**The laboratory work 4**

**To create a new Analysis Services project**

1. Open SQL Server Data Tools.
2. Create a new Analysis Services Multidimensional project. Choose the **Analysis Services Multidimensional and Data Mining Project** template.

Notice the default project name, location, and the default solution name are generated in the bottom of the dialog box. By default, a new directory is created for the solution.

1. Change the project Name to **Analysis Services Tutorial**, which also changes the **Solution name** box, and then click **OK**.

You have successfully created the **Analysis Services Tutorial** project, based on the **Analysis Services Multidimensional and Data Mining Project** template, within a new solution that is also named **Analysis Services Tutorial**.

After you create an Analysis Services project, you generally start working with the project by defining one or more data sources that the project will use. When you define a data source, you are defining the connection string information that will be used to connect to the data source.

In the following task, you define the AdventureWorksDWSQLServer2017 sample database as the data source for the Analysis Services Tutorial project. While this database is located on your local computer for the purposes of this tutorial, source databases are frequently hosted on one or more remote computers.

### To define a new data source

1. In Solution Explorer (on the right of the Microsoft Visual Studio window), right-click **Data Sources**, and then click **New Data Source**.
2. On the **Welcome to the Data Source Wizard** page of the **Data Source Wizard**, click **Next** to open the **Select how to define the connection** page.
3. On the **Select how to define the connection** page, you can define a data source based on a new connection, based on an existing connection, or based on a previously defined data source object. In this tutorial, you define a data source based on a new connection. Verify that **Create a data source based on an existing or new connection** is selected, and then click **New**.
4. In the **Connection Manager** dialog box, you define connection properties for the data source. In the **Provider** list box, verify that **Native OLE DB\SQL Server Native Client 11.0** is selected.

Analysis Services also supports other providers, which are displayed in the **Provider** list.

1. In the **Server name** text box, type **localhost**.

To connect to a named instance on your local computer, type **localhost\**. To connect to the specific computer instead of the local computer, type the computer name or IP address.

1. Verify that **Use Windows Authentication** is selected. In the **Select or enter a database name** list, select **AdventureWorksDW2017**.
2. Click **Test Connection** to test the connection to the database.
3. Click **OK**, and then click **Next**.
4. On the **Impersonation Information** page of the wizard, you define the security credentials for Analysis Services to use to connect to the data source. Impersonation affects the Windows account used to connect to the data source when Windows Authentication is selected. Analysis Services does not support impersonation for processing OLAP objects. Select **Use the service account**, and then click **Next**.
5. On the **Completing the Wizard** page, accept the default name, **Adventure Works DW 2017**, and then click **Finish** to create the new data source.

After you define the data sources that you will use in an Analysis Services project, the next step is generally to define a data source view for the project. A data source view is a single, unified view of the metadata from the specified tables and views that the data source defines in the project. Storing the metadata in the data source view enables you to work with the metadata during development without an open connection to any underlying data source.

In the following task, you define a data source view that includes five tables from the **AdventureWorksDW2017** data source.

### To define a new data source view

1. In Solution Explorer (on the right of the Microsoft Visual Studio window), right-click **Data Source Views**, and then click **New Data Source View**.
2. On the **Welcome to the Data Source View Wizard** page, click **Next**. The **Select a Data Source** page appears.
3. Under **Relational data sources**, the **Adventure Works DW 2017** data source is selected. Click **Next**.

Note

To create a data source view that is based on multiple data sources, first define a data source view that is based on a single data source. This data source is then called the primary data source. You can then add tables and views from a secondary data source. When designing dimensions that contain attributes based on related tables in multiple data sources, you might need to define a MicrosoftSQL Server data source as the primary data source to use its distributed query engine capabilities.

1. On the **Select Tables and Views** page, select tables and views from the list of objects that are available from the selected data source. You can filter this list to help you select tables and views.

Note

Click the maximize button in the upper-right corner so that the window covers the full screen. This makes it easier to see the complete list of available objects.

In the **Available objects** list, select the following objects. You can select multiple tables by clicking each while holding down the CTRL key:

* + **DimCustomer (dbo)**
  + **DimDate (dbo)**
  + **DimGeography (dbo)**
  + **DimProduct (dbo)**
  + **FactInternetSales (dbo)**

1. Click **>** to add the selected tables to the **Included objects** list.
2. Click **Next.**
3. In the Name field, make sure **Adventure Works DW 2017** displays, and then click **Finish**.

The **Adventure Works DW 2017** data source view appears in the **Data Source Views** folder in Solution Explorer. The content of the data source view is also displayed in Data Source View Designer in SQL Server Data Tools. This designer contains the following elements:

* + A **Diagram** pane in which the tables and their relationships are represented graphically.
  + A **Tables** pane in which the tables and their schema elements are displayed in a tree view.
  + A **Diagram Organizer** pane in which you can create subdiagrams so that you can view subsets of the data source view.
  + A toolbar that is specific to Data Source View Designer.

1. To maximize the Microsoft Visual Studio development environment, click the **Maximize** button.
2. To view the tables in the **Diagram** pane at 50 percent, click the **Zoom** icon on the Data Source View Designer toolbar. This will hide the column details of each table.
3. To hide Solution Explorer, click the **Auto Hide** button, which is the pushpin icon on the title bar. To view Solution Explorer again, position your pointer over the Solution Explorer tab along the right side of the development environment. To unhide Solution Explorer, click the **Auto Hide** button again.
4. If the windows are not hidden by default, click **Auto Hide** on the title bar of the Properties and Solution Explorer windows.

You can now view all the tables and their relationships in the **Diagram** pane. Notice that there are three relationships between the FactInternetSales table and the DimDate table. Each sale has three dates associated with the sale: an order date, a due date, and a ship date. To view the details of any relationship, double-click the relationship arrow in the **Diagram** pane.

### To modify the default name of a table

1. In the **Tables** pane of **Data Source View Designer**, right-click the **FactInternetSales** table, and then click **Properties**.
2. If the Properties window on the right side of the Microsoft Visual Studio window is not displayed, click the **Auto Hide** button on the title bar of the Properties window so that this window remains visible.

It is easier to change the properties for each table in the data source view when the Properties window remains open. If you do not pin the window open by using the **Auto Hide** button, the window will close when you click a different object in the **Diagram** pane.

1. Change the **FriendlyName** property for the **FactInternetSales** object to ***InternetSales***.

When you click away from the cell for the **FriendlyName** property, the change is applied. In the next lesson, you will define a measure group that is based on this fact table. The name of the fact table will be InternetSales instead of FactInternetSales because of the change you made in this lesson.

1. Click **DimProduct** in the **Tables** pane. In the Properties window, change the **FriendlyName** property to ***Product***.
2. Change the **FriendlyName** property of each remaining table in the data source view in the same way, to remove the "**Dim**" prefix.
3. When you have finished, click the **Auto Hide** button to hide the Properties window again.
4. On the **File** menu, or on the toolbar of SQL Server Data Tools, click **Save All** to save the changes you have made to this point in the Analysis Services Tutorial project. You can stop the tutorial here if you want and resume it later.