1.Au début de la séance

1. Vérifier et finaliser le travail de la séance 4
2. Faire valider la fin de la séance 4. Appelez-nous pour nous montrer que vous parvenez à sortir les statistiques demandées. Cette évaluation sera prise en compte pour le calcul de votre travail journalier (TJ).

2.Corps de la séance 5

1. Copiez dans votre C:\Wrkfldr le projet « Lesson 2 Complete » depuis commonprofsetudiants\Scholtes.s\Ig3\BI et ouvrez le projet depuis votre emplacement local.
2. Adaptez-le afin de pouvoir faire un premier déploiement et une première exploration du cube.
3. Améliorez le projet en suivant les consignes décrites à partir de la page 2.
4. Faites valider votre projet en nous appelant. Ce sera également pris en compte dans le calcul de votre TJ.
5. Vérifier que tout est bien sauvegardé

3.Pour aller plus loin vers la séance 6

1. Copiez dans votre C:\Wrkfldr le projet « Lesson 5 Complete » depuis commonprofsetudiants\Scholtes.s\Ig3\BI et ouvrez le projet depuis votre emplacement local.
2. Adaptez le projet pour qu'il tourne dans votre environnement
3. Testez
4. Faire Valider

1.Modifying Measures, Attributes and Hierarchies

After defining your initial cube, you are ready to improve the usefulness and friendliness of the cube. You can do this by adding hierarchies that support navigation and aggregation at various levels, by applying formats to specific measure, and by defining calculations.

This lesson contains the following tasks:

Modifying Measures

In this task, you specify formatting properties for the currency and percentage measures in the Analysis Services Tutorial cube.

You can use the **FormatString** property to define formatting settings that control how measures are displayed to users. In this task, you specify formatting properties for the currency and percentage measures in the Analysis Services Tutorial cube.

To modify the measures of the cube

1. Switch to the **Cube Structure** tab of Cube Designer for the Analysis Services Tutorial cube, expand the **Internet Sales** measure group in the **Measures** pane, right-click **Order Quantity**, and then click **Properties**.
2. In the Properties window, click the **Auto Hide** pushpin icon to pin the Properties window open.

   It is easier to change properties for several items in the cube when the Properties window remains open.

3. In the Properties window, click the **FormatString** list, and then type **#,#**.
4. On the toolbar of the **Cube Structure** tab, click the **Show Measures Grid** icon on the left.

   The grid view lets you select multiple measures at the same time.

5. Select the following measures. You can select multiple measures by clicking each while holding down the CTRL key:
   o **Unit Price**
   o **Extended Amount**
   o **Discount Amount**
   o **Product Standard Cost**
   o **Total Product Cost**

- o **Sales Amount**
- o **Tax Amt**
- o **Freight**
6. In the Properties window, in the **FormatString** list, select **Currency**.
7. In the drop-down list at the top of the Properties window (right below the title bar), select the measure **Unit Price Discount Pct**, and then select **Percent** in the **FormatString** list.
8. In the Properties window, change the **Name** property for the **Unit Price Discount Pct** measure to **Unit Price Discount Percentage**.
9. In the **Measures** pane, click **Tax Amt** and change the name of this measure to **Tax Amount**.
10. In the Properties window, click the **Auto Hide** icon to hide the Properties window, and then click **Show Measures Tree** on the toolbar of the **Cube Structure** tab.
11. On the **File** menu, click **Save All**.

Modifying the Customer Dimension

In this task, you define a user hierarchy, create named calculations, modify attributes to use named calculations, and group attributes and user hierarchies into display folders.

Renaming Attributes

You can change attribute names with the **Dimension Structure** tab of Dimension Designer.

To rename an attribute

1. Switch to **Dimension Designer** for the Customer dimension in SQL Server Data Tools (SSDT). To do this, double-click the **Customer** dimension in the **Dimensions** node of Solution Explorer.
2. In the **Attributes** pane, right-click **English Country Region Name**, and then click **Rename**. Change the name of the attribute to **Country-Region**.
3. Change the names of the following attributes in the same manner:
    o **English Education** attribute — change to **Education**
    o **English Occupation** attribute — change to **Occupation**
    o **State Province Name** attribute — change to **State-Province**
4. On the **File** menu, click **Save All**.

Creating a Hierarchy

You can create a new hierarchy by dragging an attribute from the **Attributes** pane to the **Hierarchies** pane.

To create a hierarchy

1. Drag the **Country-Region** attribute from the **Attributes** pane into the **Hierarchies** pane.
2. Drag the **State-Province** attribute from the **Attributes** pane into the cell in the **Hierarchies** pane, underneath the **Country-Region** level.
3. Drag the **City** attribute from the **Attributes** pane into the cell in the **Hierarchies** pane, underneath the **State-Province** level.
4. In the **Hierarchies** pane of the **Dimension Structure** tab, right-click the title bar of the **Hierarchy** hierarchy, select **Rename**, and then type **Customer Geography**.

   The name of the hierarchy is now **Customer Geography**.

5. On the **File** menu, click **Save All**.

Adding a Named Calculation

You can add a named calculation, which is a SQL expression that is represented as a calculated column, to a table in a data source view. The expression appears and behaves as a column in the table. Named calculations let you extend the relational schema of existing tables in a data source view without modifying the table in the underlying data source. For more information, see Define Named Calculations in a Data Source View (Analysis Services)

To add a named calculation

1. Open the **Adventure Works DW 2012** data source view by double-clicking it in the **Data Source Views** folder in Solution Explorer.
2. In the **Tables** pane on the left, right-click **Customer**, and then click **New Named Calculation**.
3. In the **Create Named Calculation** dialog box, type **FullName** in the **Column name** box, and then type or copy and paste the following **CASE** statement in the **Expression** box:

```
CASE
    WHEN MiddleName IS NULL THEN
    FirstName + ' ' + LastName
    ELSE
    FirstName + ' ' + MiddleName + ' ' + LastName
END
```

The **CASE** statement concatenates the **FirstName**, **MiddleName**, and **LastName** columns into a single column that you will use in the Customer dimension as the displayed name for the **Customer** attribute.

4. Click **OK**, and then expand **Customer** in the **Tables** pane.

The **FullName** named calculation appears in the list of columns in the Customer table, with an icon that indicates that it is a named calculation.

5. On the **File** menu, click **Save All**.
6. In the **Tables** pane, right-click **Customer**, and then click **Explore Data**.
7. Review the last column in the **Explore Customer Table** view.

Notice that the **FullName** column appears in the data source view, correctly concatenating data from several columns from the underlying data source and without modifying the original data source.

8. Close the **Explore Customer Table** tab.

Using the Named Calculation for Member Names

After you have created a named calculation in the data source view, you can use the named calculation as a property of an attribute.

To use the named calculation for member names

1. Switch to Dimension Designer for the Customer dimension.
2. In the **Attributes** pane of the **Dimension Structure** tab, click the *Customer Key* attribute.
3. Open the Properties window and click the **Auto Hide** button on the title bar so that it stays open.
4. In the Name property field, type **Full Name**.
5. Click in the NameColumn property field at the bottom, and then click the browse (**…**) button to open the **Name Column** dialog box.
6. Select **FullName** at the bottom of the **Source column** list, and then click **OK**.
7. In the Dimensions Structure tab, drag the **Full Name** attribute from the **Attributes** pane into the cell in the **Hierarchies** pane, underneath the **City** level.
8. On the **File** menu, click **Save All**.

Defining Display Folders

You can use display folders to group user and attribute hierarchies into folder structures to increase usability.

To define display folders

1. Open the **Dimension Structure** tab for the Customer dimension.
2. In the **Attributes** pane, select the following attributes by holding down the CTRL key while clicking each of them:
    - **City**
    - **Country-Region**
    - **Postal Code**
    - **State-Province**

3. In the Properties window, click the **AttributeHierarchyDisplayFolder** property field at the top (you might need to point to it to see the full name), and then type **Location**.
4. In the **Hierarchies** pane, click **Customer Geography**, and then in the Properties window on the right, select **Location** as the value of the **DisplayFolder** property.
5. In the **Attributes** pane, select the following attributes by holding down the CTRL key while clicking each of them:
    o   **Commute Distance**
    o   **Education**
    o   **Gender**
    o   **House Owner Flag**
    o   **Marital Status**
    o   **Number Cars Owned**
    o   **Number Children At Home**
    o   **Occupation**
    o   **Total Children**
    o   **Yearly Income**
6. In the Properties window, click the **AttributeHierarchyDisplayFolder** property field at the top, and then type **Demographic**.
7. In the **Attributes** pane, select the following attributes by holding down the CTRL key while clicking each of them:
    o   **Email Address**
    o   **Phone**
8. In the Properties window, click the **AttributeHierarchyDisplayFolder** property field and type **Contacts**.
9. On the **File** menu, click **Save All**.

Defining Composite KeyColumns

The **KeyColumns** property contains the column or columns that represent the key for the attribute. In this lesson, you create a composite key for the **City** and **State-Province** attributes. Composite keys can be helpful when you need to uniquely identify an attribute. For example, when you define attribute relationships later in this tutorial, a **City** attribute must uniquely identify a **State-Province** attribute. However, there could be several cities with the same name in different states. For this reason, you will create a composite key that is composed of the **StateProvinceName** and **City** columns for the **City** attribute. For more information, see Modify the KeyColumn Property of an Attribute.

S'il y a une distinction à faire entre +sieurs cities si states different

To define composite KeyColumns for the City attribute

1. Open the **Dimension Structure** tab for the Customer dimension.
2. In the **Attributes** pane, click the **City** attribute.
3. In the **Properties** window, click in the **KeyColumns** field near the bottom, and then click the browse (**...**) button.

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4. In the **Key Columns** dialog box, in the **Available Columns** list, select the column **StateProvinceName**, and then click the **>** button.

   The **City** and **StateProvinceName** columns are now displayed in the **Key Columns** list.

5. Click **OK**.
6. To set the **NameColumn** property of the **City** attribute, click the **NameColumn** field in the Properties window, and then click the browse (**...**) button.
7. In the **Name Column** dialog box, in the **Source column** list, select **City**, and then click **OK**.
8. On the **File** menu, click **Save All**.

To define composite KeyColumns for the State-Province attribute

1. Make sure the **Dimension Structure** tab for the Customer dimension is open.
2. In the **Attributes** pane, click the **State-Province** attribute.
3. In the **Properties** window, click in the **KeyColumns** field, and then click the browse (**...**) button.
4. In the **Key Columns** dialog box, in the **Available Columns** list, select the column **EnglishCountryRegionName**, and then click the **>** button.

   The **EnglishCountryRegionName** and **StateProvinceName** columns are now displayed in the **Key Columns** list.

5. Click **OK**.
6. To set the **NameColumn** property of the **State-Province** attribute, click the **NameColumn** field in the Properties window, and then click the browse (**...**) button.
7. In the **Name Column** dialog box, in the **Source column** list, select **StateProvinceName**, and then click **OK**.
8. On the **File** menu, click **Save All**.

Deploying Changes, Processing the Objects, and Viewing the Changes

After you have changed attributes and hierarchies, you must deploy the changes and reprocess the related objects before you can view the changes.

To deploy the changes, process the objects, and view the changes

1. On the **Build** menu of SQL Server Data Tools, click **Deploy Analysis Services Tutorial**.
2. After you receive the **Deployment Completed Successfully** message, click the **Browser** tab of Dimension Designer for the Customer dimension, and then click the Reconnect button on the left side of the toolbar of the designer.

3. Verify that **Customer Geography** is selected in the **Hierarchy** list, and then in the browser pane, expand **All**, expand **Australia**, expand **New South Wales**, and then expand **Coffs Harbour**.

   The browser displays the customers in the city.

4. Switch to **Cube Designer** for the Analysis Services Tutorial cube. To do this, double-click the **Analysis Services Tutorial** cube in the **Cubes** node of **Solution Explorer**.
5. Click the **Browser** tab, and then click the Reconnect button on the toolbar of the designer.
6. In the **Measure Group** pane, expand **Customer**.

   Notice that instead of a long list of attributes, only the display folders and the attributes that do not have display folder values appear underneath Customer.

7. On the **File** menu, click **Save All**.

Modifying the Product Dimension

In this task, you define a user hierarchy, create named calculations, define the All member name, and define display folders.

In the tasks in this topic, you use a named calculation to provide more descriptive names for the product lines, define a hierarchy in the Product dimension, and specify the (All) member name for the hierarchy. You also group attributes into display folders.

Adding a Named Calculation

You can add a named calculation to a table in a data source view. In the following task, you create a named calculation that displays the full product line name.

To add a named calculation

1. To open the **Adventure Works DW 2012** data source view, double-click **Adventure Works DW 2012** in the **Data Source Views** folder in Solution Explorer.
2. In the bottom of the diagram pane, right-click the **Product** table header, and then click **New Named Calculation**.

3. In the **Create Named Calculation** dialog box, type **ProductLineName** in the **Column name** box.
4. In the **Expression** box, type or copy and paste the following **CASE** statement:

```
CASE ProductLine
    WHEN 'M' THEN 'Mountain'
    WHEN 'R' THEN 'Road'
    WHEN 'S' THEN 'Accessory'
    WHEN 'T' THEN 'Touring'
    ELSE 'Components'
END
```

This **CASE** statement creates user-friendly names for each product line in the cube.

5. Click **OK** to create the **ProductLineName** named calculation. You might need to wait.
6. On the **File** menu, click **Save All**.

Modifying the NameColumn Property of an Attribute

To modify the NameColumn property value of an attribute

1. Switch to Dimension Designer for the Product dimension. To do this, double-click the **Product** dimension in the **Dimensions** node of Solution Explorer.
2. In the **Attributes** pane of the **Dimension Structure** tab, select **Product Line**.
3. In the Properties window on the right side of the screen, click the **NameColumn** property field at the bottom of the window, and then click the browse (**…**) button to open the **Name Column** dialog box. (You might need to click the **Properties** tab on the right side of the screen to open the Properties window.
4. Select **ProductLineName** at the bottom of the **Source column** list, and then click **OK**.

   The NameColumn field now contains the text, **Product.ProductLineName (WChar)**. The members of the **Product Line** attribute hierarchy now display the full name of the product line instead of an abbreviated product line name.

5. In the **Attributes** pane of the **Dimension Structure** tab, select **Product Key**.
6. In the Properties window, click the **NameColumn** property field, and then click the ellipsis browse (**…**) button to open the **Name Column** dialog box.
7. Select **EnglishProductName** in the **Source column** list, and then click **OK**.

   The NameColumn field now contains the text, **Product.EnglishProductName (WChar)**.

8. In the Properties window, scroll up, click the **Name** property field, and then type **Product Name**.

Creating a Hierarchy

To create a hierarchy

1. Drag the **Product Line** attribute from the **Attributes** pane into the **Hierarchies** pane.
2. Drag the **Model Name** attribute from the **Attributes** pane into the cell in the **Hierarchies** pane, underneath the **Product Line** level.
3. Drag the **Product Name** attribute from the **Attributes** pane into the cell in the **Hierarchies** pane, underneath the **Model Name** level. (You renamed Product Key to Product Name in the previous section.)
4. In the **Hierarchies** pane of the **Dimension Structure** tab, right-click the title bar of the **Hierarchy** hierarchy, click **Rename**, and then type **Product Model Lines**.

The name of the hierarchy is now **Product Model Lines**.

5. On the **File** menu, click **Save All**.

Specifying Folder Names and All Member Names

To specify the folder and member names

1. In the **Attributes** pane, select the following attributes by holding down the CTRL key while clicking each of them:
   - o **Class**
   - o **Color**
   - o **Days To Manufacture**
   - o **Reorder Point**
   - o **Safety Stock Level**
   - o **Size**
   - o **Size Range**
   - o **Style**
   - o **Weight**
2. In the **AttributeHierarchyDisplayFolder** property field in the Properties window, type **Stocking**.

   You have now grouped these attributes into a single display folder.

3. In the **Attributes** pane, select the following attributes:
   - o **Dealer Price**
   - o **List Price**
   - o **Standard Cost**
4. In the **AttributeHierarchyDisplayFolder** property cell in the Properties window, type **Financial**.

   You have now grouped these attributes into a second display folder.

5. In the **Attributes** pane, select the following attributes:
   - o **End Date**
   - o **Start Date**
   - o **Status**
6. In the **AttributeHierarchyDisplayFolder** property cell in the Properties window, type **History**.

You have now grouped these attributes into a third display folder.

7. Select the **Product Model Lines** hierarchy in the **Hierarchies** pane, and then change the **AllMemberName** property in the Properties window to **All Products**.
8. Click an open area of the **Hierarchies** pane, and then change the **AttributeAllMemberName** property at the top of the Properties window to **All Products**.

   Clicking an open area lets you modify properties of the Product dimension itself. You could also click **Product** at the top of the attributes list in the **Attributes** pane.

9. On the **File** menu, click **Save All**.

Reviewing Product Dimension Changes

To review the Product dimension changes

1. On the **Build** menu of SQL Server Data Tools (SSDT), click **Deploy Analysis Services Tutorial**.
2. After you have received the **Deployment Completed Successfully** message, click the **Browser** tab of **Dimension Designer** for the **Product** dimension, and then click the Reconnect button on the toolbar of the designer.
3. Verify that **Product Model Lines** is selected in the **Hierarchy** list, and then expand **All Products**.

   Notice that the name of the **All** member appears as **All Products**. This is because you changed the **AllMemberName** property for the hierarchy to **All Products** earlier in the lesson.

Modifying the Date Dimension

In this task, you define a user hierarchy, modify attribute member names, and use composite keys to specify unique attribute members.

In the tasks in this topic, you create a user-defined hierarchy and change the member names that are displayed for the Date, Month, Calendar Quarter, and Calendar Semester attributes. You also define composite keys for attributes, control the sort order of dimension members, and define attribute relationships.

Adding a Named Calculation

You can add a named calculation, which is a SQL expression that is represented as a calculated column, to a table in a data source view. The expression appears and behaves as a column in the table. Named calculations enable you to extend the relational schema of existing tables in a data source view without modifying the table in the underlying data source. For more information, see Define Named Calculations in a Data Source View (Analysis Services)

To add a named calculation

1. To open the **Adventure Works DW 2012** data source view, double-click it in the **Data Source Views** folder in Solution Explorer.
2. Near the bottom of the **Tables** pane, right-click **Date**, and then click **New Named Calculation**.
3. In the **Create Named Calculation** dialog box, type **SimpleDate** in the **Column name** box, and then type or copy and paste the following **DATENAME** statement in the **Expression** box:

```
DATENAME(mm, FullDateAlternateKey) + ' ' +
DATENAME(dd, FullDateAlternateKey) + ', ' +
DATENAME(yy, FullDateAlternateKey)
```

   The **DATENAME** statement extracts the year, month, and day values from the FullDateAlternateKey column. You will use this new column as the displayed name for the FullDateAlternateKey attribute.

4. Click **OK**, and then expand **Date** in the **Tables** pane.

   The **SimpleDate** named calculation appears in the list of columns in the Date table, with an icon that indicates that it is a named calculation.

5. On the **File** menu, click **Save All**.
6. In the **Tables** pane, right-click **Date**, and then click **Explore Data**.
7. Scroll to the right to review the last column in the **Explore Date Table** view.

   Notice that the **SimpleDate** column appears in the data source view, correctly concatenating data from several columns from the underlying data source, without modifying the original data source.

8. Close the **Explore Date Table** view.

Using the Named Calculation for Member Names

After you create a named calculation in the data source view, you can use the named calculation as a property of an attribute.

To use the named calculation for member names

1. Open **Dimension Designer** for the Date dimension in SQL Server Data Tools (SSDT). To do this, double-click the **Date** dimension in the **Dimensions** node of **Solution Explorer**.
2. In the **Attributes** pane of the **Dimension Structure** tab, click the **Date Key** attribute.
3. If the Properties window is not open, open the Properties window, and then click the **Auto Hide** button on the title bar so that it stays open.
4. Click the **NameColumn** property field near the bottom of the window, and then click the ellipsis browse (**…**) button to open the **Name Column** dialog box.
5. Select **SimpleDate** at the bottom of the **Source column** list, and then click **OK**.
6. On the **File** menu, click **Save All**.

Creating a Hierarchy

You can create a new hierarchy by dragging an attribute from the **Attributes** pane to the **Hierarchies** pane.

To create a hierarchy

1. In **Dimension Structure** tab of the Dimension Designer for the **Date** dimension, drag the **Calendar Year** attribute from the **Attributes** pane into the **Hierarchies** pane.
2. Drag the **Calendar Semester** attribute from the **Attributes** pane into the cell in the **Hierarchies** pane, underneath the **Calendar Year** level.
3. Drag the **Calendar Quarter** attribute from the **Attributes** pane into the cell in the **Hierarchies** pane, underneath the **Calendar Semester** level.
4. Drag the **English Month Name** attribute from the **Attributes** pane into the cell in the **Hierarchies** pane, underneath the **Calendar Quarter** level.

5. Drag the **Date Key** attribute from the **Attributes** pane into the cell in the **Hierarchies** pane, underneath the **English Month Name** level.
6. In the **Hierarchies** pane, right-click the title bar of the **Hierarchy** hierarchy, cick **Rename**, and then type **Calendar Date**.
7. By using the right-click context menu, in the **Calendar Date** hierarchy, rename the **English Month Name** level to **Calendar Month**, and then rename the **Date Key** level to **Date**.
8. Delete the **Full Date Alternate Key** attribute from the **Attributes** pane because you will not be using it. Click **OK** in the **Delete Objects** confirmation window.
9. On the **File** menu, click **Save All**.

Providing Unique Dimension Member Names

In this task, you will create user-friendly name columns that will be used by the **EnglishMonthName**, **CalendarQuarter**, and **CalendarSemester** attributes.

To provide unique dimension member names

1. To switch to the **Adventure Works DW 2012** data source view, double-click it in the **Data Source Views** folder in Solution Explorer.
2. In the **Tables** pane, right-click **Date**, and then click **New Named Calculation**.
3. In the **Create Named Calculation** dialog box, type **MonthName** in the **Column name** box, and then type or copy and paste the following statement in the **Expression** box:
```
EnglishMonthName+' '+ CONVERT(CHAR (4), CalendarYear)
```

The statement concatenates the month and year for each month in the table into a new column.

4. Click **OK**.
5. In the **Tables** pane, right-click **Date**, and then click **New Named Calculation**.
6. In the **Create Named Calculation** dialog box, type **CalendarQuarterDesc** in the **Column name** box, and then type or copy and paste the following SQL script in the **Expression** box:

```
'Q' + CONVERT(CHAR (1), CalendarQuarter) +' '+ 'CY ' +
CONVERT(CHAR (4), CalendarYear)
```

This SQL script concatenates the calendar quarter and year for each quarter in the table into a new column.

7. Click **OK**.
8. In the **Tables** pane, right-click **Date**, and then click **New Named Calculation**.

9. In the **Create Named Calculation** dialog box, type **CalendarSemesterDesc** in the **Column name** box, and then type or copy and paste the following SQL script in the **Expression** box:

```
CASE
WHEN CalendarSemester = 1 THEN 'H1' + ' ' + 'CY' + ' '
        + CONVERT(CHAR(4), CalendarYear)
ELSE
'H2' + ' ' + 'CY' + ' ' + CONVERT(CHAR(4), CalendarYear)
END
```

This SQL script concatenates the calendar semester and year for each semester in the table into a new column.

10. Click **OK.**
11. On the **File** menu, click **Save All**.

Deploying and Viewing the Changes

After you have changed attributes and hierarchies, you must deploy the changes and reprocess the related objects before you can view the changes.

To deploy and view the changes

1. On the **Build** menu of SQL Server Data Tools, click **Deploy Analysis Services Tutorial**.
2. After you have received the **Deployment Completed Successfully** message, click the **Browser** tab of **Dimension Designer** for the **Date** dimension, and then click the Reconnect button on the toolbar of the designer.
3. Select **Calendar Quarter** from the **Hierarchy** list. Review the members in the **Calendar Quarter** attribute hierarchy.

   Notice that the names of the members of the **Calendar Quarter** attribute hierarchy are clearer and easier to use because you created a named calculation to use as the name. Members now exist in the **Calendar Quarter** attribute hierarchy for each quarter in each year. The members are not sorted in chronological order. Instead they are sorted by quarter and then by year. In the next task in this topic, you will modify this behavior to sort the members of this attribute hierarchy by year and then by quarter.

4. Review the members of the **English Month Name** and **Calendar Semester** attribute hierarchies.

Notice that the members of these hierarchies are also not sorted in chronological order. Instead, they are sorted by month or semester, respectively, and then by year. In the next task in this topic, you will modify this behavior to change this sort order.

Browsing the Deployed Cube

In this task, you browse cube data by using the browser in Cube Designer.

In the following task, you browse the Analysis Services Tutorial cube. Because our analysis compares measure across multiple dimensions, you will use an Excel PivotTable to browse your data. Using a PivotTable lets you place customer, date, and product information on different axes so that you can see how Internet Sales change when viewed across specific time periods, customer demographics, and product lines.

To browse the deployed cube

1. To switch to Cube Designer in SQL Server Data Tools, double-click the **Analysis Services Tutorial** cube in the **Cubes** folder of the Solution Explorer.
2. Open the **Browser** tab, and then click the **Reconnect** button on the toolbar of the designer.
3. Click the Excel icon to launch Excel using the workspace database as the data source. When prompted to enable connections, click **Enable**.
4. In the PivotTable Field List, expand **Internet Sales**, and then drag the **Sales Amount** measure to the **Values** area.
5. In the PivotTable Field List, expand **Product**.
6. Drag the **Product Model Lines** user hierarchy to the **Columns** area.
7. In the PivotTable Field List, expand **Customer**, expand **Location**, and then drag the **Customer Geography** hierarchy from the Location display folder in the Customer dimension to the **Rows** area.
8. In the PivotTable Field List, expand **Order Date**, and then drag the **Order Date.Calendar Date** hierarchy to the **Report Filter** area.
9. Click the arrow to the right of the **Order Date.Calendar Date** filter in the data pane, clear the check box for the **(All)** level, expand **2006**, expand **H1 CY 2006**, expand **Q1 CY 2006**, select the check box for **February 2006**, and then click **OK**.

   Internet sales by region and product line for the month of February, 2006 appear as shown in the following image.

	A	B	C	D	E	F
4		⊞ **Mountain**	⊟ **Road**		**Road Total**	**Grand Total**
5	**Row Labels** ▾		⊞ **Road-150**	⊞ **Road-650**		
6	⊞ Australia	$6,799.98	$153,864.61	$3,495.49	$157,361.10	$164,161.08
7	⊞ Canada	$10,149.97	$150,287.34	$699.10	$150,986.44	$161,136.41
8	⊞ France	$6,749.98	$21,469.62	$2,097.29	$23,566.91	$30,316.89
9	⊞ Germany	$3,374.99	$42,939.24	$1,398.20	$4,337.44	$47,712.43
10	⊞ United Kingdom	$13,574.96	$32,204.43	$1,398.20	$33,602.63	$47,177.59
11	⊞ United States	$20,274.94	$75,143.67	$4,893.69	$80,037.36	$100,312.30
12	**Grand Total**	$60,924.83	$475,909.91	$13,981.96	$489,891.87	$550,816.69