



Genero®
report writer

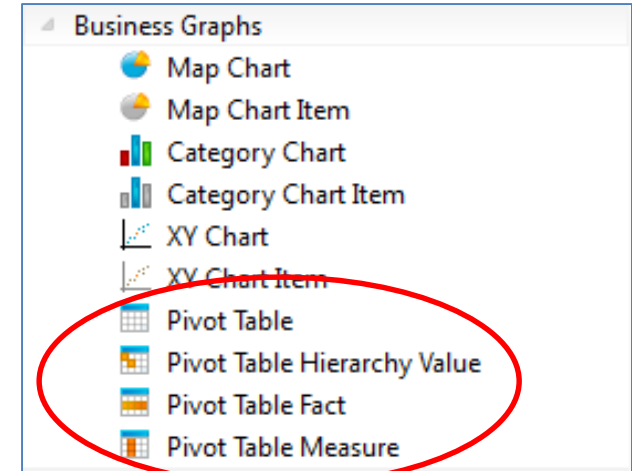
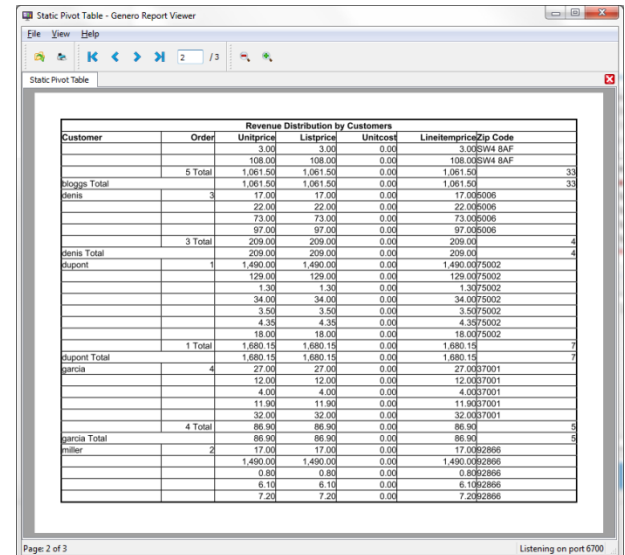
WORKING WITH PIVOT TABLES

Using Genero Report Writer
GRS 3.00

After this instruction, you will be able to:

- Process multi-dimensional data with Pivot Tables
- Know how to structure a Pivot Table and its components
- Know about Pivot Table specific properties

- Table element with fixed roles and types for its columns, suitable for processing multi-dimensional data
- Performs grouping, sorting, and summarizing operations
- Display multiple measures according to multiple key values
 - Ex: For each Customer & Order code, display unit price, list price, unit cost, item price, zip code

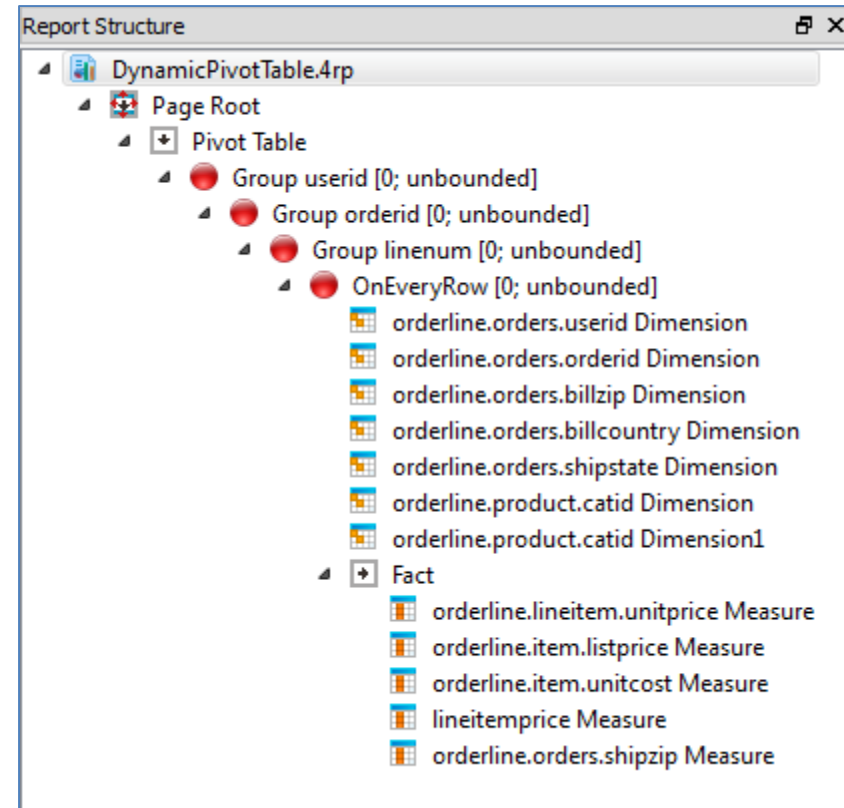



Revenue Distribution by Customers						
Customer	Order	Unitprice	Listprice	Unitcost	Lineitemprice	Zip Code
		3.00	3.00	0.00		3.00S1W4 BAF
		108.00	108.00	0.00		108.00S1W4 BAF
	5 Total	1,061.50	1,061.50	0.00		1,061.50
Floggs Total		1,061.50	1,061.50	0.00		1,061.50
Denis	3	17.00	17.00	0.00		17.00E006
		22.00	22.00	0.00		22.00E006
		73.00	73.00	0.00		73.00E006
		97.00	97.00	0.00		97.00E006
	3 Total	209.00	209.00	0.00		209.00
Denis Total		209.00	209.00	0.00		209.00
Support	1	1,490.00	1,490.00	0.00		1.490.00T5002
		129.00	129.00	0.00		129.00T5002
		1.30	1.30	0.00		1.30T5002
		34.00	34.00	0.00		34.00T5002
		3.50	3.50	0.00		3.50T5002
		4.35	4.35	0.00		4.35T5002
		18.00	18.00	0.00		18.00T5002
	1 Total	1,680.15	1,680.15	0.00		1,680.15
Support Total		1,680.15	1,680.15	0.00		1,680.15
garcia	4	27.00	27.00	0.00		27.00S7001
		12.00	12.00	0.00		12.00S7001
		4.00	4.00	0.00		4.00S7001
		11.99	11.99	0.00		11.99S7001
		32.00	32.00	0.00		32.00S7001
	4 Total	86.90	86.90	0.00		86.90
garcia Total		86.90	86.90	0.00		86.90
miller	2	17.00	17.00	0.00		17.00E2866
		1,490.00	1,490.00	0.00		1.490.00E2866
		0.80	0.80	0.00		0.80E2866
		6.10	6.10	0.00		6.10E2866
		7.20	7.20	0.00		7.20E2866

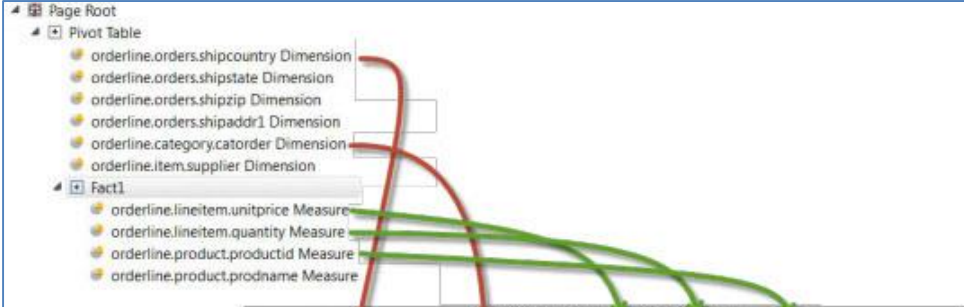
- Pivot Table is a generalization of the Chart objects
- No limitation in dimensions and measures when rendered as a Table

Element type	Number of dimensions	Number of measures	Number of aggregation groups	Aggregation functions	Sorting options
MAPCHART	One (specified by the key attribute)	One (specified by the value attribute)	One (values with the same key value are summarized)	Summarizing	By key, value and input order
CATEGORY CHART	Two (specified by the key and categoryKey attributes)	One (specified by the value attribute)	One (values with the same key + categoryKey value combination are summarized)	Summarizing	By keys, value and input order
XYCHART	None	Two (specified by the x and y attributes)	None	None	None
PIVOTTABLE	N (specified by HIERARCHY elements)	N (specified by MEASURE elements)	N (Aggregation can be performed on all dimensions)	Summarizing and others (such as count, average, maximum, minimum, and so on)	Input order and any combination of measures

- PIVOTTABLE
 - The table which is a parent for all other elements
- 2 Types of columns
 - HYERARCHY (or DIMENSION)
 - Specify the columns data is sorted by
 - MEASURE
 - The values are aggregated
 - If numeric, aggregation can be average, sum, maximum, minimum
 - Grouped in FACT elements



- Select dimensions and measures to define the columns of the table
 - Select dimensions on the PIVOTTABLE element
 - Select measures in FACT elements
- Define title for columns on dimension and measure elements



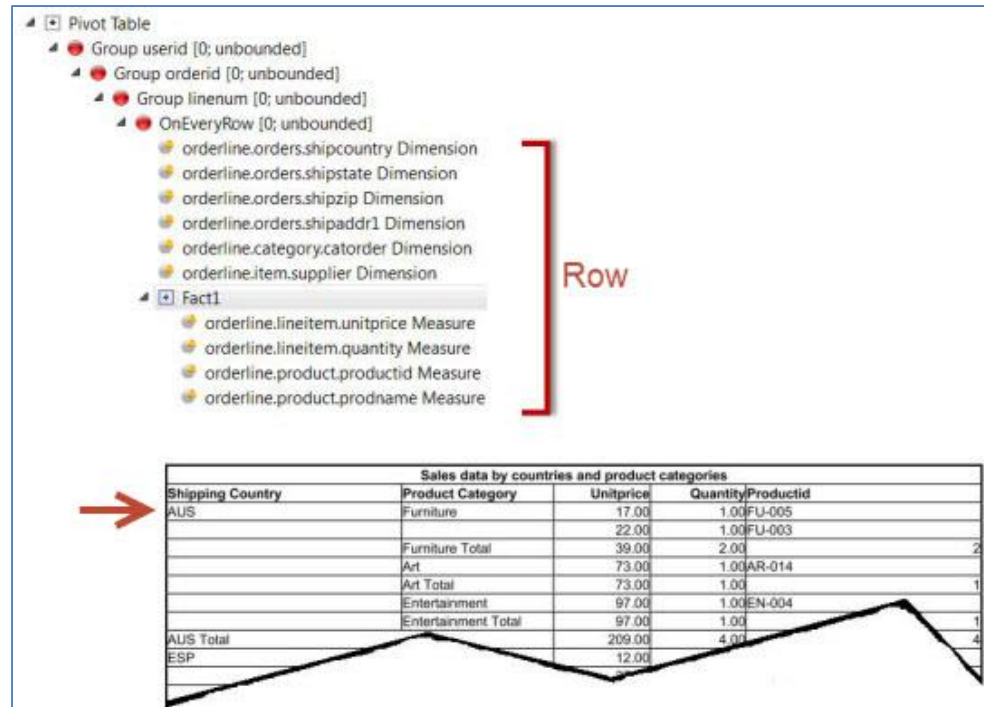
Page Root

- Pivot Table
 - orderline.orders.shipcountry Dimension
 - orderline.orders.shipstate Dimension
 - orderline.orders.shipzip Dimension
 - orderline.orders.shipaddr1 Dimension
 - orderline.category.catorder Dimension
 - orderline.item.supplier Dimension
 - Fact1
 - orderline.lineitem.unitprice Measure
 - orderline.lineitem.quantity Measure
 - orderline.product.productid Measure
 - orderline.product.prodname Measure

Sales data by countries and product categories

Shipping Country	Product Category	Unitprice	Quantity/Productid
AUS	Furniture	17.00	1.00FU-005
		22.00	1.00FU-003
	Furniture Total	39.00	2.00
	Art	73.00	1.00AR-014
	Art Total	73.00	1.00
	Entertainment	97.00	1.00EN-004
	Entertainment Total	97.00	1.00
AUS Total		209.00	4.00
ESP	Furniture	12.00	1.00FU-013
		27.00	1.00FU-011
	Furniture Total	39.00	2.00
	Supplies	4.00	1.00SU-009
	Supplies Total	4.00	1.00
	Travelling	11.90	1.00TR-012
	Travelling Total	11.90	1.00
	Entertainment	32.00	1.00EN-008
	Entertainment Total	32.00	1.00
ESP Total		86.90	5.00
FRA	Furniture	129.00	1.00FU-008
		1,490.00	1.00FU-001
	Furniture Total	1,619.00	2.00
	Supplies	1.30	1.00SU-005
		3.50	1.00SU-010
		4.35	1.00SU-003
		34.00	1.00SU-002
	Supplies Total	43.15	4.00
	Entertainment	18.00	1.00EN-011
	Entertainment Total	18.00	1.00

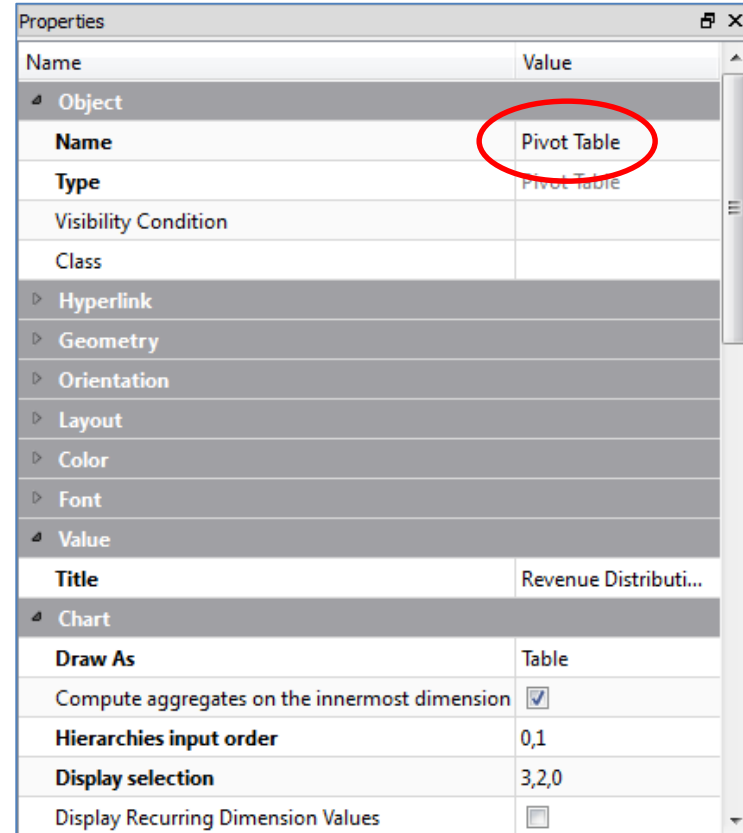
- A Row is the entity of dimension declaration followed by 1 FACT element
- Typically one define 1 row and place it in a trigger



Sales data by countries and product categories

Shipping Country	Product Category	Unitprice	QuantityProductid
AUS	Furniture	17.00	1.00FU-005
		22.00	1.00FU-003
	Furniture Total	39.00	2.00
	Art	73.00	1.00AR-014
	Art Total	73.00	1.00
	Entertainment	97.00	1.00EN-004
	Entertainment Total	97.00	1.00
AUS Total		209.00	4.00
ESP		12.00	

- Title
- Draw As
 - Typically 'Table'
- Compute aggregates on the innermost dimension
- Hierarchies input order
 - Order by which data is presorted
- Display selection
 - What columns to display
- Display recurring dimension values

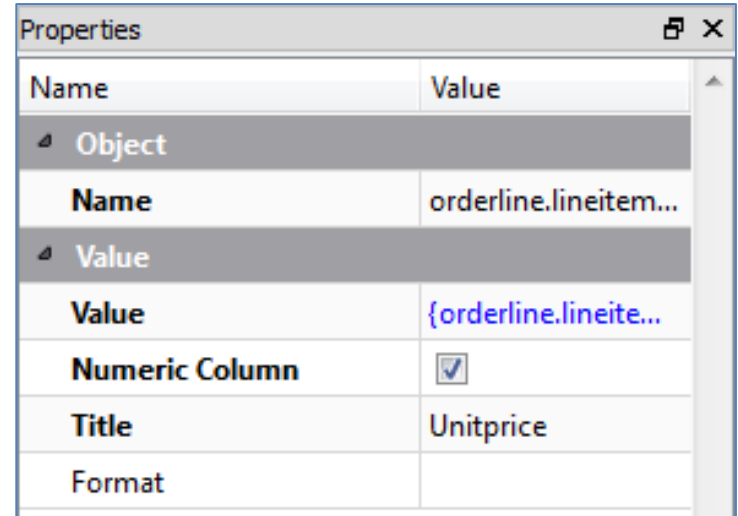


Name	Value
Object	
Name	Pivot Table
Type	Pivot Table
Visibility Condition	
Class	
Hyperlink	
Geometry	
Orientation	
Layout	
Color	
Font	
Value	
Title	Revenue Distributi...
Chart	
Draw As	Table
Compute aggregates on the innermost dimension	<input checked="" type="checkbox"/>
Hierarchies input order	0,1
Display selection	3,2,0
Display Recurring Dimension Values	<input type="checkbox"/>

- Value
 - Column name for the dimension
- Numeric column
 - Default is String
- Enum Values
 - List of strings representing ordinal numeric values
- Aggregate options
 - Compute Totals, Count, Distinct Count, Average, Minimum & Maximum
- Title
 - Column title
- Format

Properties	
Name	Value
Object	
Name	orderline.orders.o...
Value	
Value	{orderline.orders....
Numeric Column	<input checked="" type="checkbox"/>
Enum Values	
Compute Totals	<input checked="" type="checkbox"/>
Compute Count	<input type="checkbox"/>
Compute Distinct Count	<input type="checkbox"/>
Compute Average	<input type="checkbox"/>
Compute Minimum	<input type="checkbox"/>
Compute Maximum	<input type="checkbox"/>
Title	Order
Format	-----#

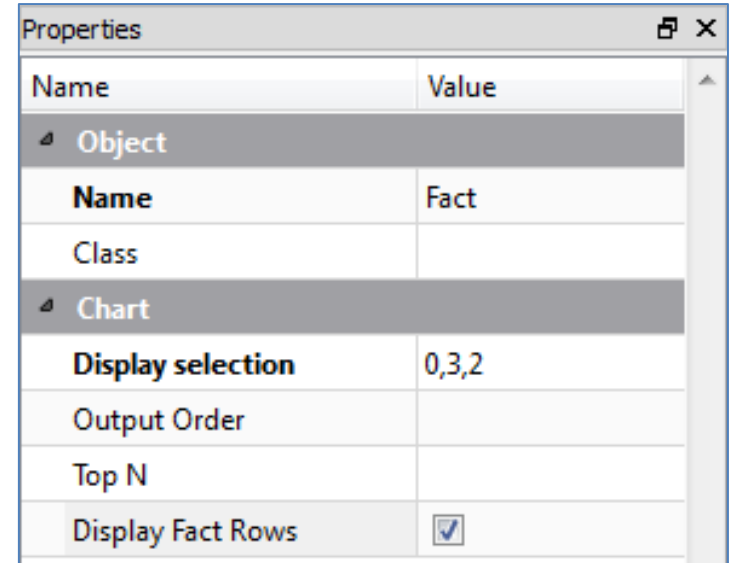
- Value
 - Column name for the measure
- Numeric Column
 - Specify if numeric or not
- Title
 - Title of the column
- Format



The screenshot shows a 'Properties' window with a table of settings for a measure. The table has two columns: 'Name' and 'Value'. The 'Object' property is expanded to show 'Name' with the value 'orderline.lineitem...'. The 'Value' property is expanded to show 'Value' with the value '{orderline.lineite...'. The 'Numeric Column' property is checked with a checkbox. The 'Title' property is 'Unitprice' and the 'Format' property is empty.

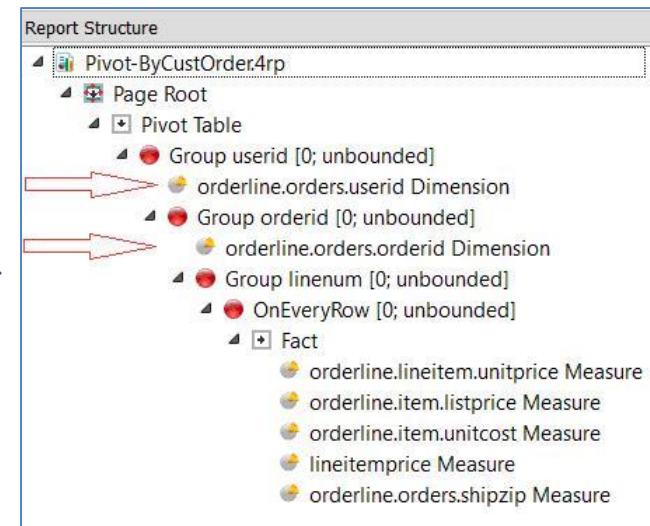
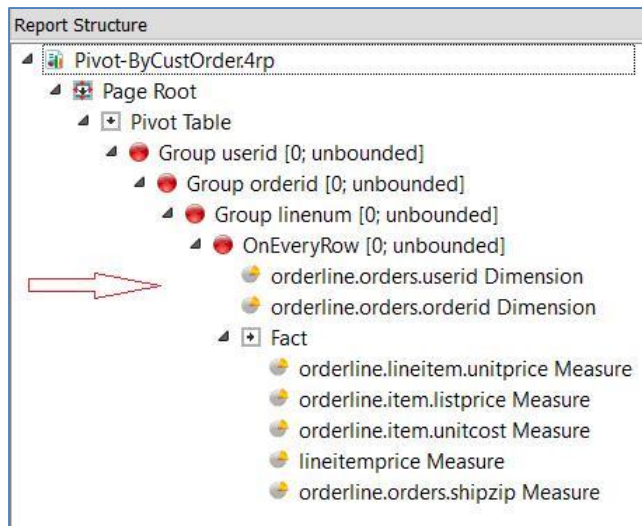
Name	Value
Object	
Name	orderline.lineitem...
Value	
Value	{orderline.lineite...
Numeric Column	<input checked="" type="checkbox"/>
Title	Unitprice
Format	

- Display Selection
 - Specifies dimensions or measures to be displayed
- Output Order
 - Specifies the order by which the data should be presented
- Top N
 - Number of records to display
- Display Fact Rows



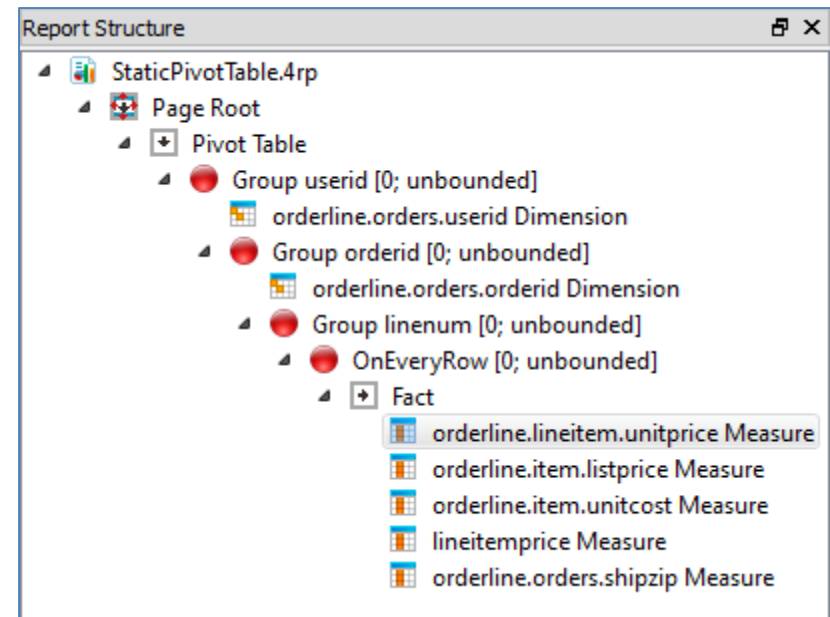
Name	Value
Object	
Name	Fact
Class	
Chart	
Display selection	0,3,2
Output Order	
Top N	
Display Fact Rows	<input checked="" type="checkbox"/>

- Ship hierarchies sparsely to minimize the volume of the data stream
 - Send values only when changed
 - Improves performance



Summary: Create a static Pivot Table

- Add a new Pivot Table element to the report
 - Typically under the Page Root of an empty report
- Add dimensions (hierarchy elements)
- Add measures under the FACT node
- Arrange dimensions and measures in the Structure view
- Set additional properties for all elements



- Specific Java class ‘PivotTable’ with 2 nested classes
 - PivotTable.PivotHierarchy
 - PivotTable.PivotMeasure
- Methods to get information about Pivot Tables present in a 4RP file

Methods	
Modifier and Type	Method and Description
void	debug(PrintStream out) Dumps debugging information to the specified PrintStream
String	getComputeAggregatesOnInnermostDimension ()
String	getDisplayFactRows ()
String	getDisplayRecurringValues ()
String	getDrawAs ()
PivotTable.PivotHierarchy []	getHierarchies ()
String	getHierarchiesDisplaySelection ()
String	getInputOrder ()
PivotTable.PivotMeasure []	getMeasures ()
String	getMeasuresDisplaySelection ()
String	getName ()
String	getOutputOrder ()
String	getTitle ()
String	getTopN ()
static PivotTable []	load4rpAndGetPivotTables (String fileName) Loads a 4rp file and returns an array of PivotTable objects each representing a pivot tables from the file

- Get information about the hierarchies
 - Methods of a 'PivotTable.PivotHierarchy' object

Methods	
Modifier and Type	Method and Description
void	debug (PrintStream out)
String	getComputeAverage ()
String	getComputeCount ()
String	getComputeDistinctCount ()
String	getComputeMaximum ()
String	getComputeMinimum ()
String	getComputeTotal ()
String	getEnumValues ()
String	getFormat ()
String	getIsNumeric ()
String	getName ()
String	getTitle ()
String	getValue ()

- Get information about the measures
 - Methods of a 'PivotTable.PivotMeasure' object

Methods	
Modifier and Type	Method and Description
String	getFormat ()
String	getIsNumeric ()
String	getName ()
String	getTitle ()
String	getValue ()



- Open the **‘OrderReportJava’ demo project**
- Check the static pivot table example **‘StaticPivotTable.4rp’**
- Check the dynamic pivot table example **‘DynamicPivotTable.4rp’** and the corresponding source code **‘PivotTableDialog.java’** and **‘OrderReportJava.java’**
- Run the demo and choose **‘DynamicPivotTable’** as design