

## 2 SQL Server Analysis Service-SSAS.

The screenshot shows the Microsoft Visual Studio interface for a Multidimensional Project named "MultidimensionalProject14". The main window displays the "Sales.cube [Design]" and "Sales.ds [Design]" tabs. The left sidebar shows the "SQL Server Object Explorer" with nodes for "Measures" (Sales, Fact Sales) and "Dimensions" (Product Dim, Time Dim). The center pane shows a diagram of the cube structure with three dimensions: Fact Sales, TimeDim, and ProductDim. A context menu is open over the Fact Sales dimension, showing options like "New Data Source View...", "Sort by name", and "Paste". The right sidebar is the "Solution Explorer" showing the project structure, including "MultidimensionalProject14", "Data Sources", "Sales.ds", and "Data Source Views". The bottom status bar includes links for "Activate Windows" and "Go to Settings to activate Windows".

```
graph TD; FactSales[Fact Sales] --> TimeDim[TimeDim]; FactSales --> ProductDim[ProductDim];
```

**Solution Explorer:**

- Solution 'MultidimensionalProject14' (1 project)
  - MultidimensionalProject14
    - Data Sources
    - Sales.ds
    - Data Source Views

**SQL Server Object Explorer:**

- Measures
  - Sales
  - [ui] Fact Sales
    - Qty
- Dimensions
  - Sales
    - Product Dim
      - Edit Product Dim
      - Attributes
        - Product ID
        - Product Name
        - Product Price
    - Time Dim
      - Edit Time Dim
      - Attributes
        - Calendar Quarter
        - Calendar Year
        - Time ID

# 2 SQL Server Analysis Service-SSAS.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File New Open Recent Tools Analyze Window Help

SQL Server Object Explor... Sales.cube [Design]\* Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Measures

- Sales
  - [!l] Fact Sales
    - Qty

Dimensions

- Sales
  - Product Dim
    - [Edit Product Dim](#)
    - Attributes
      - Product ID
      - Product Name
      - Product Price
  - Time Dim
    - [Edit Time Dim](#)
    - Attributes
      - Calendar Quarter
      - Calendar Year
      - Time ID

Data Source View Wizard

Welcome to the Data Source View Wizard

Use this wizard to create a new data source view.

You create a data source view from tables and views in a relational database.

A data source provides a simple connection to a relational database. Use a data source view for more advanced features, such as caching metadata, adding relationships, creating calculations, and setting logical keys.

Don't show this page again

< Back Next > Finish >> Cancel

Solution Explorer

Search Solution Explorer (Ctrl+Shift+F)

Solution 'MultidimensionalProject14' (1 project)

- MultidimensionalProject14
  - Data Sources
    - Sales.ds
  - Data Source Views
    - Sales.dsv
  - Cubes
    - Sales(cube)
  - Dimensions
    - Product Dim.dim
    - Time Dim.dim
  - Mining Structures
  - Roles
  - Assemblies
  - Miscellaneous

Team Explorer Class View Tabular Model Explorer

Activate Windows  
Go to Settings to activate Windows.

## 2 SQL Server Analysis Service-SSAS.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

Sales.cube [Design] \* Sales.dsv [Design]

SQL Server Object Explorer

Measures

- Sales
  - Fact Sales
    - Qty

Dimensions

- Sales
  - Product Dim
    - Edit Product.Dim
  - Attributes
    - Product ID
    - Product Name
    - Product Price
- Time Dim
  - Edit Time.Dim
  - Attributes
    - Calendar Quarter
    - Calendar Year
    - Time ID

Cube Structure Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Data Source View

Data Source View Wizard

Select a Data Source

Select an existing relational data source or create a new one.

Relational data sources:

- Sales

Data source properties:

Property	Value
Data Source	sales
Initial Catalog	sales
Integrated Security	SSPI
Provider	SQLNCLI11.1

New Data Source... Advanced... < Back Next > Finish > Cancel

Solution Explorer

Solution 'MultidimensionalProject14' (1 project)

- MultidimensionalProject14
  - Data Sources
    - Sales.ds
  - Data Source Views
    - Sales.dsv
  - Cubes
    - Sales.cube
  - Dimensions
    - Product Dim.dim
    - Time Dim.dim
  - Mining Structures
  - Roles
  - Assemblies
  - Miscellaneous

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...  
Output Data Tools Operations

## 2 SQL Server Analysis Service-SSAS:

Sales.cube [Design] \* Sales.dsv [Design]

Cube Structure Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

**Measures**

- Sales
  - Fact Sales
    - Qty

**Dimensions**

- Sales
  - Product Dim
    - Edit Product.Dim*
    - Attributes
      - Product ID
      - Product Name
      - Product Price
  - Time Dim
    - Edit Time.Dim*
    - Attributes
      - Calendar Quarter
      - Calendar Year
      - Time ID

**Data Source View**

**Data Source View Wizard**

Select Tables and Views  
Select objects from the relational database to be included in the data source view.

**Available objects:**

Name	Type
ChannelDim (dbo)	Table
CustomerDim (dbo)	Table
Fact Sales (dbo)	Table
ProductDim (dbo)	Table
SalesmanDim (dbo)	Table
sysdiagrams (dbo)	Table
TimeDim (dbo)	Table

**Included objects:**

Name	Type
quarter	Table
year	Table

> < >> <<

Filter:

Show system objects

**Next >** **Finish >** **Cancel**

**Solution Explorer**

Search Solution Explorer (Ctrl+Shift+F)

- Solution 'MultidimensionalProject14' (1 project)
  - MultidimensionalProject14
    - Data Sources
      - Sales.ds
    - Data Source Views
      - Sales.dsv
    - Cubes
      - Sales.cube
    - Dimensions
      - Product Dim.dim
      - Time Dim.dim
    - Mining Structures
    - Roles
    - Assemblies
    - Miscellaneous

**Activate Windows**  
Go to Settings to activate Windows.

## 2 SQL Server Analysis Service-SSAS.

Sales.cube [Design] \* Sales.dsv [Design]

Cube Structure Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Measures

Sales

- Fact Sales
  - Qty

Dimensions

Sales

- Product Dim
  - Edit Product.Dim
  - Attributes
    - Product ID
    - Product Name
    - Product Price
- Time Dim
  - Edit Time.Dim
  - Attributes
    - Calendar Quarter
    - Calendar Year
    - Time ID

Data Source View

Data Source View Wizard

Select Tables and Views

Select objects from the relational database to be included in the data source view.

Available objects:

Name	Type
sysdiagrams (dbo)	Table

Included objects:

Name	Type
Fact Sales (dbo)	Table
ProductDim (dbo)	Table
SalesmanDim (dbo)	Table
TimeDim (dbo)	Table
CustomerDim (dbo)	Table
ChannelDim (dbo)	Table

> < >> <<

Filter:

Add Related Tables

Show system objects

< Back Next > Finish >> Cancel

Solution Explorer

Search Solution Explorer (Ctrl+Shift+F)

Solution 'MultidimensionalProject14' (1 project)

- MultidimensionalProject14
  - Data Sources
    - Sales.ds
  - Data Source Views
    - Sales.dsv
  - Cubes
    - Sales.cube
  - Dimensions
    - Product Dim.dim
    - Time Dim.dim
  - Mining Structures
  - Roles
  - Assemblies
  - Miscellaneous

Team Explorer Class View Tabular Model Explorer

Activate Windows  
Go to Settings to activate Windows.

# 2 SQL Server Analysis Service-SSAS.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

Sales.cube [Design] \* Sales.dsv [Design]

Cube Structure Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Measures

- Sales
  - [x] Fact Sales
    - Qty

Dimensions

- Sales
  - Product Dim
    - [Edit Product Dim](#)
    - Attributes
      - Product ID
      - Product Name
      - Product Price
- Time Dim
  - [Edit Time Dim](#)
  - Attributes
    - Calendar Quarter
    - Calendar Year
    - Time ID

SQL Server Object Explorer

Solution Explorer

Search Solution Explorer (Ctrl+Shift+F)

Solution 'MultidimensionalProject14' (1 project)

- MultidimensionalProject14
  - Data Sources
    - Sales.ds
  - Data Source Views
    - Sales.dsv
    - Cubes
      - Sales.cube
    - Dimensions
      - Product Dim.dim
      - Time Dim.dim
    - Mining Structures
    - Roles
    - Assemblies
    - Miscellaneous

Activate Windows  
Go to Settings to activate Windows.

Serve... Tools... SSIS T... SQL...  
Output Data Tools Operations

The screenshot shows the Microsoft Visual Studio interface for a Multidimensional Project named 'MultidimensionalProject14'. The main window displays the 'Data Source View Wizard' for creating a new data source view. In the 'Included objects' list, the following tables are selected:

Name	Type
Fact Sales (dbo)	Table
ProductDim (dbo)	Table
SalesmanDim (dbo)	Table
TimeDim (dbo)	Table
CustomerDim (dbo)	Table
ChannelDim (dbo)	Table

The 'Dimensions' pane on the left lists the dimensions used in the cube: Product Dim and Time Dim. The 'Measures' pane shows the fact table 'Fact Sales' with one measure 'Qty'.

# 2 SQL Server Analysis Service-SSAS.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File New Open Recent Database Diagrams Analysis Services Analyze Window Help

SQL Server Object Explorer Sales.cube [Design]\* Sales.ds [Design]

Cube Structure Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Measures

- Sales
  - Fact Sales
    - Qty

Dimensions

- Sales
  - Product Dim
    - Edit Product Dim
    - Attributes
      - Product ID
      - Product Name
      - Product Price
  - Time Dim
    - Edit Time Dim
    - Attributes
      - Calendar Quarter
      - Calendar Year
      - Time ID

Data Source View

Data Source View Wizard

Completing the Wizard

Provide a name, and then click Finish to create the new data source view.

Name: Sales 1

Preview:

- Sales 1
  - Fact Sales (dbo)
  - ProductDim (dbo)
  - SalesmanDim (dbo)
  - TimeDim (dbo)
  - CustomerDim (dbo)
  - ChannelDim (dbo)

< Back Next > Finish Cancel

Solution Explorer

Search Solution Explorer (Ctrl+Shift+F)

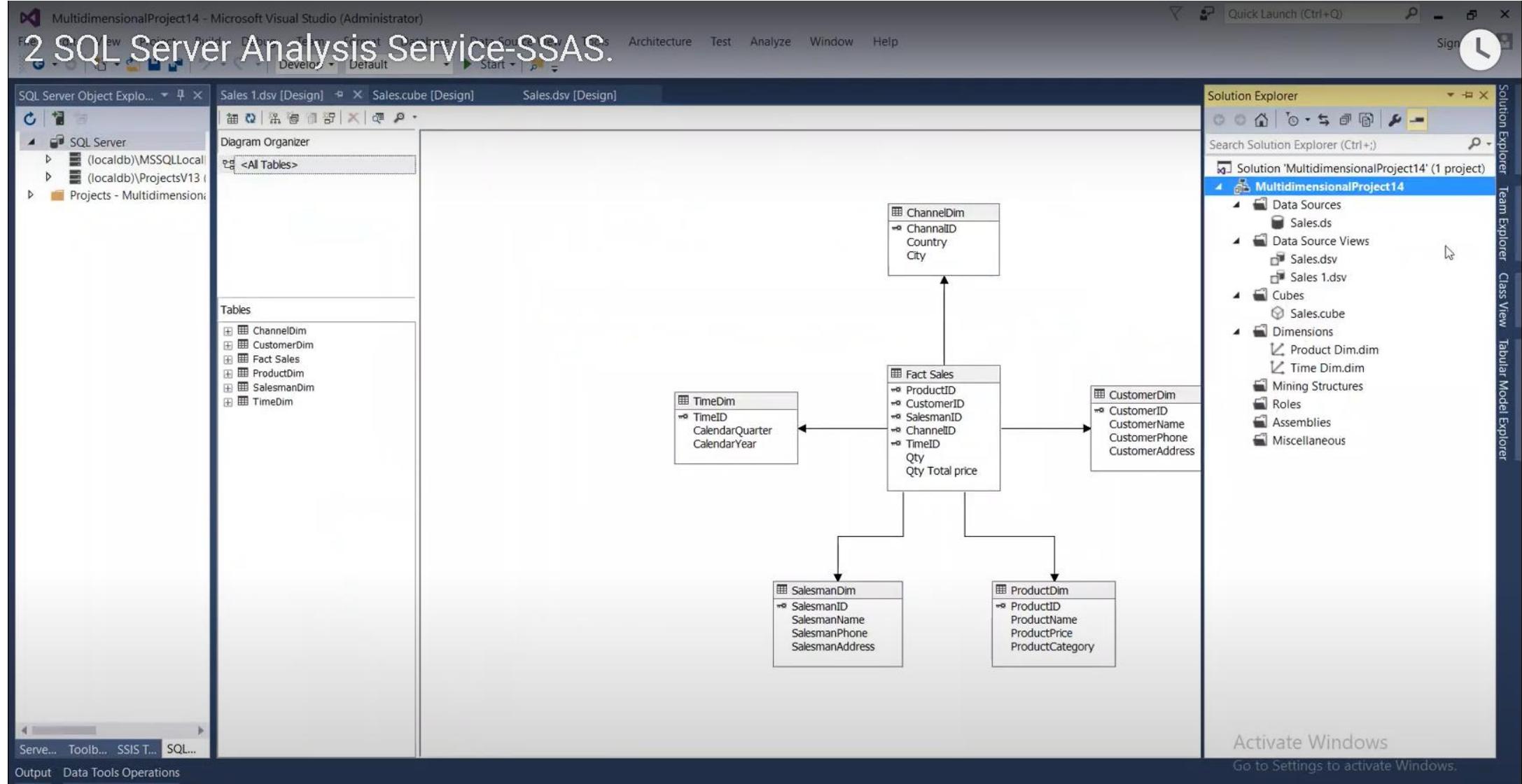
Solution 'MultidimensionalProject14' (1 project)

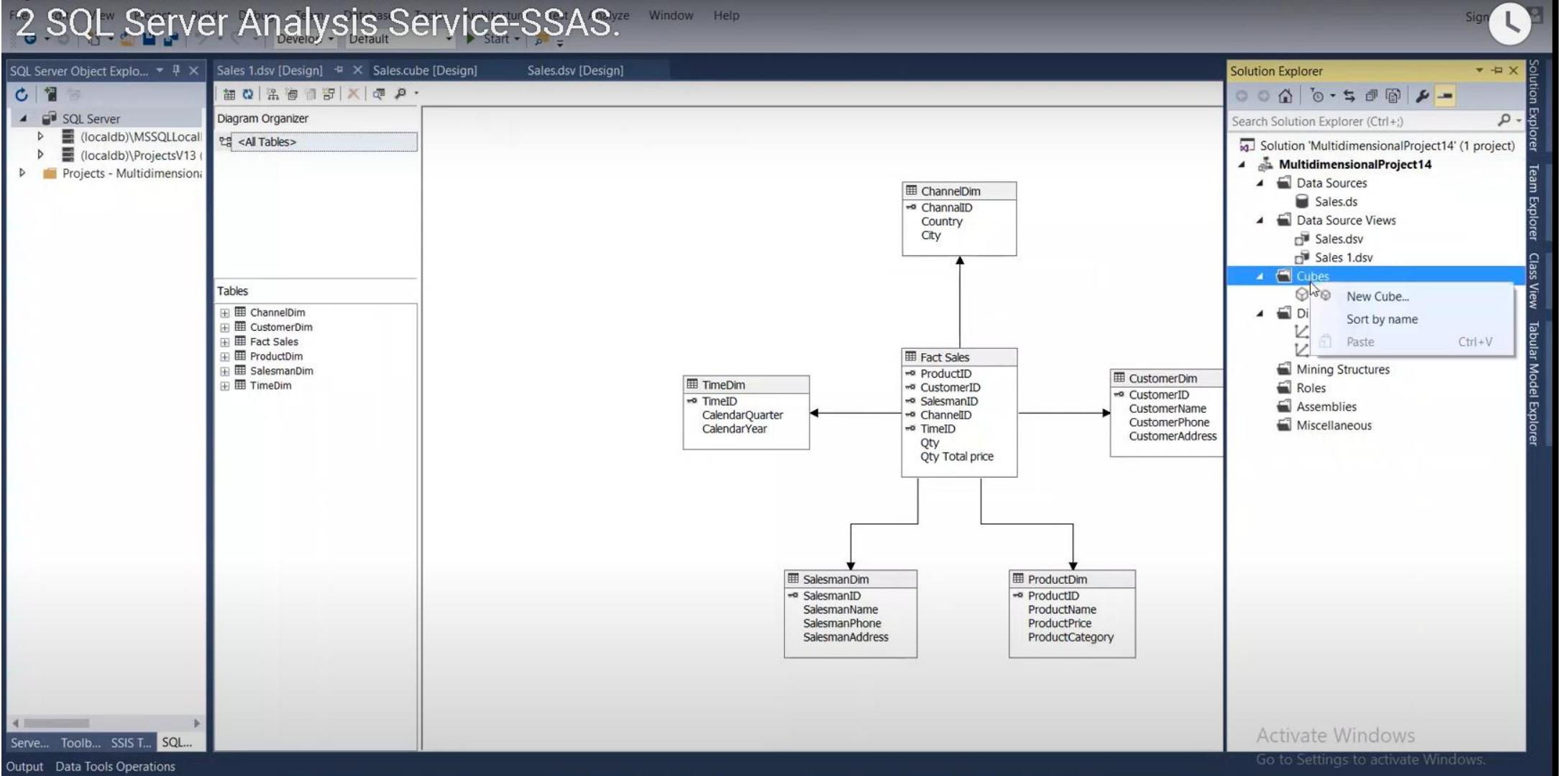
- MultidimensionalProject14
  - Data Sources
    - Sales.ds
  - Data Source Views
    - Sales.ds
  - Cubes
    - Sales(cube)
  - Dimensions
    - Product Dim.dim
    - Time Dim.dim
  - Mining Structures
  - Roles
  - Assemblies
  - Miscellaneous

Team Explorer Class View Tabular Model Explorer

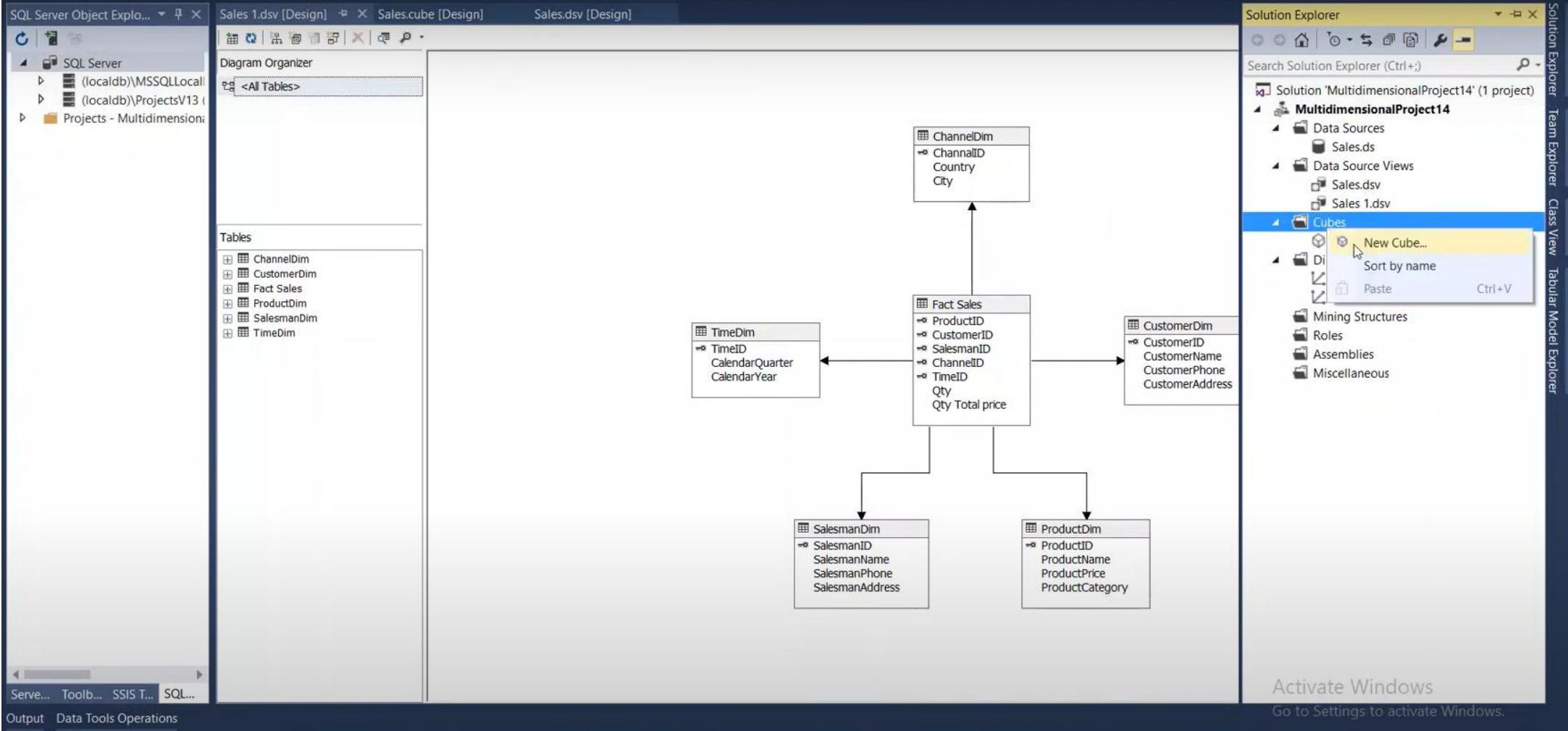
Activate Windows  
Go to Settings to activate Windows.

## 2 SQL Server Analysis Service-SSAS.





## 2 SQL Server Analysis Service-SSAS:



# 2 SQL Server Analysis Service-SSAS.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

SQL Server Object Explorer

Diagram Organizer

Cube Wizard

Select Creation Method

Cubes can be created by using existing tables, creating an empty cube, or generating tables in the data source.

How would you like to create the cube?

Use existing tables

Create an empty cube

Generate tables in the data source

Template: (None)

Description:

Create a cube based on one or more tables in a data source.

CustomerDim

CustomerID  
CustomerName  
CustomerPhone  
CustomerAddress

SalesmanDim

SalesmanName  
SalesmanPhone  
SalesmanAddress

ProductDim

ProductName  
ProductPrice  
ProductCategory

Next > Finish >> Cancel

Solution Explorer

Search Solution Explorer (Ctrl+F)

Solution 'MultidimensionalProject14' (1 project)

MultidimensionalProject14

Data Sources

Sales.ds

Data Source Views

Sales.dsv  
Sales 1.dsv

Cubes

Sales(cube)

Dimensions

Product Dim.dim  
Time Dim.dim

Mining Structures

Roles

Assemblies

Miscellaneous

Team Explorer

Class View

Tabular Model Explorer

Activate Windows

Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...

Output Data Tools Operations

# 2 SQL Server Analysis Service-SSAS.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File New Open Recent Tools Data Source View Database Project Analyze Window Help

Developer Default Start

SQL Server Object Explorer Sales 1.dsv [Design] Sales(cube) [Design] Sales.csv [Design]

Cube Wizard

Select Measure Group Tables

Select a data source view or diagram and then select the tables that will be used for measure groups.

Data source view:

- Sales
- Sales
- Sales 1

Measure group tables:

- Fact Sales
- ProductDim
- TimeDim

At least one measure group table must be selected.

< Back Next > Finish >> Cancel

CustomerDim  
CustomerID  
CustomerName  
CustomerPhone  
CustomerAddress

SalesmanDim  
SalesmanName  
SalesmanPhone  
SalesmanAddress

ProductDim  
ProductID  
ProductPrice  
ProductCategory

Solution Explorer

Search Solution Explorer (Ctrl+Shift+F)

Solution 'MultidimensionalProject14' (1 project)

- MultidimensionalProject14
  - Data Sources
    - Sales.ds
  - Data Source Views
    - Sales.dsv
    - Sales 1.dsv
  - Cubes
    - Sales(cube)
  - Dimensions
    - Product Dim.dim
    - Time Dim.dim
  - Mining Structures
  - Roles
  - Assemblies
  - Miscellaneous

Team Explorer Class View Tabular Model Explorer

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...  
Output Data Tools Operations

The screenshot shows the Microsoft Visual Studio interface for creating a Multidimensional Project. The main window displays the 'Cube Wizard' dialog, specifically the 'Select Measure Group Tables' step. In the 'Data source view' dropdown, 'Sales' is selected. Under 'Measure group tables', 'Fact Sales' and 'ProductDim' are checked. A yellow warning bar at the bottom left of the dialog box states 'At least one measure group table must be selected.' To the right of the dialog, a sidebar lists the project structure: 'MultidimensionalProject14' contains 'Sales.ds', 'Sales.dsv', 'Sales 1.dsv', 'Sales(cube)', 'Dimensions', 'Mining Structures', 'Roles', 'Assemblies', and 'Miscellaneous'. The 'CustomerDim' dimension is expanded, showing its attributes: CustomerID, CustomerName, CustomerPhone, and CustomerAddress. The 'ProductDim' dimension is also expanded, showing its attributes: ProductID, ProductPrice, and ProductCategory. The bottom right corner of the screen has a watermark for activating Windows.

# 2 SQL Server Analysis Service-SSAS:

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

Diagram Organizer

Cube Wizard

Select Measure Group Tables

Select a data source view or diagram and then select the tables that will be used for measure groups.

Data source view: Sales 1

Measure group tables:

- Fact Sales
- ProductDim
- SalesmanDim
- TimeDim
- CustomerDim
- ChannelDim

Suggest

CustomerDim

CustomerID  
CustomerName  
CustomerPhone  
CustomerAddress

< Back Next >| Finish >>| Cancel

SalesmanName  
SalesmanPhone  
SalesmanAddress

ProductValue  
ProductPrice  
ProductCategory

CustomerDim

CustomerID  
CustomerName  
CustomerPhone  
CustomerAddress

Dimensions

Product Dim.dim  
Time Dim.dim

Mining Structures

Roles

Assemblies

Miscellaneous

Activate Windows  
Go to Settings to activate Windows.

SQL...

Serve... Toolb... SSIS T... Output Data Tools Operations

Quick Launch (Ctrl+Q)

Solution Explorer

Search Solution Explorer (Ctrl+I)

Solution 'MultidimensionalProject14' (1 project)

MultidimensionalProject14

- Data Sources
- Sales.ds
- Data Source Views

  - Sales.dsv
  - Sales 1.dsv

- Cubes

  - Sales(cube)

- Dimensions

  - Product Dim.dim
  - Time Dim.dim

- Mining Structures
- Roles
- Assemblies
- Miscellaneous

Team Explorer Class View Tabular Model Explorer

## 2 SQL Server Analysis Service-SSAS:

Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

Diagram Organizer <All Tables>

Cube Wizard

Select Measures

Select measures that you want to include in the cube.

Measure

Fact Sales

Qty

Qty Total Price

Fact Sales Count

< Back Next > Finish >> Cancel

SalesmanName  
SalesmanPhone  
SalesmanAddress

ProductName  
ProductPrice  
ProductCategory

Solution Explorer

Search Solution Explorer (Ctrl+F)

Solution 'MultidimensionalProject14' (1 project)

MultidimensionalProject14

- Data Sources
- Sales.ds
- Data Source Views
- Sales.dsv
- Sales 1.dsv
- Cubes
- Sales(cube)
- Dimensions
- Product Dim.dim
- Time Dim.dim
- Mining Structures
- Roles
- Assemblies
- Miscellaneous

Team Explorer Class View Tabular Model Explorer

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolbars SSIS T... SQL...

Output Data Tools Operations

This screenshot shows the 'Cube Wizard - Select Measures' dialog box in Microsoft Visual Studio. The 'Fact Sales' measure is selected. On the right, the 'CustomerDim' dimension is listed with its attributes: CustomerID, CustomerName, CustomerPhone, and CustomerAddress. At the bottom, there are buttons for Back, Next, Finish, and Cancel, along with two small preview boxes showing SalesmanName/Phone/Address and ProductName/Price/Category respectively.

# 2 SQL Server Analysis Service-SSAS.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Tools Database Analyze Window Help

SQL Server Object Explor... Sales 1.csv [Design] Sales.cube [Design] Sales.csv [Design]

Diagram Organizer <All Tables>

Tables

- ChannelDim
- CustomerDim
- Fact Sales
- ProductDim
- SalesmanDim
- TimeDim

Cube Wizard

Select Measures

Select measures that you want to include in the cube.

Measure

Fact Sales

- Qty
- Qty Total Price
- FactSales Count

< Back Next > Finish >> Cancel

CustomerDim

- CustomerID
- CustomerName
- CustomerPhone
- CustomerAddress

SalesmanDim

- SalesmanName
- SalesmanPhone
- SalesmanAddress

ProductDim

- ProductName
- ProductPrice
- ProductCategory

Solution Explorer

Search Solution Explorer (Ctrl+.)

Solution 'MultidimensionalProject14' (1 project)

- MultidimensionalProject14
  - Data Sources
    - Sales.ds
  - Data Source Views
    - Sales.csv
    - Sales 1.csv
  - Cubes
    - Sales.cube
  - Dimensions
    - Product Dim.dim
    - Time Dim.dim
  - Mining Structures
  - Roles
  - Assemblies
  - Miscellaneous

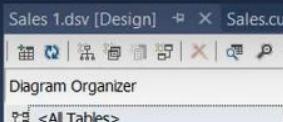
Team Explorer Class View Tabular Model Explorer

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...

Output Data Tools Operations

The screenshot shows the Microsoft Visual Studio interface for creating a multidimensional cube. The central window is the 'Cube Wizard' with the 'Select Measures' step open. In this step, the 'Fact Sales' measure is selected, highlighted with a blue border. Other available measures include 'Qty', 'Qty Total Price', and 'FactSales Count'. Below the list of measures are three tabs: 'CustomerDim' (listing CustomerID, CustomerName, CustomerPhone, CustomerAddress), 'SalesmanDim' (listing SalesmanName, SalesmanPhone, SalesmanAddress), and 'ProductDim' (listing ProductName, ProductPrice, ProductCategory). The 'Solution Explorer' on the right side of the screen displays the 'MultidimensionalProject14' solution, which contains a single cube named 'Sales.cube' and various dimensions like 'Product Dim.dim' and 'Time Dim.dim'. The status bar at the bottom indicates 'Activate Windows'.



## Cube Wizard

Select measures that you want to include in the cube.

- Measure
- Fact Sales
  - Qty
  - Qty Total Price
  - Fact Sales Count



&lt; Back

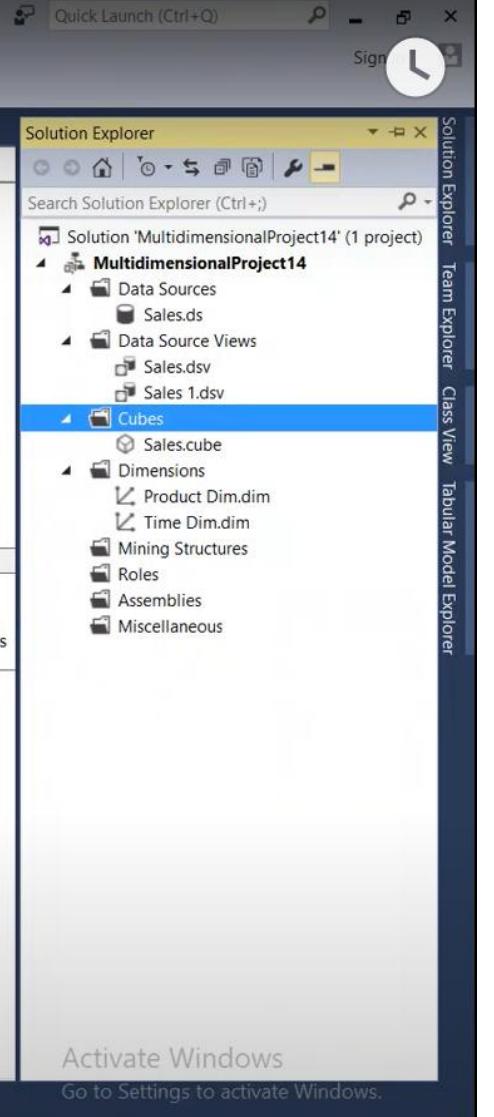
Next &gt;

Finish &gt;&gt;

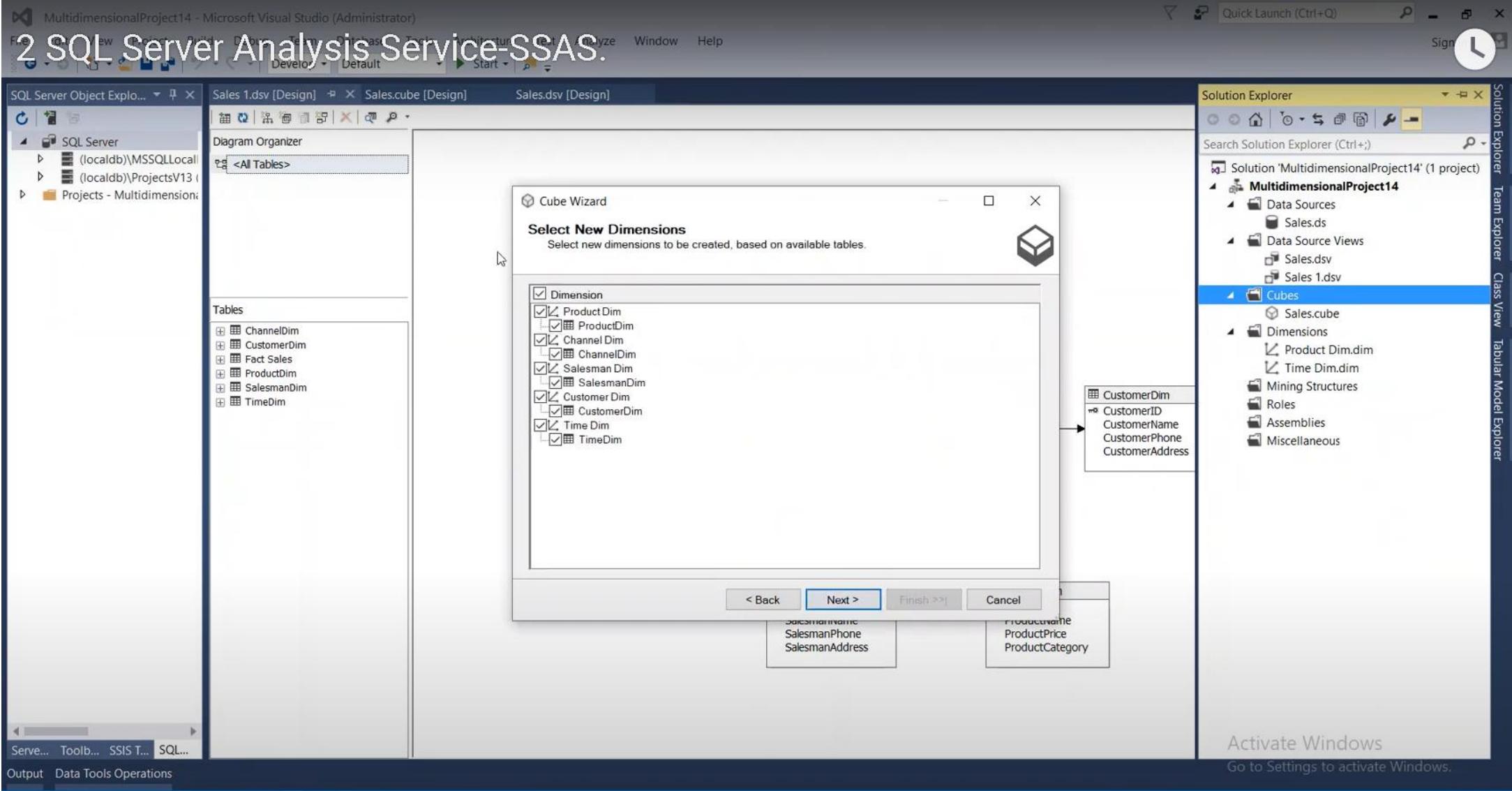
Cancel

SalesmanName
SalesmanPhone
SalesmanAddress

ProductName
ProductPrice
ProductCategory



Activate Windows  
Go to Settings to activate Windows.



# 2 SQL Server Analysis Service-SSAS.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

SQL Server Object Explor... X

Diagram Organizer X

Tables

- ChannelDim
- CustomerDim
- Fact Sales
- ProductDim
- SalesmanDim
- TimeDim

Cube Wizard

Select New Dimensions

Select new dimensions to be created, based on available tables.

Dimension

Product Dim

Channel Dim

Salesman Dim

Customer Dim

Time Dim

ProductDim

ChannelDim

SalesmanDim

CustomerDim

TimeDim

ProductDim

ChannelDim

SalesmanDim

CustomerDim

TimeDim

CustomerDim

CustomerID

CustomerName

CustomerPhone

CustomerAddress

< Back Next >| Finish >> Cancel

SalesmanName  
SalesmanPhone  
SalesmanAddress

ProductName  
ProductPrice  
ProductCategory

Solution Explorer

Search Solution Explorer (Ctrl+P)

Solution 'MultidimensionalProject14' (1 project)

↳ MultidimensionalProject14

- ↳ Data Sources
- ↳ Sales.ds
- ↳ Data Source Views
- ↳ Sales.dsv
- ↳ Sales 1.dsv
- ↳ Cubes
- ↳ Sales(cube)
- ↳ Dimensions
- ↳ Product Dim.dim
- ↳ Time Dim.dim
- ↳ Mining Structures
- ↳ Roles
- ↳ Assemblies
- ↳ Miscellaneous

Activate Windows  
Go to Settings to activate Windows.

Output Data Tools Operations

## SQL Server Object Explor...

## Sales 1.dsv [Design]

## Sales(cube) [Design]

## Diagram Organizer

## &lt;All Tables&gt;

## Tables

- ChannelDim
- CustomerDim
- Fact Sales
- ProductDim
- SalesmanDim
- TimeDim

## Cube Wizard

Completing the Wizard  
Name the cube, review its structure, and then click Finish to save the cube.

Cube name:

Sales 1

## Preview:

- Measure groups
  - Fact Sales
    - Qty
    - City Total Price
- Dimensions
  - Product Dim
  - Channel Dim
  - Salesman Dim
  - Customer Dim
  - Time Dim



&lt; Back

Next &gt;

Finish

Cancel

SalesmanName
SalesmanPhone
SalesmanAddress

ProductValue
ProductPrice
ProductCategory

## Solution Explorer

## Search Solution Explorer (Ctrl+P)

Solution 'MultidimensionalProject14' (1 project)

## MultidimensionalProject14

- Data Sources
  - Sales.ds
- Data Source Views
  - Sales.dsv
  - Sales 1.dsv
- Cubes
  - Sales(cube)
- Dimensions
  - Product Dim.dim
  - Time Dim.dim
- Mining Structures
- Roles
- Assemblies
- Miscellaneous

## Solution Explorer Team Explorer Class View Tabular Model Explorer

Activate Windows

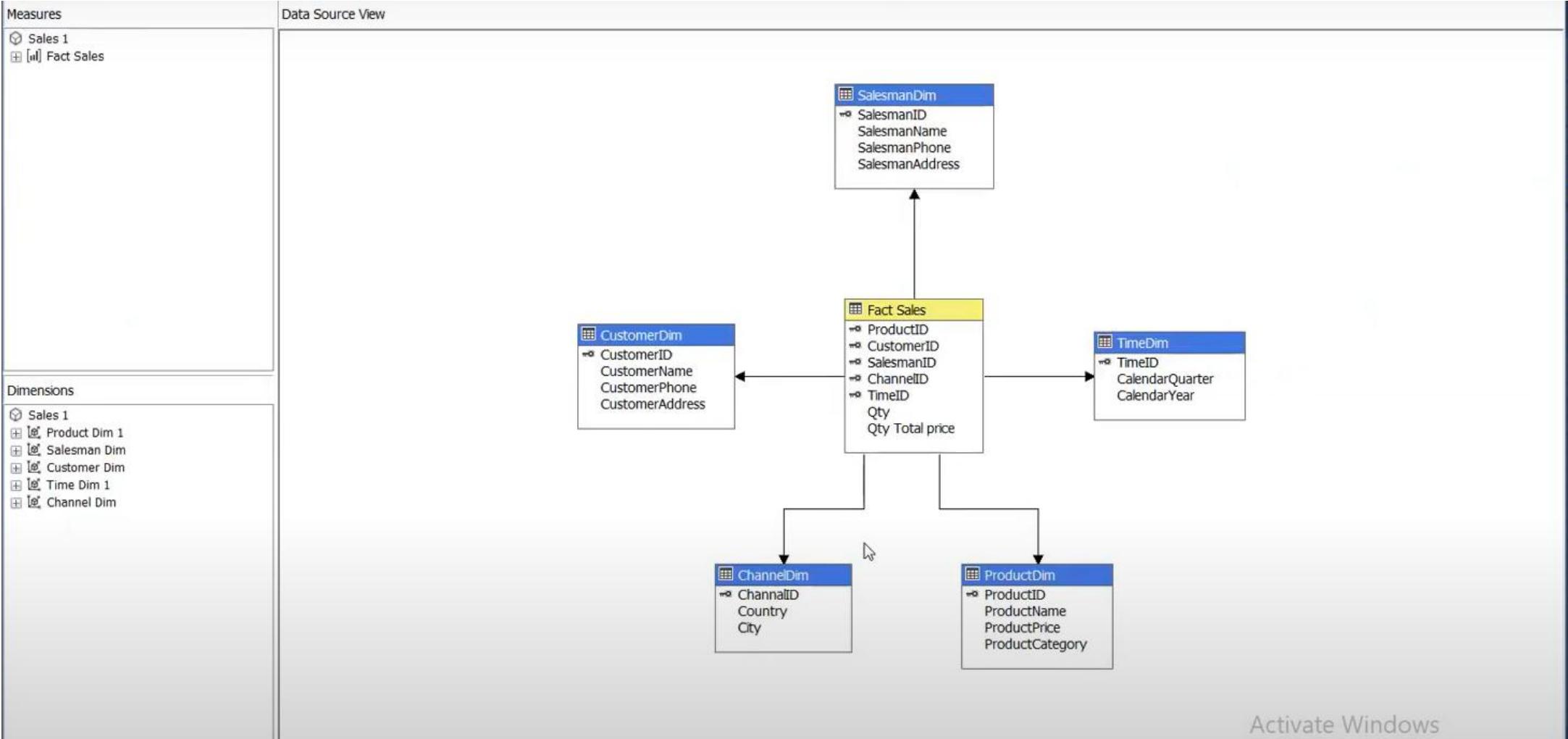
Go to Settings to activate Windows.

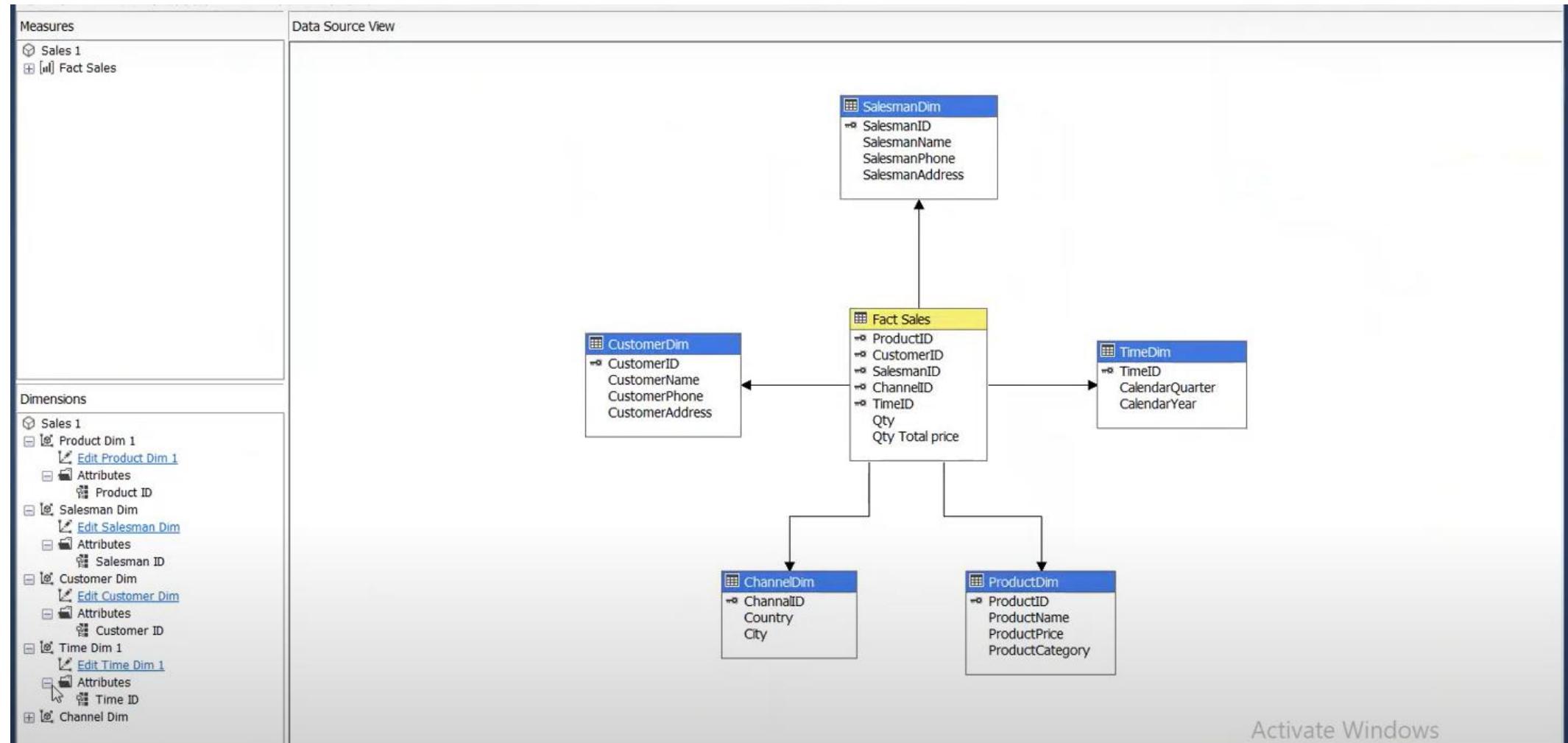
Cube name:

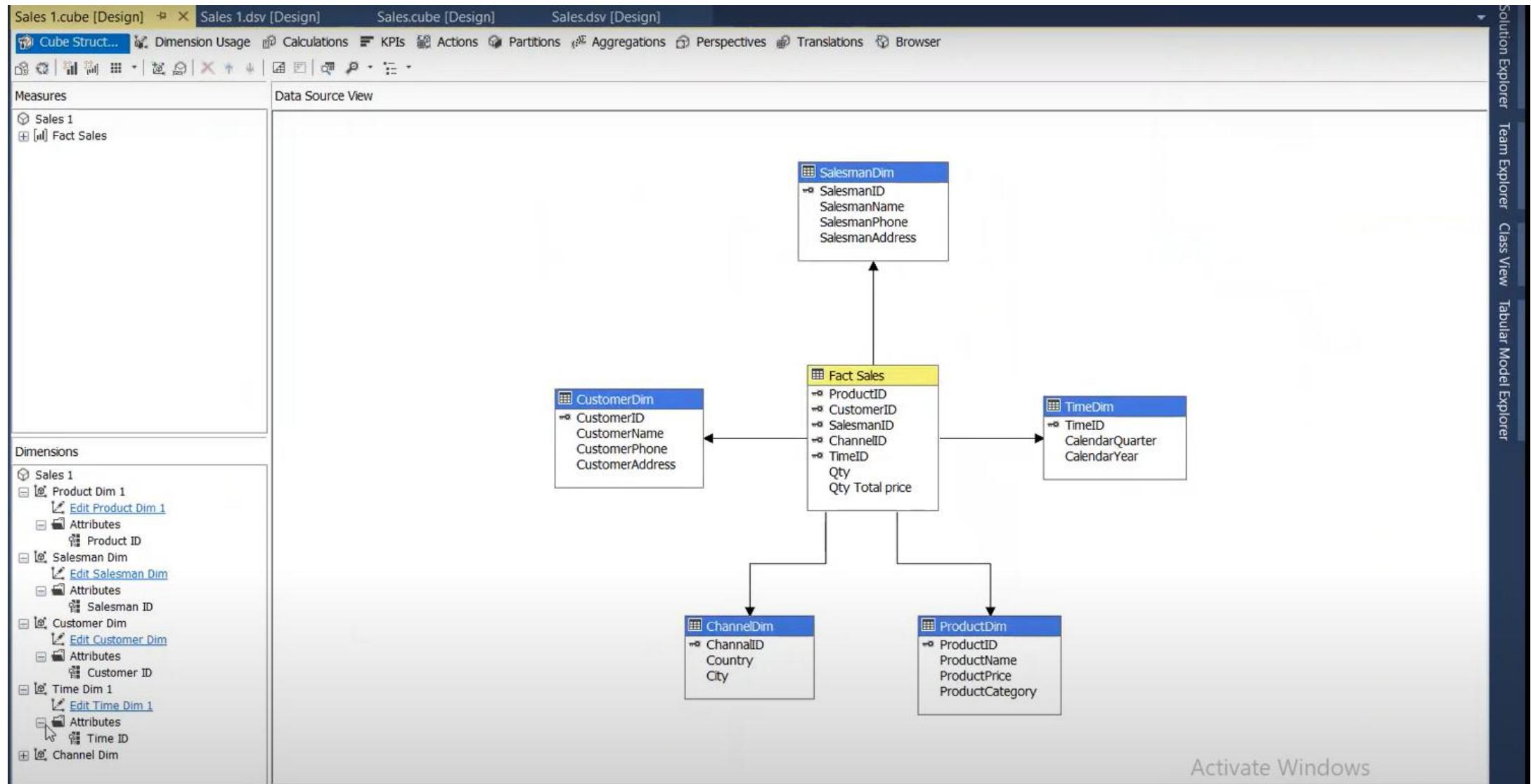
Sales 1

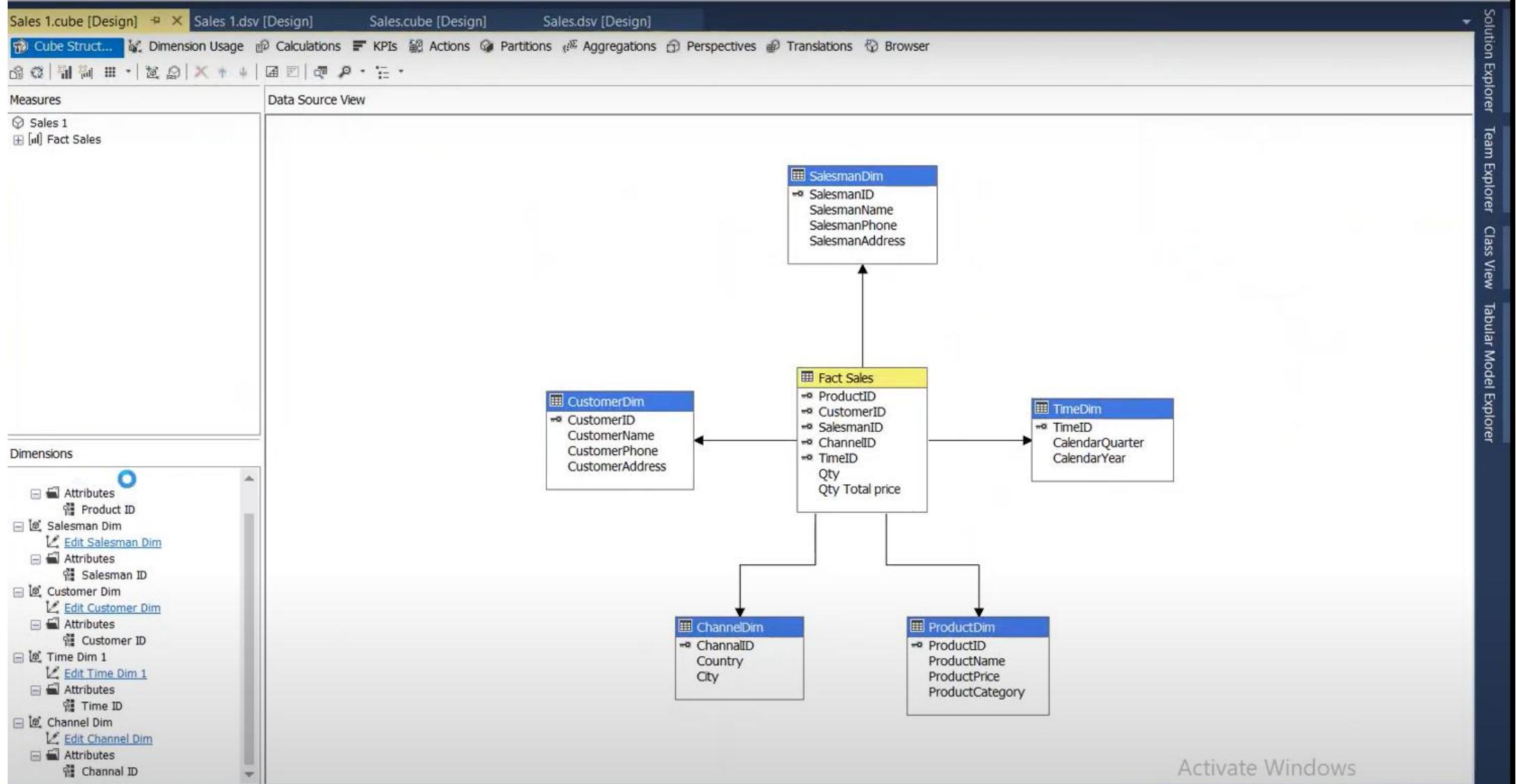
Preview:

-  Measure groups
  -  Fact Sales
    -  Qty
    -  Qty Total Price
-  Dimensions
  -  Product Dim
  -  Channel Dim
  -  Salesman Dim
  -  Customer Dim
  -  Time Dim









Product Dim 1.dim [Design] Sales 1(cube) [Design] Sales 1.dsv [Design] Sales.cube [Design] Sales.dsv [Design]

Dimension Struct... Attribute Relationships Translations Browser

Attributes Hierarchies Data Source View

Product Dim 1 Product ID

To create a new hierarchy, drag an attribute here.

ProductDim  
ProductID  
ProductName  
ProductPrice  
ProductCategory

Activate Windows  
Go to Settings to activate Windows.

Sales 1(cube [Design]\* Sales 1.csv [Design] Sales.cube [Design] Sales.csv [Design]

Dimension Struct... Attribute Relationships Translations Browser

Attributes Hierarchies Data Source View

To create a new hierarchy, drag an attribute here.

Product Dim 1.dim [Design]\*

Product ID Product Name Product Price

ProductDim

- ProductID
- ProductName
- ProductPrice
- ProductCategory

Activate Windows  
Go to Settings to activate Windows.

Solution Explorer Team Explorer Class View Tabular Model Explorer

# 2 SQL Server Analysis Service-SSAS.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File New Open Recent Data Source Dimension Tools Architecture Test Analyze Window Help

SQL Server Object Explorer

Product Dim 1.dim [Design]\* Sales 1.cube [Design]\* Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

Dimension Structure Attribute Relationships Translations Browser

Attributes Hierarchies Data Source View

Product Dim 1

- Product ID
- Product Name
- Product Price

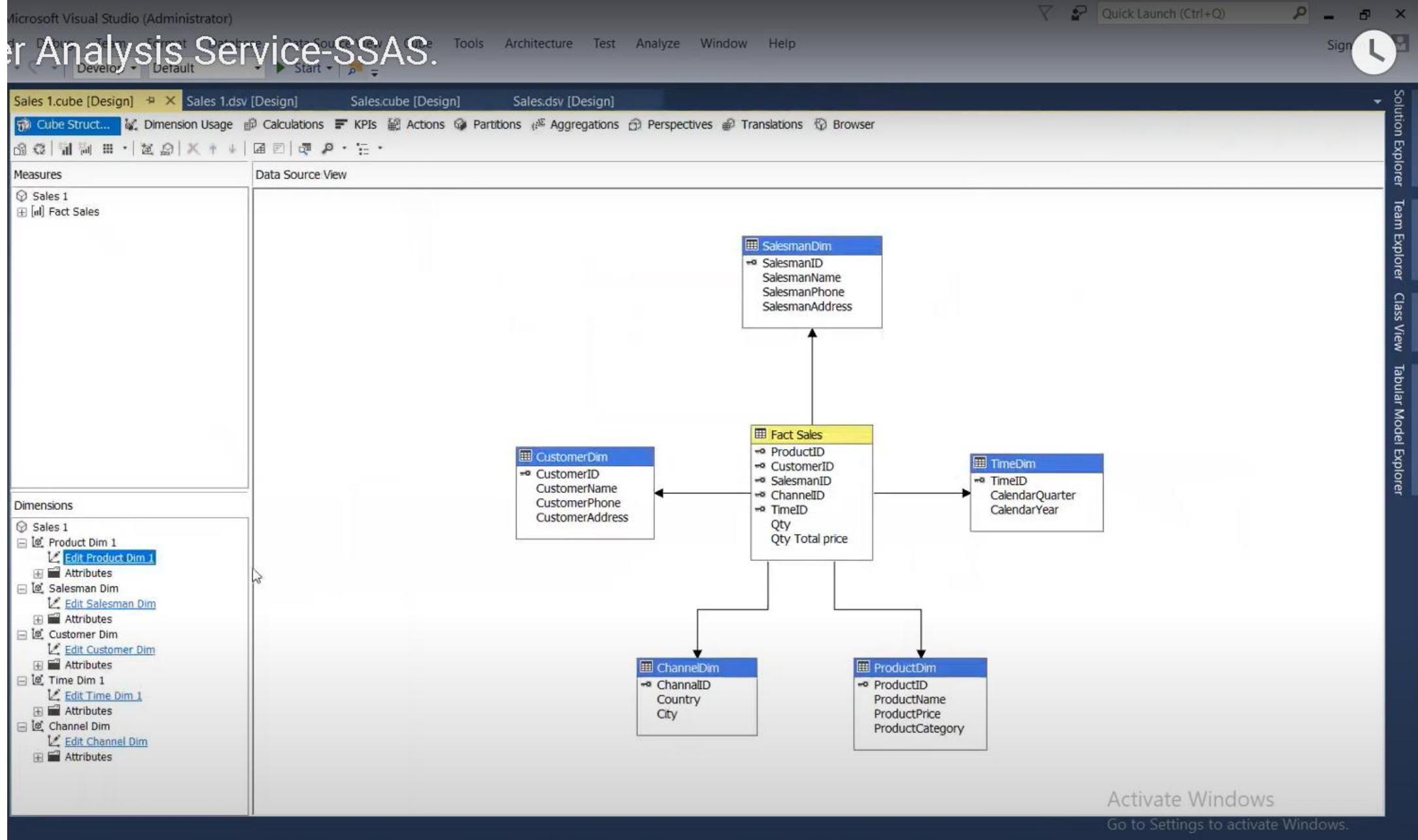
To create a new hierarchy, drag an attribute here.

ProductDim

- ProductID
- ProductName
- ProductPrice
- ProductCategory

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...  
Output Data Tools Operations



Microsoft Visual Studio (Administrator)

File | Open | Team | Start | Data Source View | Dimension | Tools | Architecture | Test | Analyze | Window | Help

Developer Default Start

Salesman Dim.dim [Design] \* Sales 1.cube [Design] \* Sales 1.csv [Design] Sales(cube) [Design] Sales.csv [Design]

Dimension Structure Attribute Relationships Translations Browser

Attributes

Salesman Dim  
  Salesman ID  
  Salesman Name

Hierarchies

To create a new hierarchy, drag an attribute here.

Data Source View

SalesmanDim  
  SalesmanID  
  SalesmanName  
  SalesmanPhone  
  SalesmanAddress

Activate Windows  
Go to Settings to activate Windows.

Salesman Dim.dim [Design]\* Sales 1.cube [Design]\* Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

Dimension Structure Attribute Relationships Translations Browser

SQL Server Object Explorer SQL Server (localdb)\MSSQLLocalDB (localdb)\ProjectsV13 Projects - Multidimensional

Attributes Hierarchies Data Source View

To create a new hierarchy, drag an attribute here.

Salesman Dim. Salesman ID Salesman Name Salesman Phone

SalesmanDim SalesmanID SalesmanName SalesmanPhone SalesmanAddress

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...  
Output Data Tools Operations

Solution Explorer Team Explorer Class View Tabular Model Explorer

# 2 SQL Server Analysis Service-SSAS:

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File New Open Recent Import Project Database Data Source Dimension Tools Architecture Test Analyze Window Help

Developer Default Start

Quick Launch (Ctrl+Q) Sign In

SQL Server Object Explor... Salesman Dim.dim [Design]\* Sales 1(cube [Design]\* Sales 1.dsv [Design] Sales(cube [Design] Sales.dsv [Design]

Dimension Structure Attribute Relationships Translations Browser

Attributes Hierarchies

Salesman Dim  
Salesman ID  
Salesman Name  
Salesman Phone

To create a new hierarchy, drag an attribute here.

Data Source View

SalesmanDim  
SalesmanID  
SalesmanName  
SalesmanPhone  
SalesmanAddress

Microsoft Visual Studio

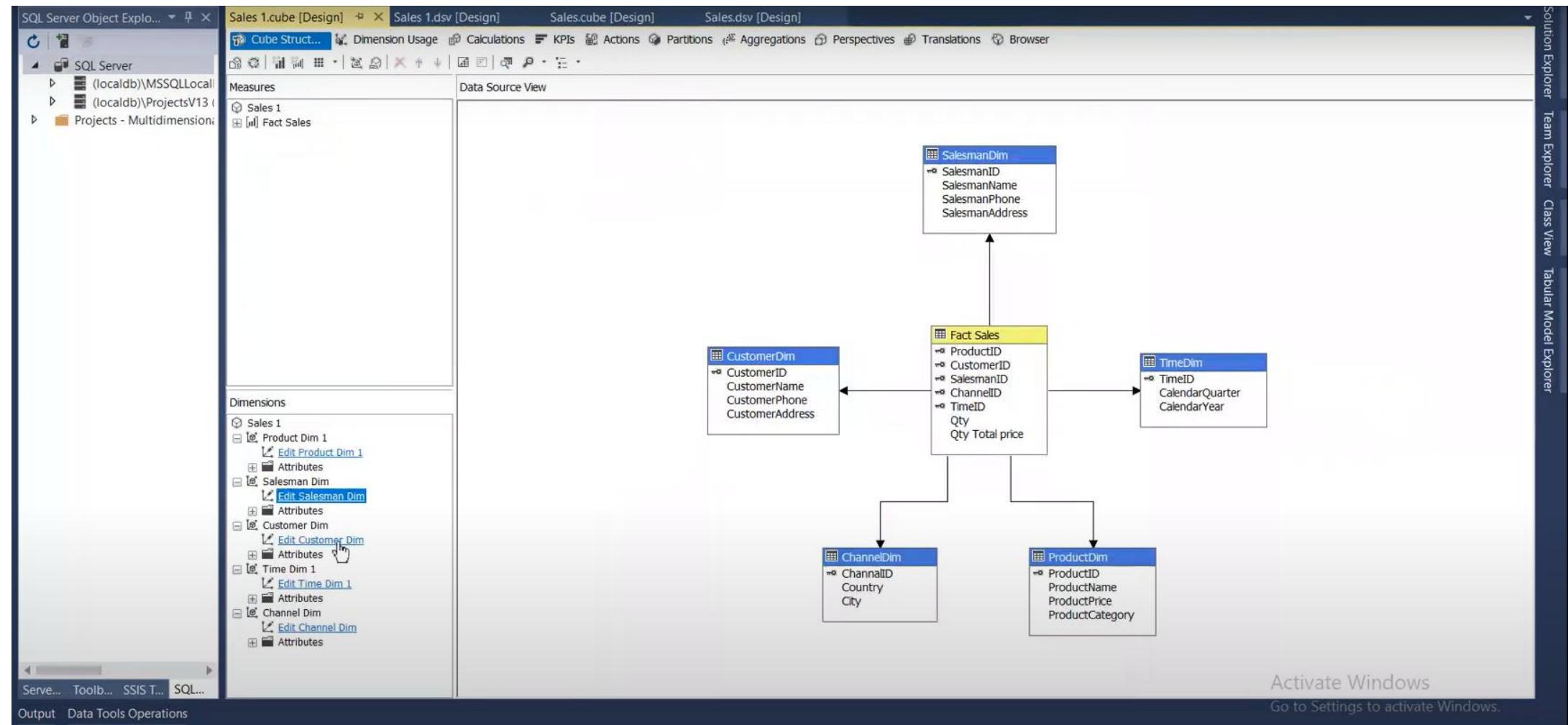
Save changes to Dimension [Salesman Dim]?

This editor is bound to editors for the following objects:  
Cube [Sales 1]

Click Save to close this editor, and to save changes made in this editor and any other editors related to it.  
Click Discard to discard changes in this and related editors.  
Click Ignore to close this editor. Changes made will remain in the object model.  
Click Cancel to cancel the operation and keep this editor open.

Save Discard Ignore Cancel

Activate Windows  
Go to Settings to activate Windows



SQl Server Object Explor... ▾ X Customer Dim.dim [Design] Sales 1.cube [Design] Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

Dimension Struct... Attribute Relationships Translations Browser

SQL Server

Attributes Hierarchies Data Source View

Customer Dim Customer ID

To create a new hierarchy, drag an attribute here.

CustomerDim CustomerID CustomerName CustomerPhone CustomerAddress

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL... Output Data Tools Operations

Solution Explorer Team Explorer Class View Tabular Model Explorer

Sales 1(cube [Design])\* Sales 1.dsv [Design] Sales(cube [Design] Sales.dsv [Design]

Dimension Struct... Attribute Relationships Translations Browser

SQL Server Object Explor... SQL Server

(localdb)\MSSQLLocalDB (localdb)\ProjectsV13 Projects - Multidimensional

Attributes Hierarchies Data Source View

Customer Dim Customer ID Customer Name Customer Phone

To create a new hierarchy, drag an attribute here.

CustomerDim CustomerID CustomerName CustomerPhone CustomerAddress

Activate Windows

Serve... Toolb... SSIS T... SQL...

Solution Explorer Team Explorer Class View Tabular Model Explorer

The screenshot shows the Microsoft Analysis Services Dimension Designer interface. The title bar displays the current project and files: "Sales 1(cube [Design])\*", "Sales 1.dsv [Design]", "Sales(cube [Design]", and "Sales.dsv [Design]". Below the title bar is a toolbar with icons for Dimension Structure, Attribute Relationships, Translations, and Browser. On the left, the Solution Explorer shows a tree view of the SQL Server database, including "(localdb)\MSSQLLocalDB", "(localdb)\ProjectsV13", and "Projects - Multidimensional". The main workspace is divided into three panels: "Attributes" (containing "Customer Dim" with attributes "Customer ID", "Customer Name", and "Customer Phone"), "Hierarchies" (with a placeholder message: "To create a new hierarchy, drag an attribute here."), and "Data Source View" (showing a data source view named "CustomerDim" with attributes "CustomerID", "CustomerName", "CustomerPhone", and "CustomerAddress"). A tooltip for "CustomerDim" is visible in the bottom right corner. The bottom of the screen features a toolbar with "Activate Windows" and standard application buttons like Save, Undo, Redo, and Print.

SQL Server Object Explor... ▾ X Customer Dim.dim [Design]\* P X Sales 1.cube [Design]\* Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

Dimension Struct... Attribute Relationships Translations Browser

SQL Server

(localdb)\MSSQLLocalDB  
(localdb)\ProjectsV13  
Projects - Multidimensional

Attributes Hierarchies Data Source View

Customer Dim  
Customer Address  
Customer ID  
Customer Name  
Customer Phone

To create a new hierarchy,  
drag an attribute here.

CustomerDim  
CustomerID  
CustomerName  
CustomerPhone  
CustomerAddress

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...  
Output Data Tools Operations

SQL Server Object Explor... ▾ X Customer Dim.dim [Design]\* Sales 1.cube [Design]\* Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

Dimension Structure Attribute Relationships Translations Browser

SQL Server

(localdb)\MSSQLLocalDB (localdb)\ProjectsV13 Projects - Multidimensional

Attributes Hierarchies Data Source View

Customer Dim

- Customer Address
- Customer ID
- Customer Name
- Customer Phone

To create a new hierarchy, drag an attribute here.

Microsoft Visual Studio

Save changes to Dimension [Customer Dim]?

This editor is bound to editors for the following objects:  
Cube [Sales 1]

Click Save to close this editor, and to save changes made in this editor and any other editors related to it.  
Click Discard to discard changes in this and related editors.  
Click Ignore to close this editor. Changes made will remain in the object model.  
Click Cancel to cancel the operation and keep this editor open.

Save Discard Ignore Cancel

CustomerDim

- CustomerID
- CustomerName
- CustomerPhone
- CustomerAddress

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...  
Output Data Tools Operations

Sales 1.cube [Design] Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

Dimension Structure Attribute Relationships Translations Browser

SQL Server Object Explor... Time Dim 1.dim [Design] Sales 1.cube [Design] Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

SQL Server

Attributes Hierarchies Data Source View

Time Dim 1

To create a new hierarchy, drag an attribute here.

TimeDim

- TimeID
- CalendarQuarter
- CalendarYear

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL... Output Data Tools Operations

Solution Explorer Team Explorer Class View Tabular Model Explorer

SQL Server Object Explor... Time Dim 1.dim [Design]\* Sales 1(cube [Design]\* Sales 1.ds [Design] Sales.cube [Design] Sales.ds [Design]

Dimension Structure Attribute Relationships Translations Browser

Attributes Hierarchies Data Source View

Time Dim 1

- Calendar Quarter
- Calendar Year
- Time ID

To create a new hierarchy, drag an attribute here.

TimeDim

- TimeID
- CalendarQuarter
- CalendarYear

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...  
Output Data Tools Operations

This screenshot shows the Microsoft Analysis Services Dimension Designer. The main window is divided into three main sections: Attributes, Hierarchies, and Data Source View. In the Attributes section, there is a single dimension named 'Time Dim 1' which contains three attributes: 'Calendar Quarter', 'Calendar Year', and 'Time ID'. A tooltip indicates that to create a new hierarchy, an attribute can be dragged into the Hierarchies section. In the Data Source View section, a data source view named 'TimeDim' is displayed, containing the same three attributes. The bottom right corner of the interface features a watermark for activating Windows.

SQl Server Object Explor... ▾ X Time Dim 1.dim [Design]\* Sales 1.cube [Design]\* Sales 1.ds [Design] Sales(cube) [Design] Sales.ds [Design]

Dimension Structure Attribute Relationships Translations Browser

SQL Server

Attributes Hierarchies Data Source View

Time Dim 1

- Calendar Quarter
- Calendar Year
- Time ID

To create a new hierarchy, drag an attribute here.

Microsoft Visual Studio

Save changes to Dimension [Time Dim 1]?

This editor is bound to editors for the following objects:  
Cube [Sales 1]

Click Save to close this editor, and to save changes made in this editor and any other editors related to it.  
Click Discard to discard changes in this and related editors.  
Click Ignore to close this editor. Changes made will remain in the object model.  
Click Cancel to cancel the operation and keep this editor open.

Save Discard Ignore Cancel

TimeDim

- TimeID
- CalendarQuarter
- CalendarYear

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...  
Output Data Tools Operations

Solution Explorer Team Explorer Class View Tabular Model Explorer

SQL Server Object Explor... ▾ X Channel Dim.dim [Design]\* ▾ X Sales 1(cube [Design]\* ▾ X Sales 1.dsv [Design] Sales(cube [Design] Sales.dsv [Design]

Dimension Structure Attribute Relationships Translations Browser

Attributes Hierarchies Data Source View

Channel Dim

- Channel ID
- City
- Country

To create a new hierarchy, drag an attribute here.

ChannelDim

- ChannelID
- Country
- City

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL... Output Data Tools Operations

Solution Explorer Team Explorer Class View Tabular Model Explorer

The screenshot shows the 'Dimension Structure' tab of the SSMS interface. In the 'Attributes' pane, there is a tree view under 'Channel Dim' with three items: 'Channel ID', 'City', and 'Country'. The 'Hierarchies' pane has a placeholder message: 'To create a new hierarchy, drag an attribute here.' The 'Data Source View' pane displays a data source view named 'ChannelDim' which includes the attributes 'ChannelID', 'Country', and 'City'. The ribbon at the top has tabs for Dimension Structure, Attribute Relationships, Translations, and Browser. The status bar at the bottom includes links for Server, Tools, SSIS Tools, SQL, Output, and Data Tools Operations, along with an activation watermark for Windows.

SQl Server Object Explor... ▾ X Channel Dim.dim [Design]\* Sales 1.cube [Design]\* Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

Dimension Structure Attribute Relationships Translations Browser

SQL Server

- (localdb)\MSSQLLocalDB
- (localdb)\ProjectsV13
- Projects - Multidimensional

Attributes Hierarchies Data Source View

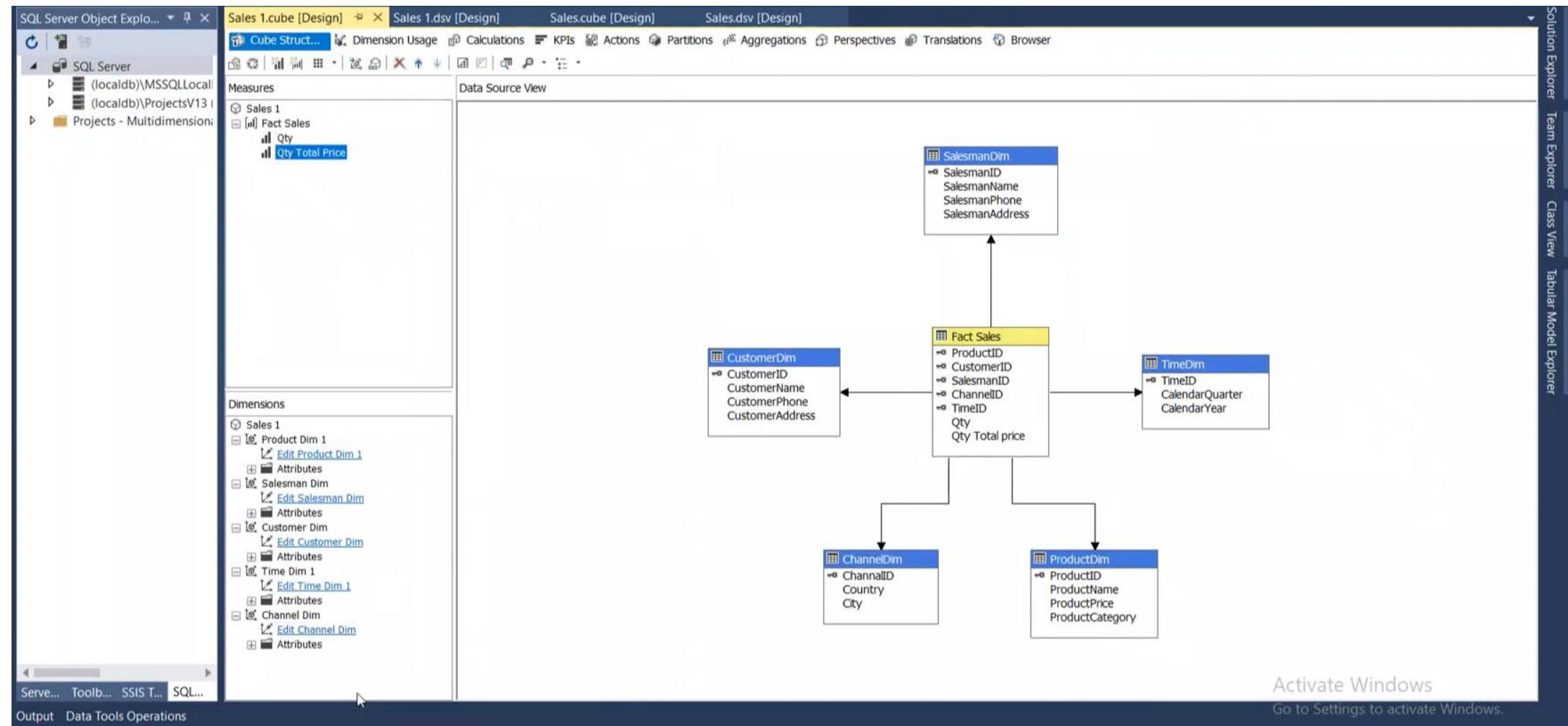
Activate Windows  
Go to Settings to activate Windows.

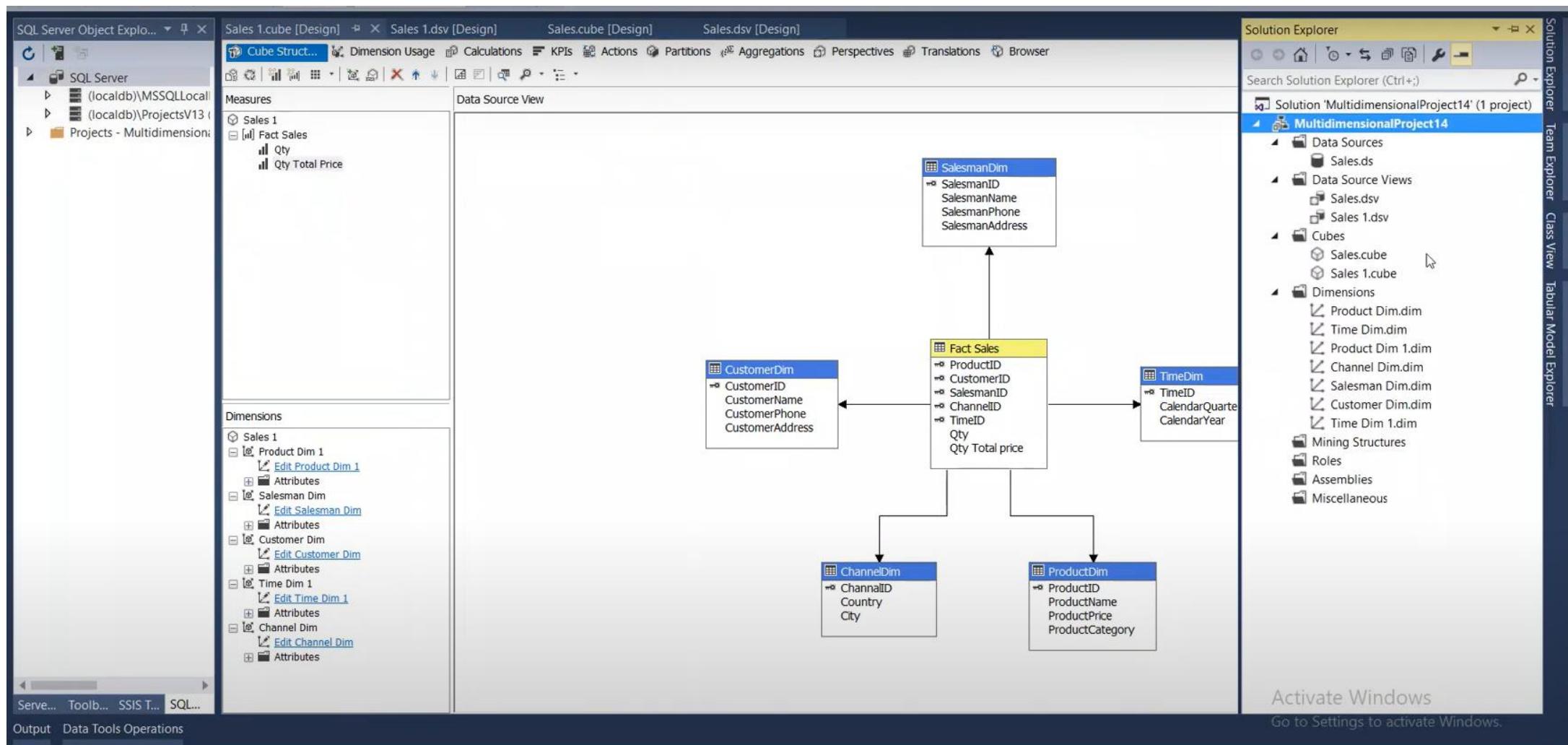
Output Data Tools Operations

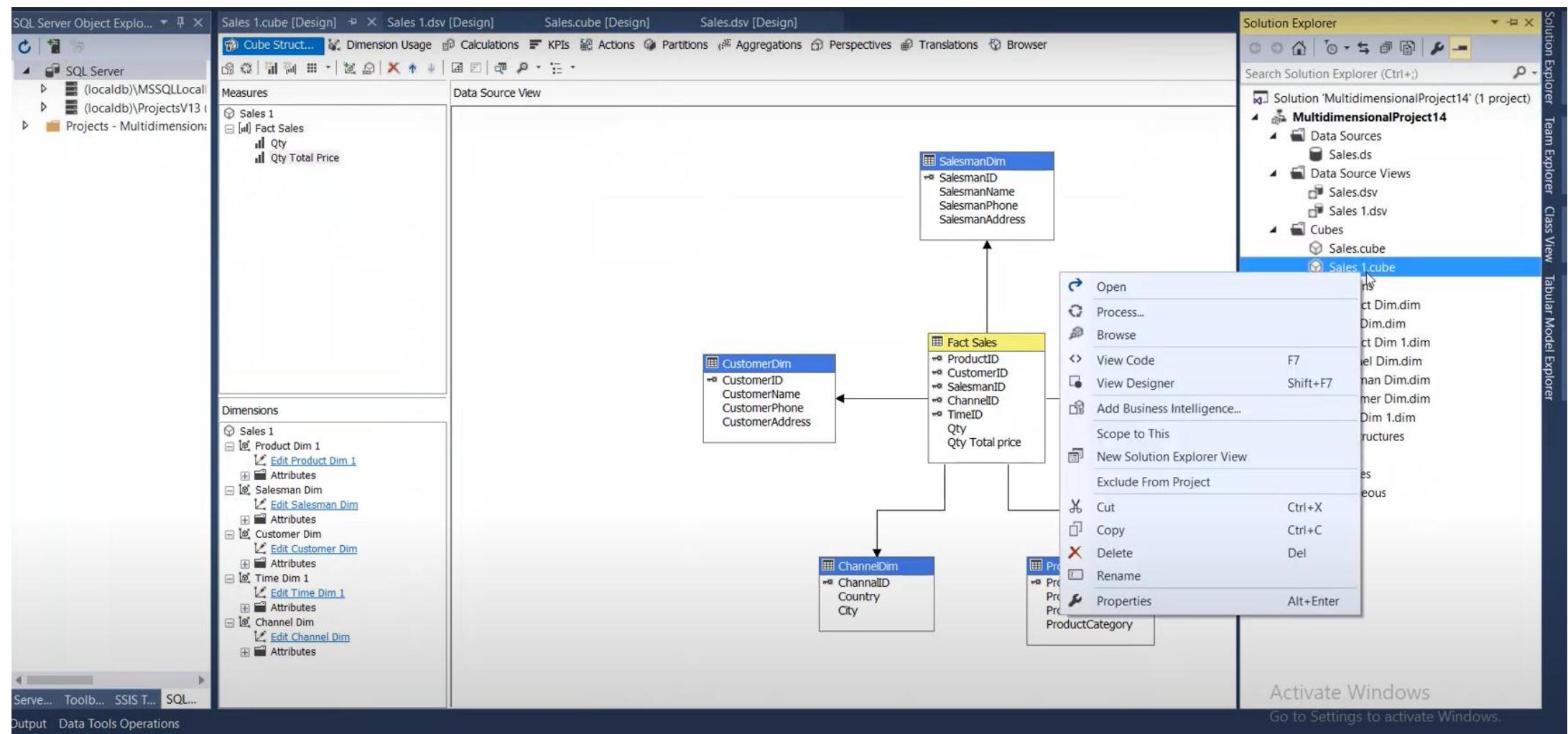
Serve... Toolb... SSIS T... SQL...

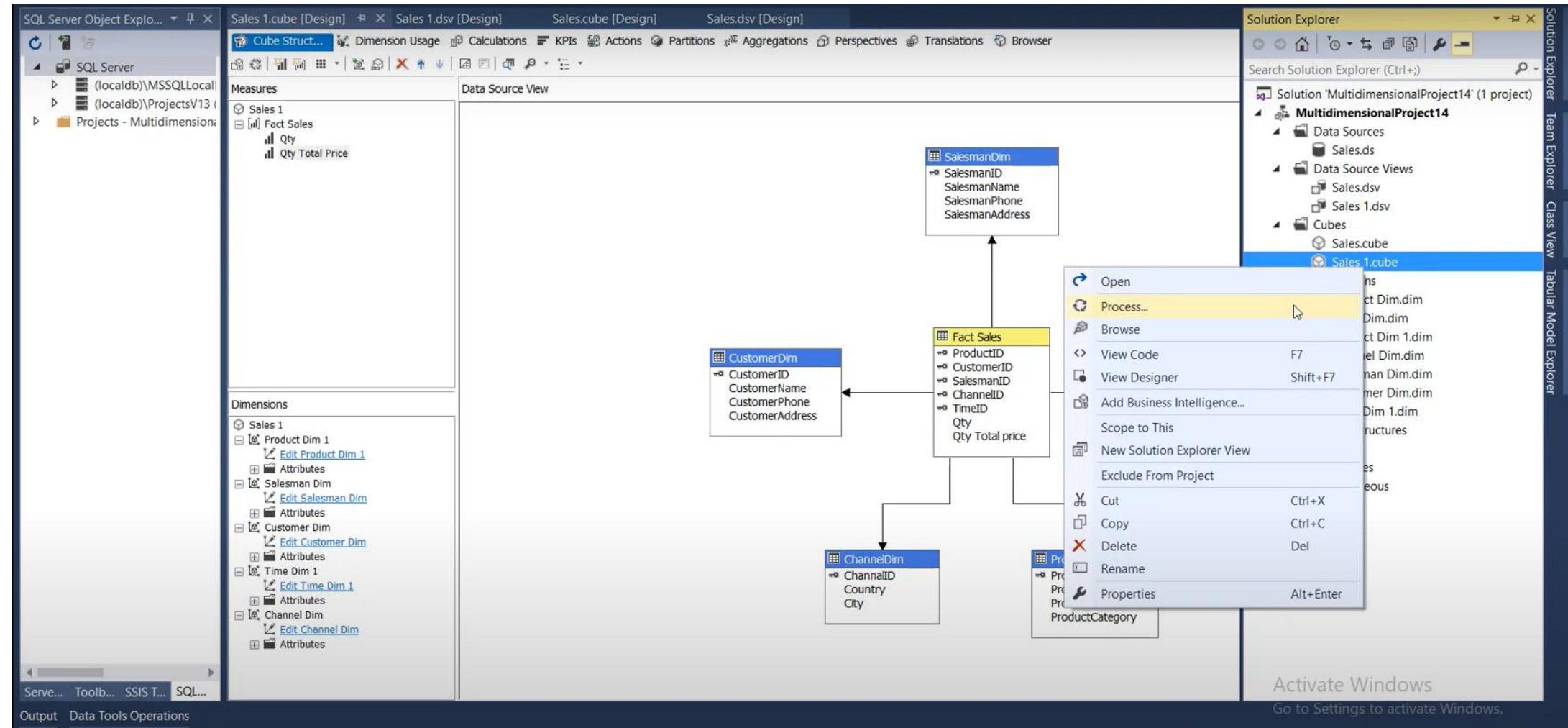
Solution Explorer Team Explorer Class View Tabular Model Explorer

The screenshot shows the Microsoft SQL Server Data Tools (SSDT) interface. The title bar indicates the active project is 'Channel Dim.dim [Design]'. The ribbon has tabs for 'Dimension Structure' (which is selected), 'Attribute Relationships', 'Translations', and 'Browser'. The left sidebar shows a tree view of database connections under 'SQL Server', including '(localdb)\MSSQLLocalDB', '(localdb)\ProjectsV13', and 'Projects - Multidimensional'. The main workspace is divided into three panes: 'Attributes' (empty), 'Hierarchies' (empty), and 'Data Source View' (empty). At the bottom, there are buttons for 'Serve...', 'Toolb...', 'SSIS T...', and 'SQL...', and a status bar with 'Output' and 'Data Tools Operations'.









Sales 1.cube [Design] Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

**Measures**

- Sales 1
  - Fact Sales
    - Qty
    - Qty Total Price

**Dimensions**

- Sales 1
  - Product Dim 1
    - [Edit Product Dim 1](#)
    - Attributes
  - Salesman Dim
    - [Edit Salesman Dim](#)
    - Attributes
  - Customer Dim
    - [Edit Customer Dim](#)
    - Attributes
  - Time Dim 1
    - [Edit Time Dim 1](#)
    - Attributes
  - Channel Dim
    - [Edit Channel Dim](#)
    - Attributes

**Data Source View**

```

graph TD
    Sales[Sales]
    Sales --> SalesmanDim[SalesmanDim  
SalesmanID, SalesmanName, SalesmanPhone, SalesmanAddress]
    Sales --> TimeDim[TimeDim  
TimeID, CalendarQuarter, CalendarYear]
    Sales --> ChannelDim[ChannelDim  
ChannelID, Country, City]
    Sales --> ProductDim[ProductDim  
ProductID, ProductName, ProductPrice, ProductCategory]
    Sales --> Qty[Qty  
Qty Total price]
  
```

The server content appears to be out of date.  
Would you like to build and deploy the project first?

Yes No Cancel

**Solution Explorer**

- MultidimensionalProject14
  - Data Sources
    - Sales.ds
  - Data Source Views
    - Sales.dsv
    - Sales 1.dsv
  - Cubes
    - Sales(cube)
    - Sales 1.cube**
  - Dimensions
    - Product Dim.dim
    - Time Dim.dim
    - Product Dim 1.dim
    - Channel Dim.dim
    - Salesman Dim.dim
    - Customer Dim.dim
    - Time Dim 1.dim
  - Mining Structures
  - Roles
  - Assemblies
  - Miscellaneous

Activate Windows  
Go to Settings to activate Windows.

Deployment Progress - MultidimensionalProject14

Server : localhost

Database : MultidimensionalProject14

### Command

1

Activate Windows

Status

```
<Batch xmlns="http://schemas.microsoft.com/analysisservices/2003/engine"> <Alter AllowCreate="true" ObjectExpansion="ExpandFull"> <Object>
```



## Deploying and Processing

## Deployment Progress - MultidimensionalProject14

Server : localhost  
Database : MultidimensionalProject14

Command

Process Cube - Sales 1

Object list:

Object Name	Type	Process Options	Settings
-------------	------	-----------------	----------

Process Progress

Command

Processing Dimension 'Product Dim 1'.

Status:

Finished writing data for the '(All)' attribute.

Stop Reprocess View Details... Copy Close Help

Change Settings... Run... Close

Deployment Completed Successfully

Status:

Activate Windows  
Go to Settings to activate Windows.

Deployment Progress - MultidimensionalProject14

Server : localhost  
Database : MultidimensionalProject14

Command

Process Cube - Sales 1

Object list:

Object Name	Type	Process Options	Settings
Sales 1	Cube	Process Full	

Remove Impact Analysis...

Batch Settings Summary

Processing order:  
 Parallel

Transaction mode:  
 (Default)

Dimension errors:  
 (Default)

Dimension key error log path:  
 (Default)

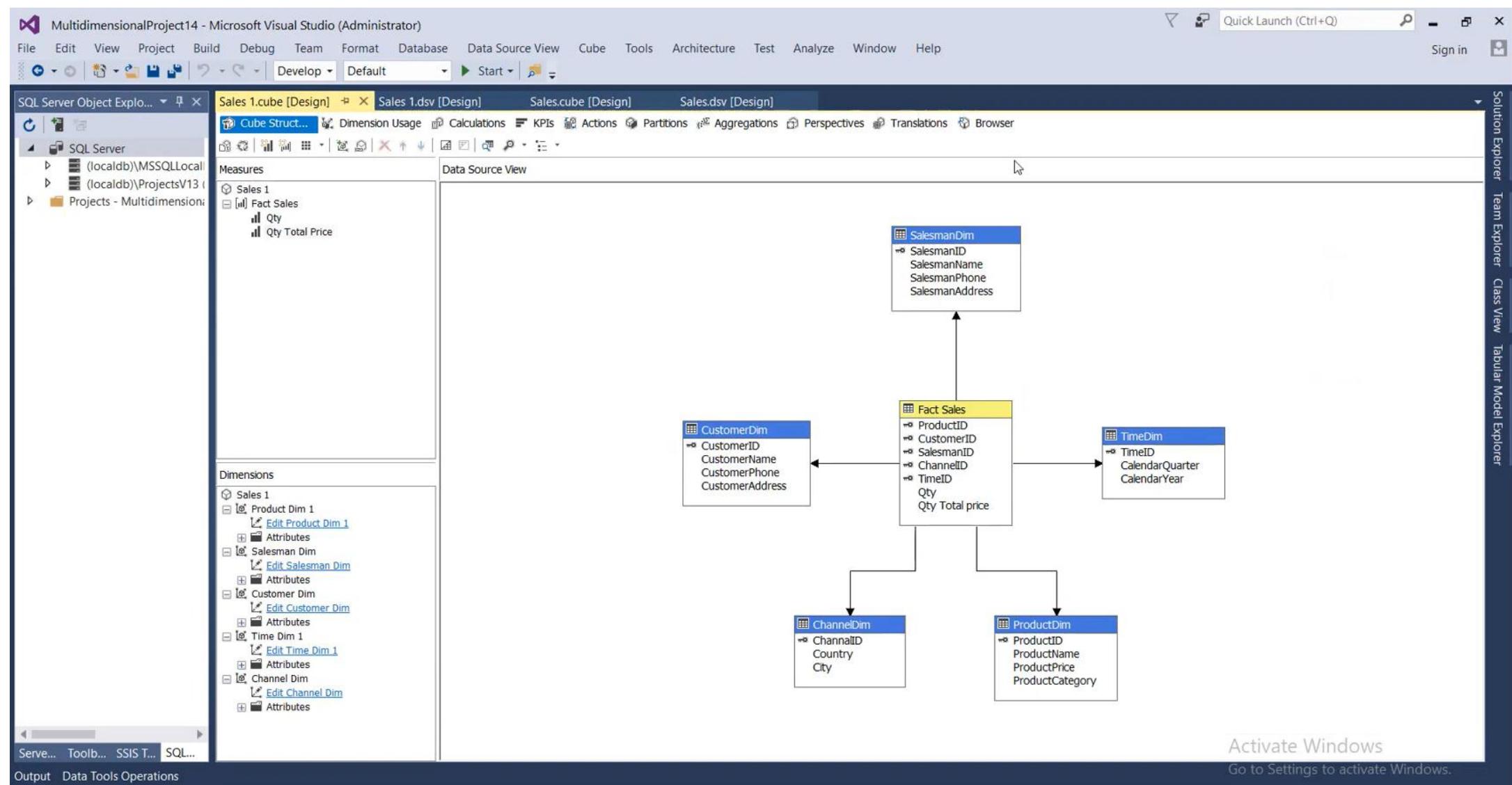
Process affected objects:  
 Do not process

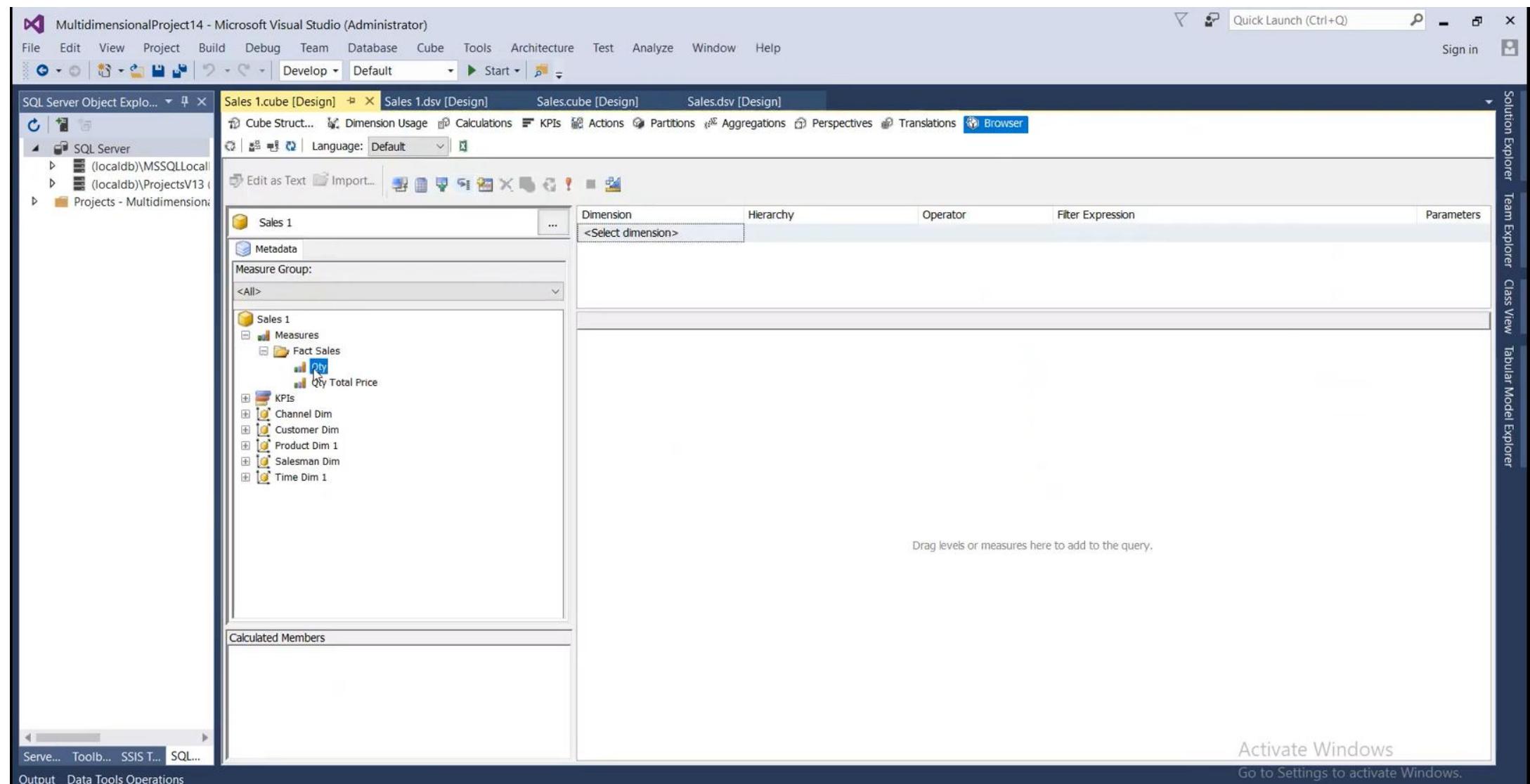
Change Settings... Run... Close

Deployment Completed Successfully

Status: Ready

Activate Windows  
Go to Settings to activate Windows.





**Drag and Drop Measure and Attribute in Browser.**

---

# Pivot table :

The collage consists of four screenshots:

- Top Left:** A screenshot of a Microsoft Excel spreadsheet showing a table of transaction data. The columns include Transaction ID, Date, Type, Method, Status, Amount, and Date. The data shows various transactions like cash deposits, credit card purchases, and transfers.
- Top Right:** A screenshot of a dashboard titled "Performance". It features a large green arrow pointing from the raw data table to the dashboard. The dashboard includes a line chart, a bar chart, and several data tables with summary statistics.
- Bottom Left:** A screenshot of the Microsoft Power BI interface. It shows a "Performance" report with a table of data and various visualization tools like charts and filters.
- Bottom Right:** A screenshot of a mobile application or web interface showing a table of data with a green "Sync" button at the bottom right.

**More images**

# 2 SQL Server Analysis Service-SSAS.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File New Open Recent Favorites Analyze Window Help

SQL Server Object Explorer

Sales 1.cube [Design] Sales 1.dsv [Design] Sales(cube) Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Language: Default

Edit as Text Import...

Sales 1

Metadata

Measure Group: <All>

Sales 1

- Measures
  - Fact Sales
    - Qty
    - Qty Total Price
  - KPIs
  - Channel Dim
  - Customer Dim
  - Product Dim 1
  - Salesman Dim
  - Time Dim 1

Calculated Members

Dimension Hierarchy Operator Filter Expression Parameters

<Select dimension>

Qty 890

Activate Windows  
Go to Settings to activate Windows.

Output Data Tools Operations

Serve... Toolb... SSIS T... SQL...

Quick Launch (Ctrl+Q)

Signed In

Solution Explorer Team Explorer Class View Tabular Model Explorer

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Analyze Window Help

Quick Launch (Ctrl+Q) Sign in

SQL Server Object Explor... Default Start

Sales 1(cube [Design]) Sales 1.dsv [Design] Sales.cube [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Language: Default

Edit as Text Import...

Sales 1

Dimension Hierarchy Operator Filter Expression Parameters

<Select dimension>

Measure Group: <All>

Metadata

Measure Group: <All>

Sales 1

Measures

Fact Sales

Qty Qty Total Price

890 25235

KPIs

Channel Dim

Customer Dim

Product Dim 1

Salesman Dim

Time Dim 1

Calculated Members

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...

Output Data Tools Operations

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Architecture Test Analyze Window Help

Quick Launch (Ctrl+Q) Sign in

SQL Server Object Explor... Default Start

Sales 1(cube [Design]) Sales 1.dsv [Design] Sales.cube [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Language: Default

Edit as Text Import...

Sales 1

Dimension Hierarchy Operator Filter Expression Parameters

<Select dimension>

Measure Group: <All>

Product Name Qty Qty Total Price

Accessories	305	3385
Books	155	6400
Clothing	185	3900
Components	115	4800
Sportswear	130	6750

Metadata

Measure Group: <All>

Sales 1

Measures

- Fact Sales
  - Qty
  - Qty Total Price

KPIs

Channel Dim

Customer Dim

Product Dim 1

- Product ID
- Product Name
- Product Price

Salesman Dim

Time Dim 1

Calculated Members

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL... Output Data Tools Operations

# 2 SQL Server Analysis Service-SSAS.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File New Open Recent Windows Help

SQL Server Object Explorer

Sales 1.cube [Design] Sales 1.dsv [Design] Sales(cube) Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Language: Default

Edit as Text Import...

Dimension Hierarchy Operator Filter Expression Parameters

<Select dimension>

Product Name Salesman Name Qty Qty Total Price

Accessories	Ahmed	60	630
Accessories	khalid	30	405
Accessories	Omar	215	2350
Books	Ahmed	85	4300
Books	khalid	20	600
Books	Omar	50	1500
Clothing	khalid	135	2800
Clothing	Omar	50	1100
Components	khalid	60	2600
Components	Omar	55	2200
Sportswear	Ahmed	40	2000
Sportswear	khalid	40	2150
Sportswear	Omar	50	2600

Measure Group: <All>

Sales 1

Metadata

Measures

Fact Sales

Qty

Qty Total Price

KPIs

Channel Dim

Customer Dim

Product Dim 1

Product ID

Product Name

Product Price

Salesman Dim

Salesman ID

Salesman Name

Salesman Phone

Time Dim 1

Calculated Members

Activate Windows  
Go to Settings to activate Windows.

Output Data Tools Operations



MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Tools Architecture Test Analyze Window Help

Quick Launch (Ctrl+Q) Sign in

Develop Default Start

Sales 1(cube [Design]) Sales 1.dsv [Design] Sales(cube [Design]) Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Edit as Text Import...

Dimension Hierarchy Operator Filter Expression Parameters

<Select dimension>

Measure Group: <All>

Measures Fact Sales Qty Qty Total Price

KPIs

Channel Dim

Customer Dim

Product Dim 1 Product ID Product Name Product Price

Salesman Dim Salesman ID Salesman Name Salesman Phone

Time Dim 1 Calendar Quarter Calendar Year Time ID

Calculated Members

Product Name	Salesman Name	Calendar Year	Qty	Qty Total Price
Accesories	Ahmed	2007	30	320
Accesories	Ahmed	2008	30	310
Accesories	khald	2007	20	300
Accesories	khald	2008	10	105
Accesories	Omar	2007	60	610
Accesories	Omar	2008	155	1740
Books	Ahmed	2007	70	3300
Books	Ahmed	2008	15	1000
Books	khald	2007	10	300
Books	khald	2008	10	300
Books	Omar	2008	50	1500
Clothing	khald	2007	80	1700
Clothing	khald	2008	55	1100
Clothing	Omar	2007	30	500
Clothing	Omar	2008	20	600
Componments	khald	2008	60	2600
Componments	Omar	2007	30	1200
Componments	Omar	2008	25	1000
Sportswear	Ahmed	2007	40	2000
Sportswear	khald	2007	10	550
Sportswear	khald	2008	30	1600
Sportswear	Omar	2008	50	2600

Activate Windows Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL... Output Data Tools Operations

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Architecture Test Analyze Window Help

SQL Server Object Explor... Default Sales 1(cube) [Design] Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Language: Default

Sales 1

Dimension Hierarchy Operator Filter Expression Parameters

<Select dimension>

Measure Group: <All>

Measures

- Fact Sales
  - Qty
  - Qty Total Price

KPIs

Channel Dim

Customer Dim

Product Dim 1

- Product ID
- Product Name
- Product Price

Salesman Dim

- Salesman ID
- Salesman Name
- Salesman Phone

Time Dim 1

- Calendar Quarter
- Calendar Year
- Time ID

Calculated Members

Product Name	Salesman Name	Calendar Year	Qty	Qty Total Price
Accessories	Ahmed	2007	30	320
Accessories	Ahmed	2008	30	310
Accessories	khald	2007	20	300
Accessories	khald	2008	10	105
Accessories	Omar	2007	60	610
Accessories	Omar	2008	155	1740
Books	Ahmed	2007	70	3300
Books	Ahmed	2008	15	1000
Books	khald	2007	10	300
Books	khald	2008	10	300
Books	Omar	2008	50	1500
Clothing	khald	2007	80	1700
Clothing	khald	2008	55	1100
Clothing	Omar	2007	30	500
Clothing	Omar	2008	20	600
Components	khald	2008	60	2600
Components	Omar	2007	30	1200
Components	Omar	2008	25	1000
Sportswear	Ahmed	2007	40	2000
Sportswear	khald	2007	10	550
Sportswear	khald	2008	30	1600
Sportswear	Omar	2008	50	2600

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...

Output Data Tools Operations

A1

1

2

3

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tmpDD6E

Activate Windows  
Go to settings to activate Windows

Ready

Microsoft Excel Security Notice

Microsoft Office has identified a potential security concern.

File Path: C:\Users\Rami\AppData\Local\Temp\tmpDD6E.odc

Data connections have been blocked. If you choose to enable data connections, your computer may no longer be secure. Do not enable this content unless you trust the source of this file.

Enable Disable

Wrap Text

Format Painter

Clipboard

Font

Alignment

Number

Conditional Formatting

Table

Insert

Delete

Format

Cells

Fill

Clear

Sort & Find & Filter

Select

Editing

PIVOTABLE NAME: Active Field: PivotTable1

PivotTable1

Options Field Settings Drill Down Drill Up Expand Field Group Selection Ungroup Insert Slicer Insert Timeline Filter Refresh Change Data Source Clear Select Move PivotTable Fields, Items, OLAP Relationships Tools PivotChart Recommended PivotTables Tools Field List +/- Buttons Headers Show

A1

To build a report, choose fields from the PivotTable Field List

PivotTable Fields

Choose fields to add to report:

Fact Sales

- Qty
- Qty Total Price

Channel Dim

- Channel.ID
- City
- Country

Customer Dim

- Customer.ID
- Customer.Name
- Customer.Sales

Drag fields between areas below:

FILTERS

COLUMNS

ROWS

VALUES

tmpDD6E

Activate Windows  
Go to settings... Defer Layout Update

Ready

100%

Sales 1(cube [Design]) Sales 1.dsv [Design] Sales(cube [Design]) Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server Object Explor... SQL Server Language: Default

Edit as Text Import...

Sales 1

Metadata

Measure Group: <All>

Measures

- Fact Sales
  - Qty
  - Qty Total Price

KPIs

Channel Dim

Customer Dim

Product Dim 1

- Product ID
- Product Name
- Product Price

Salesman Dim

- Salesman ID
- Salesman Name
- Salesman Phone

Time Dim 1

- Calendar Quarter
- Calendar Year
- Time ID

Calculated Members

Dimension Hierarchy Operator Filter Expression Parameters

<Select dimension>

Product Name	Salesman Name	Calendar Year	Qty	Qty Total Price
Accessories	Ahmed	2007	30	320
Accessories	Ahmed	2008	30	310
Accessories	khalid	2007	20	300
Accessories	khalid	2008	10	105
Accessories	Omar	2007	60	610
Accessories	Omar	2008	155	1740
Books	Ahmed	2007	70	3300
Books	Ahmed	2008	15	1000
Books	khalid	2007	10	300
Books	khalid	2008	10	300
Books	Omar	2008	50	1500
Clothing	khalid	2007	80	1700
Clothing	khalid	2008	55	1100
Clothing	Omar	2007	30	500
Clothing	Omar	2008	20	600
Components	khalid	2008	60	2600
Components	Omar	2007	30	1200
Components	Omar	2008	25	1000
Sportswear	Ahmed	2007	40	2000
Sportswear	khalid	2007	10	550
Sportswear	khalid	2008	30	1600
Sportswear	Omar	2008	50	2600

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL... Output Data Tools Operations

Solution Explorer Team Explorer Class View Tabular Model Explorer

Book1 - Excel (Product Activation Failed)

PivotTable Tools

File Home Insert Page Layout Formulas Data Review View Add-ins Team Analyze Design Tell me what you want to do...

PivotTable Name: Active Field: PivotTable1 Options Field Settings PivotTable Active Field

Drill Down Drill Up Expand Field Group Selection Group Ungroup Group Field Insert Slicer Insert Timeline Filter Refresh Change Data Source Clear Select Move PivotTable Fields, Items, OLAP Relationships & Sets Tools Calculations Tools PivotChart Recommended PivotTables Field List Buttons Headers Show

A1

PivotTable1

To build a report, choose fields from the PivotTable Field List

Fact Sales  
Qty  
Qty Total Price  
Channel Dim  
Channel ID  
City  
Country  
Customer Dim

FILTERS COLUMNS

ROWS VALUES

Activate Windows  
Go to Settings to activate Windows. Defer Layout Update

tmpDD6E

100%

PivotTable1

Country Drill Drill Collapse Field Ungroup Insert Insert Filter Refresh Change Data Clear Select Move Fields, Items, OLAP Relationships & Sets Tools PivotChart Recommended PivotTables Field List +/− Buttons Headers Show

A1 Row Labels Row Labels

1 Row Labels

2 Algeria

3 Egypt

4 France

5 Moraco

6 Grand Total

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

tmpDD6E

PivotTable Fields

Choose fields to add to report:

Search

Customer Phone

Product Dim 1

Product ID

Product Name

Product Price

Salesman Dim

Salesman ID

Salesman Name

Drag fields between areas below:

FILTERS COLUMNS

ROWS VALUES

Country

Activate Windows  
Go to Settings to activate Windows Defer Layout Upd... UPDATE

The screenshot displays a Microsoft Excel interface with a PivotTable setup. The top ribbon includes tabs for PivotTable, PivotChart, Recommended PivotTables, Field List, and Buttons Headers. The PivotTable tab is active. The main worksheet area (A1 to T30) shows a list of countries: Algeria, Egypt, France, Moraco, and a Grand Total row. The PivotTable Fields pane on the right lists fields from three dimensions: Customer, Product, and Salesman. The 'Product Name' field is currently selected. The bottom status bar shows the file name 'tmpDD6E', a plus sign icon, and various system status indicators.

Book1 - Excel (Product Activation Failed)

PivotTable Tools

File Home Insert Page Layout Formulas Data Review View Add-ins Team Analyze Design Tell me what you want to do...

PivotTable Name: Active Field: PivotTable1 PivotTable1 Options Field Settings Active Field Group

Drill Down Drill Up Expand Field Group Selection Ungroup Group Field Insert Slicer Timeline Filter Refresh Change Data Source Clear Select Move PivotTable Fields, Items, OLAP Relationships Tools PivotChart Recommended PivotTables Tools Calculations Show Field List Buttons Headers

A1 Row Labels

1 Row Labels

2 Algeria

3 Accesories

4 Books

5 Clothing

6 Components

7 Sportswear

8 Egypt

9 Accesories

10 Books

11 Clothing

12 Components

13 Sportswear

14 France

15 Accesories

16 Components

17 Sportswear

18 Moraco

19 Accesories

20 Books

21 Grand Total

22

23

24

25

26

27

28

29

30

tmpDD6E

PivotTable Fields

Choose fields to add to report:

Search

Qty

Qty Total Price

Channel Dim

Channel ID

City

Country

Customer Dim

Customer Address

Customer ID

Drag fields between areas below:

FILTERS

COLUMNS

ROWS

VALUES

Country

Product ...

Activate Windows

Go to Settings to activate Windows.

Defer Layout Upd...

UPDATE

Ready

The screenshot shows a Microsoft Excel spreadsheet titled "Book1 - Excel (Product Activation Failed)". The main area displays a PivotTable with data grouped by country and product category. The PivotTable Fields pane on the right shows fields for Channel Dim, Customer Dim, and a calculated field "Qty Total Price". The PivotTable Tools ribbon is open, specifically the "Analyze" tab. The status bar at the bottom indicates "Ready".

Book1 - Excel (Product Activation Failed)

PivotTable Tools

File Home Insert Page Layout Formulas Data Review View Add-ins Team Analyze Design Tell me what you want to do...

PivotTable Name: Active Field: PivotTable1 PivotTable Options Field Settings Active Field

Drill Down Drill Up Expand Field Group Selection Ungroup Group Field Insert Slicer Timeline Filter Refresh Change Data Source Clear Select Move PivotTable Fields, Items, OLAP Relationships & Sets Tools PivotChart Recommended PivotTables Tools Field List +/- Buttons Headers Show

A1 Row Labels

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	Row Labels	Qty	Qty Total Price																
2	Algeria	210	8000																
3	Accessories	5	50																
4	Books	60	3000																
5	Clothing	65	1400																
6	Components	70	3000																
7	Sportswear	10	550																
8	Egypt	515	12180																
9	Accessories	225	2480																
10	Books	60	1800																
11	Clothing	120	2500																
12	Components	20	800																
13	Sportswear	90	4600																
14	France	60	2655																
15	Accessories	5	55																
16	Components	25	1000																
17	Sportswear	30	1600																
18	Moraco	105	2400																
19	Accessories	70	800																
20	Books	35	1600																
21	Grand Total	890	25235																
22																			
23																			
24																			
25																			
26																			
27																			
28																			
29																			
30																			

PivotTable Fields

Choose fields to add to report:

Search

Qty Qty Total Price

Channel Dim Channel ID City Country

Customer Dim Customer Address Customer ID

Drag fields between areas below:

FILTERS

ROWS VALUES

Country Qty Product ... Qty Total ...

Activate Windows Go to Settings to activate Windows. Defer Layout Upd... UPDATE

ttmpDD6E

Ready

Book1 - Excel (Product Activation Failed)

PivotTable Tools

File Home Insert Page Layout Formulas Data Review View Add-ins Team Analyze Design Tell me what you want to do...

PivotTable Name: Active Field: Qty Expand Field  
PivotTable1 Drill Down Drill Up Collapse Field  
Options Field Settings Group Field  
PivotTable Active Field

Group Selection Ungroup Insert Slicer Refresh Change Data Source Clear Select Move PivotTable Fields, Items, OLAP Relationships & Sets Tools Calculations Tools PivotChart Recommended PivotTables Field List Buttons Headers Show

A1 Qty Column Labels Algeria Egypt France Moraco Grand Total

	Qty	Column Labels	Algeria	Egypt	France	Moraco	Grand Total
1	Accesories	5	225	5	70		305
2	Books	60	60		35		155
3	Clothing	65	120				185
4	Components	70	20	25			115
5	Sportswear	10	90	30			130
6	<b>Grand Total</b>	<b>210</b>	<b>515</b>	<b>60</b>	<b>105</b>		<b>890</b>

PivotTable Fields

Choose fields to add to report:

Search

Σ Fact Sales  
 Qty  
 Qty Total Price

Channel Dim  
 Channel ID  
 City  
 Country

Customer Dim

Drag fields between areas below:

FILTERS COLUMNS

ROWS VALUES

Activate Windows  
Go to Settings to activate Windows.  
Defer Layout Upd... UPDATE

tmpDD6E

Ready

Book1 - Excel (Product Activation Failed)

File Home Insert Page Layout Formulas Data Review View Add-ins Team Tell me what you want to do...

Cut Copy Format Painter

Font Alignment Number Styles Cells Editing

K18

**Column Labels**

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	Algeria	Egypt			France			Moraco			Total Qty	Total Qty	Total Price							
2	Qty	Qty	Total Price	Qty	Qty	Total Price	Qty	Qty	Total Price	Qty	Qty	Total Price								
3	Accessories	5	50	225	2480	5	55	70	800	305	3385									
4	Books	60	3000	60	1800			35	1600	155	6400									
5	Clothing	65	1400	120	2500					185	3900									
6	Components	70	3000	20	800	25	1000			115	4800									
7	Sportswear	10	550	90	4600	30	1600			130	6750									
8	<b>Grand Total</b>	<b>210</b>	<b>8000</b>	<b>515</b>	<b>12180</b>	<b>60</b>	<b>2655</b>	<b>105</b>	<b>2400</b>	<b>890</b>	<b>25235</b>									
9																				
10																				
11																				
12																				
13																				
14																				
15																				
16																				
17																				
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22																				
23																				
24																				
25																				
26																				
27																				
28																				
29																				
30																				

Activate Windows  
Go to Settings to activate Windows

tmpDD6E

Ready

Book1 - Excel (Product Activation Failed)

File Home Insert Page Layout Formulas Data Review View Add-ins Team Tell me what you want to do...

Cut Copy Format Painter

Font Alignment Number Styles Cells Editing

K18

**Column Labels**

	Algeria			Egypt			France			Moraco			Total Qty	Total Qty	Total Price
Row Labels	Qty	Qty	Total Price	Qty	Qty	Total Price	Qty	Qty	Total Price	Qty	Qty	Total Price			
Accessories	5	50	225	2480	5	55	70	800	305	3385					
Books	60	3000	60	1800			35	1600	155	6400					
Clothing	65	1400	120	2500					185	3900					
Components	70	3000	20	800	25	1000			115	4800					
Sportswear	10	550	90	4600	30	1600			130	6750					
<b>Grand Total</b>	<b>210</b>	<b>8000</b>	<b>515</b>	<b>12180</b>	<b>60</b>	<b>2655</b>	<b>105</b>	<b>2400</b>	<b>890</b>	<b>25235</b>					
10															
11															
12															
13															
14															
15															
16															
17															
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19															
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23															
24															
25															
26															
27															
28															
29															
30															

tmpDD6E

Activate Windows  
Go to Settings to activate Windows

Ready 100%

Sales 1(cube) [Design] Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server Object Explorer SQL Server Language: Default

Edit as Text Import... Dimension Hierarchy Operator Filter Expression Parameters

Sales 1 Metadata Measure Group: <All>

DESKTOP-VF50P25.sales - dbo.Fact Sales - Microsoft SQL Server Management Studio

File Edit View Project Debug Query Designer Tools Window Help

New Query

Object Explorer

Connect Database Snapshots AdventureWorks2012 AdventureWorksDW2012 Company\_SD ITI Mansoura\_DB MyDW ReportServer ReportServerTempDB sales Database Diagrams dbo.sales Diagram Tables System Tables FileTables External Tables dbo.ChannelDim dbo.CustomerDim dbo.Fact Sales dbo.ProductDim

Properties Template Browser

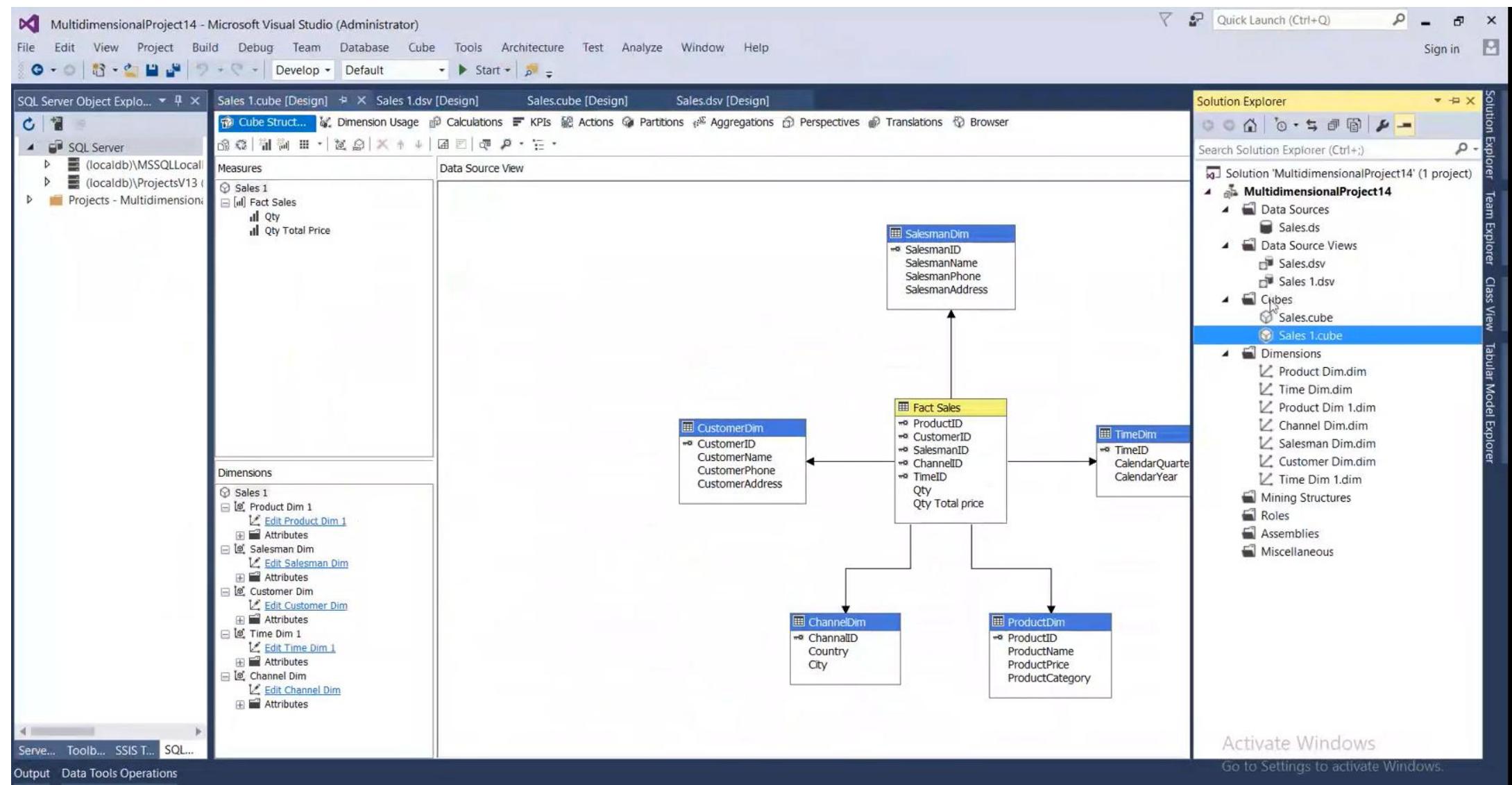
Qty Total Price

Qty	Total Price
320	
310	
300	
105	
610	
5	1740
	3300
	1000
	300
	300
	1500
	1700
	1100
	500
	600
	2600
	1200
	1000
	2000
	550
	1600
	2600

Activate Windows  
Go to Settings to activate Windows.

Ready Output Publish

The screenshot displays the Microsoft SQL Server Management Studio (SSMS) interface. The top navigation bar includes tabs for 'Sales 1(cube) [Design]', 'Sales 1.dsv [Design]', 'Sales(cube) [Design]', and 'Sales.dsv [Design]'. Below the tabs are various management tools like 'Cube Struct...', 'Dimension Usage', and 'Calculations'. The left pane shows the 'SQL Server Object Explorer' with a tree view of databases and tables, including 'sales' and its sub-tables like 'dbo.Fact Sales'. The main central area shows a query results grid for 'dbo.Fact Sales' with columns 'elID', 'Qty', and 'Qty Total price'. A separate window for 'Sales 1(cube) [Design]' is open, showing a dimension editor with fields for 'Dimension', 'Hierarchy', 'Operator', and 'Filter Expression'. The bottom right corner features a watermark for activating Windows.



MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Architecture Test Analyze Window Help

Develop Default Start

SQL Server Object Explor... Sales 1(cube) [Design] Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

Cube Structure Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Measures

- Sales 1
  - Fact Sales
    - Qty
    - Qty Total Price

Dimensions

- Sales 1
  - Product Dim 1
    - Edit Product Dim 1
    - Attributes
  - Salesman Dim
    - Edit Salesman Dim
    - Attributes
  - Customer Dim
    - Edit Customer Dim
    - Attributes
  - Time Dim 1
    - Edit Time Dim 1
    - Attributes
  - Channel Dim
    - Edit Channel Dim
    - Attributes

Data Source View

Cube Wizard

Welcome to the Cube Wizard

Use this wizard to create a new cube. First, you select the data source view and tables for the cube, and then you set its properties. You can also opt to create a cube without using a data source.

Don't show this page again

< Back Next > Finish >> Cancel

TimeDim

- TimeID
- CalendarQuarter
- CalendarYear

ChannelDim

- ChannelID
- Country
- City

ProductDim

- ProductID
- ProductName
- ProductPrice
- ProductCategory

Solution Explorer

Search Solution Explorer (Ctrl+Shift+F)

Solution 'MultidimensionalProject14' (1 project)

- MultidimensionalProject14
  - Data Sources
    - Sales.ds
  - Data Source Views
    - Sales.dsv
    - Sales 1.dsv
  - Cubes
    - Sales(cube)
    - Sales 1(cube)
  - Dimensions
    - Product Dim.dim
    - Time Dim.dim
    - Product Dim 1.dim
    - Channel Dim.dim
    - Salesman Dim.dim
    - Customer Dim.dim
    - Time Dim 1.dim
  - Mining Structures
  - Roles
  - Assemblies
  - Miscellaneous

Team Explorer Class View Tabular Model Explorer

Activate Windows  
Go to Settings to activate Windows.

Sales 1(cube) [Design] Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

SQL Server Object Explorer

Cube Structure Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server

Measures

- Sales 1
  - Fact Sales
    - Qty
    - Qty Total Price

Dimensions

- Sales 1
  - Product Dim 1
    - Edit Product Dim 1
    - Attributes
  - Salesman Dim
    - Edit Salesman Dim
    - Attributes
  - Customer Dim
    - Edit Customer Dim
    - Attributes
  - Time Dim 1
    - Edit Time Dim 1
    - Attributes
  - Channel Dim
    - Edit Channel Dim
    - Attributes

Data Source View

Cube Wizard

### Welcome to the Cube Wizard

Use this wizard to create a new cube. First, you select the data source view and tables for the cube, and then you set its properties. You can also opt to create a cube without using a data source.

Don't show this page again

< Back Next > Finish >> Cancel

TimeDim

- TimeID
- CalendarQuarter
- CalendarYear

ChannelDim

- ChannelID
- Country
- City

ProductDim

- ProductID
- ProductName
- ProductPrice
- ProductCategory

Solution Explorer

Search Solution Explorer (Ctrl+F)

Solution 'MultidimensionalProject14' (1 project)

- MultidimensionalProject14
  - Data Sources
    - Sales.ds
  - Data Source Views
    - Sales.dsv
    - Sales 1.dsv
  - Cubes
    - Sales(cube)
    - Sales 1(cube)
  - Dimensions
    - Product Dim.dim
    - Time Dim.dim
    - Product Dim 1.dim
    - Channel Dim.dim
    - Salesman Dim.dim
    - Customer Dim.dim
    - Time Dim 1.dim
  - Mining Structures
  - Roles
  - Assemblies
  - Miscellaneous

Solution Explorer Team Explorer Class View Tabular Model Explorer

Activate Windows  
Go to Settings to activate Windows.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Architecture Test Analyze Window Help

Develop Default Start

SQL Server Object Explor... Sales 1.cube [Design] Sales 1.ds [Design] Sales(cube) [Design] Sales.dsv [Design]

Cube Structure Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Measures

Sales 1  
Fact Sales  
Qty  
Qty Total Price

Dimensions

Sales 1  
Product Dim 1  
Edit Product Dim 1  
Attributes  
Salesman Dim  
Edit Salesman Dim  
Attributes  
Customer Dim  
Edit Customer Dim  
Attributes  
Time Dim 1  
Edit Time Dim 1  
Attributes  
Channel Dim  
Edit Channel Dim  
Attributes

Data Source View

Cube Wizard

Select Measure Group Tables

Select a data source view or diagram and then select the tables that will be used for measure groups.

Data source view: Sales

Measure group tables:

Fact Sales  
ProductDim  
TimeDim

At least one measure group table must be selected.

TimeDim  
TimeID  
CalendarQuarter  
CalendarYear

ChannelDim  
ChannelID  
Country  
City

ProductDim  
ProductID  
ProductName  
ProductPrice  
ProductCategory

Solution Explorer

Search Solution Explorer (Ctrl+Shift+F)

Solution 'MultidimensionalProject14' (1 project)

MultidimensionalProject14  
Data Sources  
Sales.ds  
Data Source Views  
Sales.dsv  
Sales 1.ds  
Cubes  
Sales(cube)  
Sales 1.cube  
Dimensions  
Product Dim.dim  
Time Dim.dim  
Product Dim 1.dim  
Channel Dim.dim  
Salesman Dim.dim  
Customer Dim.dim  
Time Dim 1.dim  
Mining Structures  
Roles  
Assemblies  
Miscellaneous

Team Explorer Class View Tabular Model Explorer

Activate Windows Go to Settings to activate Windows.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Architecture Test Analyze Window Help

Develop Default Start

SQL Server Object Explorer

Sales 1.cube [Design] Sales 1.dsv [Design] Sales(cube) [Design] Sales.csv [Design]

Cube Structure Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Measures

- Sales 1
  - [n] Fact Sales
    - Qty
    - Qty Total Price

Dimensions

- Sales 1
  - [x] Product Dim 1
    - [Edit Product Dim 1](#)
    - Attributes
  - [x] Salesman Dim
    - [Edit Salesman Dim](#)
    - Attributes
  - [x] Customer Dim
    - [Edit Customer Dim](#)
    - Attributes
  - [x] Time Dim 1
    - [Edit Time Dim 1](#)
    - Attributes
  - [x] Channel Dim
    - [Edit Channel Dim](#)
    - Attributes

Data Source View

Cube Wizard

Select Measure Group Tables

Select a data source view or diagram and then select the tables that will be used for measure groups.

Data source view:

- Sales
- Sales
- Sales 1

Measure group tables:

- Fact Sales
- ProductDim
- TimeDim

At least one measure group table must be selected.

TimeDim

- TimeID
- CalendarQuarter
- CalendarYear

ChannelDim

- ChannelID
- Country
- City

ProductDim

- ProductID
- ProductName
- ProductPrice
- ProductCategory

< Back Next > Finish >> Cancel

Serve... Toolb... SSIS T... SQL...  
Output Data Tools Operations

Quick Launch (Ctrl+Q) Sign in

Solution Explorer

Search Solution Explorer (Ctrl+;)

Solution 'MultidimensionalProject14' (1 project)

- MultidimensionalProject14
  - Data Sources
    - Sales.ds
  - Data Source Views
    - Sales.dsv
    - Sales 1.dsv
  - Cubes
    - Sales(cube)
    - Sales 1.cube
  - Dimensions
    - Product Dim.dim
    - Time Dim.dim
    - Product Dim 1.dim
    - Channel Dim.dim
    - Salesman Dim.dim
    - Customer Dim.dim
    - Time Dim 1.dim
  - Mining Structures
  - Roles
  - Assemblies
  - Miscellaneous

Team Explorer Class View Tabular Model Explorer

Activate Windows  
Go to Settings to activate Windows.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Tools Architecture Test Analyze Window Help

Quick Launch (Ctrl+Q) Sign in

SQL Server Object Explor... Sales 1(cube) [Design] Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

Develop Default Start

Cube Structure Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Measures

- Sales 1
  - Fact Sales
    - Qty
    - Qty Total Price

Dimensions

- Sales 1
  - Product Dim 1
    - Edit Product Dim 1
    - Attributes
  - Salesman Dim
    - Edit Salesman Dim
    - Attributes
  - Customer Dim
    - Edit Customer Dim
    - Attributes
  - Time Dim 1
    - Edit Time Dim 1
    - Attributes
  - Channel Dim
    - Edit Channel Dim
    - Attributes

Data Source View

Cube Wizard

Select Measure Group Tables

Select a data source view or diagram and then select the tables that will be used for measure groups.

Data source view: Sales 1

Measure group tables:

- Fact Sales
- ProductDim
- SalesmanDim
- TimeDim
- CustomerDim
- ChannelDim

At least one measure group table must be selected.

< Back Next > Finish >> Cancel

TimeDim

- TimeID
- CalendarQuarter
- CalendarYear

ChannelDim

- ChannelID
- Country
- City

ProductDim

- ProductID
- ProductName
- ProductPrice
- ProductCategory

Solution Explorer

Search Solution Explorer (Ctrl+.)

Solution 'MultidimensionalProject14' (1 project)

- MultidimensionalProject14
  - Data Sources
    - Sales.ds
  - Data Source Views
    - Sales.dsv
    - Sales 1.dsv
  - Cubes
    - Sales(cube)
    - Sales 1(cube)
  - Dimensions
    - Product Dim.dim
    - Time Dim.dim
    - Product Dim 1.dim
    - Channel Dim.dim
    - Salesman Dim.dim
    - Customer Dim.dim
    - Time Dim 1.dim
  - Mining Structures
  - Roles
  - Assemblies
  - Miscellaneous

Activate Windows

The screenshot shows the Microsoft Visual Studio interface for a Multidimensional Project. The main window displays the 'Cube Wizard' dialog under the 'Data Source View' tab, specifically the 'Select Measure Group Tables' step. The 'Measure group tables:' list includes Fact Sales, ProductDim, SalesmanDim, TimeDim, CustomerDim, and ChannelDim. A warning message at the bottom of the dialog states 'At least one measure group table must be selected.' Below the dialog, two tables are shown: TimeDim (TimeID, CalendarQuarter, CalendarYear) and ProductDim (ProductID, ProductName, ProductPrice, ProductCategory). The Solution Explorer on the right shows the project structure with cubes, dimensions, and mining structures.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Architecture Test Analyze Window Help

Quick Launch (Ctrl+Q) Sign in

SQL Server Object Explor... Sales 1.cube [Design] Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

Cube Structure Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Measures

- Sales 1
  - [x] Fact Sales
    - Qty
    - Qty Total Price

Dimensions

- Sales 1
  - Product Dim 1
    - Edit Product Dim 1
    - Attributes
  - Salesman Dim
    - Edit Salesman Dim
    - Attributes
  - Customer Dim
    - Edit Customer Dim
    - Attributes
  - Time Dim 1
    - Edit Time Dim 1
    - Attributes
  - Channel Dim
    - Edit Channel Dim
    - Attributes

Data Source View

Cube Wizard

Select Measures

Select measures that you want to include in the cube.

Measure

- Fact Sales
- Qty
- Qty Total Price
- FactSales Count

Next > Finish >> Cancel

TimeDim

- TimeID
- CalendarQuarter
- CalendarYear

ChannelDim

- ChannelID
- Country
- City

ProductDim

- ProductID
- ProductName
- ProductPrice
- ProductCategory

Solution Explorer

Search Solution Explorer (Ctrl+.)

Solution 'MultidimensionalProject14' (1 project)

- MultidimensionalProject14
  - Data Sources
    - Sales.ds
  - Data Source Views
    - Sales.dsv
    - Sales 1.dsv
  - Cubes
    - Sales(cube)
    - Sales 1.cube
  - Dimensions
    - Product Dim.dim
    - Time Dim.dim
    - Product Dim 1.dim
    - Channel Dim.dim
    - Salesman Dim.dim
    - Customer Dim.dim
    - Time Dim 1.dim
  - Mining Structures
  - Roles
  - Assemblies
  - Miscellaneous

Team Explorer Class View Tabular Model Explorer

Activate Windows Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...

Output Data Tools Operations

The screenshot shows the Microsoft Visual Studio interface for a multidimensional project named 'MultidimensionalProject14'. The main window displays the 'Cube Wizard' dialog titled 'Select Measures', which lists several measures for inclusion in the cube. The 'Fact Sales' measure is currently selected. To the right of the wizard, the 'Solution Explorer' pane is open, showing the project structure with cubes like 'Sales(cube)' and 'Sales 1.cube', and dimensions such as 'Product Dim.dim', 'Time Dim.dim', and 'Customer Dim.dim'. The 'Dimensions' node also lists specific dimension tables like 'ChannelDim' and 'ProductDim'. The bottom status bar indicates 'Activate Windows'.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Architecture Test Analyze Window Help

Develop Default Start

SQL Server Object Explorer

Sales 1(cube [Design]) Sales 1.dsv [Design] Sales(cube [Design]) Sales.dsv [Design]

Measures

Sales 1  
Fact Sales  
Qty  
Qty Total Price

Dimensions

Sales 1  
Product Dim 1  
Edit Product Dim 1  
Attributes  
Salesman Dim  
Edit Salesman Dim  
Attributes  
Customer Dim  
Edit Customer Dim  
Attributes  
Time Dim 1  
Edit Time Dim 1  
Attributes  
Channel Dim  
Edit Channel Dim  
Attributes

Data Source View

Cube Wizard

Select Existing Dimensions  
Select existing dimensions to include in the cube.

Dimension  
Product Dim 1  
Channel Dim  
Salesman Dim  
Customer Dim  
Time Dim 1

TimeDim  
TimeID  
CalendarQuarter  
CalendarYear

CHANNELDIM  
ChannelID  
Country  
City

PRODUCTDIM  
ProductID  
ProductName  
ProductPrice  
ProductCategory

Solution Explorer

Solution 'MultidimensionalProject14' (1 project)

MultidimensionalProject14  
Data Sources  
Sales.ds  
Data Source Views  
Sales.dsv  
Sales 1.dsv  
Cubes  
Sales(cube)  
Sales 1(cube)  
Dimensions  
Product Dim.dim  
Time Dim.dim  
Product Dim 1.dim  
Channel Dim.dim  
Salesman Dim.dim  
Customer Dim.dim  
Time Dim 1.dim  
Mining Structures  
Roles  
Assemblies  
Miscellaneous

Team Explorer Class View Tabular Model Explorer

Activate Windows  
Go to Settings to activate Windows.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Analyze Window Help

SQL Server Object Explor... Default Sales 1(cube [Design]) Sales 1.dsv [Design] Sales(cube [Design]) Sales.dsv [Design]

Cube Structure Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Measures

Cube Wizard

Select Existing Dimensions  
Select existing dimensions to include in the cube.

Dimension

- Product Dim 1
- Channel Dim
- Salesman Dim
- Customer Dim
- Time Dim 1

< Back Next > Finish >> Cancel

CustomerDim  
CustomerID  
CustomerName  
CustomerPhone  
CustomerAddress

Fact Sales  
ProductID  
CustomerID  
SalesmanID  
ChannelID  
TimeID  
Qty  
Qty Total price

SalesmanDim  
SalesmanID  
SalesmanName  
SalesmanPhone  
SalesmanAddress

TimeDim  
TimeID  
CalendarQuarter  
CalendarYear

ChannelDim  
ChannelID  
Country  
City

ProductDim  
ProductID  
ProductName  
ProductPrice  
ProductCategory

Solution Explorer

Search Solution Explorer (Ctrl+.)

Solution 'MultidimensionalProject14' (1 project)

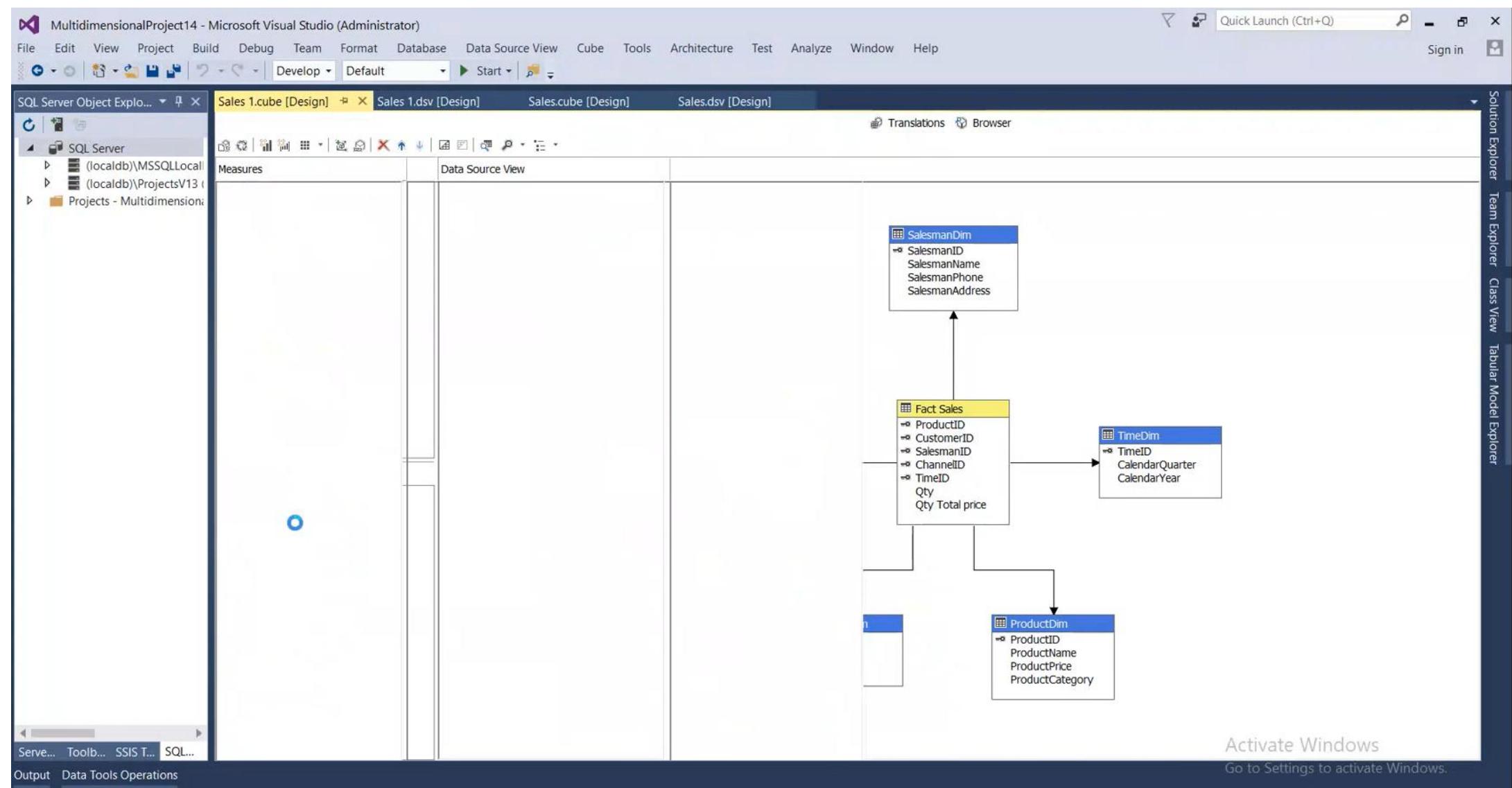
- MultidimensionalProject14
  - Data Sources
    - Sales.ds
  - Data Source Views
    - Sales.dsv
    - Sales 1.dsv
  - Cubes
    - Sales(cube [Design])
    - Sales 1(cube [Design])
  - Dimensions
    - Product Dim.dim
    - Time Dim.dim
    - Product Dim 1.dim
    - Channel Dim.dim
    - Salesman Dim.dim
    - Customer Dim.dim
    - Time Dim 1.dim
  - Mining Structures
  - Roles
  - Assemblies
  - Miscellaneous

Team Explorer Class View Tabular Model Explorer

Activate Windows  
Go to Settings to activate Windows.

Server... Toolbars SSIS T... SQL... Output Data Tools Operations

The screenshot shows the Microsoft Visual Studio interface for a Multidimensional Project. On the left, the 'Select Existing Dimensions' dialog is open, listing dimensions: Product Dim 1, Channel Dim, Salesman Dim, Customer Dim, and Time Dim 1. The 'Customer Dim' dimension is currently selected. In the center, a Data Flow diagram illustrates the relationship between the Fact Sales fact table and five dimension tables: CustomerDim, SalesmanDim, TimeDim, ChannelDim, and ProductDim. The Fact Sales table has arrows pointing to all five dimensions. The SalesmanDim dimension is highlighted in yellow. On the right, the Solution Explorer shows the project structure, including the MultidimensionalProject14 solution with its cubes, dimensions, and mining structures. The 'Cubes' node is expanded to show Sales(cube [Design]) and Sales 1(cube [Design]). The 'Dimensions' node is also expanded to show various dimension objects. At the bottom, a message from Microsoft prompts activation of the Windows license.



SQL Server Object Explor... X Product Dim 1.dim [Design] Sales 1(cube) [Design] Sales 1.dsv [Design] Sales.cube [Design] Sales.dsv [Design]

Dimension Structure Attribute Relationships Translations Browser

SQL Server

(localdb)\MSSQLLocalDB (localdb)\ProjectsV13 Projects - Multidimensional

Attributes

Product Dim 1

- Product ID
- Product Name
- Product Price

Hierarchies

To create a new hierarchy, drag an attribute here.

Data Source View

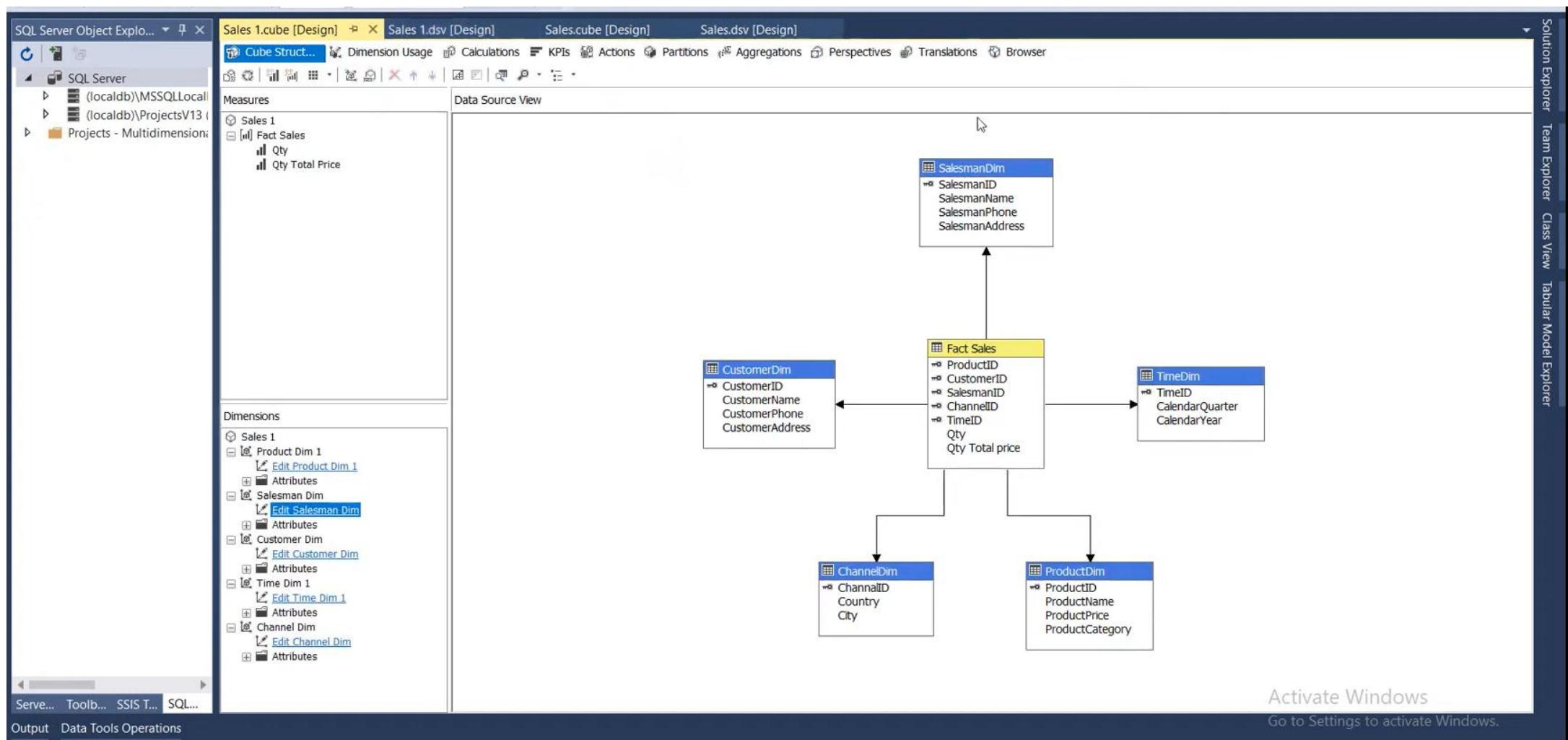
ProductDim

- ProductID
- ProductName
- ProductPrice
- ProductCategory
- ProductDim

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL... Output Data Tools Operations

Solution Explorer Team Explorer Class View Tabular Model Explorer



MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Architecture Test Analyze Window Help

Quick Launch (Ctrl+Q) Sign in

Develop Default Start

SQL Server Object Explor... Sales 1(cube [Design]) Sales 1.dsv [Design] Sales(cube [Design]) Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Language: Default

Edit as Text Import... Tools

Sales 1

Metadata

Measure Group: <All>

Measures

- Fact Sales
  - Qty
  - Qty Total Price

KPIs

Channel Dim

Customer Dim

Product Dim 1

- Product ID
- Product Name
- Product Price

Salesman Dim

- Salesman ID
- Salesman Name
- Salesman Phone

Time Dim 1

- Calendar Quarter
- Calendar Year
- Time ID

Calculated Members

Dimension Hierarchy Operator Filter Expression Parameters

<Select dimension>

Product Name	Salesman Name	Calendar Year	Qty	Qty Total Price
Accessories	Ahmed	2007	30	320
Accessories	Ahmed	2008	30	310
Accessories	khalid	2007	20	300
Accessories	khalid	2008	10	105
Accessories	Omar	2007	60	610
Accessories	Omar	2008	155	1740
Books	Ahmed	2007	70	3300
Books	Ahmed	2008	15	1000
Books	khalid	2007	10	300
Books	khalid	2008	10	300
Books	Omar	2008	50	1500
Clothing	khalid	2007	80	1700
Clothing	khalid	2008	55	1100
Clothing	Omar	2007	30	500
Clothing	Omar	2008	20	600
Components	khalid	2008	60	2600
Components	Omar	2007	30	1200
Components	Omar	2008	25	1000
Sportswear	Ahmed	2007	40	2000
Sportswear	khalid	2007	10	550
Sportswear	khalid	2008	30	1600
Sportswear	Omar	2008	50	2600

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...  
Output Data Tools Operations

Sales 1.cube [Design] Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Edit as Text Import...

Language: Default

Sales 1

Metadata

Measure Group: <All>

Measures

- Fact Sales
  - Qty
  - Qty Total Price

KPIs

Channel Dim

Customer Dim

Product Dim 1

Salesman Dim

- Salesman ID
- Salesman Name
- Salesman Phone

Time Dim 1

- Calendar Quarter
- Calendar Year
- Time ID

Calculated Members

Dimension Hierarchy Operator Filter Expression Parameters

<Select dimension>

<Select dimension>

Channel Dim

Customer Dim

Product Dim 1

Salesman Dim

Time Dim 1

	Name	Calendar Year	Qty	Qty Total Price
Accessories	Ahmed	2007	30	320
Accessories	Ahmed	2008	30	310
Accessories	khalid	2007	20	300
Accessories	khalid	2008	10	105
Accessories	Omar	2007	60	610
Accessories	Omar	2008	155	1740
Books	Ahmed	2007	70	3300
Books	Ahmed	2008	15	1000
Books	khalid	2007	10	300
Books	khalid	2008	10	300
Books	Omar	2008	50	1500
Clothing	khalid	2007	80	1700
Clothing	khalid	2008	55	1100
Clothing	Omar	2007	30	500
Clothing	Omar	2008	20	600
Components	khalid	2008	60	2600
Components	Omar	2007	30	1200
Components	Omar	2008	25	1000
Sportswear	Ahmed	2007	40	2000
Sportswear	khalid	2007	10	550
Sportswear	khalid	2008	30	1600
Sportswear	Omar	2008	50	2600

Activate Windows  
Go to Settings to activate Windows.

Server... Tools... SSIS T... SQL...

Output Data Tools Operations

Sales 1.cube [Design] Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Edit as Text Import...

Language: Default

Dimension Hierarchy Operator Filter Expression Parameters

Time Dim 1 <Select hierarchy> <Select hierarchy> Calendar Quarter Calendar Year Time ID

Product Name	Salesman Name	Calendar Year	Qty	Qty Total Price
Accessories	Ahmed	2007	30	320
Accessories	Ahmed	2008	30	310
Accessories	Khalid	2007	20	300
Accessories	Khalid	2008	10	105
Accessories	Omar	2007	60	610
Accessories	Omar	2008	155	1740
Books	Ahmed	2007	70	3300
Books	Ahmed	2008	15	1000
Books	Khalid	2007	10	300
Books	Khalid	2008	10	300
Books	Omar	2008	50	1500
Clothing	Khalid	2007	80	1700
Clothing	Khalid	2008	55	1100
Clothing	Omar	2007	30	500
Clothing	Omar	2008	20	600
Components	Khalid	2008	60	2600
Components	Omar	2007	30	1200
Components	Omar	2008	25	1000
Sportswear	Ahmed	2007	40	2000
Sportswear	Khalid	2007	10	550
Sportswear	Khalid	2008	30	1600
Sportswear	Omar	2008	50	2600

Activate Windows  
Go to Settings to activate Windows.

SQL Server Object Explor... SQL Server

(localdb)\MSSQLLocal (localdb)\ProjectsV13 Projects - Multidimension...

Sales 1

Metadata

Measure Group: <All>

Measures Fact Sales Qty Qty Total Price

KPIs

Channel Dim

Customer Dim

Product Dim 1 Product ID Product Name Product Price

Salesman Dim Salesman ID Salesman Name Salesman Phone

Time Dim 1 Calendar Quarter Calendar Year Time ID

Calculated Members

Serve... Toolb... SSIS T... SQL... Output Data Tools Operations

Solution Explorer Team Explorer Class View Tabular Model Explorer

Sales 1(cube) [Design] Sales 1.dsv [Design] Sales.cube [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server Object Explorer SQL Server Language: Default

Edit as Text Import... Tools

Sales 1

Metadata

Measure Group: <All>

Measures

- Fact Sales
  - Qty
  - Qty Total Price

KPIs

Channel Dim

Customer Dim

Product Dim 1

- Product ID
- Product Name
- Product Price

Salesman Dim

- Salesman ID
- Salesman Name
- Salesman Phone

Time Dim 1

- Calendar Quarter
- Calendar Year
- Time ID

Calculated Members

Dimension Hierarchy Operator Filter Expression Parameters

Time Dim 1 Calendar Year Equal <Select dimension>

Product Name	Salesman Name	Calendar Year	Qty	Qty Total Price
Accessories	Ahmed	2007	30	320
Accessories	Ahmed	2008	30	310
Accessories	khald	2007	20	300
Accessories	khald	2008	10	105
Accessories	Omar	2007	60	610
Accessories	Omar	2008	155	1740
Books	Ahmed	2007	70	3300
Books	Ahmed	2008	15	1000
Books	khald	2007	10	300
Books	khald	2008	10	300
Books	Omar	2008	50	1500
Clothing	khald	2007	80	1700
Clothing	khald	2008	55	1100
Clothing	Omar	2007	30	500
Clothing	Omar	2008	20	600
Components	khald	2008	60	2600
Components	Omar	2007	30	1200
Components	Omar	2008	25	1000
Sportswear	Ahmed	2007	40	2000
Sportswear	khald	2007	10	550
Sportswear	khald	2008	30	1600
Sportswear	Omar	2008	50	2600

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL... Output Data Tools Operations

Sales 1.cube [Design] Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server Object Explor... SQL Server (localdb)\MSSQLLocalDB (localdb)\ProjectsV13 Projects - Multidimensional

Edit as Text Import... Tools Language: Default

Sales 1

Metadata

Measure Group: <All>

Measures

- Fact Sales
  - Qty
  - Qty Total Price
- KPIs
- Channel Dim
- Customer Dim
- Product Dim 1
  - Product ID
  - Product Name
  - Product Price
- Salesman Dim
  - Salesman ID
  - Salesman Name
  - Salesman Phone
- Time Dim 1
  - Calendar Quarter
  - Calendar Year
  - Time ID

Calculated Members

Dimension Hierarchy Operator Filter Expression Parameters

Time Dim 1 Calendar Year Equal

<Select dimension>

Product Name	Salesman Name	Calendar Year	Qty	Qty Total Price
Accessories	Ahmed	2007	30	320
Accessories	Ahmed	2008	30	310
Accessories	khald	2007	20	300
Accessories	khald	2008	10	105
Accessories	Omar	2007	60	610
Accessories	Omar	2008	155	1740
Books	Ahmed	2007	70	3300
Books	Ahmed	2008	15	1000
Books	khald	2007	10	300
Books	khald	2008	10	300
Books	Omar	2008	50	1500
Clothing	khald	2007	80	1700
Clothing	khald	2008	55	1100
Clothing	Omar	2007	30	500
Clothing	Omar	2008	20	600
Components	khald	2008	60	2600
Components	Omar	2007	30	1200
Components	Omar	2008	25	1000
Sportswear	Ahmed	2007	40	2000
Sportswear	khald	2007	10	550
Sportswear	khald	2008	30	1600
Sportswear	Omar	2008	50	2600

All 2007 2008

OK Cancel

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL... Output Data Tools Operations Ready Publish

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Architecture Test Analyze Window Help

Quick Launch (Ctrl+Q) Sign in

SQL Server Object Explor... Default Start

Sales 1.cube [Design] Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Edit as Text Import... Parameters

Language: Default

Sales 1

Dimension Hierarchy Operator Filter Expression Parameters

Time Dim 1 Calendar Year Equal { 2007 }

<Select dimension>

Measure Group: <All>

Measures Fact Sales Qty Qty Total Price

KPIs

Channel Dim

Customer Dim

Product Dim 1 Product ID Product Name Product Price

Salesman Dim Salesman ID Salesman Name Salesman Phone

Time Dim 1 Calendar Quarter Calendar Year Time ID

Calculated Members

Product Name	Salesman Name	Calendar Year	Qty	Qty Total Price
Accessories	Ahmed	2007	30	320
Accessories	khalid	2007	20	300
Accessories	Omar	2007	60	610
Books	Ahmed	2007	70	3300
Books	khalid	2007	10	300
Clothing	khalid	2007	80	1700
Clothing	Omar	2007	30	500
Components	Omar	2007	30	1200
Sportswear	Ahmed	2007	40	2000
Sportswear	khalid	2007	10	550

Serve... Toolb... SSIS T... SQL... Activate Windows  
Output Data Tools Operations Go to Settings to activate Windows.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Analyze Window Help

Quick Launch (Ctrl+Q) Sign in

SQL Server Object Explor... Sales 1.cube [Design] Sales 1.dsv [Design] Sales(cube [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Language: Default

Edit as Text Import...

Sales 1

Metadata Functions

Measure Group: <All>

Sales 1

- Measures
  - Fact Sales
    - Qty
    - Qty Total Price
- KPIs
- Channel Dim
- Customer Dim
- Product Dim 1
  - Product ID
  - Product Name
  - Product Price
- Salesman Dim
  - Salesman ID
  - Salesman Name
  - Salesman Phone
- Time Dim 1
  - Calendar Quarter
  - Calendar Year
  - Time ID

SELECT NON EMPTY { [Measures].[Qty], [Measures].[Qty Total Price] } ON COLUMNS, NON EMPTY { {[Product Dim 1].[Product Name].[Product Name].ALLMEMBERS \* [Salesman Dim].[Salesman Name].[Salesman Name].ALLMEMBERS \* [Time Dim 1].[Calendar Year].[Calendar Year].ALLMEMBERS } } DIMENSION PROPERTIES MEMBER\_CAPTION, MEMBER\_UNIQUE\_NAME ON ROWS FROM ( SELECT { [Time Dim 1].[Calendar Year].&[2007] } ) ON COLUMNS FROM [Sales 1]) CELL PROPERTIES VALUE, BACK\_COLOR, FORE\_COLOR, FORMATTED\_VALUE, FORMAT\_STRING, FONT\_NAME, FONT\_SIZE, FONT\_FLAGS

Product Name Salesman Name Calendar Year Qty Qty Total Price

[Click to execute the query.](#)

Activate Windows  
Go to Settings to activate Windows.

Server... Toolb... SSIS T... SQL... Output Data Tools Operations

## 2 SQL Server Analysis Service-SSAS.

Sales 1.cube [Design] Sales 1.dsv [Design] Sales.cube [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Edit as Text Import... ...

Sales 1 Metadata Functions

Measure Group: <All>

Sales 1

- Measures
  - Fact Sales
    - Qty
    - Qty Total Price
- KPIs
- Channel Dim
- Customer Dim
- Product Dim 1
  - Product ID
  - Product Name
  - Product Price
- Salesman Dim
  - Salesman ID
  - Salesman Name
  - Salesman Phone
- Time Dim 1
  - Calendar Quarter
  - Calendar Year
  - Time ID

SELECT NON EMPTY { [Measures].[Qty], [Measures].[Qty Total Price] } ON COLUMNS, NON EMPTY { {[Product Dim 1].[Product Name].[Product Name].ALLMEMBERS \* [Salesman Dim].[Salesman Name].[Salesman Name].ALLMEMBERS \* [Time Dim 1].[Calendar Year].[Calendar Year].ALLMEMBERS } } DIMENSION PROPERTIES MEMBER\_CAPTION, MEMBER\_UNIQUE\_NAME ON ROWS FROM ( SELECT ( {[Time Dim 1].[Calendar Year].&[2007]} ) ON COLUMNS FROM [Sales 1] ) CELL PROPERTIES VALUE, BACK\_COLOR, FORE\_COLOR, FORMATTED\_VALUE, FORMAT\_STRING, FONT\_NAME, FONT\_SIZE, FONT\_FLAGS

Product Name Salesman Name Calendar Year Qty Qty Total Price

[Click to execute the query.](#)

Activate Windows  
Go to Settings to activate Windows.

Server... Toolbars SSIS T... SQL...  
Output Data Tools Operations

Sales 1(cube [Design]) Sales 1.dsv [Design] Sales(cube [Design]) Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Language: Default

Edit as Text Import...

Sales 1

Metadata Functions

Measure Group: <All>

Sales 1

- Measures
  - Fact Sales
    - Qty
    - Qty Total Price
- KPIs
- Channel Dim
- Customer Dim
- Product Dim 1
  - Product ID
  - Product Name
  - Product Price
- Salesman Dim
  - Salesman ID
  - Salesman Name
  - Salesman Phone
- Time Dim 1
  - Calendar Quarter
  - Calendar Year
  - Time ID

SELECT NON EMPTY { [Measures].[Qty], [Measures].[Qty Total Price] } ON COLUMNS, NON EMPTY { ([Product Dim 1].[Product Name].[Product Name].ALLMEMBERS \* [Salesman Dim].[Salesman Name].[Salesman Name].ALLMEMBERS \* [Time Dim 1].[Calendar Year].[Calendar Year].ALLMEMBERS ) } DIMENSION PROPERTIES MEMBER\_CAPTION, MEMBER\_UNIQUE\_NAME ON ROWS FROM ( SELECT ( { [Time Dim 1].[Calendar Year],&[2007] } ) ON COLUMNS FROM [Sales 1] ) CELL PROPERTIES VALUE, BACK\_COLOR, FORE\_COLOR, FORMATTED\_VALUE, FORMAT\_STRING, FONT\_NAME, FONT\_SIZE, FONT\_FLAGS

Product Name Salesman Name Calendar Year Qty Qty Total Price

Click to execute the query.

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...

Output Data Tools Operations

Solution Explorer Team Explorer Class View Tabular Model Explorer

SQL Server Object Explor... Sales 1(cube) [Design] Sales 1.dsv [Design] Sales.cube [Design] Sales.csv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server (localdb)\MSSQLLocalDB (localdb)\ProjectsV13 Projects - Multidimensional

Edit as Text Import... ...

Sales 1

Metadata Functions

Measure Group: <All>

Measures Fact Sales Qty Qty Total Price

KPIs

Channel Dim

Customer Dim

Product Dim 1 Product ID Product Name Product Price

Salesman Dim Salesman ID Salesman Name Salesman Phone

Time Dim 1 Calendar Quarter Calendar Year Time ID

SELECT NON EMPTY { [Measures].[Qty], [Measures].[Qty Total Price] } ON COLUMNS, NON EMPTY { ([Product Dim 1].[Product Name].[Product Name].ALLMEMBERS \* [Salesman Dim].[Salesman Name].[Salesman Name].ALLMEMBERS \* [Time Dim 1].[Calendar Year].[Calendar Year].ALLMEMBERS ) } DIMENSION PROPERTIES MEMBER\_CAPTION, MEMBER\_UNIQUE\_NAME ON ROWS FROM ( SELECT ( { [Time Dim 1].[Calendar Year].&[2007] } ) ON COLUMNS FROM [Sales 1] ) CELL PROPERTIES VALUE, BACK\_COLOR, FORE\_COLOR, FORMATTED\_VALUE, FORMAT\_STRING, FONT\_NAME, FONT\_SIZE, FONT\_FLAGS

Product Name	Salesman Name	Calendar Year	Qty	Qty Total Price
Accessories	Ahmed	2007	30	320
Accessories	khald	2007	20	300
Accessories	Omar	2007	60	610
Books	Ahmed	2007	70	3300
Books	khald	2007	10	300
Clothing	khald	2007	80	1700
Clothing	Omar	2007	30	500
Components	Omar	2007	30	1200
Sportswear	Ahmed	2007	40	2000
Sportswear	khald	2007	10	550

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL... Output Data Tools Operations

Solution Explorer Team Explorer Class View Tabular Model Explorer

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Architecture Test Analyze Window Help

Quick Launch (Ctrl+Q) Sign in

SQL Server Object Explor... Default Start Develop Sales 1(cube [Design]) Sales 1.dsv [Design] Sales.cube [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Language: Default

Edit as Text Import...

Sales 1

Metadata Functions

Measure Group: <All>

Sales 1

- Measures
  - Fact Sales
    - Qty
    - Qty Total Price
- KPIs
- Channel Dim
- Customer Dim
- Product Dim 1
  - Product ID
  - Product Name
  - Product Price
- Salesman Dim
  - Salesman ID
  - Salesman Name
  - Salesman Phone
- Time Dim 1
  - Calendar Quarter
  - Calendar Year
  - Time ID

SELECT NON EMPTY { [Measures].[Qty], [Measures].[Qty Total Price] } ON COLUMNS, NON EMPTY { ([Product Dim 1].[Product Name].[Product Name].ALLMEMBERS \* [Salesman Dim].[Salesman Name].[Salesman Name].ALLMEMBERS \* [Time Dim 1].[Calendar Year].[Calendar Year].ALLMEMBERS ) } DIMENSION PROPERTIES MEMBER\_CAPTION, MEMBER\_UNIQUE\_NAME ON ROWS FROM ( SELECT ( { [Time Dim 1].[Calendar Year].&[2007] } ) ON COLUMNS FROM [Sales 1] ) CELL PROPERTIES VALUE, BACK\_COLOR, FORE\_COLOR, FORMATTED\_VALUE, FORMAT\_STRING, FONT\_NAME, FONT\_SIZE, FONT\_FLAGS

Product Name | Salesman Name | Calendar Year | Qty | Qty Total Price

Click to execute the query.

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL... Output Data Tools Operations

SQL Server Object Explor... ▾ X Sales 1(cube [Design]) Sales 1.dsv [Design] Sales(cube [Design]) Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server (localdb)\MSSQLLocalDB (localdb)\ProjectsV13 Projects - Multidimensional

Sales 1

Metadata Functions

Measure Group:

<All>

Sales 1

Measures

Fact Sales

Qty

Qty Total Price

KPIs

Channel Dim

Customer Dim

Product Dim 1

Product ID

Product Name

Product Price

Salesman Dim

Salesman ID

Salesman Name

Salesman Phone

Time Dim 1

Calendar Quarter

Calendar Year

Time ID

SELECT NON EMPTY { [Measures].[Qty], [Measures].[Qty Total Price] } ON COLUMNS, NON EMPTY { ([Product Dim 1].[Product Name].[Product Name].ALLMEMBERS \* [Salesman Dim].[Salesman Name].[Salesman Name].ALLMEMBERS \* [Time Dim 1].[Calendar Year].[Calendar Year].ALLMEMBERS ) } DIMENSION PROPERTIES MEMBER\_CAPTION, MEMBER\_UNIQUE\_NAME ON ROWS FROM ( SELECT ( { [Time Dim 1].[Calendar Year].&[2007] } ) ON COLUMNS FROM [Sales 1] ) CELL PROPERTIES VALUE, BACK\_COLOR, FORE\_COLOR, FORMATTED\_VALUE, FORMAT\_STRING, FONT\_NAME, FONT\_SIZE, FONT\_FLAGS

Product Name Salesman Name Calendar Year Qty Qty Total Price

Click to execute the query.

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...  
Output Data Tools Operations

The screenshot captures the Microsoft SQL Server Management Studio (SSMS) interface, specifically the multidimensional cube designer. On the left, the 'Object Explorer' shows a tree view of the 'Sales 1' cube, including its dimensions (Sales 1, Product Dim 1, Time Dim 1), measures (Measures, Fact Sales), and KPIs. The central workspace displays the generated MDX query for a report, followed by a preview table with four columns: Product Name, Salesman Name, Calendar Year, and Qty. A link at the bottom right of the preview area invites users to activate their Windows license. The top navigation bar includes tabs for 'Sales 1(cube [Design])', 'Sales 1.dsv [Design]', 'Sales(cube [Design])', and 'Sales.dsv [Design]'. The bottom menu bar offers options like 'Serve...', 'Toolb...', 'SSIS T...', 'SQL...', 'Output', and 'Data Tools Operations'.

SQL Server Object Explor... ▾ X Sales 1.cube [Design] ▾ X Sales 1.csv [Design] Sales.cube [Design] Sales.csv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Edit as Text Import... Language: Default

Sales 1

Metadata

Measure Group:  
<All>

Sales 1

Measures

Fact Sales

Qty

Qty Total Price

KPIs

Channel Dim

Customer Dim

Product Dim 1

Product ID

Product Name

Product Price

Salesman Dim

Salesman ID

Salesman Name

Salesman Phone

Time Dim 1

Calendar Quarter

Calendar Year

Calculated Members

Dimension Hierarchy Operator Filter Expression Parameters

<Select dimension>

Product Name	Salesman Name	Calendar Year	Qty	Qty Total Price
Accessories	Ahmed	2007	30	320
Accessories	Ahmed	2008	30	310
Accessories	khalid	2007	20	300
Accessories	khalid	2008	10	105
Accessories	Omar	2007	60	610
Accessories	Omar	2008	155	1740
Books	Ahmed	2007	70	3300
Books	Ahmed	2008	15	1000
Books	khalid	2007	10	300
Books	khalid	2008	10	300
Books	Omar	2008	50	1500
Clothing	khalid	2007	80	1700
Clothing	khalid	2008	55	1100
Clothing	Omar	2007	30	500
Clothing	Omar	2008	20	600
Components	khalid	2008	60	2600
Components	Omar	2007	30	1200
Components	Omar	2008	25	1000
Sportswear	Ahmed	2007	40	2000
Sportswear	khalid	2007	10	550
Sportswear	khalid	2008	30	1600
Sportswear	Omar	2008	50	2600

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL... Output Data Tools Operations

SQL Server Object Explor... X Sales 1(cube [Design]) Sales 1.csv [Design] Sales(cube [Design]) Sales.csv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Language: Default Use this view to build or edit calculations for the cube.

Edit as Text Import...

Sales 1

Dimension Hierarchy Operator Filter Expression Parameters

<Select dimension>

Measure Group: <All>

Product Name Calendar Year Qty Qty Total Price

Accessories	2007	110	1230
Accessories	2008	195	2155
Books	2007	80	3600
Books	2008	75	2800
Clothing	2007	110	2200
Clothing	2008	75	1700
Components	2007	30	1200
Components	2008	85	3600
Sportswear	2007	50	2550
Sportswear	2008	80	4200

Calculated Members

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL... Output Data Tools Operations ready ↑ Pub

SQL Server Object Explorer

SQL Server

- (localdb)\MSSQLLocalDB
- (localdb)\ProjectsV13
- Projects - Multidimensional

SQL Server Object Explor... ▾ X Sales 1(cube) [Design] X Sales 1.dsv [Design] Sales.cube [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Language: Default

Edit as Text Import... Tools Language: Default

Sales 1

Metadata

Measure Group: <All>

Sales 1

- Measures
  - Fact Sales
    - Qty
    - Qty Total Price
- KPIs
- Channel Dim
- Customer Dim
- Product Dim 1
  - Product ID
  - Product Name
  - Product Price
- Salesman Dim
  - Salesman ID
  - Salesman Name
  - Salesman Phone
- Time Dim 1
  - Calendar Quarter
  - Calendar Year

Calculated Members

Dimension Hierarchy Operator Filter Expression Parameters

<Select dimension>

Product Name	Calendar Year	Qty	Qty Total Price
Accessories	2007	110	1230
Accessories	2008	195	2155
Books	2007	80	3600
Books	2008	75	2800
Clothing	2007	110	2200
Clothing	2008	75	1700
Components	2007	30	1200
Components	2008	85	3600
Sportswear	2007	50	2550
Sportswear	2008	80	4200

Serve... Toolb... SSIS T... SQL...

Output Data Tools Operations

Activate Windows  
Go to Settings to activate Windows.

Solution Explorer Team Explorer Class View Tabular Model Explorer

SQL Server Object Explor... Sales 1(cube) [Design] Sales 1.csv [Design] Sales(cube) [Design] Sales.csv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server (localdb)\MSSQLLocalDB (localdb)\ProjectsV13 Projects - Multidimensional

Script Organizer

1 CALCULATE

```
/*
The CALCULATE command controls the aggregation of leaf cells in the cube.
If the CALCULATE command is deleted or modified, the data within the cube is affected.
You should edit this command only if you manually specify how the cube is aggregated.
*/
CALCULATE
```

Calculation Tools

Measure Group: <All>

Sales 1

- Measures
- Channel Dim
- Customer Dim
- Product Dim 1
- Salesman Dim
- Time Dim 1

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL... 150 % Output Data Tools Operations

Sales 1.cube [Design] Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

SQL Server Object Explor... ▾ X

SQL Server (localdb)\MSSQLLocalDB (localdb)\ProjectsV13 Projects - Multidimensional

Script Organizer

1 CALCULATE  
2 [Calculated Member]

Calculation Tools

Metadata Functions Templates

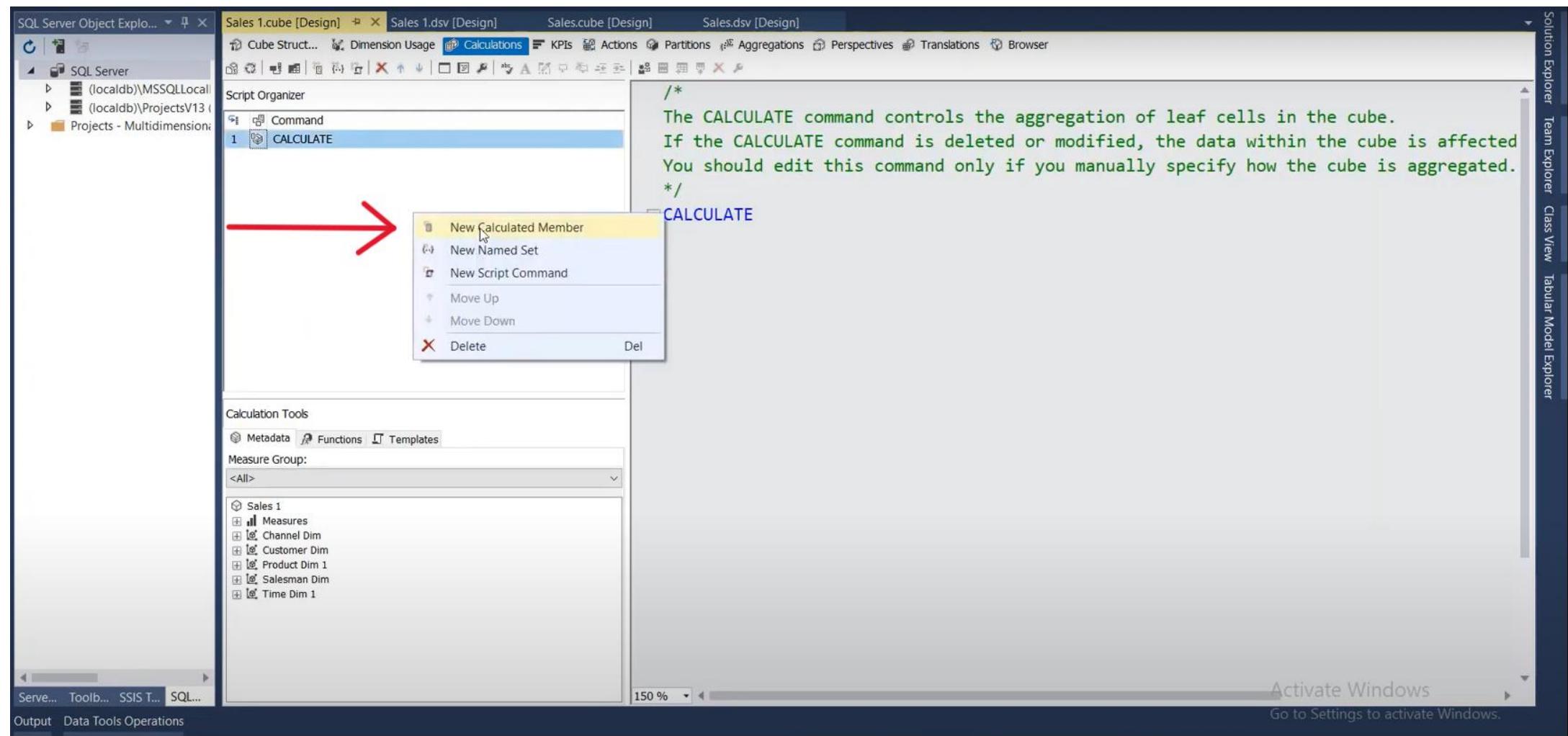
Measure Group:  
<All>

Sales 1  
Measures  
Channel Dim  
Customer Dim  
Product Dim 1  
Salesman Dim  
Time Dim 1

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...  
Output Data Tools Operations

Solution Explorer Team Explorer Class View Tabular Model Explorer



Sales 1.cube [Design] Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server Object Explorer

Script Organizer

1 CALCULATE

/\*  
The CALCULATE command controls the aggregation of leaf cells in the cube.  
If the CALCULATE command is deleted or modified, the data within the cube is affected.  
You should edit this command only if you manually specify how the cube is aggregated.  
\*/

CALCULATE

New Calculated Member

New Named Set

New Script Command

Move Up

Move Down

Delete Del

Calculation Tools

Metadata Functions Templates

Measure Group:

<All>

Sales 1  
Measures  
Channel Dim  
Customer Dim  
Product Dim 1  
Salesman Dim  
Time Dim 1

Activate Windows  
Go to Settings to activate Windows.

Server... Toolb... SSIS T... SQL... Output Data Tools Operations

Ln 1 Col 1 Ch 1 INS Publish

Sales 1(cube [Design])\* Sales 1.dsv [Design] Sales(cube [Design]) Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server Object Explorer SQL Server Script Organizer

Name: UnitPrice

Parent Properties

Parent hierarchy: Measures

Parent member: Change

Expression

Additional Properties

Format string:

Visible: True

Non-empty behavior:

Associated measure group: (Undefined)

Display folder:

Color Expressions

Font Expressions

Calculation Tools

Metadata Functions Templates

Measure Group: <All>

Sales 1

- Measures
- Channel Dim
- Customer Dim
- Product Dim 1
- Salesman Dim
- Time Dim 1

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL... Output Data Tools Operations

Sales 1(cube [Design])\* Sales 1.dsv [Design] Sales(cube [Design]) Sales.dsv [Design]

SQL Server Object Explor... X

SQL Server Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Script Organizer

Name: UnitPrice

Parent Properties

Parent hierarchy: Measures

Parent member: Change

Expression

[Measures].[Qty Total Price]

Additional Properties

Format string:

Visible: True

Non-empty behavior:

Associated measure group: (Undefined)

Display folder:

Color Expressions

Font Expressions

Calculation Tools

Metadata Functions Templates

Measure Group: <All>

Sales 1  
Measures  
Fact Sales  
Qty  
Qty Total Price  
Channel Dim  
Customer Dim  
Product Dim 1  
Salesman Dim  
Time Dim 1

Serve... Toolb... SSIS T... SQL...

Output Data Tools Operations

Activate Windows  
Go to Settings to activate Windows.

Solution Explorer Team Explorer Class View Tabular Model Explorer

This screenshot shows the Microsoft SQL Server Management Studio (SSMS) interface, specifically the 'Calculations' tab for a cube named 'Sales 1'. The 'UnitPrice' measure is currently selected in the 'Script Organizer' on the left. The main pane displays the properties for this measure, including its name ('UnitPrice'), parent hierarchy ('Measures'), and expression ('[Measures].[Qty Total Price]'). The 'Additional Properties' section includes settings for format string, visibility (set to 'True'), non-empty behavior, associated measure group (set to '(Undefined)'), and display folder. On the left, the 'Calculation Tools' pane shows the 'Sales 1' measure group, which contains the 'Measures' folder, 'Fact Sales' dimension, and 'Qty' and 'Qty Total Price' measures. Below this, other dimensions like 'Channel Dim', 'Customer Dim', etc., are listed. The bottom status bar shows 'Activate Windows' and 'Go to Settings to activate Windows.'

Sales 1.cube [Design] Sales 1.csv [Design] Sales.cube [Design] Sales.csv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server Object Explorer

Script Organizer

Name: UnitPrice

Parent Properties

Parent hierarchy: Measures

Parent member: Change

Expression

[Measures].[Qty Total Price]/

Additional Properties

Format string:

Visible: True

Non-empty behavior:

Associated measure group: (Undefined)

Display folder:

Color Expressions

Font Expressions

Calculation Tools

Metadata Functions Templates

Measure Group: <All>

Sales 1

- Measures
  - Fact Sales
    - Qty Total Price
- Channel Dim
- Customer Dim
- Product Dim 1
- Salesman Dim
- Time Dim 1

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL... Output Data Tools Operations

Ready

Ln 1 Col 30 Ch 30 INS Publish

Sales 1.cube [Design] Sales 1.ds [Design] Sales(cube) [Design] Sales.ds [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server Object Explor... SQL Server

Script Organizer

Name: UnitPrice

Parent Properties

Parent hierarchy: Measures

Parent member: Change

Expression

[Measures].[Qty Total Price]/[Measures].[Qty]

Additional Properties

Format string:

Visible: True

Non-empty behavior:

Associated measure group: (Undefined)

Display folder:

Color Expressions

Font Expressions

Calculation Tools

Metadata Functions Templates

Measure Group: <All>

Sales 1

Measures

Fact Sales

Qty

Qty Total Price

Channel Dim

Customer Dim

Product Dim 1

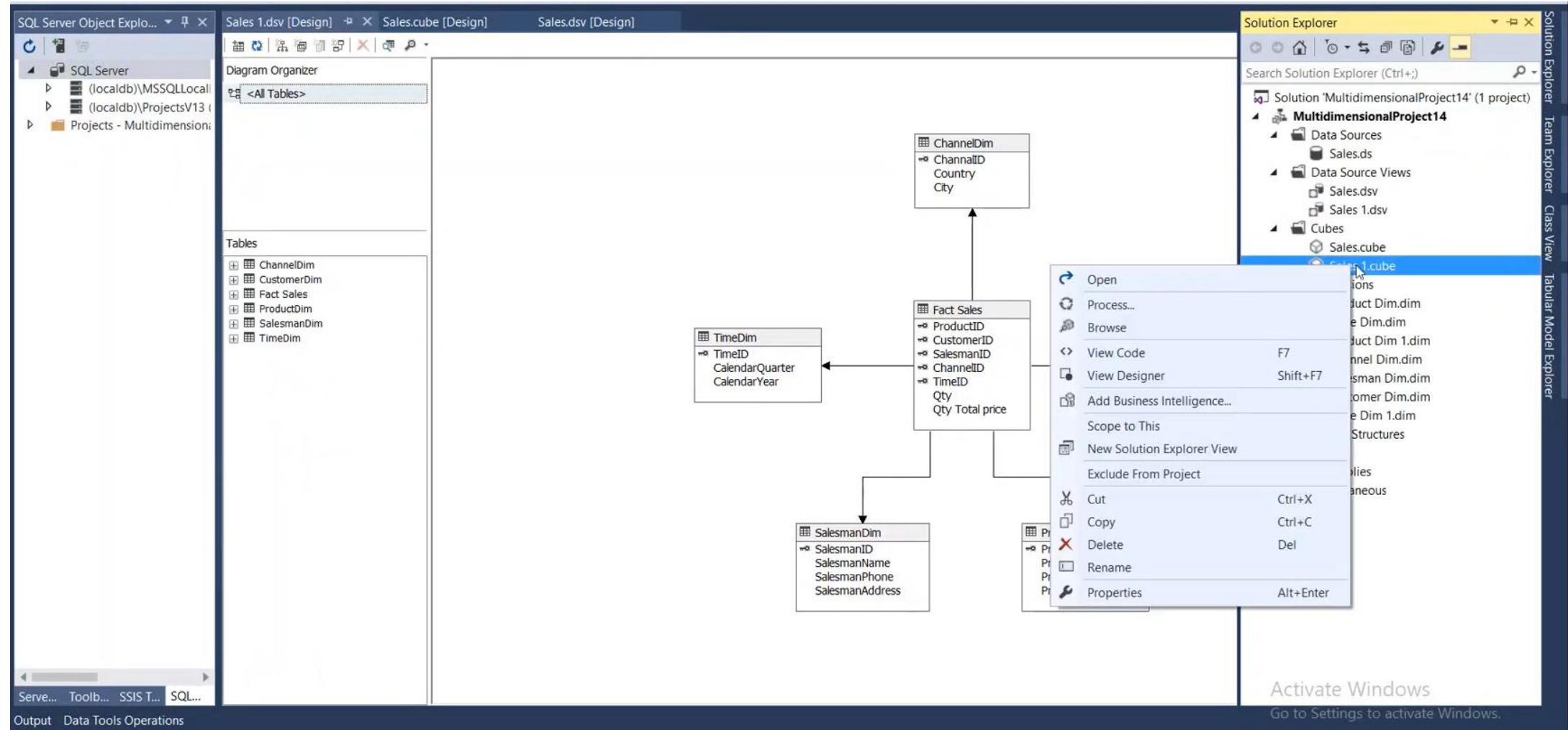
Salesman Dim

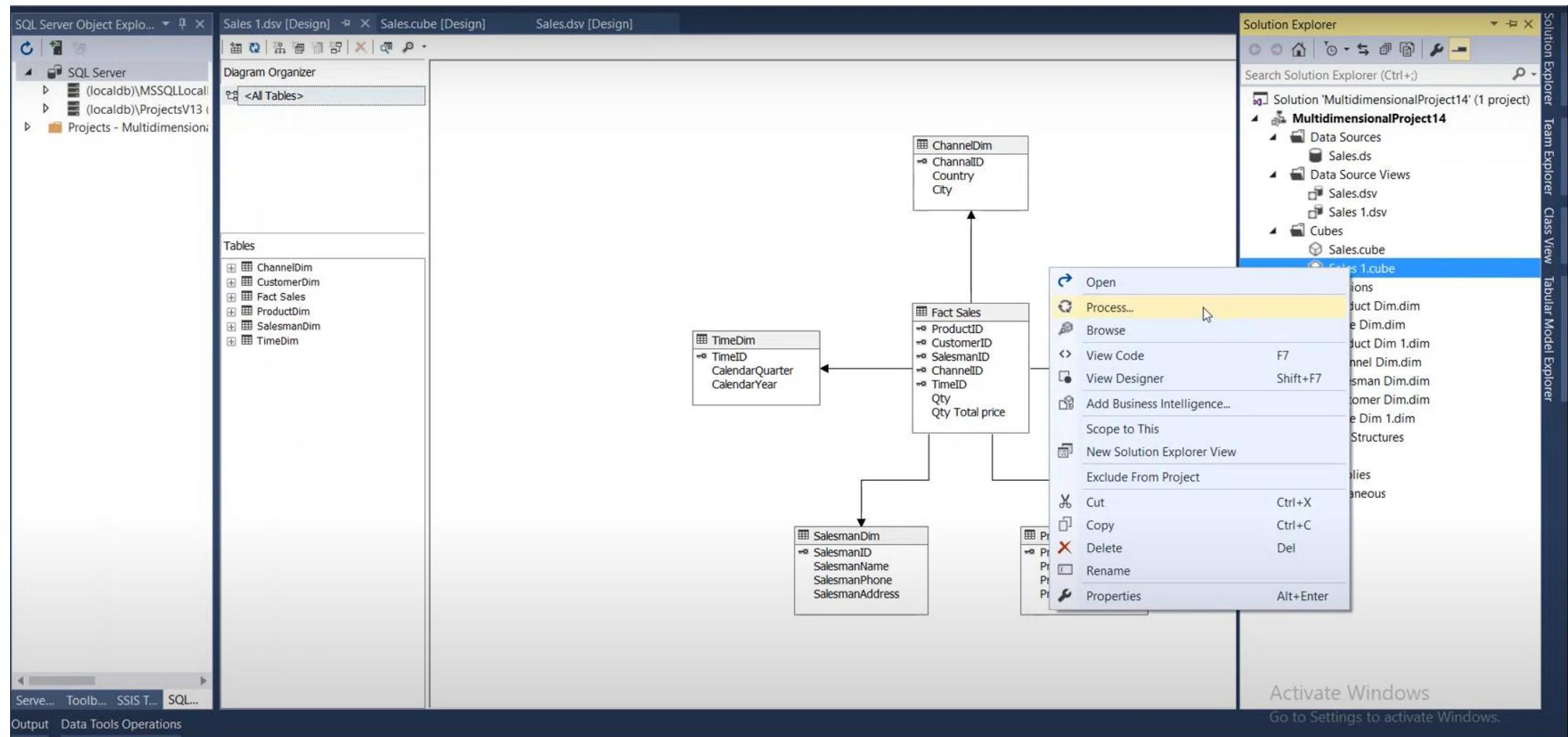
Time Dim 1

Drag & Drop

Activate Windows  
Go to Settings to activate Windows.

The screenshot shows the 'Calculations' tab selected in the ribbon. The 'Script Organizer' pane on the left lists a 'CALCULATE' command with two items: '1 CALCULATE' and '2 UnitPrice'. The 'Expression' field contains the formula '[Measures].[Qty Total Price]/[Measures].[Qty]'. A large red arrow points from the 'Measures' node in the 'Calculation Tools' pane to the 'Expression' field. Another red arrow points from the 'Drag & Drop' text at the bottom right towards the 'Expression' field.





Sales 1.dsv [Design] Sales(cube) [Design] Sales.dsv [Design]

Diagram Organizer <All Tables>

SQL Server Object Explorer

SQL Server (localdb)\MSSQLLocalDB (localdb)\ProjectsV13 Projects - MultidimensionalProject14

Tables

- ChannelDim
- CustomerDim
- Fact Sales
- ProductDim
- SalesmanDim
- TimeDim

Microsoft Visual Studio

The 'MultidimensionalProject14' database on 'localhost' has changed since the last time the project was deployed. If you proceed with deployment, the database will be overwritten. Would you like to continue?

Yes No

ChannelDim  
ChannelID  
Country  
City

CustomerDim  
CustomerID  
CustomerName  
CustomerPhone  
CustomerAddress

SalesmanDim  
SalesmanID  
SalesmanName  
SalesmanPhone  
SalesmanAddress

ProductDim  
ProductID  
ProductName  
ProductPrice  
ProductCategory

Solution Explorer

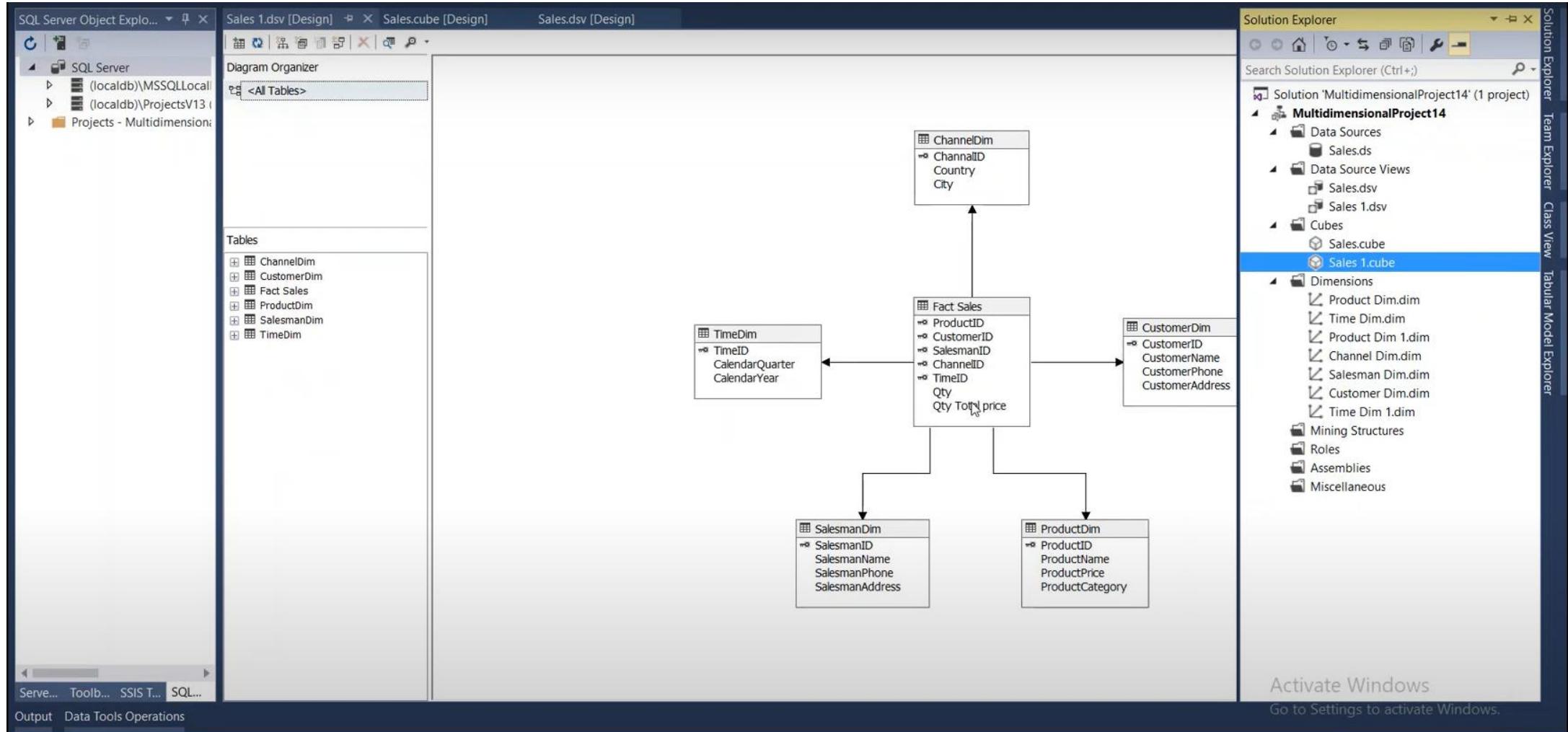
Solution 'MultidimensionalProject14' (1 project)

- MultidimensionalProject14
  - Data Sources
    - Sales.ds
    - Sales Source Views
      - Sales.dsv
      - Sales 1.dsv
  - Cubes
    - Sales(cube)
    - Sales 1.cube
  - Dimensions
    - Product Dim.dim
    - Time Dim.dim
    - Product Dim 1.dim
    - Channel Dim.dim
    - Salesman Dim.dim
    - Customer Dim.dim
    - Time Dim 1.dim
  - Mining Structures
  - Roles
  - Assemblies
  - Miscellaneous

Activate Windows  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...  
Output Data Tools Operations

This screenshot shows the Microsoft Visual Studio interface for a multidimensional project named 'MultidimensionalProject14'. The central area displays a 'Diagram Organizer' showing the relationships between five dimension tables: ChannelDim, CustomerDim, SalesmanDim, ProductDim, and TimeDim. A modal dialog box from 'Microsoft Visual Studio' is overlaid on the diagram, asking if the user wants to continue with deployment because the database has changed since the last deployment. The dialog has 'Yes' and 'No' buttons. The 'Solution Explorer' on the right lists the project's components, including cubes (Sales(cube), Sales 1.cube), dimensions, and mining structures. The 'Diagram Organizer' pane on the left shows the 'Tables' section with the same five dimension tables listed. The status bar at the bottom indicates 'Activate Windows'.



## Deployment Progress - MultidimensionalProject14

Server : localhost

Database : MultidimensionalProject14

Command

Process Cube - Sales 1

Object list:

Object Name	Type	Process Options	Settings
Sales 1	Cube	Process Full	

Remove Impact Analysis...

Batch Settings Summary

Processing order:  
Parallel

Transaction mode:  
(Default)

Dimension errors:  
(Default)

Dimension key error log path :  
(Default)

Process affected objects:  
Do not process

Change Settings... Run... Close

Deployment Completed Successfully



Activate Windows  
Go to Settings to activate Windows.

Deployment Progress - MultidimensionalProject14

Server : localhost  
Database : MultidimensionalProject14

Command

Object list:

Object Name	Type	Process Options	Settings
-------------	------	-----------------	----------

Process Progress

Command

Processing Cube 'Sales 1' completed.  
Start time: 27/10/2020 13:18:36; End time: 27/10/2020 13:18:37; Duration: 0:00:01

Processing Measure Group 'Fact Sales' completed.

Status:

Process succeeded.

Stop Reprocess View Details... Copy Close Help

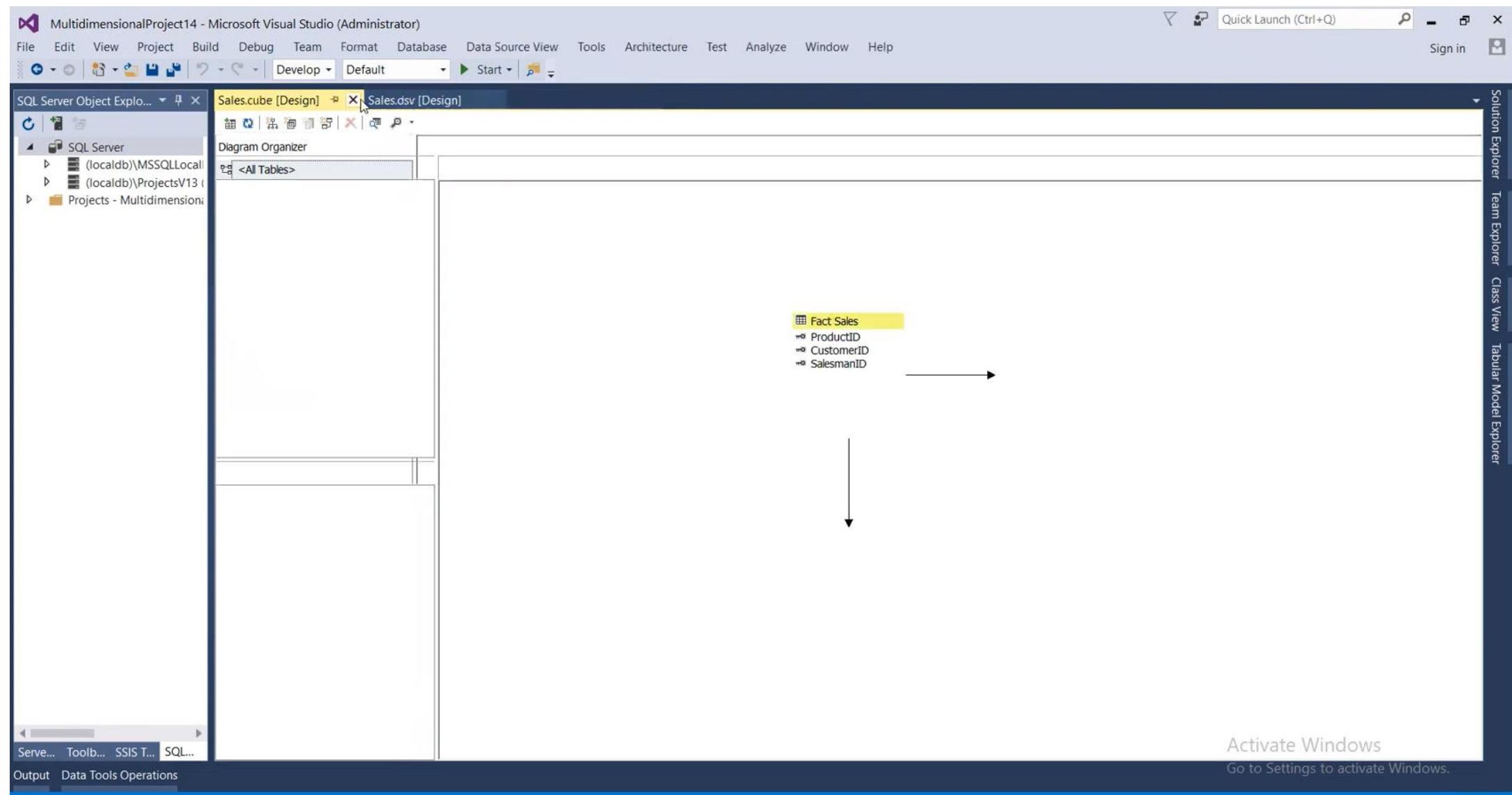
Change Settings... Run... Close

Deployment Completed Successfully

Activate Windows  
Go to Settings to activate Windows.

Run...

Close



MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Architecture Test Analyze Window Help

Develop Default Start

SQL Server Object Explor... Sales.cube [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Language: Default

Edit as Text Import...

Sales

Dimension Hierarchy Operator Filter Expression

<Select dimension>

Measure Group: <All>

Sales

Measures

Fact Sales

Qty

KPIs

Product Dim

Product ID

Product Name

Product Price

Time Dim

Calendar Quarter

Calendar Year

Time ID

Calculated Members

Calendar Year	Product Name	Qty
2007	Accessories	110
2007	Books	80
2007	Clothing	110
2007	Components	30
2007	Sportswear	50
2008	Accessories	195
2008	Books	75
2008	Clothing	75
2008	Components	85
2008	Sportswear	80

The cube has been reprocessed on the server. To prevent possible browsing errors, click [Reconnect](#). To hide this message, [Click here](#).

Team Explorer - Connect

Connect | Offline

Manage Connections

Hosted Service Providers

Visual Studio Team Services Microsoft Corporation

Services to help you ship high quality software. On time, every time. Focus on your code. We'll simplify the rest.

Connect... Get started for free

Local Git Repositories

New Add Clone View Options

Add or clone a Git repository to get started.

Activate Windows

Go to Settings to activate Windows.

Output Data Tools Operations

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Architecture Test Analyze Window Help

Develop Default Start

SQL Server Object Explor... Sales.1(cube [Design]) Sales(cube [Design]) Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Edit as Text Import...

Sales 1

Dimension Hierarchy Operator Filter Expression

<Select dimension>

Measure Group: <All>

Sales 1  
Measures  
KPIs  
Channel Dim  
Customer Dim  
Product Dim 1  
Salesman Dim  
Time Dim 1

Calculated Members

Drag levels or measures here to add to the query.

Solution Explorer

Solution 'MultidimensionalProject14' (1 project)

MultidimensionalProject14  
Data Sources  
Sales.ds  
Data Source Views  
Sales.dsv  
Sales 1.ds  
Cubes  
Sales(cube)  
Sales 1(cube)  
Dimensions  
Product Dim.dim  
Time Dim.dim  
Product Dim 1.dim  
Channel Dim.dim  
Salesman Dim.dim  
Customer Dim.dim  
Time Dim 1.dim  
Mining Structures  
Roles  
Assemblies  
Miscellaneous

Serve... Toolb... SSIS T... SQL...  
Output Data Tools Operations

Activate Windows  
Solution Explorer Team Explorer Class View Tabular Model...  
Go to Settings to activate Windows.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Architecture Test Analyze Window Help

SQL Server Object Explor... Default Sales 1(cube) [Design] Sales(cube) [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Language: Default Edit as Text Import...

Sales 1

Dimension Hierarchy Operator Filter Expression Para...

<Select dimension>

Measure Group: <All>

Sales 1

Metadata

Measure Group: <All>

Sales 1

Fact Sales

Qty Qty Total Price UnitPrice

KPIs Channel Dim Customer Dim Product Dim 1 Product ID Product Name Product Price

Salesman Dim Time Dim 1 Calendar Quarter Calendar Year Time ID

Calculated Members

Dimension Hierarchy Operator Filter Expression Para...

Calendar Year Product Name Qty

Calendar Year	Product Name	Qty
2007	Accessories	110
2007	Books	80
2007	Clothing	110
2007	Components	30
2007	Sportswear	50
2008	Accessories	195
2008	Books	75
2008	Clothing	75
2008	Components	85
2008	Sportswear	80

Solution Explorer

Search Solution Explorer (Ctrl+Shift+F)

Solution 'MultidimensionalProject14' (1 project)

MultidimensionalProject14

- Data Sources
- Sales.ds
- Data Source Views
- Sales.dsv
- Sales 1.ds
- Cubes
- Sales(cube)
- Sales 1(cube)
- Dimensions
- Product Dim.dim
- Time Dim.dim
- Product Dim 1.dim
- Channel Dim.dim
- Salesman Dim.dim
- Customer Dim.dim
- Time Dim 1.dim
- Mining Structures
- Roles
- Assemblies
- Miscellaneous

Activate Windows  
Go to Settings to activate Windows.

Sales 1.cube [Design] Sales(cube) [Design] Sales.dsv [Design]

Cube Structure Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server Object Explorer SQL Server (localdb)\MSSQLLocalDB (localdb)\ProjectsV13 Projects - Multidimensional

Edit as Text Import... Tools Language: Default

Sales 1

Dimension Hierarchy Operator Filter Expression Parameters

<Select dimension>

Measure Group: <All>

Sales 1

Measures

Fact Sales

Qty

Qty Total Price

UnitPrice

KPIs

Channel Dim

Customer Dim

Product Dim 1

Product ID

Product Name

Product Price

Salesman Dim

Time Dim 1

Calendar Quarter

Calendar Year

Time ID

Calculated Members

Dimension Hierarchy Operator Filter Expression Parameters

Calendar Year Product Name Qty Qty Total Price

Calendar Year	Product Name	Qty	Qty Total Price
2007	Accessories	110	1230
2007	Books	80	3600
2007	Clothing	110	2200
2007	Components	30	1200
2007	Sportswear	50	2550
2008	Accessories	195	2155
2008	Books	75	2800
2008	Clothing	75	1700
2008	Components	85	3600
2008	Sportswear	80	4200

Solution Explorer

Solution 'MultidimensionalProject14' (1 project)

MultidimensionalProject14

Data Sources

Sales.ds

Data Source Views

Sales.dsv

Sales 1.dsv

Cubes

Sales.cube

Sales 1.cube

Dimensions

Product Dim.dim

Time Dim.dim

Product Dim 1.dim

Channel Dim.dim

Salesman Dim.dim

Customer Dim.dim

Time Dim 1.dim

Mining Structures

Roles

Assemblies

Miscellaneous

Solution Explorer Team Explorer Class View Tabular Model... Go to Settings to activate Windows.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Architecture Test Analyze Window Help

Develop Default Start

Sales 1(cube [Design]) Sales(cube [Design]) Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Edit as Text Import...

Dimension Hierarchy Operator Filter Expression

<Select dimension>

Measure Group: <All>

Sales 1

Metadata

Measure Group: <All>

Sales 1

Measures

Fact Sales

Qty

Qty Total Price

UnitPrice

KPIs

Channel Dim

Customer Dim

Product Dim 1

Product ID

Product Name

Product Price

Salesman Dim

Time Dim 1

Calendar Quarter

Calendar Year

Time ID

Calculated Members

Calendar Year	Product Name	Qty	Qty Total Price	UnitPrice
2007	Accessories	110	1230	11.1818181818182
2007	Books	80	3600	45
2007	Clothing	110	2200	20
2007	Components	30	1200	40
2007	Sportswear	50	2550	51
2008	Accessories	195	2155	11.0512820512821
2008	Books	75	2800	37.3333333333333
2008	Clothing	75	1700	22.6666666666667
2008	Components	85	3600	42.3529411764706
2008	Sportswear	80	4200	52.5

Solution Explorer

Search Solution Explorer (Ctrl+F)

Solution 'MultidimensionalProject14' (1 project)

MultidimensionalProject14

- Data Sources
- Sales.ds
- Data Source Views
- Sales.dsv
- Sales 1.dsv
- Cubes
- Sales(cube)
- Sales 1(cube)

Dimensions

- Product Dim.dim
- Time Dim.dim
- Product Dim 1.dim
- Channel Dim.dim
- Salesman Dim.dim
- Customer Dim.dim
- Time Dim 1.dim

Mining Structures

Roles

Assemblies

Miscellaneous

Serve... Toolb... SSIS T... SQL...

Output Data Tools Operations

Activate Windows

Solution Explorer Team Explorer Class View Tabular Model... Go to Settings to activate Windows.

Sales 1.cube [Design] Sales(cube) [Design] Sales.csv [Design]

Cube Structure Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Language: Default

SQL Server Object Explorer

Sales 1.cube [Design] Sales(cube) [Design] Sales.csv [Design]

Dimension Hierarchy Operator Filter Expression Para...

<Select dimension>

Measure Group: <All>

Sales 1

Metadata

Measure Group: <All>

Sales 1

Measures

Fact Sales

Qty

Qty Total Price

UnitPrice

KPIs

Channel Dim

Customer Dim

Product Dim 1

Product ID

Product Name

Product Price

Salesman Dim

Time Dim 1

Calendar Quarter

Calendar Year

Time ID

Calculated Members

Dimension Hierarchy Operator Filter Expression Para...

<Select dimension>

Calendar Year Product Name Qty Qty Total Price UnitPrice

Calendar Year	Product Name	Qty	Qty Total Price	UnitPrice
2007	Accesories	110	1230	11.1818181818182
2007	Books	80	3600	45
2007	Clothing	110	2200	20
2007	Components	30	1200	40
2007	Sportswear	50	2550	51
2008	Accesories	195	2155	11.0512820512821
2008	Books	75	2800	37.3333333333333
2008	Clothing	75	1700	22.666666666666667
2008	Components	85	3600	42.3529411764706
2008	Sportswear	80	4200	52.5

Solution Explorer

Solution 'MultidimensionalProject14' (1 project)

MultidimensionalProject14

Data Sources

Sales.ds

Data Source Views

Sales.csv

Sales 1.ds

Cubes

Sales(cube)

Sales 1.cube

Dimensions

Product Dim.dim

Time Dim.dim

Product Dim 1.dim

Channel Dim.dim

Salesman Dim.dim

Customer Dim.dim

Time Dim 1.dim

Mining Structures

Roles

Assemblies

Miscellaneous

Serve... Toolb... SSIS T... SQL...

Activate Windows

Solution Explorer Team Explorer Class View Tabular Model...

SQLE Server Object Explorer

Browse

Cube Structure

Dimension Usage

Calculations

KPIs

Actions

Partitions

Aggregations

Perspectives

Translations

Browser

Language: Default

Projects - Multidimensional

Sales 1

Metadata

Measure Group:

<All>

Sales 1

Measures

Fact Sales

Qty

Qty Total Price

UnitPrice

KPIs

Channel Dim

Customer Dim

Product Dim 1

Product ID

Product Name

Product Price

Salesman Dim

Time Dim 1

Calendar Quarter

Calendar Year

Time ID

Calculated Members

Dimension Hierarchy Operator Filter Expression Para...

<Select dimension>

Calendar Year	Product Name	Qty	Qty Total Price	UnitPrice
2007	Accesories	110	1230	11.18181818182
2007	Books	80	3600	45
2007	Clothing	110	2200	20
2007	Components	30	1200	40
2007	Sportswear	50	2550	51
2008	Accesories	195	2155	11.051280512821
2008	Books	75	2800	37.3333333333333
2008	Clothing	75	1700	22.66666666666667
2008	Components	85	3600	42.3529411764706
2008	Sportswear	80	4200	52.5

Solution Explorer

Search Solution Explorer (Ctrl+)

Solution 'MultidimensionalProject14' (1 project)

MultidimensionalProject14

Data Sources

Sales.ds

Data Source Views

Sales.dsv

Sales 1.dsv

Cubes

Sales(cube)

Sales 1(cube)

Dimensions

Product Dim.dim

Time Dim.dim

Product Dim 1.dim

Channel Dim.dim

Salesman Dim.dim

Customer Dim.dim

Time Dim 1.dim

Mining Structures

Roles

Assemblies

Miscellaneous

Activate Windows

Solution Explorer Team Explorer Class View Tabular Model...

Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...

Output Data Tools Operations

Calculations Generate New Measures.

Book1 - Excel (Product Activation Failed)

File Home Insert Page Layout Formulas Data Review View Add-ins Team Tell me what you want to do... Share

Cut Copy Format Painter Paste Clipboard Font Alignment Number Styles Cells Editing

K18

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	Column Labels		Egypt			France		Moraco			Total Qty Total Qty Total Price									
2	Algeria		Qty	Total Price	Qty	Total Price	Qty	Total Price	Qty	Total Price	Qty	Total Price								
3	Row Labels	Qty	5	50	225	2480	5	55	70	800	305	3385								
4	Accessories																			
5	Books		60	3000	60	1800			35	1600	155	6400								
6	Clothing		65	1400	120	2500					185	3900								
7	Components		70	3000	20	800	25	1000			115	4800								
8	Sportswear		10	550	90	4600	30	1600			130	6750								
9	<b>Grand Total</b>		<b>210</b>	<b>8000</b>	<b>515</b>	<b>12180</b>	<b>60</b>	<b>2655</b>	<b>105</b>	<b>2400</b>	<b>890</b>	<b>25235</b>								
10																				
11																				
12																				
13																				
14																				
15																				
16																				
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30																				

tmpDD6E

Activate Windows  
Go to Settings to activate Windows

Ready

Book2 - Excel (Product Activation Failed)

PivotTable Tools

File Home Insert Page Layout Formulas Data Review View Add-ins Team Analyze Design Tell me what you want to do...

PivotTable Name: Active Field: PivotTable2 Country Group Selection Expand Field Drill Down Drill Up Collapse Field Options Field Settings Group Field PivotTable

Group Insert Filter Refresh Change Data Source Clear Select Move Fields, Items, OLAP Relationships Tools Calculations Tools PivotChart Recommended PivotTables Field List Buttons Headers Show

A1 Row Labels Qty

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	Row Labels	Qty																		
2	Algeria	210																		
3	2007	120																		
4	2008	90																		
5	Egypt	515																		
6	2007	210																		
7	2008	305																		
8	France	60																		
9	2008	60																		
10	Moraco	105																		
11	2007	50																		
12	2008	55																		
13	Grand Total	890																		
14																				
15																				
16																				
17																				
18																				
19																				
20																				
21																				
22																				
23																				
24																				
25																				
26																				
27																				
28																				
29																				
30																				

PivotTable Fields

Choose fields to add to report:

Search

Salesman Dim

Salesman ID

Salesman Name

Salesman Phone

Time Dim 1

Calendar Quarter

Calendar Year

Time ID

Drag fields between areas below:

FILTERS

COLUMNS

ROWS

VALUES

Country

Calendar ...

Activate Windows

Go to Settings to activate Windows.

Defer Layout Upd...

UPDATE

A1 tmpB5D2

Ready

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Architecture Test Analyze Window Help

Quick Launch (Ctrl+Q) Sign in

SQL Server Object Explor... Default Start

Sales 1(cube [Design]) Sales(cube [Design]) Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Language: Default

Edit as Text Import...

Sales 1

Dimension Hierarchy Operator Filter Expression Para...

<Select dimension>

Measure Group: <All>

Sales 1

Metadata

Measure Group: <All>

Sales 1

Measures

Fact Sales

Qty

Qty Total Price

UnitPrice

KPIs

Channel Dim

Customer Dim

Product Dim 1

Product ID

Product Name

Product Price

Salesman Dim

Time Dim 1

Calendar Quarter

Calendar Year

Time ID

Calculated Members

Calendar Year	Product Name	Qty	Qty Total Price	UnitPrice
2007	Accessories	110	1230	11.1818181818182
2007	Books	80	3600	45
2007	Clothing	110	2200	20
2007	Components	30	1200	40
2007	Sportswear	50	2550	51
2008	Accessories	195	2155	11.0512820512821
2008	Books	75	2800	37.3333333333333
2008	Clothing	75	1700	22.6666666666667
2008	Components	85	3600	42.3529411764706
2008	Sportswear	80	4200	52.5

Solution Explorer

Search Solution Explorer (Ctrl+F)

Solution 'MultidimensionalProject14' (1 project)

MultidimensionalProject14

- Data Sources
- Sales.ds
- Data Source Views
  - Sales.dsv
  - Sales 1.dsv
- Cubes
  - Sales(cube)
  - Sales 1(cube)
- Dimensions
  - Product Dim.dim
  - Time Dim.dim
  - Product Dim 1.dim
  - Channel Dim.dim
  - Salesman Dim.dim
  - Customer Dim.dim
  - Time Dim 1.dim
- Mining Structures
- Roles
- Assemblies
- Miscellaneous

Serve... Toolb... SSIS T... SQL...

Output Data Tools Operations

Activate Windows  
Solution Explorer Team Explorer Class View Tabular Model...  
Go to Settings to activate Windows.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Architecture Test Analyze Window Help

Quick Launch (Ctrl+Q) Sign in

SQL Server Object Explor... Default Start

Sales 1.cube [Design] Sales.cube [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Language: Default

Edit as Text Import... Dimension Hierarchy Operator Filter Expression

<Select dimension>

Dimension Hierarchy Operator Filter Expression

Measure Group: <All>

Sales 1

Metadata

Measure Group: <All>

Sales 1

Measures

Fact Sales

Qty

Qty Total Price

UnitPrice

KPIs

Channel Dim

Customer Dim

Product Dim 1

Product ID

Product Name

Product Price

Salesman Dim

Time Dim 1

Calendar Quarter

Calendar Year

Time ID

Calculated Members

Calendar Year	Product Name	Qty	Qty Total Price	UnitPrice
2007	Accessories	110	1230	11.1818181818182
2007	Books	80	3600	45
2007	Clothing	110	2200	20
2007	Components	30	1200	40
2007	Sportswear	50	2550	51
2008	Accessories	195	2155	11.0512820512821
2008	Books	75	2800	37.3333333333333
2008	Clothing	75	1700	22.66666666666667
2008	Components	85	3600	42.3529411764706
2008	Sportswear	80	4200	52.5

Solution Explorer

Search Solution Explorer (Ctrl+.)

Solution 'MultidimensionalProject14' (1 project)

MultidimensionalProject14

Data Sources

Sales.ds

Data Source Views

Sales.dsv

Sales 1.dsv

Cubes

Sales(cube)

Sales 1(cube)

Dimensions

Product Dim.dim

Time Dim.dim

Product Dim 1.dim

Channel Dim.dim

Salesman Dim.dim

Customer Dim.dim

Time Dim 1.dim

Mining Structures

Roles

Assemblies

Miscellaneous

Activate Windows

Solution Explorer Team Explorer Class View Tabular Model... Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...

Output Data Tools Operations

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Tools Architecture Test Analyze Window Help

Quick Launch (Ctrl+Q) Sign in

SQL Server Object Explor... Default Start

Sales 1.cube [Design] Sales(cube) [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Language: Default

Edit as Text Import... Dimension Hierarchy Operator Filter Expression Parameters

Sales 1

Metadata

Measure Group: <All>

Sales 1

Measures

- Fact Sales
  - Qty
  - Qty Total Price
  - UnitPrice
- KPIs
- Channel Dim
- Customer Dim
- Product Dim 1
  - Product ID
  - Product Name
  - Product Price
- Salesman Dim
- Time Dim 1
  - Calendar Quarter
  - Calendar Year
  - Time ID

Calculated Members

Dimension	Hierarchy	Operator	Filter Expression	Parameters
<Select dimension>				

Calendar Year	Product Name	Qty	Qty Total Price	UnitPrice
2007	Accessories	110	1230	11.1818181818182
2007	Books	80	3600	45
2007	Clothing	110	2200	20
2007	Components	30	1200	40
2007	Sportswear	50	2550	51
2008	Accessories	195	2155	11.0512820512821
2008	Books	75	2800	37.3333333333333
2008	Clothing	75	1700	22.6666666666667
2008	Components	85	3600	42.3529411764706
2008	Sportswear	80	4200	52.5

Solution Explorer

Search Solution Explorer (Ctrl+Shift+F)

Solution 'MultidimensionalProject14' (1 project)

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  - Data Source Views
    - Sales.dsv
    - Sales 1.ds
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    - Sales(cube)
    - Sales 1.cube
  - Dimensions
    - Product Dim.dim
    - Time Dim.dim
    - Product Dim 1.dim
    - Channel Dim.dim
    - Salesman Dim.dim
    - Customer Dim.dim
    - Time Dim 1.dim
  - Mining Structures
  - Roles
  - Assemblies
  - Miscellaneous

Activate Windows  
Solution Explorer Team Explorer Class View Tabular Model...  
Go to Settings to activate Windows.

Server... Toolbars SSIS T... SQL...  
Output Data Tools Operations

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Architecture Test Analyze Window Help

Quick Launch (Ctrl+Q) Sign in

SQL Server Object Explor... Default Start Perspectives Translations Browser

Sales 1(cube [Design]) Sales(cube [Design]) Sales.csv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server (localdb)\MSSQLLocalDB (localdb)\ProjectsV13 Projects - MultidimensionalProject14

Cube Objects Object Type

- Sales 1 Name DefaultMeas...
- Measure Groups
- Fact Sales MeasureGro...
- Qty Measure
- Qty Total Price Measure
- Dimensions
- + Product Dim 1 CubeDimen...
- + Salesman Dim CubeDimen...
- + Customer Dim CubeDimen...
- + Time Dim 1 CubeDimen...
- + Channel Dim CubeDimen...
- Calculations
- UnitPrice CalculatedM...

Solution Explorer

Search Solution Explorer (Ctrl+;)

Solution 'MultidimensionalProject14' (1 project)

- MultidimensionalProject14
  - Data Sources
    - Sales.ds
  - Data Source Views
    - Sales.csv
    - Sales 1.ds
  - Cubes
    - Sales(cube
    - Sales 1(cube
  - Dimensions
    - Product Dim.dim
    - Time Dim.dim
    - Product Dim 1.dim
    - Channel Dim.dim
    - Salesman Dim.dim
    - Customer Dim.dim
    - Time Dim 1.dim
  - Mining Structures
  - Roles
  - Assemblies
  - Miscellaneous

Activate Windows  
Solution Explor... Team Explorer Class View Tabular Model...  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...  
Output Data Tools Operations

Sales 1.cube [Design] Sales(cube) [Design] Sales.csv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server Object Explorer

SQL Server

Cube Objects

	Object Type
Sales 1	Name
- Measure Groups	
- Fact Sales	MeasureGro...
Qty	Measure
Qty Total Price	Measure
- Dimensions	
+ Product Dim 1	CubeDimen...
+ Salesman Dim	CubeDimen...
+ Customer Dim	CubeDimen...
+ Time Dim 1	CubeDimen...
+ Channel Dim	CubeDimen...
- Calculations	
UnitPrice	CalculatedM...

Solution Explorer

Search Solution Explorer (Ctrl+)

Solution 'MultidimensionalProject14' (1 project)

- MultidimensionalProject14
  - Data Sources
    - Sales.ds
  - Data Source Views
    - Sales.csv
    - Sales 1.csv
  - Cubes
    - Sales.cube
    - Sales 1.cube
  - Dimensions
    - Product Dim.dim
    - Time Dim.dim
    - Product Dim 1.dim
    - Channel Dim.dim
    - Salesman Dim.dim
    - Customer Dim.dim
    - Time Dim 1.dim
  - Mining Structures
  - Roles
  - Assemblies
  - Miscellaneous

Activate Windows  
Solution Explorer Team Explorer Class View Tabular Model...  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...  
Output Data Tools Operations

SQL Server Object Explor... X Sales 1.cube [Design] Sales(cube [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server

Sales 1

Measure Groups

Fact Sales

Qty

Qty Total Price

Dimensions

Product Dim 1

Salesman Dim

Customer Dim

Time Dim 1

Channel Dim

Calculations

UnitPrice

Object Type

Name

DefaultMeas...

MeasureGro...

Measure

Measure

CubeDimen...

CubeDimen...

CubeDimen...

CubeDimen...

CubeDimen...

CalculatedM...

Solution Explorer

Search Solution Explorer (Ctrl+.)

Solution 'MultidimensionalProject14' (1 project)

MultidimensionalProject14

Data Sources

Sales.ds

Data Source Views

Sales.dsv

Sales 1.dsv

Cubes

Sales(cube

Sales 1(cube

Dimensions

Product Dim.dim

Time Dim.dim

Product Dim 1.dim

Channel Dim.dim

Salesman Dim.dim

Customer Dim.dim

Time Dim 1.dim

Mining Structures

Roles

Assemblies

Miscellaneous

Activate Windows

Solution Explor... Team Explorer Class View Tabular Model... Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...

Output Data Tools Operations

SQL Server Object Explor... ▾ X Sales 1(cube [Design])\* Sales(cube [Design]) Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server

Sales 1

Object Type	Perspective Name
Name	QtyPerProduct
DefaultMeas...	

- Measure Groups

- Fact Sales MeasureGro...

Qty Measure

Qty Total Price Measure

- Dimensions

- Product Dim 1 CubeDimen...

- Attributes

Product ID CubeAttribute

Product Name CubeAttribute

Product Price CubeAttribute

+ Salesman Dim CubeDimen...

+ Customer Dim CubeDimen...

+ Time Dim 1 CubeDimen...

+ Channel Dim CubeDimen...

- Calculations

UnitPrice CalculatedM...

Solution Explorer

Search Solution Explorer (Ctrl+Shift+F)

Solution 'MultidimensionalProject14' (1 project)

MultidimensionalProject14

Data Sources

Sales.ds

Data Source Views

Sales.dsv

Sales 1.dsv

Cubes

Sales(cube)

Sales 1(cube)

Dimensions

Product Dim.dim

Time Dim.dim

Product Dim 1.dim

Channel Dim.dim

Salesman Dim.dim

Customer Dim.dim

Time Dim 1.dim

Mining Structures

Roles

Assemblies

Miscellaneous

Activate Windows

Solution Explor... Team Explorer Class View Tabular Model... Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...

Output Data Tools Operations

Sales 1(cube) [Design] \* Sales(cube) [Design] Sales.csv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server Object Explorer

Sales 1(cube) [Design]

Object Type Perspective Name Perspective Name

Object Type	Perspective Name	Perspective Name
Name	QtyPerProduct	EmpPerformance
DefaultMeas...		
- Measure Groups		
- Fact Sales	MeasureGro...	<input checked="" type="checkbox"/>
Qty	Measure	<input checked="" type="checkbox"/>
Qty Total Price	Measure	<input type="checkbox"/>
- Dimensions		
- Product Dim 1	CubeDimen...	<input checked="" type="checkbox"/>
- Attributes		
Product ID	CubeAttribute	<input checked="" type="checkbox"/>
Product Name	CubeAttribute	<input checked="" type="checkbox"/>
Product Price	CubeAttribute	<input type="checkbox"/>
+ Salesman Dim	CubeDimen...	<input type="checkbox"/>
+ Customer Dim	CubeDimen...	<input type="checkbox"/>
+ Time Dim 1	CubeDimen...	<input type="checkbox"/>
+ Channel Dim	CubeDimen...	<input type="checkbox"/>
- Calculations		
UnitPrice	CalculatedM...	<input checked="" type="checkbox"/>

Solution Explorer

Solution 'MultidimensionalProject14' (1 project)

- MultidimensionalProject14
  - Data Sources
    - Sales.ds
  - Data Source Views
    - Sales.csv
    - Sales 1.csv
  - Cubes
    - Sales(cube)
    - Sales 1(cube)
  - Dimensions
    - Product Dim.dim
    - Time Dim.dim
    - Product Dim 1.dim
    - Channel Dim.dim
    - Salesman Dim.dim
    - Customer Dim.dim
    - Time Dim 1.dim
  - Mining Structures
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  - Miscellaneous

Activate Windows  
Solution Explorer Team Explorer Class View Tabular Model...  
Go to Settings to activate Windows.

Serve... Toolbar... SSIS T... SQL...  
Output Data Tools Operations

SQL Server Object Explor... X Sales 1.cube [Design] X Sales.cube [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server

Sales 1

Object Type	Perspective Name	Perspective Name
Name	QtyPerProduct	EmpPerformance
DefaultMeas...		
- Measure Groups		
- Fact Sales	MeasureGro...	<input checked="" type="checkbox"/>
Qty	Measure	<input checked="" type="checkbox"/>
Qty Total Price	Measure	<input checked="" type="checkbox"/>
- Dimensions		
- Product Dim 1	CubeDimen...	<input checked="" type="checkbox"/>
- Attributes		
Product ID	CubeAttribute	<input checked="" type="checkbox"/>
Product Name	CubeAttribute	<input checked="" type="checkbox"/>
Product Price	CubeAttribute	<input type="checkbox"/>
+ Salesman Dim	CubeDimen...	<input type="checkbox"/>
+ Customer Dim	CubeDimen...	<input type="checkbox"/>
+ Time Dim 1	CubeDimen...	<input type="checkbox"/>
+ Channel Dim	CubeDimen...	<input type="checkbox"/>
- Calculations		
UnitPrice	CalculatedM...	<input checked="" type="checkbox"/>

Solution Explorer

Search Solution Explorer (Ctrl+.)

Solution 'MultidimensionalProject14' (1 project)

MultidimensionalProject14

- Data Sources
  - Sales.ds
- Data Source Views
  - Sales.dsv
  - Sales 1.dsv
- Cubes
  - Sales.cube
  - Sales 1.cube
- Dimensions
  - Product Dim.dim
  - Time Dim.dim
  - Product Dim 1.dim
  - Channel Dim.dim
  - Salesman Dim.dim
  - Customer Dim.dim
  - Time Dim 1.dim
- Mining Structures
- Roles
- Assemblies
- Miscellaneous

Activate Windows  
Solution Explorer Team Explorer Class View Tabular Model...  
Go to Settings to activate Windows.

Serve... Toolb... SSIS T... SQL...  
Output Data Tools Operations

Sales 1.cube [Design] Sales(cube) [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server Object Explorer

Sales 1.cube [Design] Sales(cube) [Design] Sales.dsv [Design]

Cube Objects Object Type Perspective Name Perspective Name

Cube Objects	Object Type	Perspective Name	Perspective Name
Sales 1	Name	QtyPerProduct	EmpPerformance
DefaultMeas...			
- Measure Groups			
- Fact Sales	MeasureGro...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Qty	Measure	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Qty Total Price	Measure	<input type="checkbox"/>	<input checked="" type="checkbox"/>
- Dimensions			
- Product Dim 1	CubeDimen...	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- Attributes			
Product ID	CubeAttribute	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Product Name	CubeAttribute	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Product Price	CubeAttribute	<input type="checkbox"/>	<input type="checkbox"/>
+ Salesman Dim	CubeDimen...	<input type="checkbox"/>	<input checked="" type="checkbox"/>
+ Customer Dim	CubeDimen...	<input type="checkbox"/>	<input type="checkbox"/>
+ Time Dim 1	CubeDimen...	<input type="checkbox"/>	<input checked="" type="checkbox"/>
+ Channel Dim	CubeDimen...	<input type="checkbox"/>	<input type="checkbox"/>
- Calculations			
UnitPrice	CalculatedM...	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Solution Explorer

Solution 'MultidimensionalProject14' (1 project)

- MultidimensionalProject14
  - Data Sources
    - Sales.ds
  - Data Source Views
    - Sales.dsv
    - Sales 1.dsv
  - Cubes
    - Sales(cube)
      - Sales 1.cube

Open Process... Browse View Code F7 View Designer Shift+F7 Add Business Intelligence... Scope to This New Solution Explorer View Exclude From Project Cut Ctrl+X Copy Ctrl+C Delete Del Rename Properties Alt+Enter

Activate Windows

Solution Explorer Team Explorer Class View Tabular Model... Go to Settings to activate Windows.

Sales 1(cube) [Design] X Sales(cube) [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server Object Explorer SQL Server Sales 1(cube) [Design] Sales(cube) [Design] Sales.dsv [Design]

SQL Server

(localdb)\MSSQLLocalDB (localdb)\ProjectsV13 Projects - Multidimensional

Cube Objects Object Type Perspective Name Perspective Name

Sales 1	Name	QtyPerProduct	EmpPerformance
	DefaultMeas...		
- Measure Groups			
- Fact Sales	MeasureGro...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Qty	Measure	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Qty Total Price	Measure	<input type="checkbox"/>	<input checked="" type="checkbox"/>
- Dimensions			
- Product Dim 1	CubeDimen...	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- Attributes			
Product ID	CubeAttri...		
Product Name	CubeAttri...		
Product Price	CubeAttri...		
+ Salesman Dim	CubeDim...		
+ Customer Dim	CubeDim...		
+ Time Dim 1	CubeDim...		
+ Channel Dim	CubeDim...		
- Calculations			
UnitPrice	CalculatedM...	<input checked="" type="checkbox"/>	

Microsoft Visual Studio

The server content appears to be out of date.  
Would you like to build and deploy the project first?

Yes No Cancel

Solution Explorer

Search Solution Explorer (Ctrl+.)

Solution 'MultidimensionalProject14' (1 project)

- MultidimensionalProject14
  - Data Sources
    - Sales.ds
  - Data Source Views
    - Sales.dsv
    - Sales 1.dsv
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    - Sales(cube)
    - Sales 1(cube)
  - Dimensions
    - Product Dim.dim
    - Time Dim.dim
    - Product Dim 1.dim
    - Channel Dim.dim
    - Salesman Dim.dim
    - Customer Dim.dim
    - Time Dim 1.dim
  - Mining Structures
  - Roles
  - Assemblies
  - Miscellaneous

Serve... Toolb... SSIS T... SQL... Output Data Tools Operations

Activate Windows  
Solution Explorer Team Explorer Class View Tabular Model... Go to Settings to activate Windows.

Sales 1(cube [Design]) Sales(cube [Design]) Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server Object Explorer

Sales 1(cube [Design]) Sales(cube [Design]) Sales.dsv [Design]

Cube Objects Object Type Perspective Name Perspective Name

	Object Type	Perspective Name	Perspective Name
Sales 1	Name	QtyPerProduct	EmpPerformance
	DefaultMeas...		
- Measure Groups			
- Fact Sales	MeasureGro...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Qty	Measure	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Qty Total Price	Measure	<input type="checkbox"/>	<input checked="" type="checkbox"/>
- Dimensions			
- Product Dim 1	CubeDimen...	<input checked="" type="checkbox"/>	<input type="checkbox"/>
- Attributes			
Product ID	CubeAttribute	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Product Name	CubeAttribute	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Product Price	CubeAttribute	<input type="checkbox"/>	<input type="checkbox"/>
+ Salesman Dim	CubeDimen...	<input type="checkbox"/>	<input checked="" type="checkbox"/>
+ Customer Dim	CubeDimen...	<input type="checkbox"/>	<input type="checkbox"/>
+ Time Dim 1	CubeDimen...	<input type="checkbox"/>	<input checked="" type="checkbox"/>
+ Channel Dim	CubeDimen...	<input type="checkbox"/>	<input type="checkbox"/>
- Calculations			
UnitPrice	CalculatedM...	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Solution Explorer

Solution 'MultidimensionalProject14' (1 project)

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    - Sales.dsv
    - Sales 1.dsv
  - Cubes
    - Sales(cube [Design])
      - Sales 1(cube [Design])
  - Dimensions
    - Product Dim.dim
    - Time Dim.dim
    - Product Dim 1.dim
    - Channel Dim.dim
    - Salesman Dim.dim
    - Customer Dim.dim
    - Time Dim 1.dim
  - Mining Structures
  - Roles
  - Assemblies
  - Miscellaneous

Activate Windows  
Solution Explorer Team Explorer Class View Tabular Model...  
Go to Settings to activate Windows.

## Deployment Progress - MultidimensionalProject14

Server : localhost

Database : MultidimensionalProject14

Command

### Process Cube - Sales 1

Object list:

Object Name	Type	Process Options	Settings
Sales 1	Cube	Process Full	

Batch Settings Summary

Processing order:  
Parallel

Transaction mode:  
(Default)

Dimension errors:  
(Default)

Dimension key error log path :  
(Default)

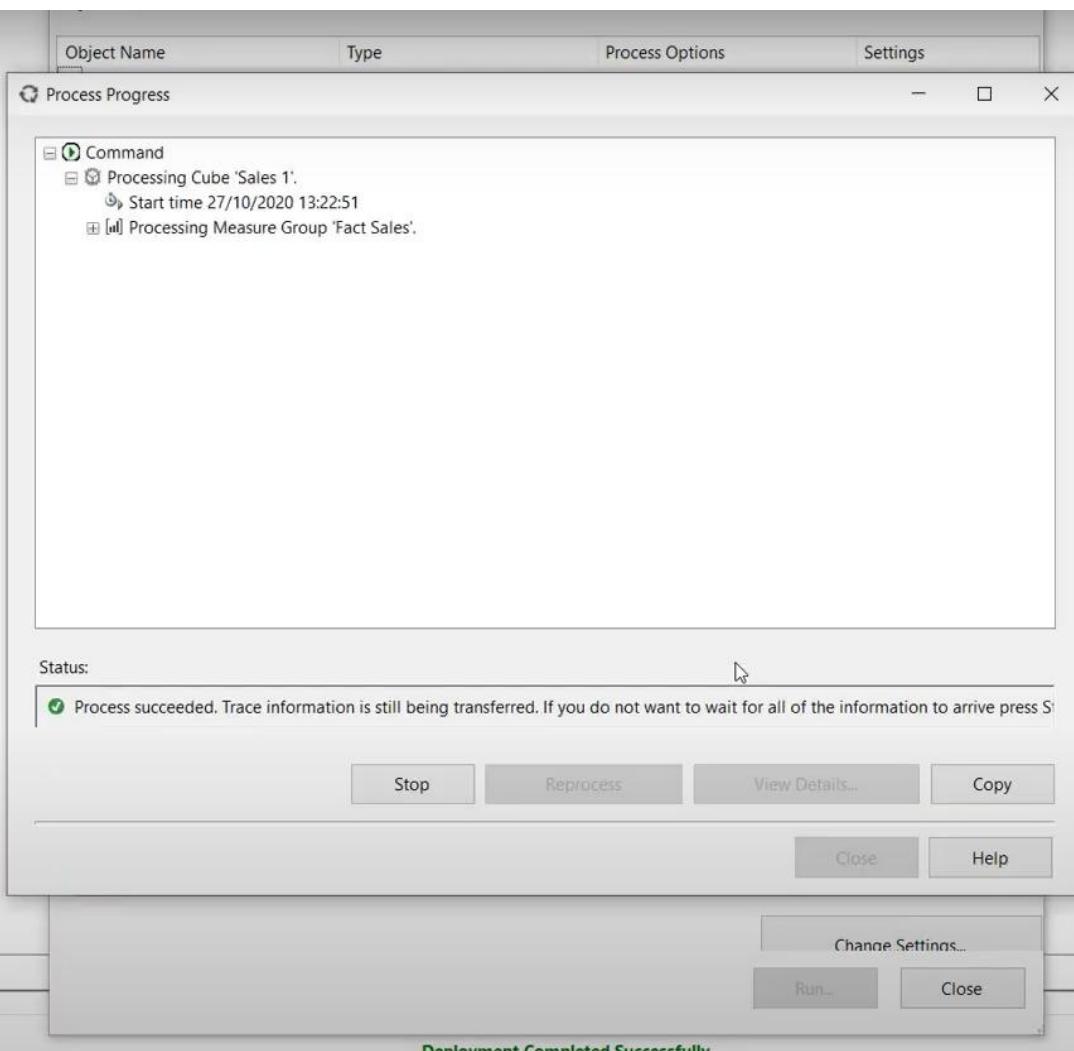
Process affected objects:  
Do not process

Change Settings... Run... Close

Deployment Completed Successfully



Activate Windows  
Go to Settings to activate Windows.



Activate Windows  
Go to Settings to activate Windows.

Deployment Progress - MultidimensionalProject14

Server: localhost  
Database : MultidimensionalProject14

Command

Object list:

Object Name	Type	Process Options	Settings
Sales 1	Cube	Process Full	

Remove Impact Analysis...

Batch Settings Summary

Processing order:  
 Parallel

Transaction mode:  
 (Default)

Dimension errors:  
 (Default)

Dimension key error log path :  
 (Default)

Process affected objects:  
 Do not process

Change Settings... Run... Close

Deployment Completed Successfully

Status: 

Activate Windows  
Go to Settings to activate Windows.

## Deployment Progress - MultidimensionalProject14

Server : localhost

Database : MultidimensionalProject14

Command

Status:



Activate Windows

[Go to Settings to activate Windows.](#)

Deployment Completed Successfully

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Architecture Test Analyze Window Help

Quick Launch (Ctrl+Q) Sign in

SQL Server Object Explor... Default Develop Start

Sales 1.cube [Design] Sales(cube [Design] Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

SQL Server (localdb)\MSSQLLocalDB (localdb)\ProjectsV13 Projects - Multidimensional

Cube Objects Object Type Perspective Name Perspective Name

Sales 1 Name QtyPerProduct EmpPerformance

DefaultMeas...

Measure Groups

Fact Sales MeasureGro...

Qty Measure

Qty Total Price Measure

Dimensions

Product Dim 1 CubeDimen...

Attributes

Product ID CubeAttribute

Product Name CubeAttribute

Product Price CubeAttribute

+ Salesman Dim CubeDimen...

+ Customer Dim CubeDimen...

+ Time Dim 1 CubeDimen...

+ Channel Dim CubeDimen...

- Calculations

UnitPrice CalculatedM...

Solution Explorer

Search Solution Explorer (Ctrl+Shift+F)

Solution 'MultidimensionalProject14' (1 project)

MultidimensionalProject14

Data Sources Sales.ds

Data Source Views Sales.dsv Sales 1.ds

Cubes Sales(cube Sales 1.cube)

Dimensions Product Dim.dim Time Dim.dim Product Dim 1.dim Channel Dim.dim Salesman Dim.dim Customer Dim.dim Time Dim 1.dim

Mining Structures Roles Assemblies Miscellaneous

Activate Windows

Serve... Toolb... SSIS T... SQL... Output Data Tools Operations

Solution Explor... Team Explorer Class View Tabular Model... Go to Settings to activate Windows.

MultidimensionalProject14 - Microsoft Visual Studio (Administrator)

File Edit View Project Build Debug Team Database Cube Tools Architecture Test Analyze Window Help

SQL Server Object Explor... Default Sales 1(cube [Design]) Sales(cube [Design]) Sales.dsv [Design]

Cube Struct... Dimension Usage Calculations KPIs Actions Partitions Aggregations Perspectives Translations Browser

Language: Default

Edit as Text Import...

Sales 1

Dimension Hierarchy Operator Filter Expression Para...

<Select dimension>

Measure Group: <All>

Sales 1

Measures

Fact Sales

Qty

Qty Total Price

UnitPrice

KPIs

Channel Dim

Customer Dim

Product Dim 1

Product ID

Product Name

Product Price

Salesman Dim

Time Dim 1

Calendar Quarter

Calendar Year

Time ID

Calculated Members

Dimension

Hierarchy

Operator

Filter Expression

Para...

Calendar Year Product Name Qty Qty Total Price UnitPrice

2007	Accessories	110	1230	11.1818181818182
2007	Books	80	3600	45
2007	Clothing	110	2200	20
2007	Components	30	1200	40
2007	Sportswear	50	2550	51
2008	Accessories	195	2155	11.0512820512821
2008	Books	75	2800	37.3333333333333
2008	Clothing	75	1700	22.6666666666667
2008	Components	85	3600	42.3529411764706
2008	Sportswear	80	4200	52.5

The cube has been reprocessed on the server. To prevent possible browsing errors, click [Reconnect](#). To hide this message, [Click here](#).

Solution Explorer

Search Solution Explorer (Ctrl+.)

Solution 'MultidimensionalProject14' (1 project)

MultidimensionalProject14

Data Sources

Sales.ds

Data Source Views

Sales.dsv

Sales 1.dsv

Cubes

Sales(cube)

Sales 1(cube)

Dimensions

Product Dim.dim

Time Dim.dim

Product Dim 1.dim

Channel Dim.dim

Salesman Dim.dim

Customer Dim.dim

Time Dim 1.dim

Mining Structures

Roles

Assemblies

Miscellaneous

Activate Windows

Solution Explorer Team Explorer Class View Tabular Model... Go to Settings to activate Windows.

Server... Toolbars SSIS T... SQL... Output Data Tools Operations