
| 4 | 336 | 20191229 | 20200110 | 20200105 | 14501 | 1 | 100 | 4 | SO43700 | 1 | 1 | 1 | 699.0982 | 699.0982 | 0 |
| 5 | 346 | 20191229 | 20200110 | 20200105 | 11003 | 1 | 6 | 9 | SO43701 | 1 | 1 | 1 | 3399.99 | 3399.99 | 0 |
| 6 | 311 | 20191230 | 20200111 | 20200106 | 27645 | 1 | 100 | 4 | SO43702 | 1 | 1 | 1 | 3578.27 | 3578.27 | 0 |
| 7 | 310 | 20191230 | 20200111 | 20200106 | 16624 | 1 | 6 | 9 | SO43703 | 1 | 1 | 1 | 3578.27 | 3578.27 | 0 |
| 8 | 351 | 20191230 | 20200111 | 20200106 | 11005 | 1 | 6 | 9 | SO43704 | 1 | 1 | 1 | 3374.99 | 3374.99 | 0 |
| 9 | 344 | 20191230 | 20200111 | 20200106 | 11011 | 1 | 6 | 9 | SO43705 | 1 | 1 | 1 | 3399.99 | 3399.99 | 0 |
| 10 | 312 | 20191231 | 20200112 | 20200107 | 27621 | 1 | 100 | 4 | SO43706 | 1 | 1 | 1 | 3578.27 | 3578.27 | 0 |
| 11 | 312 | 20191231 | 20200112 | 20200107 | 27616 | 1 | 100 | 4 | SO43707 | 1 | 1 | 1 | 3578.27 | 3578.27 | 0 |
| 12 | 330 | 20191231 | 20200112 | 20200107 | 20042 | 1 | 98 | 10 | SO43708 | 1 | 1 | 1 | 699.0982 | 699.0982 | 0 |
| 13 | 313 | 20191231 | 20200112 | 20200107 | 16351 | 1 | 6 | 9 | SO43709 | 1 | 1 | 1 | 3578.27 | 3578.27 | 0 |
| 14 | 314 | 20191231 | 20200112 | 20200107 | 16517 | 1 | 6 | 9 | SO43710 | 1 | 1 | 1 | 3578.27 | 3578.27 | 0 |
| 15 | 314 | 20200101 | 20200113 | 20200108 | 27606 | 1 | 100 | 1 | SO43711 | 1 | 1 | 1 | 3578.27 | 3578.27 | 0 |
| 16 | 311 | 20200101 | 20200113 | 20200108 | 13513 | 1 | 29 | 8 | SO43712 | 1 | 1 | 1 | 3578.27 | 3578.27 | 0 |
| 17 | 310 | 20200102 | 20200114 | 20200109 | 27601 | 1 | 100 | 4 | SO43713 | 1 | 1 | 1 | 3578.27 | 3578.27 | 0 |
| 18 | 311 | 20200102 | 20200114 | 20200109 | 13591 | 1 | 98 | 10 | SO43714 | 1 | 1 | 1 | 3578.27 | 3578.27 | 0 |
| 19 | 314 | 20200102 | 20200114 | 20200109 | 16483 | 1 | 6 | 9 | SO43715 | 1 | 1 | 1 | 3578.27 | 3578.27 | 0 |
| 20 | 311 | 20200102 | 20200114 | 20200109 | 16529 | 1 | 6 | 9 | SO43716 | 1 | 1 | 1 | 3578.27 | 3578.27 | 0 |
| 21 | 336 | 20200102 | 20200114 | 20200109 | 25249 | 1 | 6 | 9 | SO43717 | 1 | 1 | 1 | 699.0982 | 699.0982 | 0 |
| 22 | 311 | 20200103 | 20200115 | 20200110 | 27668 | 1 | 100 | 1 | SO43718 | 1 | 1 | 1 | 3578.27 | 3578.27 | 0 |

Query executed successfully.

(local) (15.0 RTM) | DESKTOP-NA2QEKPHHC (62) | AdventureWorksDW2019 | 00:00:01 | 1,000 rows

Identify necessary tables

The screenshot displays the Microsoft SQL Server Enterprise Manager interface. The left pane shows the 'Object Explorer' with the 'AdventureWorksDW2019' database selected. The right pane shows a SQL query window with the following query:

```
-- Cleansed DIM_Customers Table --
SELECT
    c.customerKey AS CustomerKey,
    -- ,[GeographyKey]
    -- ,[CustomerAlternateKey]
    -- ,[Title]
    c.firstname AS [First Name],
    -- ,[MiddleName]
    c.lastname AS [Last Name],
    c.firstname + ' ' + lastname AS [Full Name],
    -- Combined First and Last Name
    -- ,[NameStyle]
    -- ,[BirthDate]
    -- ,[MaritalStatus]
    -- ,[Suffix]
    CASE c.gender WHEN 'M' THEN 'Male' WHEN 'F' THEN 'Female' END AS Gender,
    -- ,[EmailAddress]
    -- ,[YearlyIncome]
    -- ,[TotalChildren]
    -- ,[NumberChildrenAtHome]
    -- ,[EnglishEducation]
    -- ,[SpanishEducation]
    -- ,[FrenchEducation]
    -- ,[EnglishOccupation]
    -- ,[SpanishOccupation]
    -- ,[FrenchOccupation]
    -- ,[HouseOwnerFlag]
    -- ,[NumberCarsOwned]
    -- ,[AddressLine1]
```

The bottom pane shows the results of the query, displaying a table with 18 rows and 7 columns:

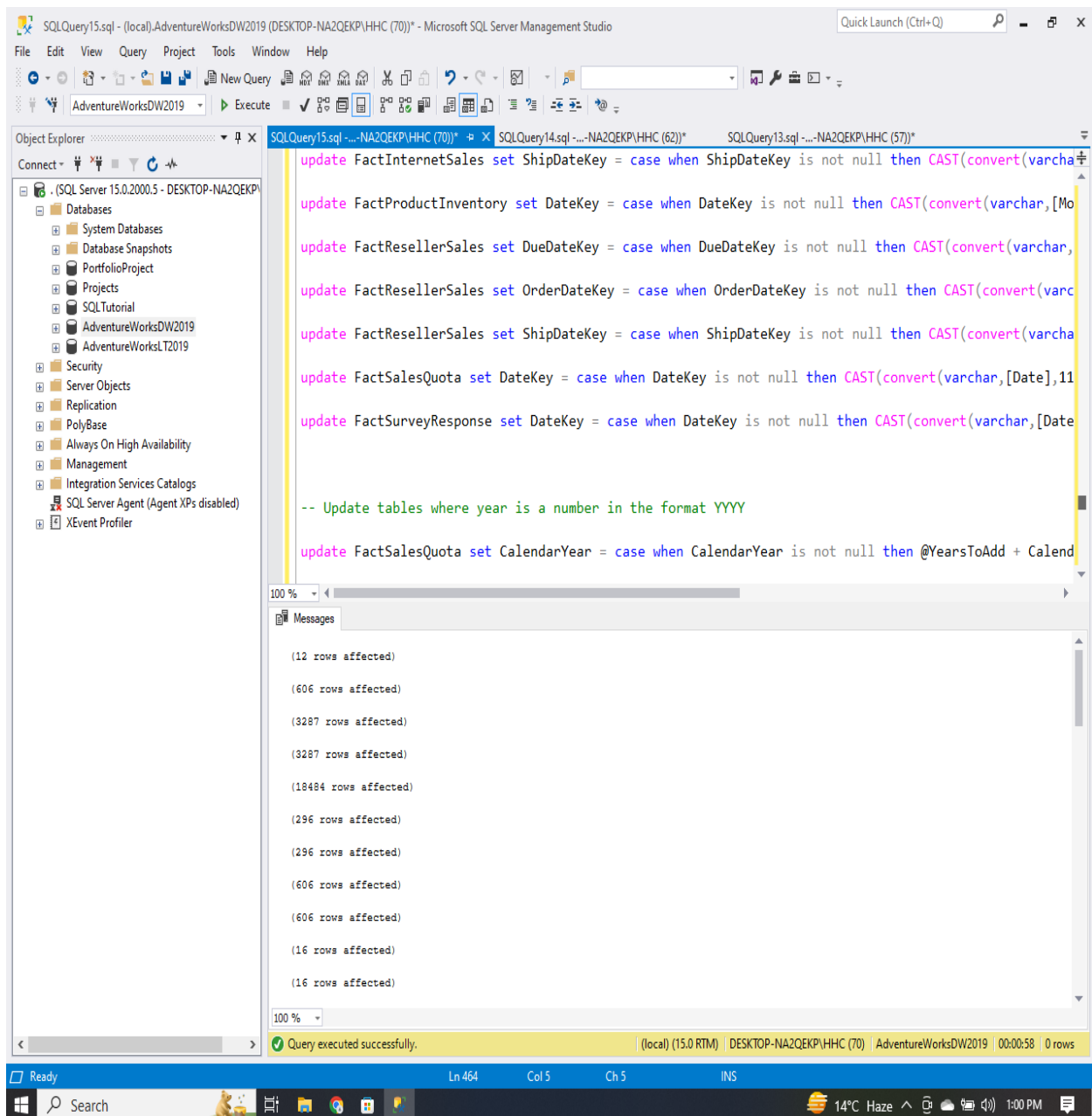
| | CustomerKey | First Name | Last Name | Full Name | Gender | DateFirstPurchase | Customer City |
|----|-------------|------------|-----------|-------------------|--------|-------------------|----------------|
| 1 | 11000 | Jon | Yang | Jon Yang | Male | 2020-01-19 | Rockhampton |
| 2 | 11001 | Eugene | Huang | Eugene Huang | Male | 2020-01-15 | Seaford |
| 3 | 11002 | Ruben | Torres | Ruben Torres | Male | 2020-01-07 | Hobart |
| 4 | 11003 | Christy | Zhu | Christy Zhu | Female | 2019-12-29 | North Ryde |
| 5 | 11004 | Elizabeth | Johnson | Elizabeth Johnson | Female | 2020-01-23 | Wollongong |
| 6 | 11005 | Julio | Ruiz | Julio Ruiz | Male | 2019-12-30 | East Brisbane |
| 7 | 11006 | Janet | Alvarez | Janet Alvarez | Female | 2020-01-24 | Matraville |
| 8 | 11007 | Marco | Mehta | Marco Mehta | Male | 2020-01-09 | Warrnambool |
| 9 | 11008 | Rob | Verhoff | Rob Verhoff | Female | 2020-01-25 | Bendigo |
| 10 | 11009 | Shannon | Carlson | Shannon Carlson | Male | 2020-01-27 | Hevey Bay |
| 11 | 11010 | Jacquelyn | Suarez | Jacquelyn Suarez | Female | 2020-01-14 | East Brisbane |
| 12 | 11011 | Curtis | Lu | Curtis Lu | Male | 2019-12-30 | East Brisbane |
| 13 | 11012 | Lauren | Walker | Lauren Walker | Female | 2022-03-16 | Bremerton |
| 14 | 11013 | Ian | Jenkins | Ian Jenkins | Male | 2022-04-13 | Lebanon |
| 15 | 11014 | Sydney | Bennett | Sydney Bennett | Female | 2022-03-23 | Redmond |
| 16 | 11015 | Chloe | Young | Chloe Young | Female | 2022-01-18 | Butbank |
| 17 | 11016 | Wyatt | Hill | Wyatt Hill | Male | 2022-02-09 | Imperial Beach |
| 18 | 11017 | Shannon | Wang | Shannon Wang | Female | 2020-01-12 | Sunbury |

Data Cleansing & Transformation (SQL)

To create the necessary data model for doing analysis and fulfilling the business needs defined in the user stories the following tables were extracted using SQL.

One data source (sales budgets) was provided in Excel format and were connected in the data model in a later step of the process.

Below are the SQL statements for cleansing and transforming necessary data.



The screenshot displays the Microsoft SQL Server Management Studio interface. The main window shows a SQL query script with the following statements:

```
update FactInternetSales set ShipDateKey = case when ShipDateKey is not null then CAST(convert(varchar, ShipDateKey, 112)) end
update FactProductInventory set DateKey = case when DateKey is not null then CAST(convert(varchar, [Date], 112)) end
update FactResellerSales set DueDateKey = case when DueDateKey is not null then CAST(convert(varchar, DueDateKey, 112)) end
update FactResellerSales set OrderDateKey = case when OrderDateKey is not null then CAST(convert(varchar, OrderDateKey, 112)) end
update FactResellerSales set ShipDateKey = case when ShipDateKey is not null then CAST(convert(varchar, ShipDateKey, 112)) end
update FactSalesQuota set DateKey = case when DateKey is not null then CAST(convert(varchar, [Date], 112)) end
update FactSurveyResponse set DateKey = case when DateKey is not null then CAST(convert(varchar, [Date], 112)) end

-- Update tables where year is a number in the format YYYY

update FactSalesQuota set CalendarYear = case when CalendarYear is not null then @YearsToAdd + CalendarYear end
```

The Messages pane at the bottom shows the execution results for each statement:

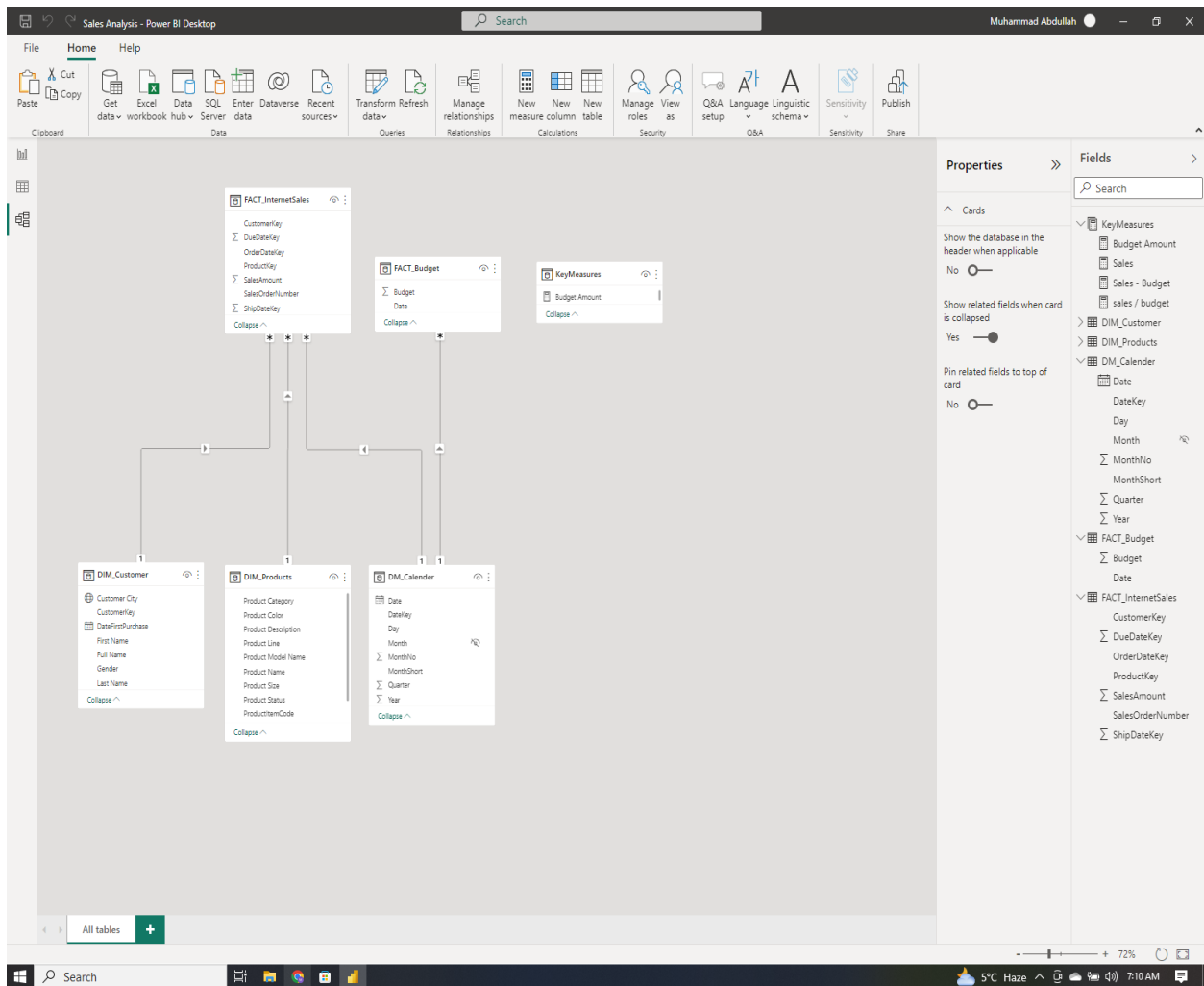
- (12 rows affected)
- (606 rows affected)
- (3287 rows affected)
- (3287 rows affected)
- (18484 rows affected)
- (296 rows affected)
- (296 rows affected)
- (606 rows affected)
- (606 rows affected)
- (16 rows affected)
- (16 rows affected)

The status bar at the bottom indicates "Query executed successfully." and "0 rows" affected for the final statement.

Data Model

Below is a screenshot of the data model after cleansed and prepared tables were read into Power BI.

This data model also shows how FACT_Budget has been connected to FACT_InternetSales and other necessary DIM tables.



Sales Management Dashboard

The finished sales management dashboard with one page with works as a dashboard and overview, with two other pages focused on combining tables for necessary details and visualizations to show sales over time, per customers and per products.

