Understanding BEx Query Designer: Part-4 Conditions & Exceptions

Applies to:

SAP NetWeaver BW.

Summary

This document is the fourth installment of a 6 part Query Designer Training guide for Beginners. It deals with understanding the need and use of Conditions and Exceptions in the Query Designer. This document will also be helpful to intermediate and advanced level users to learn some usually ignored but helpful facts about the Query Designer.

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Created on: 6 Jun 2011

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The BEx Query Designer

Definition

It is an Independent desktop application for defining queries.

Use

You analyze the dataset of the Business Information Warehouse by defining queries for InfoProviders using the BEx Query Designer. By selecting and combining InfoObjects (characteristics and key figures) or reusable structures in a query, you determine the way in which you navigate through and evaluate the data in the selected InfoProvider.

Integration

You open the Query Designer from Start/Programs/Business Explorer/Query Designer.

You can also call up the BEx Query Designer from the following components:

- BEx Analyzer

- BEx Web Application Designer

- Crystal Reports (Crystal Reports $\geq$ 8.5 incl. CR add-ons for SAP)

Features

The BEx Query Designer contains the following functions:

- You can use the queries that you define in the query designer for OLAP reporting and also for tabular reporting.

- You can parameterize the queries by using variables for characteristic values, hierarchies, hierarchy nodes, texts, or formulas.

- You can select InfoObjects more precisely by:
  - · Restricting characteristics to characteristic values, characteristic intervals and hierarchy nodes
  - · Defining formulas
  - · Defining selections
  - · Defining reusable calculated and restricted key figures.
  - · Using local or reusable structures
  - · Defining exceptions
  - · Defining conditions

The most significant components of the query definition are the filter and navigation:

- Selections in the **filter** have a limiting effect on the whole query. When defining the filter, you select characteristic values from one or more characteristics or from a key figure. All of the InfoProvider data is aggregated using the filter selection of the query. The filter selection cannot be changed by navigation.

- For navigation**,** you select user-defined characteristics and determine the content of the rows and columns of the query. You use this selection to determine the data areas of the InfoProvider over which you want to navigate. The arrangement of the contents of the rows and columns also determines the default view of the query and the rows and columns axes in the results area.

  After it is inserted into the Web browser, a query is displayed in the default initial view. By navigating through the query, you can generate different views of the InfoProvider data, by dragging one of the user-defined characteristics into the rows or columns of the query, for example, or by filtering a characteristic according to a single characteristic value.

With the definition of a query, the InfoProvider data can be evaluated specifically and quickly. The more detail in which the query is defined, the quicker its execution and navigation.

Conditions

Use

You can formulate conditions to make data analysis more efficient. In the results area of the query, the data is filtered according to the conditions so that only the part of the results area that you are interested in is displayed.

If you apply conditions to a query, you are not changing any numbers. Instead, you are just hiding the numbers that are not relevant for you. For this reason, conditions have no effect on the displayed values of the results rows. The results row of a query with an active condition corresponds to the results row of a query without this condition

You can define multiple conditions for a query. Conditions are evaluated independently of each other. In doing so, the results quantity for the evaluation sequence is independent. The result is the intersection of the individual conditions. Multiple conditions are linked logically with AND. A characteristic value is only displayed when it fulfills all (active) conditions of the query

Integration

The conditions function for defining is available in the following areas of the Business Explorer:

- in the BEx Query Designer
- in Web Applications
- in the Ad-hoc Query Designer
- in the Web item List of Conditions
- in the toolbar of the standard Web template

Prerequisites

You have defined a query, have used this query if necessary as a data provider in a Web application, and would now like to define one or more conditions for this query.

Features

Conditions help you restrict how you view query data in the following way:

- **Threshold values:** An entry is filtered independent of the other entries if its reference value has a specific relationship to a comparison value. For example, an entry is not displayed if its reference value exceeds or goes below a specific threshold value.

- **Ranked List**: All entries for the displayed list or all entries for a logical section of the list (with multiple characteristics in the drilldown) are considered here and their relationship to another determines whether the entry is displayed. For ranked lists, the sorting is switched on automatically when the condition is activated.

The following operators help you to create rank lists:

- **Top N, Bottom N**: The ranked list is arranged according to a particular number.

  Customers: Top 3 with bottom 5 sales volumes

  You get a list of the three customers having the strongest sales and the five customers with the weakest sales. This means that you see the set union of both condition rows Top 3 Sales and Bottom 5 Sales.

- **Top percent, bottom percent:** The ranked list is arranged according to a particular percentage.

  Material: Top 25% of sales revenue

  You receive a list of the strongest materials – related to revenue - until 25% of the total revenue is attained.

  Material: Bottom 25% of sales revenue

  You receive a list of the weakest materials – related to revenue - until 25% of the total revenue is attained.

Top total, bottom total: The ranked list is arranged according to a particular totals value.

Products: Top total 20,000 EUR of sales volume

You get a list of products with the lowest sales volume, whose combined sales volume makes a total of 20,000 EUR. First, all sales volumes are sorted in descending order and then totals are formed until the threshold value of 20,000 is exceeded. Those products that exceed the 20,000 EUR thresholds are left in the list.

The ranked list for this condition might look like this:

Product	Sales
A	11,000 EUR
B	7,000 EUR
C	5,000 EUR

Product C is included in the list, even though it means the total is greater than 20,000 EUR. All the products that have a lower sales volume than product C are no longer displayed.

If you want to create a ranked list of the products with the lowest sales volume whose combined sales total a certain amount, use the Bottom total operator.

Creating a Condition: An Illustrated example

Let us assume a scenario where we want to Display all the products that generate a revenue of greater than or equal to 150,000 EUR.

To achieve this, first drag the Product Characteristic to Rows and the Revenue Characteristic to Columns as shown below.
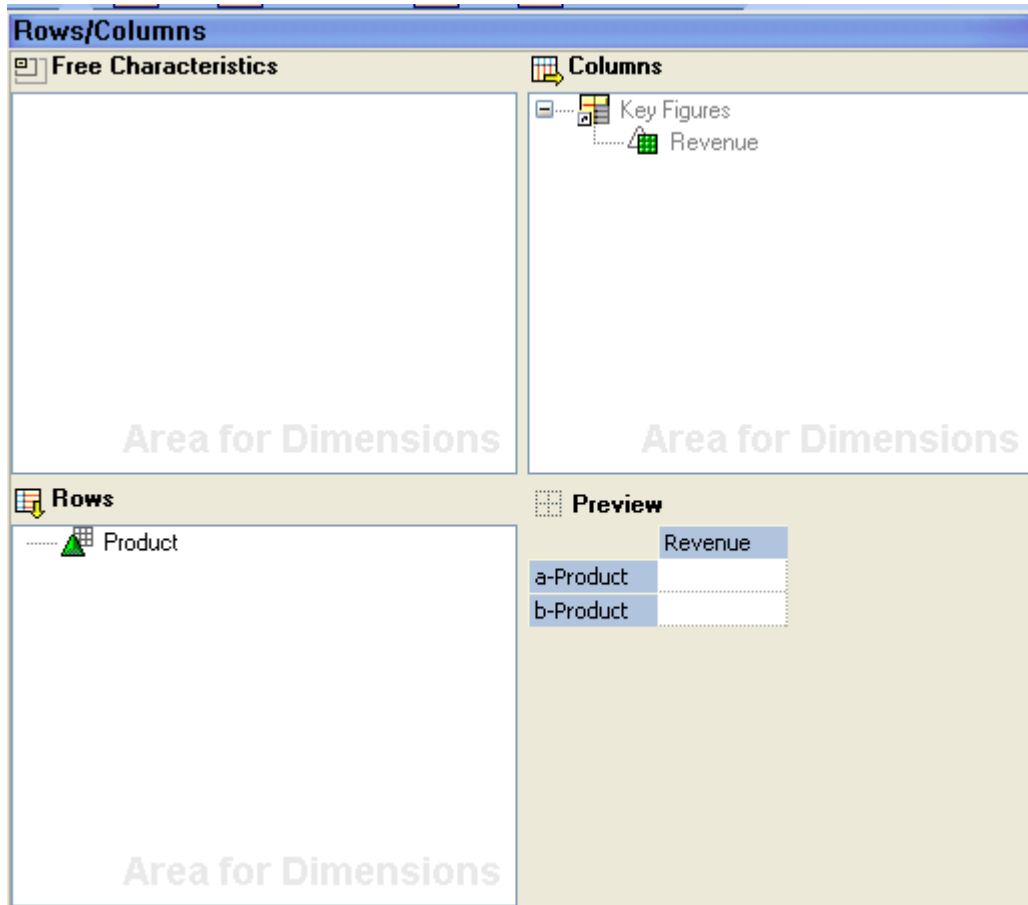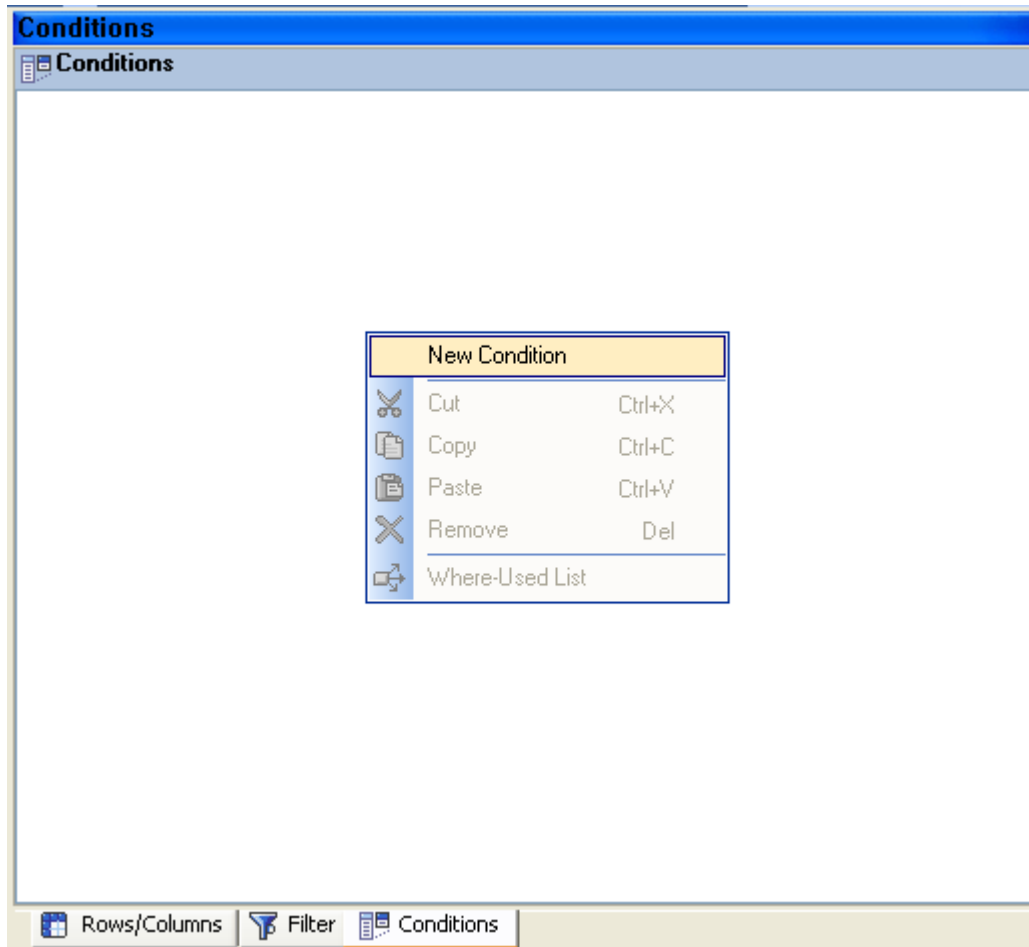

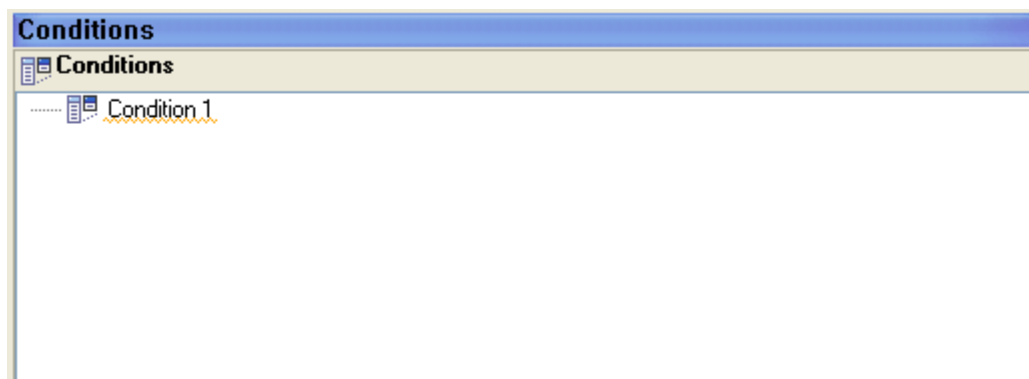To create a new condition, first click on the conditions button circled in red below.
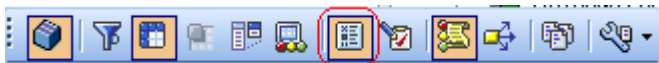
This will open the Condition screen area.

The Condition screen area screenshot is given below. Right click anywhere inside it and select New Condition to create a new condition.

After selecting New Condition, a new undefined condition will appear in the Conditions pane as shown below.

Double click on 'Condition 1' to define it.

You will get the following pop-up
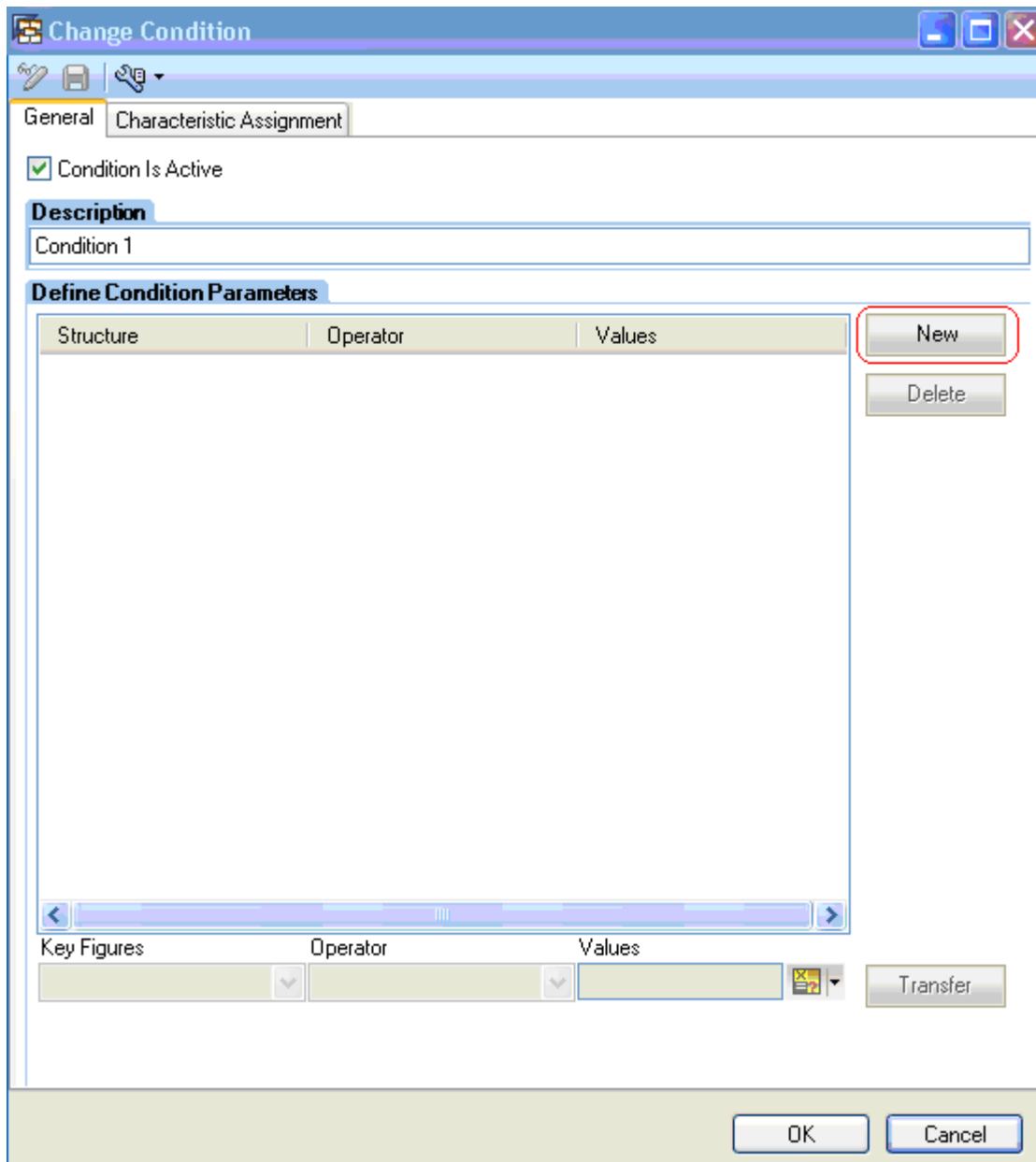
Click on the New button (Circled in red above) to create a new condition.

This will cause the drop down menus that were grayed out to become active.

Now use the Drop down menu to define our condition as shown below.

Click on the Transfer button (Circled in red above) to transfer the condition to the Define Condition Parameters Pane.

You can see below that the condition has been added.

Now give your condition a meaningful description and press OK to save.

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You will see that the new condition has been added as shown below.
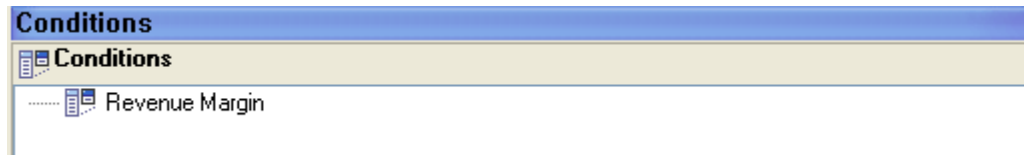
The query output below confirms that the design works flawlessly.

Exceptions

Use

You can define threshold values (exceptions) for a query. You define exceptions in the BEx Query Designer or in BEx Web applications.

Features

Defining an exception involves defining the following components:

Exception Type

You specify whether you want to define a status exception or a trend exception. The type of exception affects, for example, the display of the exception.

- Status exceptions affect absolute key figures. They describe the current status of a number (such as revenue > 30000).

- Trend exceptions affect relative key figures. They describe a change to a key figure (such as deviation > 5 percent).

You can only make this setting in the exception wizard, not in the exception editor.

Definition of Key Figures

You specify which key figures the exception is to affect. The exception can affect all structure elements of a structure or a selected structure element.

If a structure element is used in the definition of an exception and the structure is inconsistent, the system displays an information message in the Messages area and automatically corrects the structure. The system adds the used structure element to the structure. To activate this change, you must save the structure.

Time of Evaluation

You can set whether the evaluation of the exception is to take place before or after a local calculation.

Choose Before Local Calculation or After Local Calculation as required.

Specifying the Threshold Values

Set the required alert level and specify the relevant threshold values and operators.

You can choose from the following alert levels:

- Good 1

- Good 2

- Good 3

- Critical 1

- Critical 2

- Critical 3

- Bad 1

- Bad 2

- Bad 3

You can choose from the following operators:

- = Equal To

- <> Not Equal To

- > Greater Than

- >= Greater Than or Equal To

- < Less Than

- <= Less Than or Equal To

- [] Between

-][Not Between

The values for these operators must be floating point numbers. For the operators [] Between and][Not Between, you must enter a value range, that is, an upper and a lower threshold value.

The input format depends on the country setting for the operating system.

In BEx Query Designer, you can use formula variables for the from and to values of the exception. By choosing ▨ Entry of Variables, the input help appears and you can select the required formula variable. When you execute the query, the variable dialog box appears, in which you can choose the from and to values.

In addition to selecting a formula variable, you can also define new variables, change variables, and delete them.

The system interprets the threshold values in the exceptions as numbers.

This means for example that is not possible to enter a date directly as a threshold value. In BEx Query Designer, you can specify a date as a threshold value by using a form variable with processing type Customer Exit as the threshold value. The form variable must have the dimension Date. The customer exit provides the required date.

The system processes the defined alert level and the associated threshold values sequentially. If you define multiple alert levels and threshold values for a value, the system displays the lowest alert level.

Display/Target

You can set whether the exception is to affect data cells or characteristic cells. In accordance with your setting, the highlighting for the exception is displayed on the numbers for the selected key figure or the text for the most detailed characteristic value.

When you display the exception on data cells, you can choose whether the exception is to be displayed on the evaluated structure element, on another structure element, or on all structure elements.

When you display the exception on characteristic cells, you can choose whether the exception is to be displayed on the rows, on the columns, or on both the rows and columns.

Table Display

You can display the exception in the table in the following ways:

- Background color: The exception is displayed with the background color of the data cell or characteristic cell. The color shading ranges from dark green for alert level *Good 1* through yellow for alert level *Critical 1* to dark red for alert level *Bad 3*. There are a total of nine color shades, corresponding to nine different levels of priority.

- Icon: The exception is displayed using icons.

- Icon and value: The exception is displayed with an icon and the value of the data cell or characteristic cell.

- Value and icon: The exception is displayed with the value of the data cell or characteristic cell and an icon.

Characteristic Restriction/Cell Restriction

In the characteristic restriction of the exception, you specify on which cells the exception is to be evaluated. For all characteristics, the exception affects only the results unless you define otherwise.

You can choose from any of the free characteristics, or characteristics from the rows and columns used in a query. You cannot use characteristics that are already used in another restriction row in the list.

Select the required validity areas for the characteristics and restrict the characteristics as required.

Possible Validity Areas

Validity Area	Meaning
All	The validity area is not restricted. The exception is valid for all drilldown states for the characteristic.
Totals Only	The exception is valid for aggregated values of the characteristic only.
Everything Except Totals	The exception applies to all values of the characteristic apart from aggregated values.
Fixed Values	The exception is valid for only one particular value of the characteristic (such as Spare Parts under Product Group, for example). Select the required characteristic value. In BEx Query Designer, you can also use a characteristic variable here by choosing Entry of Variables and selecting the required characteristic variable from the input help. When you execute the query, the variable dialog box appears, in which you can choose the characteristic value. You can also define new variables, change existing variables, and delete them
Level	The exception is valid for a particular hierarchy level of the characteristic only. Select the required hierarchy level.

Properties

Specify whether the exception is active or inactive and enter a description for the condition.

Creating a Exception: An Illustrated example

Let us assume a scenario where we want to Display all the products and their associated revenues in a way that Critical range, Bad range and Good range revenues are highlighted in different colors. For this scenario, we will assume Critical range to be less or equal to than 100,000 EUR, bad range to be between 100,000 EUR and 300,000 EUR and good range to be any value above 300,000 EUR.

To achieve this, first drag the Product Characteristic to Rows and the Revenue Characteristic to Columns as shown below.
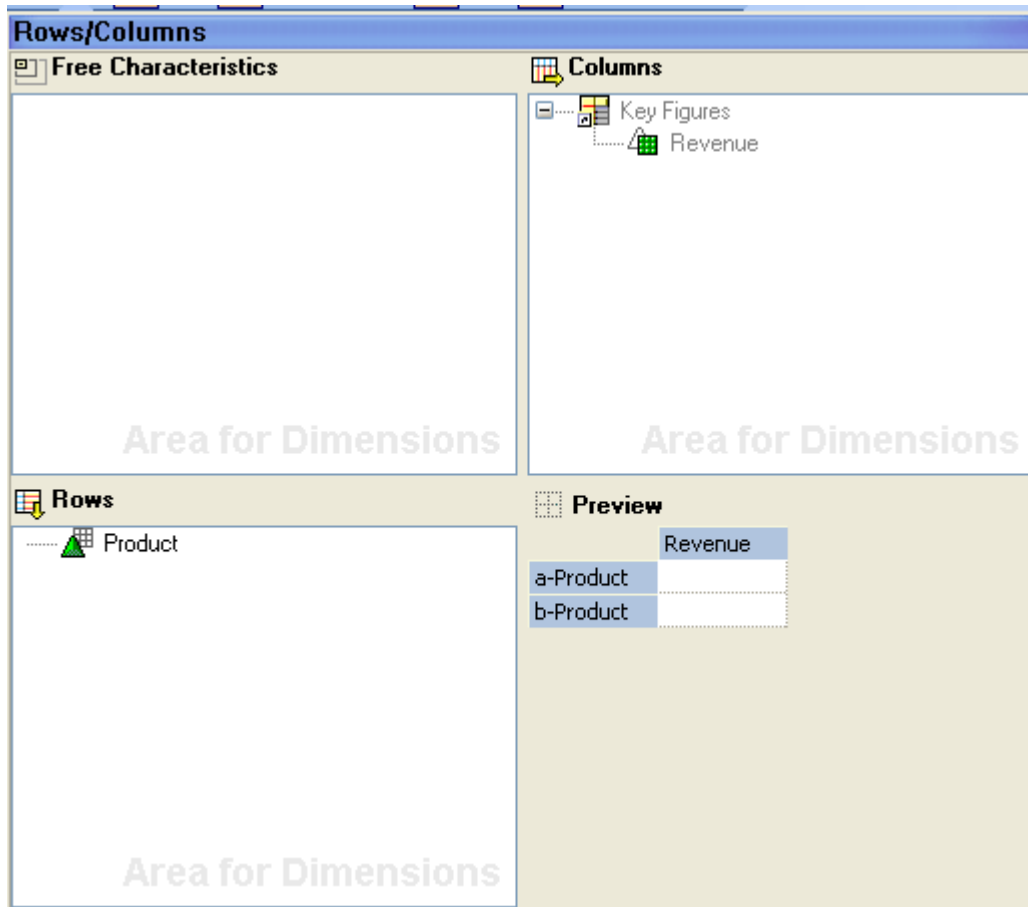
To create a new exception, first click on the conditions button circled in red below.

This will open the Exception screen area.

The Exception screen area screenshot is given below. Right click anywhere inside it and select New Exception to create a new Exception.
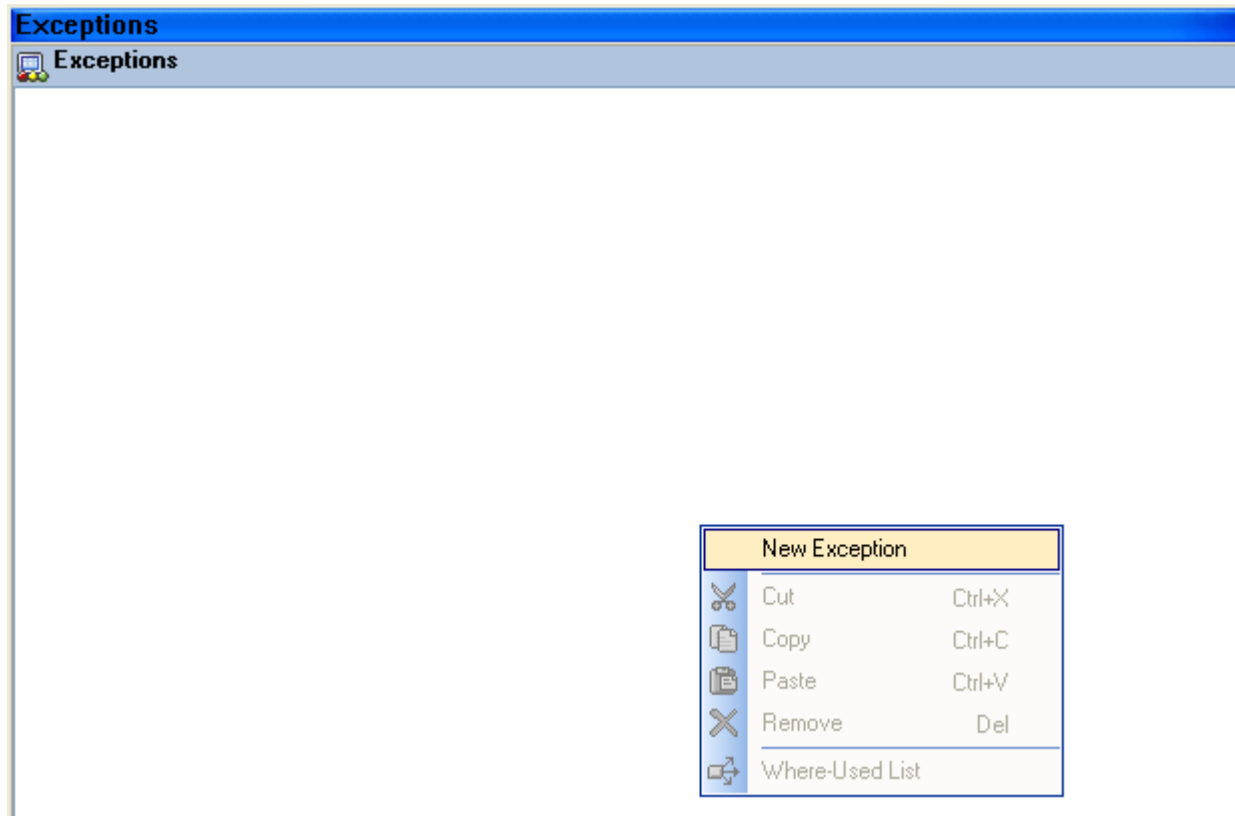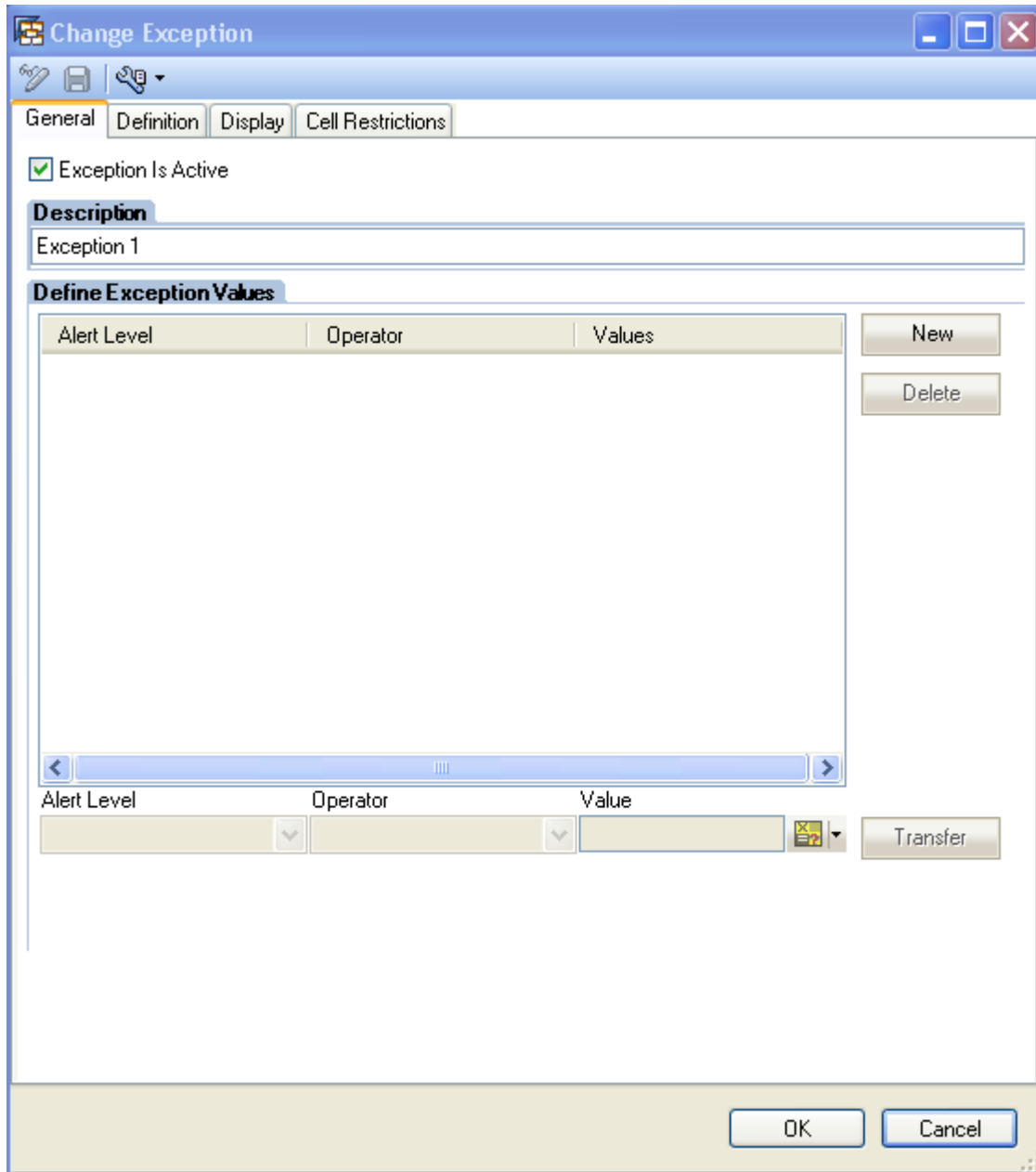
After selecting New Exception, a new undefined Exception will appear in the Exceptions pane as shown below.
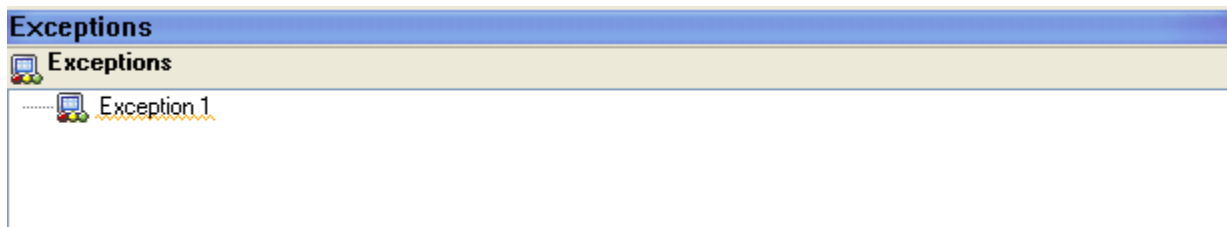
Double click on 'Exception 1' to define it.

You will get the following pop-up

Click on the new button in the popup defined above to define a new exception.

According to our requirement we will define Critical range to be less or equal to than 100,000 EUR as shown below. Click transfer (Circled in red below) to add the new exception. Also add a meaningful description to the exception.

As you can see below, the new exception has been added.

Similarly, add the other 2 requirements in a similar fashion to reach the result shown below.

Now move to the Definition Tab of the same pop-up.

You will see the following options:

We need to define this exception only on revenue, so use the Key Figures Drop down and select revenue as shown below.

Press OK to return to the Main Exception Definition window as shown below. It confirms that the exception has been added.
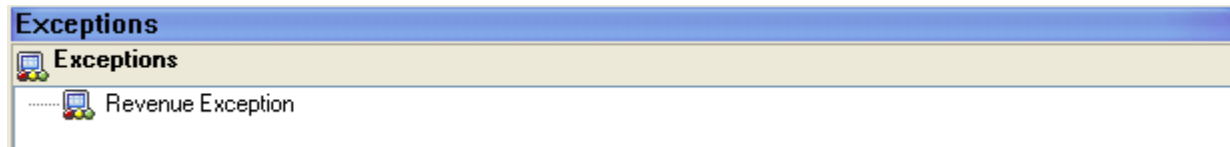
Save the query.

Now we will see the query output in RSRT transaction screen.

You can see that the different t revenue ranges have been highlighted differently.

Thus the requirement is met.

Related Content

http://help.sap.com/saphelp_erp2004/helpdata/en/4d/e2bebb41da1d42917100471b364efa/content.htm

http://sapdocs.info/sap/bw-bi-bobj/sap-bex-query-designer/

http://help.sap.com/saphelp_nw04/helpdata/en/f1/0a569ae09411d2acb90000e829fbfe/content.htm

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