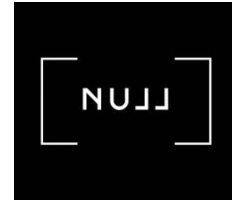




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## Report about the OLAP Shema

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## **1.1. Online Analytics Processing (OLAP) Cube**

The OLAP cube assists us in analyzing the data in our data repository or data store. Because our warehouse will be sorting data from many sources, the OLAP cube will assist us in organizing all of this data in a multidimensional style that is straightforward to examine.

We will utilize OLAP Schema Workbench in these steps.

### **1.1.1. What is OLAP Schema Workbench?**

We used OLAP Scheme Workbench as a tool to create and maintain multidimensional schemes. allows users to design and change hierarchies, data cubes, and data structures. This tool makes it simple to locate dimensional connections and hierarchies, locate cube data sources, and save data in the database.

By showing a graphic depiction of the scheme, OLAP Scheme Workbench also aids users in visualizing data structures. This makes it simpler to comprehend the connections between various dimensions and hierarchies and to construct more intricate systems.

### **Uses of OLAP Schema Workbench**

There are several uses for OLAP Schema Workbench. The data structures and connections between various dimensions may be shown, as well as how to design and maintain multidimensional schemas. Additionally, it may be used to save data in the database and attach data sources to cubes.

Users may avoid having to manually establish each relationship by using the tool to rapidly and efficiently create hierarchies and relationships between dimensions. Users may save time and effort as a result.

### 1.1.2. Make OLAP Schema

To develop a cube OLAP schema using Pentaho Schema Workbench, first launch the program and connect to your data source. Then, for the cube, establish a new OLAP cube project and set its dimensions, hierarchies, measurements, computed members, and aggregation levels. Before publishing the cube to the Pentaho Server, you may preview and test it using the Preview tab.

Following data uploading into the database, the first thing we should perform is run pentaho schema workbench:



Figure 1 pentaho schema workbench interface

### 1.1.3. Add a Data Source

The data source must be accessible, its database driver JAR must be present in the `/pentaho/design-tools/schema-workbench/drivers/` directory, and you must be aware of or have access to the database connection details and user account credentials for the data source.

To connect to a data source in Schema Workbench, follow the steps below.

1. Through the Options menu, choose Connection to connect to your data source. The dialog box for the database connection appears.

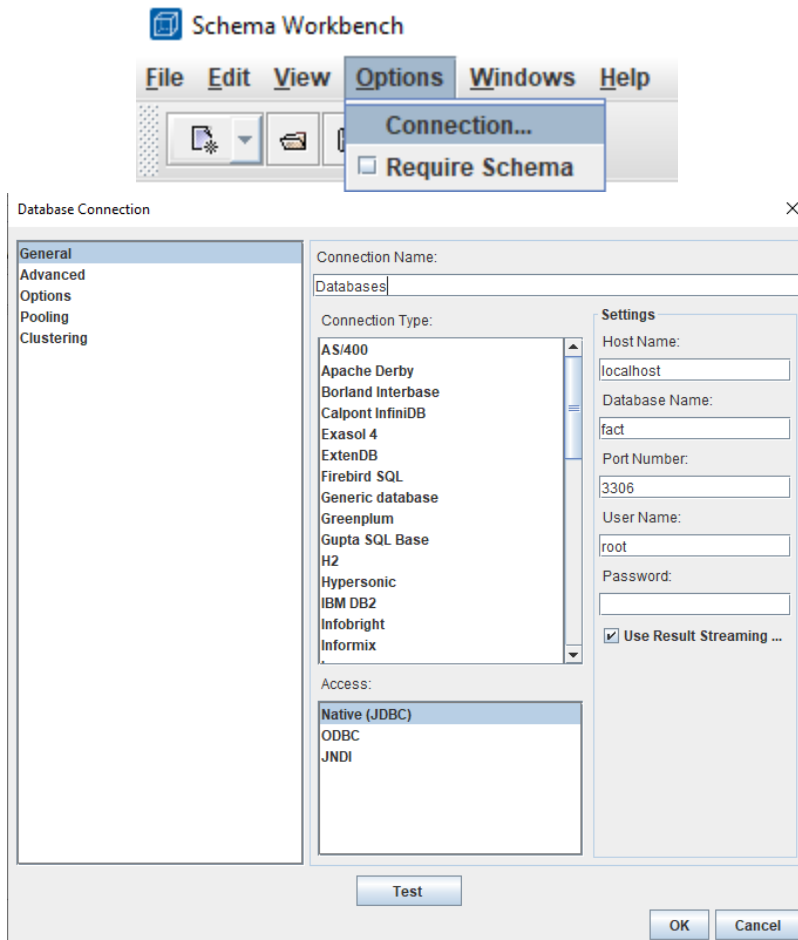


Figure 2 Add a Data Source using the Pentaho Schema Workbench Interface

2. Enter the appropriate database connection details after choosing your database type, then click Test. Click OK after making sure the connection settings function properly. The user credentials, port number, and database name are all included in the connection information. Consult the instructions provided by your database vendor or administrator if you are unsure of how to fill up any of these fields.

Note Schema Workbench enters a state where unpopulated items show up in the schema when the Require Schema check box in the Options menu is chosen.

Note Through selecting Require Schema, you may significantly reduce the load time for your Analysis schema if your data source is an Oracle one.

### 1.1.1. Create a Mondrian Schema

Before you start You should have already linked to your data source in Schema Workbench before beginning this procedure.

This section describes how to use Scheme Workbench to create a simple Mondrian scheme.

1. Click the New button or choose New from the File menu, then Schema to start a new Mondrian schema. There will be a brand-new schema sub-window. You may resize it to suit your tastes.

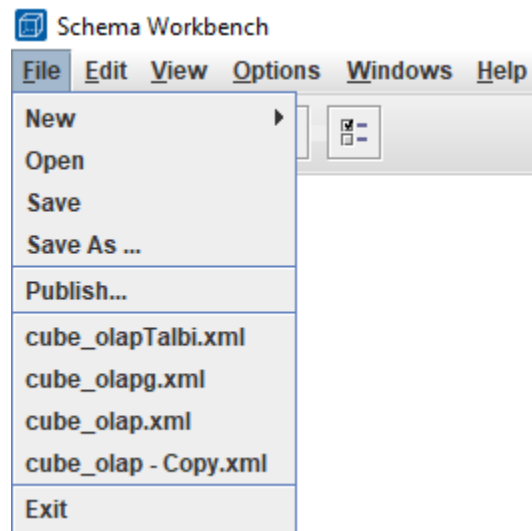


Figure 3 an example of how to create a Schema

2. The addition of a cube is typically the initial step in establishing a schema. To add a cube, use the context menu by right-clicking the schema icon in the schema window. The New Cube button in the toolbar is an alternative. Your schema will now have a brand-new default cube

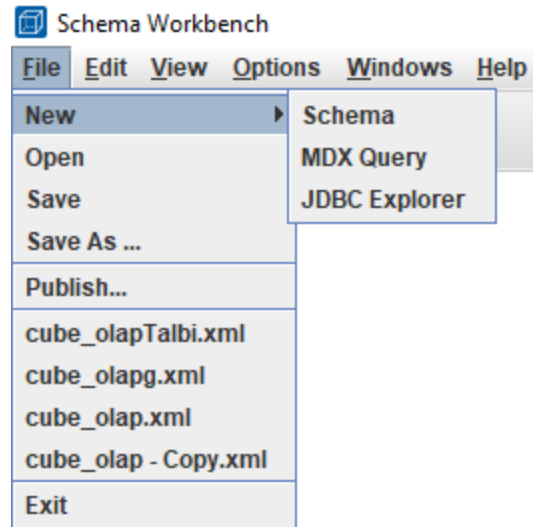


Figure 4 an example of how to create a Schema

3. Give your cube a name.

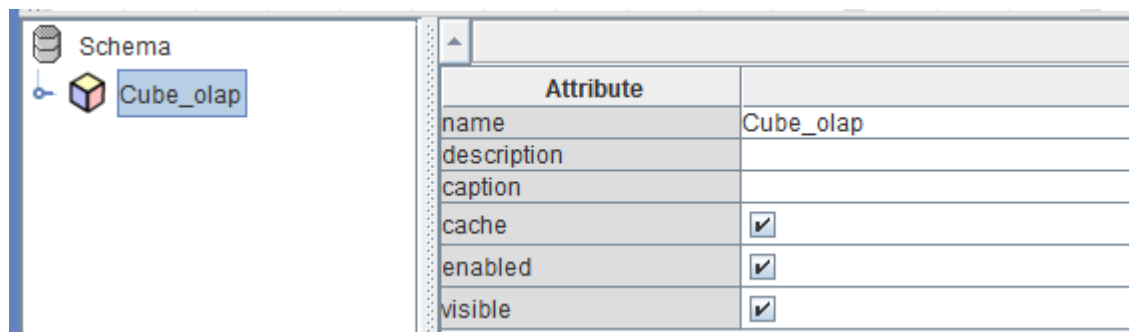


Figure 5 an example of making a cube in schema

4. Click the New Table button to add a table, or choose Add Table from the context menu when right-clicking your cube. This is going to be your fact sheet. If these are the data types you require for your fact table, you may also choose View or Inline Table.

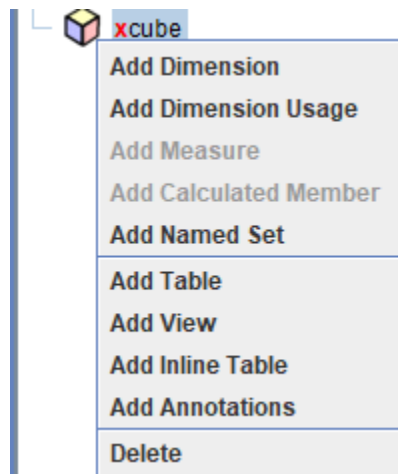


Figure 6 an example of setting Dimension in cube

5. Select or input the table name in the new table name box by clicking on the table element if you want to utilize a specific physical table as the factual table for this cube. Then select "add dimension" from the menu or just click "new dimension" to add dimension by clicking on the right cube name this dimension well in the name field. Select a foreign key for this dimension from the drop-down menu for foreign keys or from the field itself.

Attribute	
name	dim_cours
description	
foreignKey	RÉF_COURS
type	StandardDimension
usagePrefix	
caption	
visible	<input checked="" type="checkbox"/>

Figure 7 an example of a dimension attribute

Figure 8

Additionally, if you add a new dimension, we automatically build a new hierarchy. By selecting the lever icon on the left side of the tree entry to the dimension, we may enlarge it. Next, we choose the new hierarchy 0 to create the hierarchy. Choose either an initial key table or an initial key.

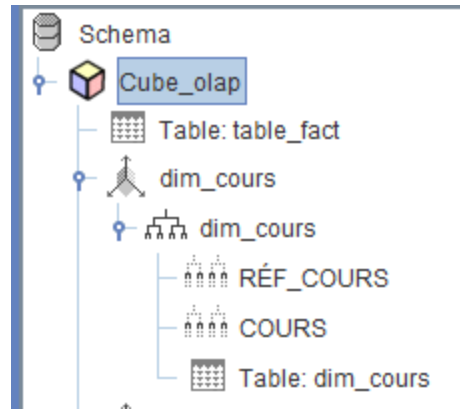


Figure 9 an example of a dimension with a hierarchy

You may insert a table into the hierarchy by selecting it from the context menu after clicking on the hierarchy a column should be used for the name property you may add a level to the hierarchy by clicking on it and selecting the contextual menu's "extra level" option.

Name level and column when set

Attribute	
name	dim_cours
description	
hasAll	<input checked="" type="checkbox"/>
allMemberName	
allMemberCaption	
allLevelName	
defaultMember	
memberReaderClass	
primaryKeyTable	
primaryKey	RÉF_COURS
caption	
visible	<input checked="" type="checkbox"/>

Figure 10 an example of a level attribute

Clicking on the appropriate level adds the member's feature to that level. Next, we choose the additional property from the context menu. Identify her and select her column.



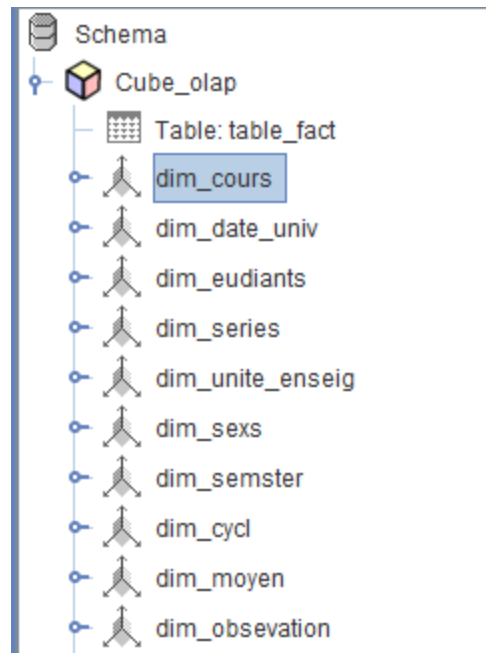


Figure 11 an example of every dimension in our cube

By selecting the new metric from the context menu after clicking on the right cube, adding a scale to the cube is as simple as choosing a column to give values, a pool to define how values are computed, and a column to provide values determine how the values should be calculated.

6. By right-clicking the cube and selecting Add Measure from the context menu, you may add a measure to it. Choose a column for which you wish to offer values, then choose an aggregator.

This cube's ultimate output for our project

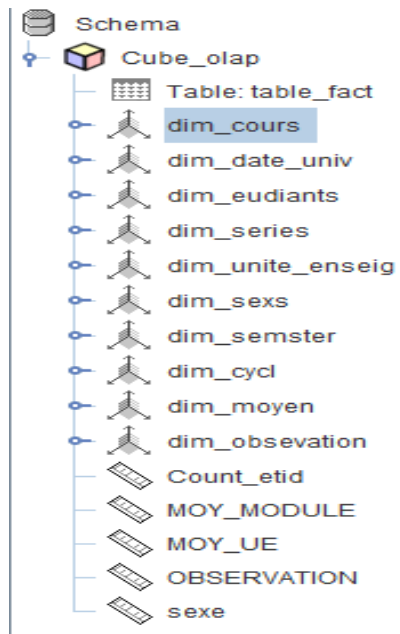


Figure 12 This cube's ultimate output for our project