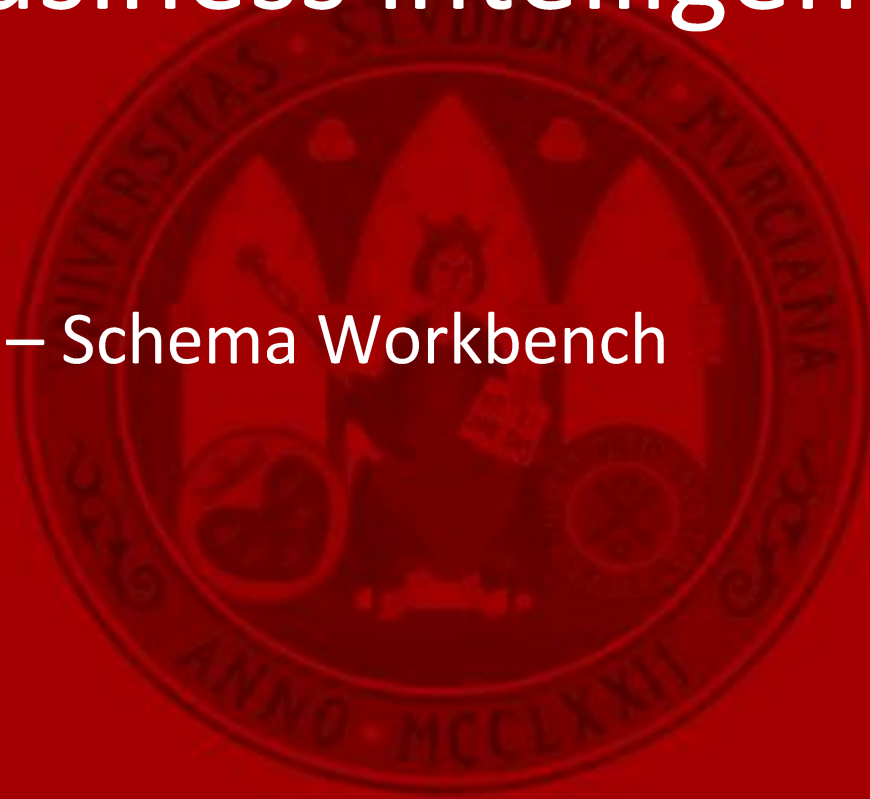


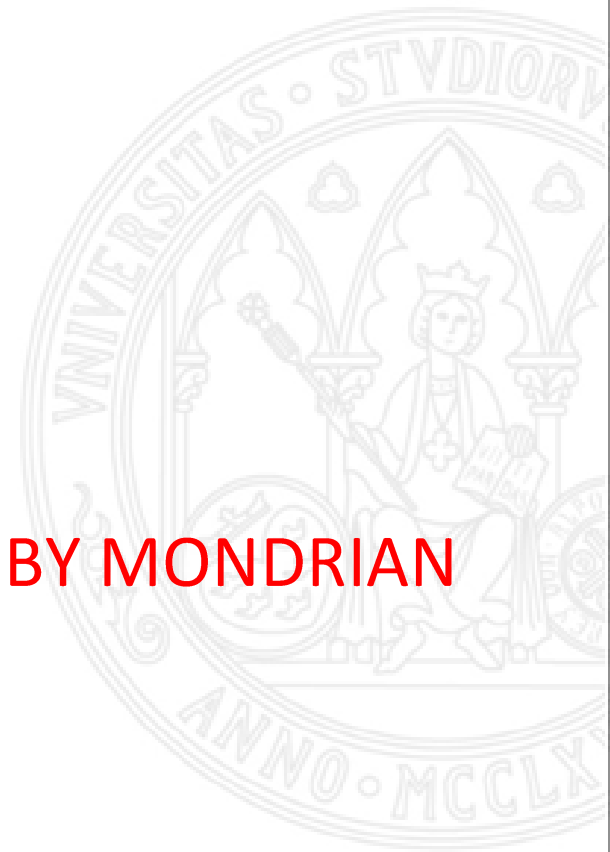
Business intelligence

Tutorial 2 – Schema Workbench Extended



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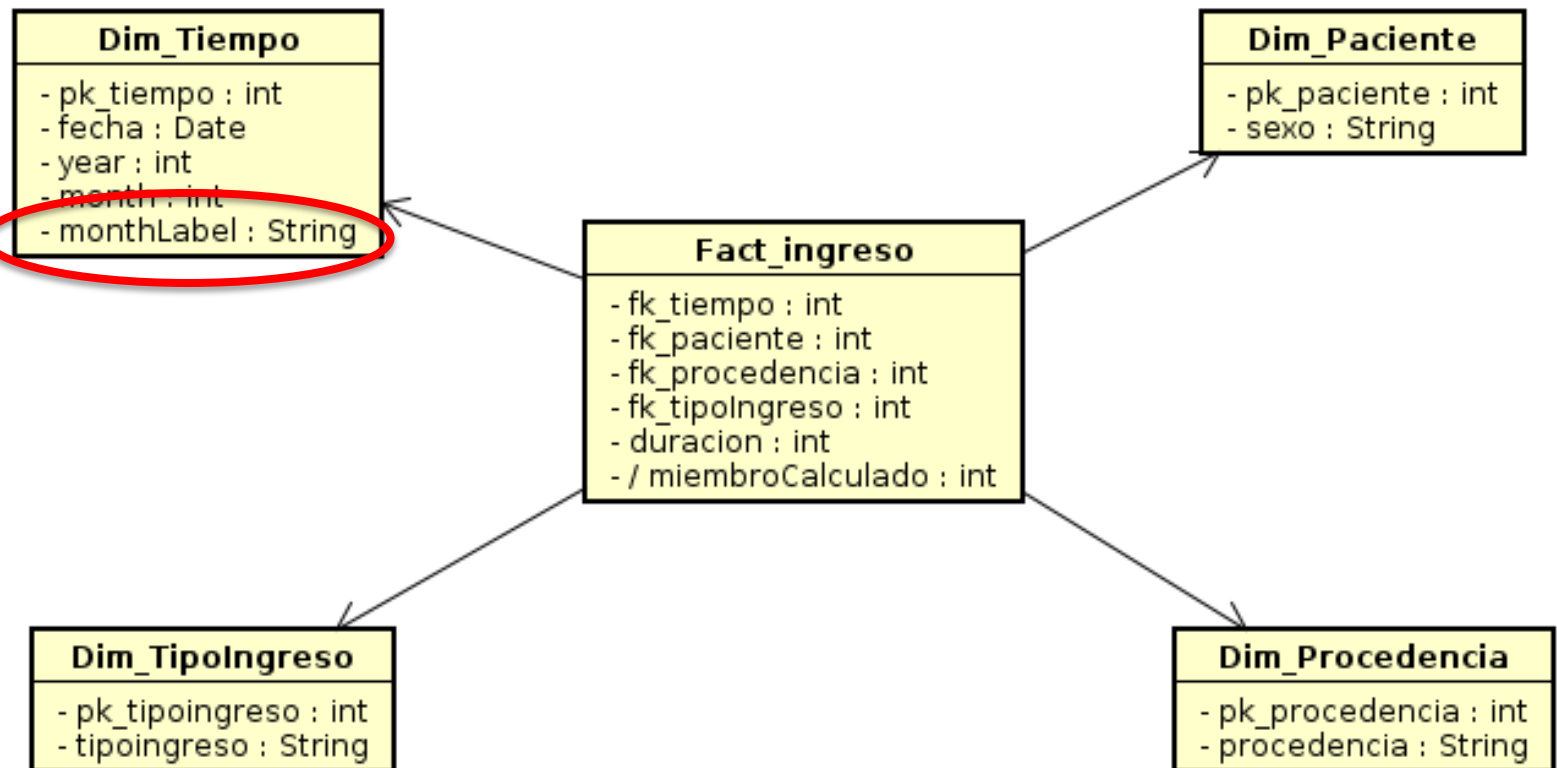
1. Time -> Month label
2. Dimension Usage
3. Calculated Member
4. Degenerated Dimension
5. Role Playing Dimension
6. Snowflake Dimension
7. Bridge Dimension **NOTE: NOT SUPPORTED BY MONDRIAN**



- Create a new connection to Database “tut2”
 - As in tutorial 1 we connected to “tut1”
- IP: given
- Port: given
- User: given
- Pw: given

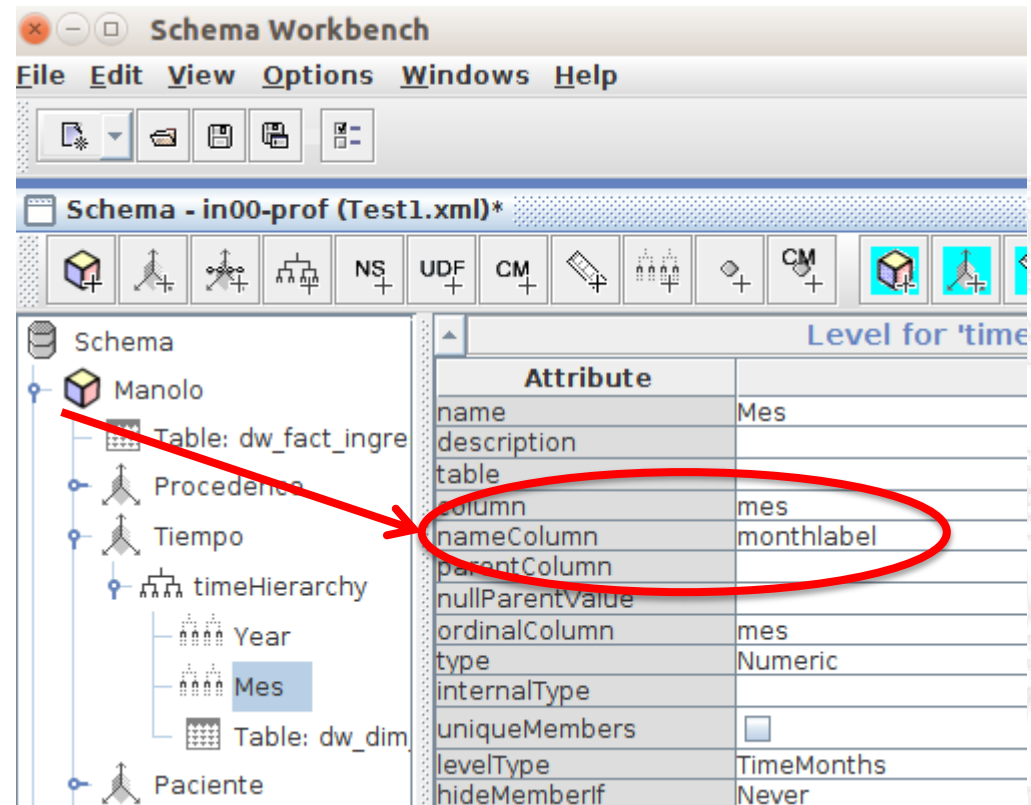


1. Month Label



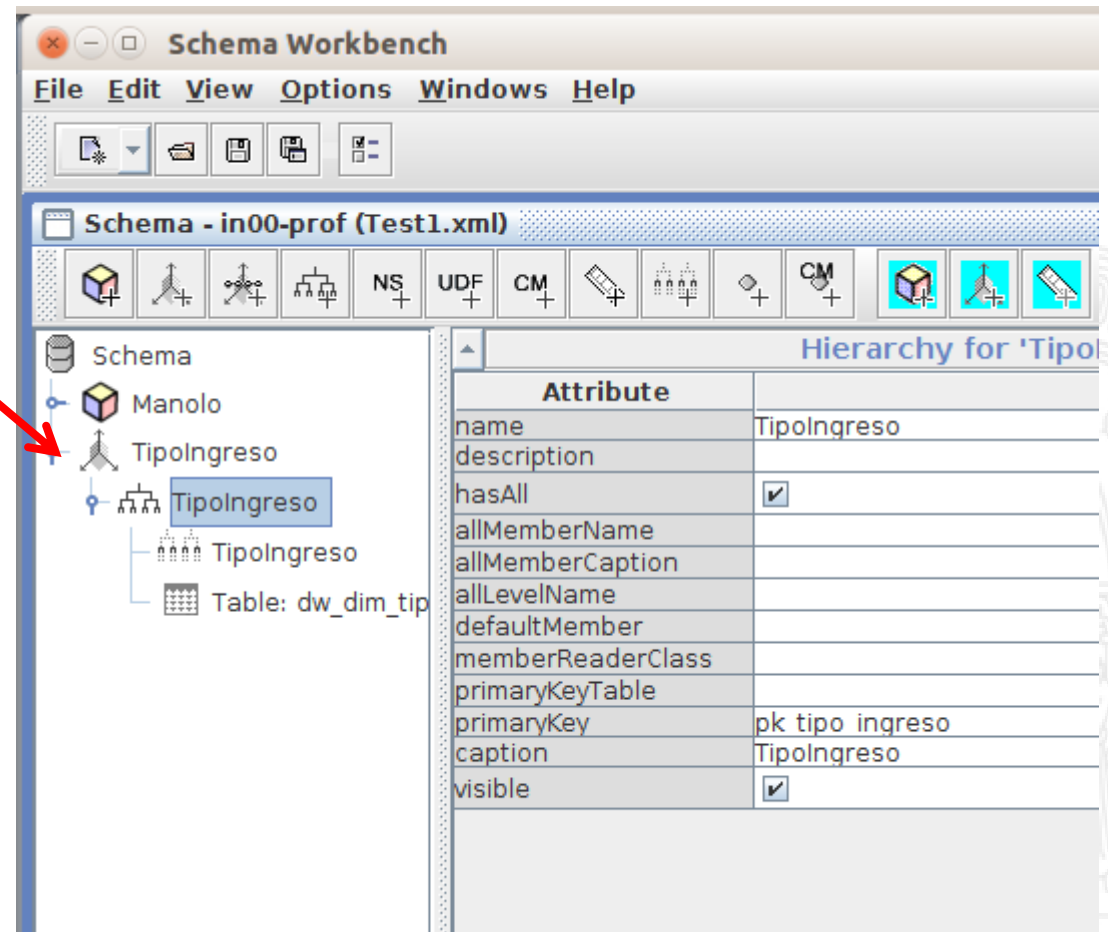
1. Month Label

- Go to Month Level in TimeDimension
- Edit “nameColumn”
- Select “monthLabel” column from database



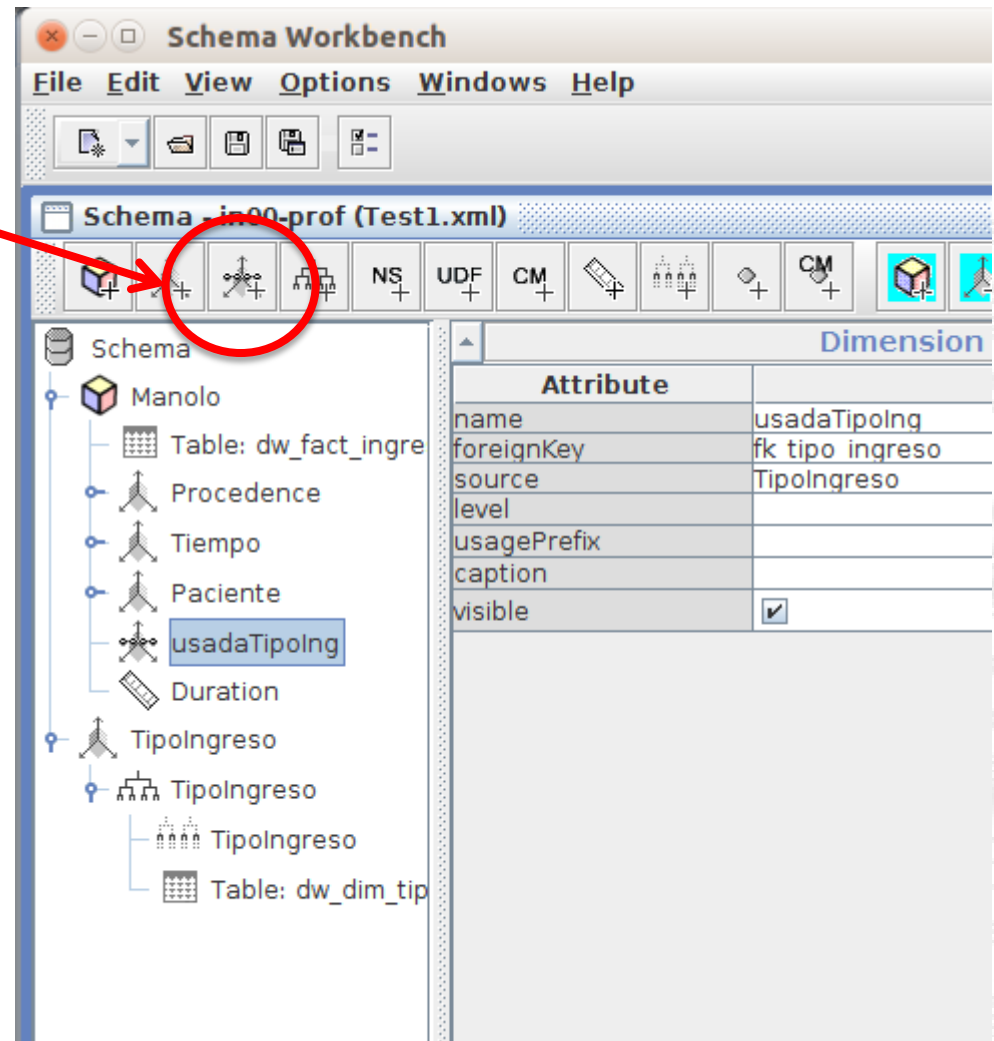
2. Dimension Usage

- New dimension at the same schema (xml) level as the cube
 - **Not inside the cube**
 - Define table with pk
 - Define level

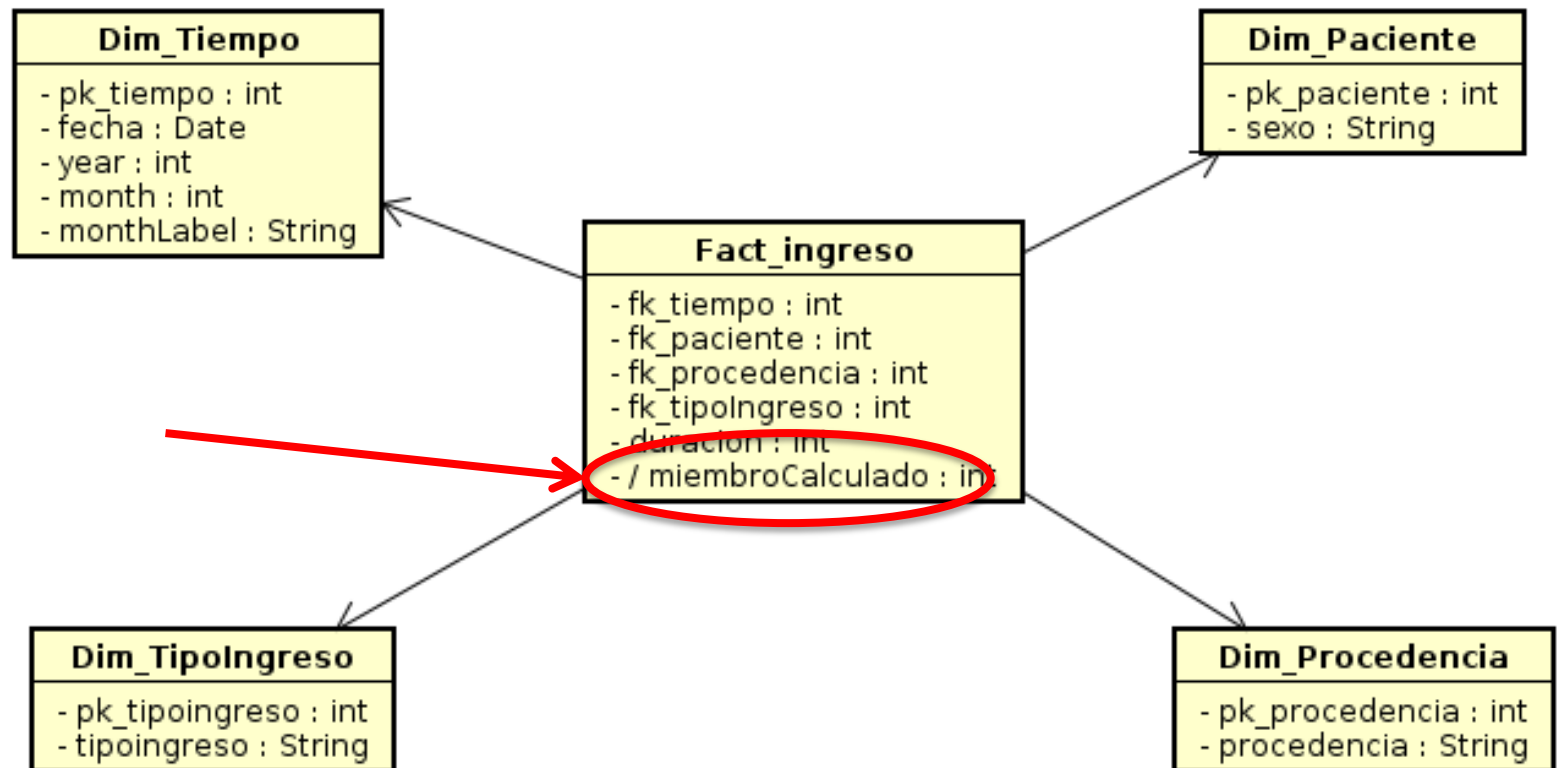


2. Dimension Usage

- In the Cube
 - Add Dimension Usage
 - Select “Source”
 - Select foreignKey

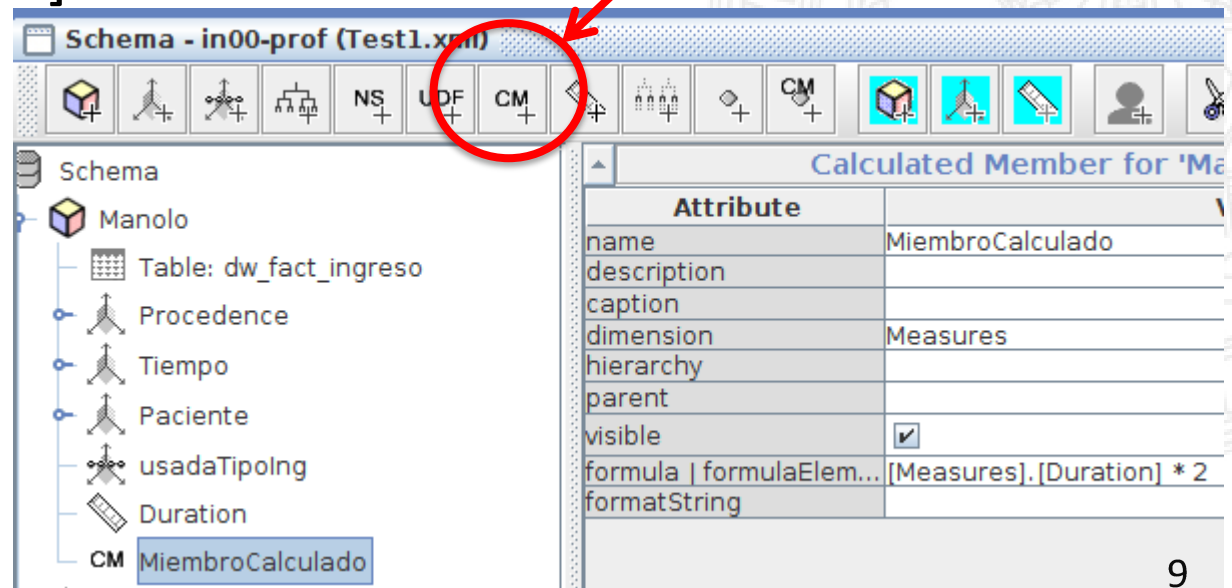


3. Calculated Member



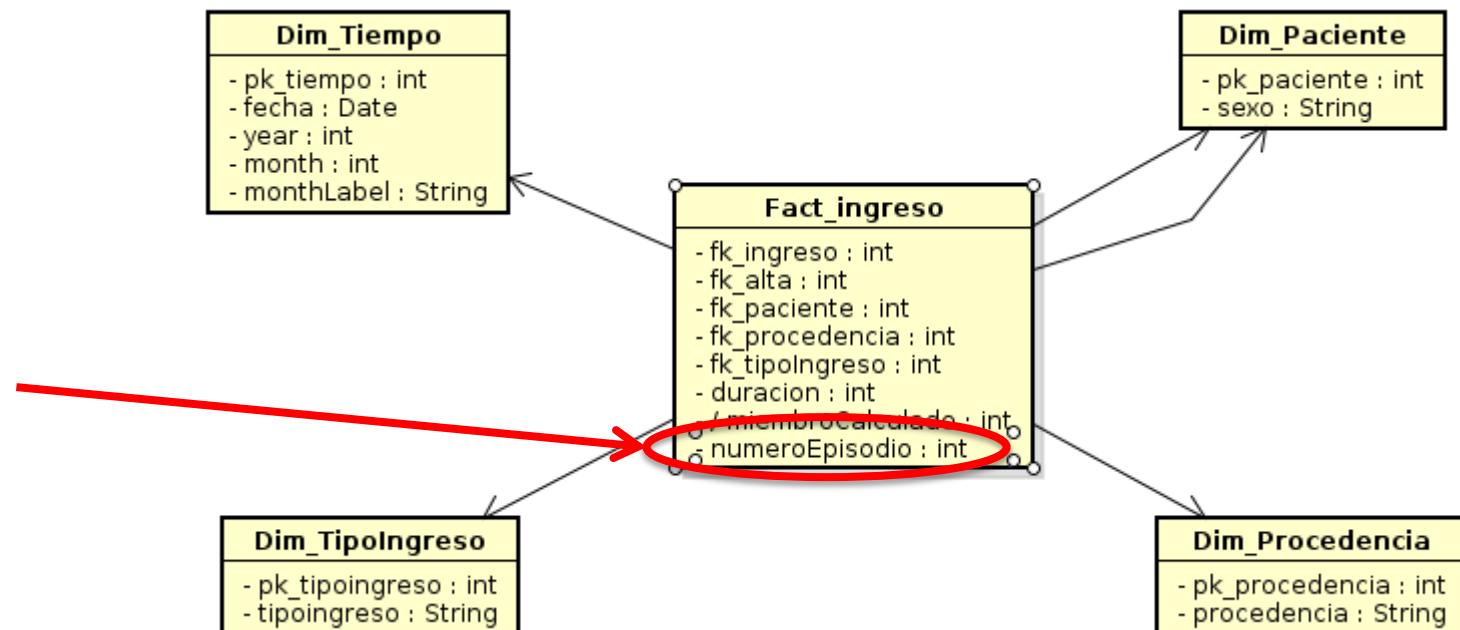
3. Calculated Member

- In the Cube -> Add Calculated Member
- Set Name
- Set Dimension and Hierarchy if needed
 - Dimension: "Measures"
- Set MDX expression (you will learn it later)
 - $[Measures].[Duration] * 2$



4. Degenerated Dimension

- Added Episode Number as Measure



4. Degenerated Dimension

- Added Episode Number as Measure
- Aggregator: Distinct count

The screenshot displays the Jpivot tool interface. On the left, a tree view shows the schema structure: Schema > Manolo > Table: dw_fact_ingreso > EpisodioDegenerado. The 'EpisodioDegenerado' measure is selected. On the right, a table titled 'Measure for 'Man' lists the attributes for this measure.

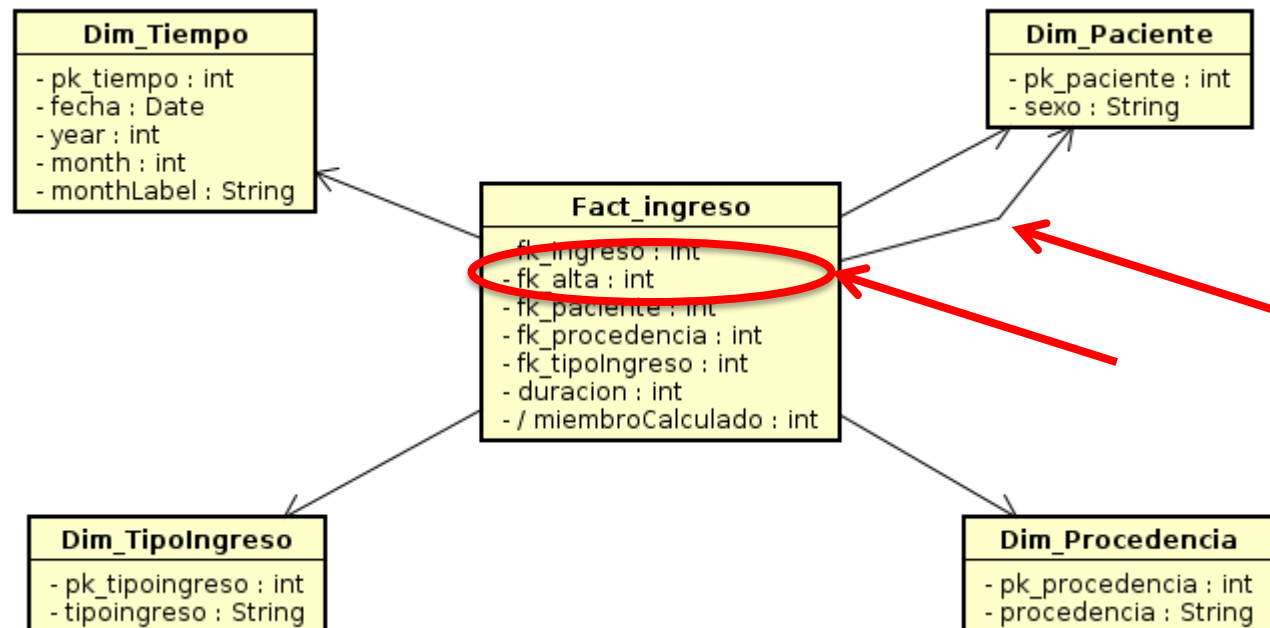
Attribute	
name	EpisodioDegenerado
description	
aggregator	distinct-count
column	id episodio degenerate
formatString	
datatype	Integer
formatter	
caption	
visible	<input checked="" type="checkbox"/>

Below the main interface, there is a 'Jpivot' window with a 'Medidas' (Measures) list. The list contains three items: 'Length of stay', 'MiembroCalculado', and 'EpisodioDegenerado'. The 'EpisodioDegenerado' item is selected. At the bottom, there is a table with two columns: 'ProcedenceCaption' and 'FechaIngreso'. The first row contains 'AllProcedences' and 'All TiempoIngreso.Fec'.

Show measure: How many distinct patients?

5. Role Playing Dimension

- Only add a new dimension



5. Role Playing Dimension

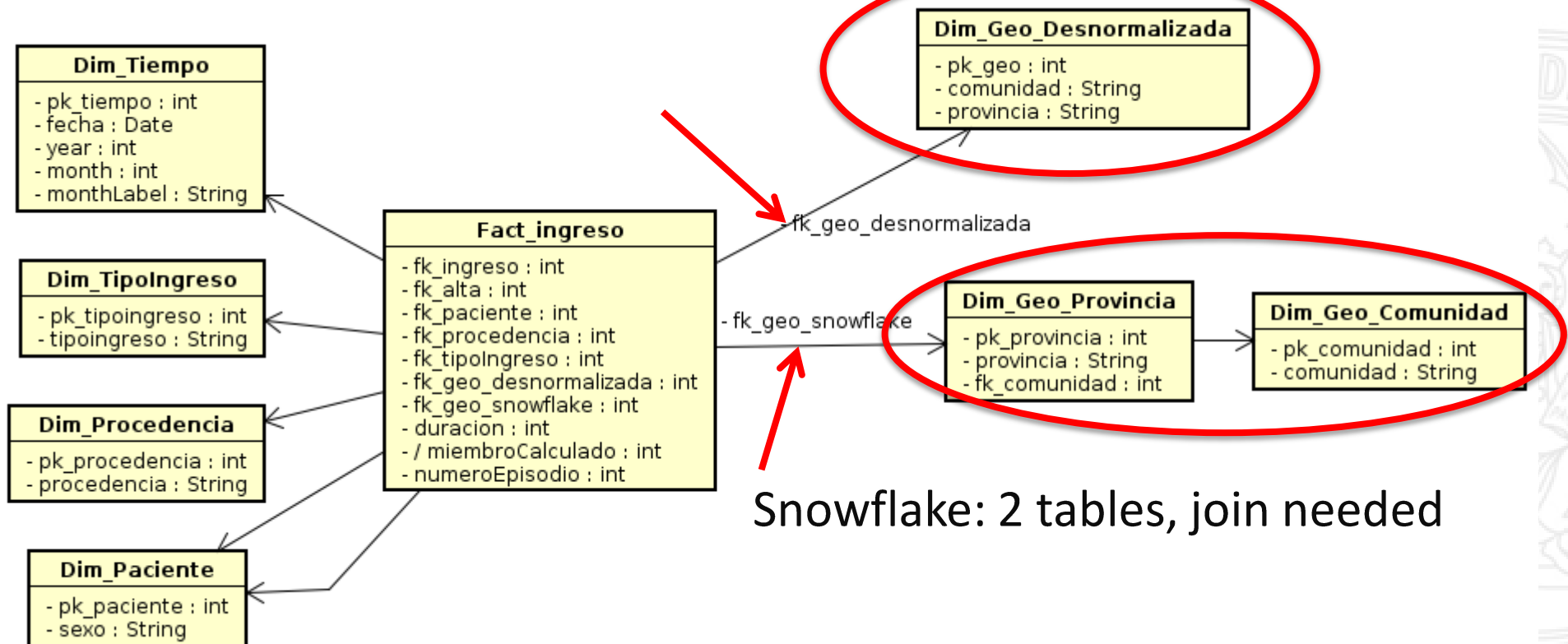
- Only add a new dimension
- Exactly as before with
 - New foreign key
 - Same table

The screenshot shows a data warehouse modeling tool interface. On the left, a schema tree for 'Manolo' is displayed. It includes a fact table 'dw_fact_ingreso', a dimension 'TiempoIngreso' (with hierarchy 'FechaIngreso' -> 'Year' -> 'Mes'), a dimension 'Paciente', a dimension 'TiempoAlta' (highlighted with a red circle), a dimension 'FechaAlta' (with hierarchy 'Year' -> 'Month'), a dimension 'Duration', and a calculated member 'MiembroCalculado'. A red arrow points from the 'Same table' bullet point to the 'Table: dw_dim_time' entry under 'FechaAlta'. On the right, the 'Dimension' configuration table is shown, with a red arrow pointing from the 'New foreign key' bullet point to the 'foreignKey' field.

Dimension	
Attribute	
name	TiempoAlta
description	
foreignKey	fk fecha alta
type	TimeDimension
usagePrefix	
caption	
visible	<input checked="" type="checkbox"/>

6. Snowflake vs Denormalized Dimension

Denormalized: 1 hierarchy with 2 levels



6. Snowflake Dimension

- Define Dimension as previously
 - Foreign key: fk_geo_snowflake
 - StandardDimension
- Hierarchy -> **Add JOIN** (instead of table)

The screenshot shows a data modeling tool interface. On the left, a hierarchy tree is displayed with the following structure:

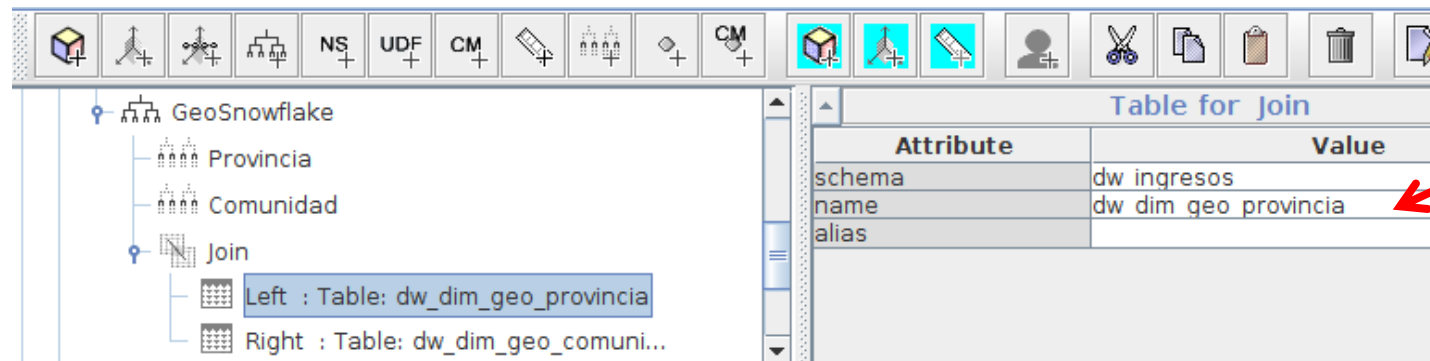
- Paciente
 - usadaTipolog
 - TiempoAlta
 - GeoSnow
 - GeoSnowflake
 - Provincia
 - Comunidad
 - Join
 - Left : Table: dw_dim_geo_provincia
 - Right : Table: dw_dim_geo_comuni...

On the right, a table configuration window titled "Dimension for 'UnCuboCompleto'" is shown. It contains the following attributes and values:

Attribute	Value
name	GeoSnow
description	
foreignKey	fk geo snowflake
type	StandardDimension
usagePrefix	
caption	
visible	<input checked="" type="checkbox"/>

6. Snowflake Dimension

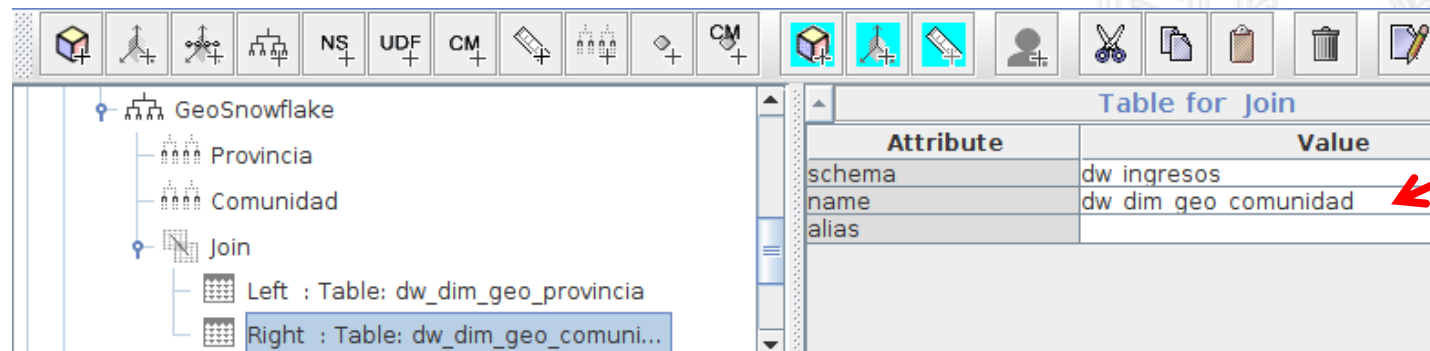
- Left Table: dw_dim_geo_provincia



The screenshot shows the Snowflake Data Studio interface. On the left, a tree view displays the 'GeoSnowflake' schema with 'Provincia' and 'Comunidad' dimensions. A 'Join' node is selected, showing 'Left : Table: dw_dim_geo_provincia' and 'Right : Table: dw_dim_geo_comuni...'. On the right, a 'Table for join' panel displays the table's metadata. A red arrow points to the 'name' attribute value.

Attribute	Value
schema	dw ingresos
name	dw dim geo provincia
alias	

- Right Table: dw_dim_geo_comunidad

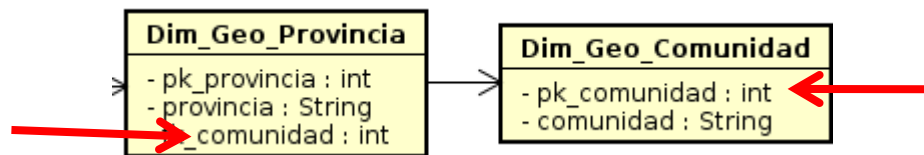


The screenshot shows the Snowflake Data Studio interface. On the left, a tree view displays the 'GeoSnowflake' schema with 'Provincia' and 'Comunidad' dimensions. A 'Join' node is selected, showing 'Left : Table: dw_dim_geo_provincia' and 'Right : Table: dw_dim_geo_comuni...'. On the right, a 'Table for join' panel displays the table's metadata. A red arrow points to the 'name' attribute value.

Attribute	Value
schema	dw ingresos
name	dw dim geo comunidad
alias	

6. Snowflake Dimension

- Define keys for the JOIN on both tables



The screenshot shows a data modeling tool interface. On the left, a schema tree displays the hierarchy: Schema > UnCuboCompleto > GeoSnow > GeoSnowflake > Join. The 'Join' node is selected, showing its configuration in the right pane.

Join for 'GeoSnowflake' Hierarchy

Attribute	Value
leftAlias	
leftKey	comunidad
rightAlias	
rightKey	pk comunidad

6. Snowflake Dimension

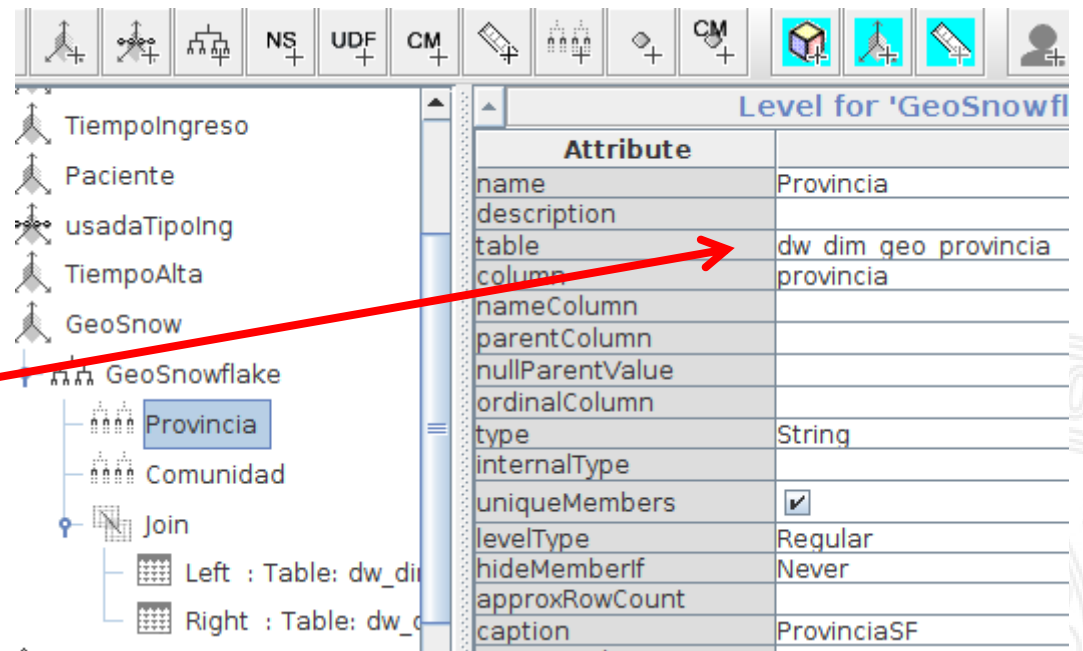
- Define which table holds the primary key
- Define the primary key

The screenshot shows a data modeling tool interface. On the left, a tree view displays a hierarchy for the 'GeoSnow' dimension. The hierarchy starts with 'GeoSnow', which has a child 'Geography'. 'Geography' has two children: 'Provincia' and 'Comunidad'. 'Provincia' has a child 'Join', which in turn has two children: 'Left : Table: dw_dim_g' and 'Right : Table: dw_dim_'. The 'Geography' node is highlighted. On the right, a table titled 'Hierarchy for 'GeoSnow' Dimen' lists attributes and their values. The 'primaryKeyTable' attribute is set to 'dw dim geo provincia' and the 'primaryKey' attribute is set to 'pk provincia'. The 'hasAll' attribute is checked.

Attribute	Value
name	Geography
description	
hasAll	<input checked="" type="checkbox"/>
allMemberName	
allMemberCaption	
allLevelName	
defaultMember	
memberReaderClass	
primaryKeyTable	dw dim geo provincia
primaryKey	pk provincia
caption	
visible	<input checked="" type="checkbox"/>

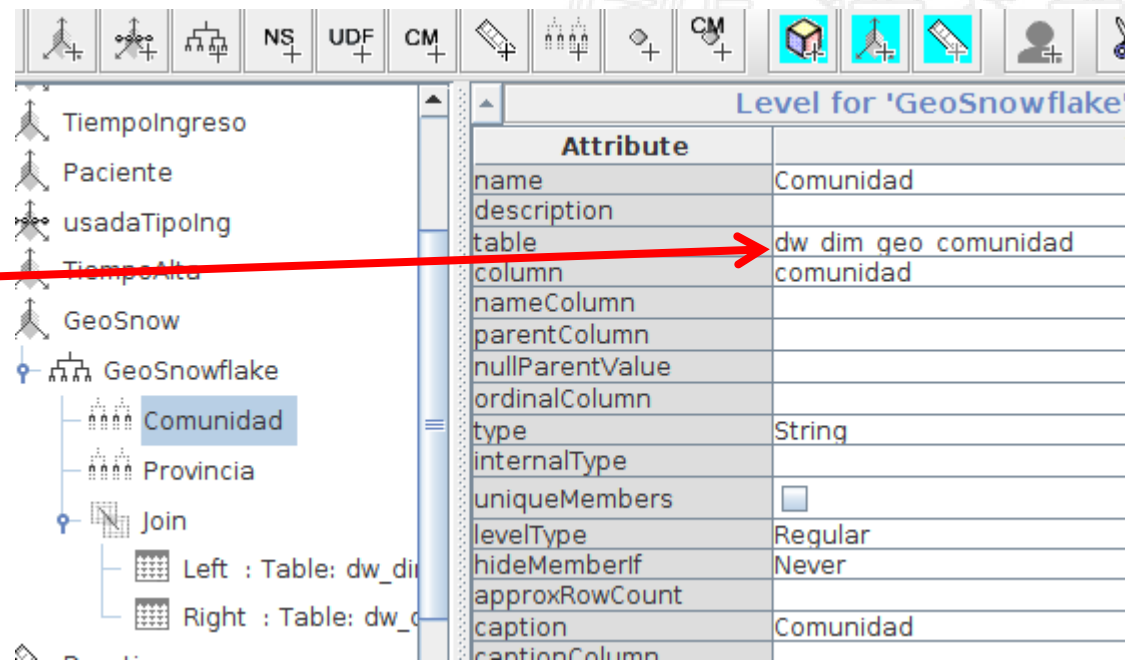
6. Snowflake Dimension

- Define levels “Provincia” and “Comunidad”
 - Table -> `dw_dim_geo_provincia`
 - Column: `provincia`
- Table -> `dw_dim_geo_comunidad`
- Column: `comunidad`



The screenshot shows the Snowflake Dimension Designer interface. On the left, a tree view displays the hierarchy: TiempoIngreso, Paciente, usadaTipoIng, TiempoAlta, GeoSnow, and GeoSnowflake. Under GeoSnowflake, the 'Provincia' dimension is selected. A red arrow points from the 'Table' field in the configuration table to the 'dw_dim_geo_provincia' table in the database. The configuration table on the right is titled 'Level for 'GeoSnowflake'' and contains the following attributes:

Attribute	
name	Provincia
description	
table	dw dim geo provincia
column	provincia
nameColumn	
parentColumn	
nullParentValue	
ordinalColumn	
type	String
internalType	
uniqueMembers	<input checked="" type="checkbox"/>
levelType	Regular
hideMemberIf	Never
approxRowCount	
caption	ProvinciaSF

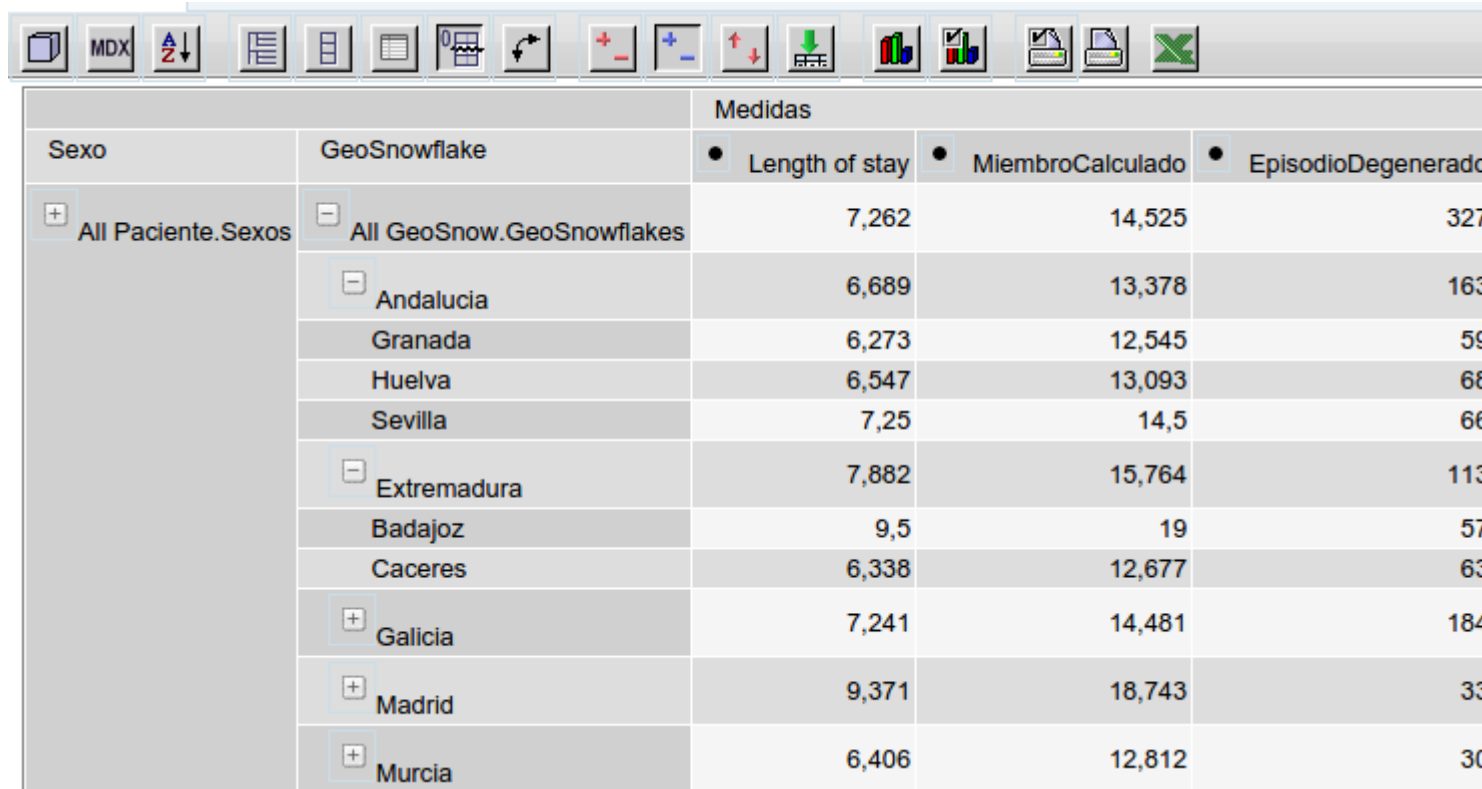


The screenshot shows the Snowflake Dimension Designer interface. On the left, a tree view displays the hierarchy: TiempoIngreso, Paciente, usadaTipoIng, TiempoAlta, GeoSnow, and GeoSnowflake. Under GeoSnowflake, the 'Comunidad' dimension is selected. A red arrow points from the 'Table' field in the configuration table to the 'dw_dim_geo_comunidad' table in the database. The configuration table on the right is titled 'Level for 'GeoSnowflake'' and contains the following attributes:

Attribute	
name	Comunidad
description	
table	dw dim geo comunidad
column	comunidad
nameColumn	
parentColumn	
nullParentValue	
ordinalColumn	
type	String
internalType	
uniqueMembers	<input type="checkbox"/>
levelType	Regular
hideMemberIf	Never
approxRowCount	
caption	Comunidad

6. Snowflake Dimension

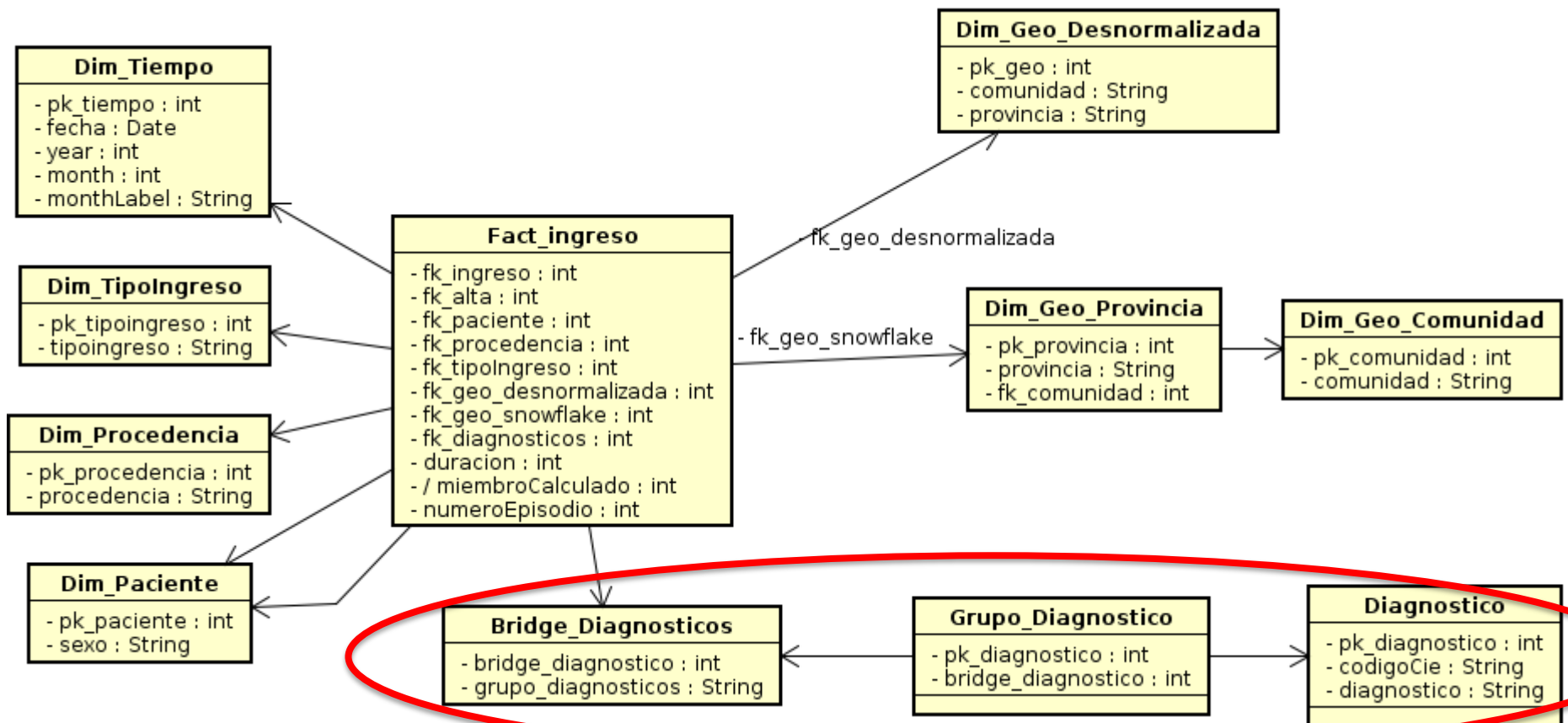
- Change order if needed



The screenshot shows a BI tool interface with a toolbar at the top containing icons for MDX, sorting, filters, and other functions. Below the toolbar is a table with the following structure:

		Medidas		
Sexo	GeoSnowflake	• Length of stay	• MiembroCalculado	• EpisodioDegenerado
+ All Paciente.Sexos	- All GeoSnow.GeoSnowflakes	7,262	14,525	327
	- Andalusia	6,689	13,378	163
	Granada	6,273	12,545	59
	Huelva	6,547	13,093	68
	Sevilla	7,25	14,5	66
	- Extremadura	7,882	15,764	113
	Badajoz	9,5	19	57
	Caceres	6,338	12,677	63
	+ Galicia	7,241	14,481	184
	+ Madrid	9,371	18,743	33
	+ Murcia	6,406	12,812	30

7. Bridge Dimension



Vista con las 3 tablas de la M-x-N

7. Bridge Dimension

- Create Dimension as usual
- Create Hierarchy: Do not define “primaryKey”

The screenshot shows the 'Dimension for 'UnCuboC' configuration window. The left pane displays a tree view of the 'UnCuboCompleto' schema, with 'Diagnosticos' selected. The right pane shows the 'Attribute' table with the following data:

Attribute	
name	Diagnosticos
description	
foreignKey	fk diagnosticos
type	StandardDimension
usagePrefix	
caption	
visible	<input checked="" type="checkbox"/>

The screenshot shows the 'Hierarchy for 'UnCuboC' configuration window. The left pane displays a tree view of the 'UnCuboCompleto' schema, with 'Diagnosticos' selected. The right pane shows the 'Attribute' table with the following data:

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

7. Bridge Dimension

- Hierarchy -> Add View with an Alias
- Define the view with column Alias, dialect Postgres

The screenshot displays a data modeling tool interface. On the left, a 'Schema' tree shows a hierarchy: 'UnCuboCompleto' > 'Table: dw_fact_ing' > 'Diagnosticos' > 'View'. A red arrow points from the 'View' node to the 'Attribute' tab of the 'View' properties panel. The 'Attribute' tab shows a table with one row: 'alias' with the value 'VD'. Below this, the 'SQL' tab is active, showing a table with two columns: 'Attribute' and 'Value'. The 'Attribute' column has a value 'cdata', and the 'Value' column contains a complex SQL query. A second red arrow points from the 'SQL' tab to the 'dialect' field at the bottom, which is set to 'postgres'.

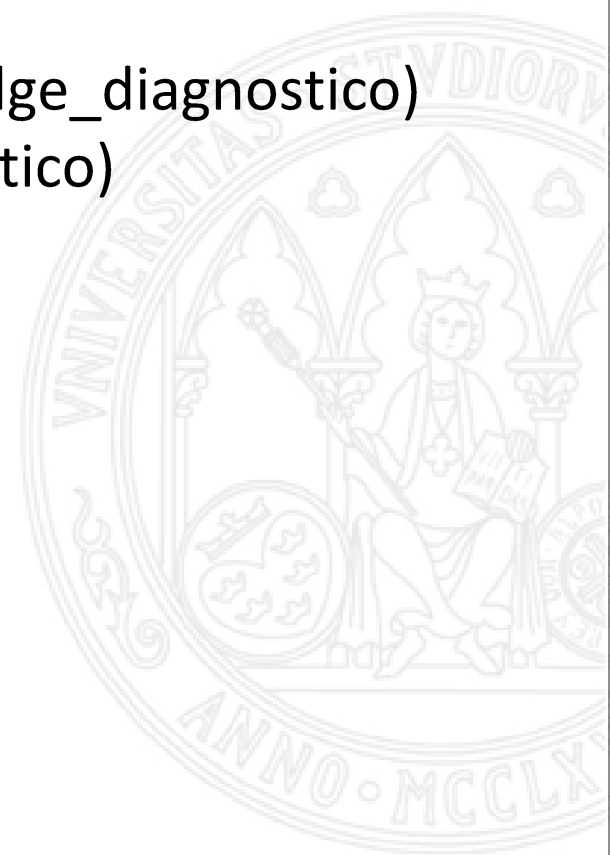
Attribute	Value
cdata	<pre>select B.bridge_diagnostico col1, D.diagnostico col2, D.cie col3 from dw_ingresos.bridge_diagnostico B join dw_ingresos.grupo_diagnostico G using (bridge_diagnostico) join dw_ingresos.diagnostico D using (pk_diagnostico)</pre>
dialect	postgres

- QUERY FOR THE VIEW:

```
SELECT B.bridge_diagnostico col1, D.diagnostico col2, D.cie col3
FROM dw_ingresos.bridge_diagnostico B
      JOIN dw_ingresos.grupo_diagnostico G USING (bridge_diagnostico)
      JOIN dw_ingresosdiagnostico D USING (pk_diagnostico)
```

- NOTES:

- DO NOT USE “;”,
- DO NOT USE “AS” FOR ALIAS



7. Bridge Dimension

- Hierarchy -> Add Level
 - Table must be blank. Manual Edit if needed.

