
# BF Faceted Navigation.doc

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# 1 Modification History

| Date | Who | Comments |
|---|---|---|
| 09-Dec-10 | Solveda | Initial |
| 24-Mar-11 | Solveda | Examples enhanced to show more details. |
| 7-Sep-11 | Solveda | Processing to use the FROM and THRU dates in order to decide of certain Facets should be displayed. Add "Technical Implementation Details" section |
| 30-Sep-11 | Solveda | Changed to use the MIN/MAX values on the PRODUCT_FEATURE_CAT_GRP_APPL as an override to the system parameters FACET_VALUE_MIN and FACET_VALUE_MAX.<br><br>See section "*Controlling the More>> link*" for details. |
| 28-Oct-11 | Solveda | - New algorithm for computing the "Price" ranges, documented in Excel document "*BF Facet Price Calculator.xls*"<br>- New parameter FACET_SHOW_ITEM_CNT, see section "*Display Item Count*" |
| 14-Nov-11 | Solveda | Site Search must eliminate duplicate products. |
| 22-Nov-11 | Solveda | Use FACET_PRICE_ROUND to show, for example, $55.65 or $55 in the price facets. |
| 25-Apr-12 | Solveda | If the Price Facet has only one value then do not allow it to be clickable |
| 9-Jul-12 | Solveda | Requirements that when results are returned into the PLP format via a site search that the superset of Facets should be included. |
| 7-Aug-12 | Solveda | Limit the Facet Groups shown in a Site Search as defined by parameter SEARCH_FACET_GROUP_INCLUDE |
| 28-Jan-13 | Solveda | Changes to expand/collapse facet groups. |
| 26-Feb-13 | Solveda | Added the first implementation of "multi-select" |
| 11-Mar-13 | Solveda | Removing selected facets from Breadcrumb |
| 22-Mar-13 | Solveda | Added message not found in the event that a facet removal from the breadcrumb results in no matching products |
| 20-Jun-13 | Solveda | Added "facet tooltip", used for informational display for the Facet Group |
| 17-Feb-14 | Solveda | Multi-select modified to use checkboxes |
| 2-Oct-14 | Solveda | Usage of FACET_VALUE_STYLE for NORMAL, CHECKBOX or DROPDOWN |

# 2 Faceted Navigation

## 2.1 Overview

- Faceted Navigation is a mechanism to "filter" result sets by a specific attribute.
- It is implemented within the Category Listing Pages (CLP) and Product Listing Pages (PLP).
- Apache SOLR will be used for the implementation.

# 3 Terminology

## 3.1 Product Terminology (OFBiz)

### Standard features

- Standard features are features which are associated with every instance of a product. An example might be the brand name of a product -- all instances of the product share the same brand name.

### Selectable features

- Selectable features are features which the customer selects one from many available choices. For example, a shirt may be available in White, Blue, and Green. These colors would be 'Selectable features' of the **variant** product shirt, and the customer would be prompted to choose a color.

- Each color, though, would be a 'Standard feature' of the physical product. Thus, White would be a 'Selectable feature' of the virtual product 'shirt' but a 'Standard feature' of 'white shirt.'

### Distinguishing features

- Distinguishing features are features which distinguish one product from another and are used to show the customer which item was chosen.

*Facets can include Standard, Selectable and Distinguishing. In this document they are collectively referenced "descriptive attributes".*

**Example:**

| Product | Attribute Type | Value |
|---|---|---|
| Product #1 MASTER (VIRTUAL) | STANDARD | Brand=123 |
| | SELECTABLE | Color=White |
| | SELECTABLE | Color=Blue |
| | SELECTABLE | Size=Small |
| | SELECTABLE | Size=Medium |
| | SELECTABLE | Size=Large |
| | DISTINGUISHING | Doors=Two |
| | | |
| Product #1-1 VARIANT | STANDARD | Color = White |
| | STANDARD | Size = Small |
| Product #1-2 VARIANT | STANDARD | Color = White |
| | STANDARD | Size = Medium |
| Product #1-3 VARIANT | STANDARD | Color = White |
| | STANDARD | Size = Large |
| Product #1-4 VARIANT | STANDARD | Color = Blue |

| | | |
|---|---|---|
| | STANDARD | Size = Small |
| Product #1-5 VARIANT | STANDARD | Color = Blue |
| | STANDARD | Size = Medium |
| Product #1-6 VARIANT | STANDARD | Color = Blue |
| | STANDARD | Size = Large |

For product #1-4 the attributes would be:

| | |
|---|---|
| STANDARD | Brand=123 |
| STANDARD | Color = Blue |
| STANDARD | Size = Small |
| DISTINGUISHING | Doors=Two |

### 3.2 Facet Terminology

- Consider a standard Color Facet displayed as follows:

  ***Color:***
  *Red (4)*
  *Blue (3)*
  *Green (3)*
  *Yellow (3)*
  *White (2)*
  *More>> (7)*

- The Facet **GROUP** is "Color"
- Facet **VALUES** include Red, Blue, etc.
- The Facet RESULTS indicate the number of Products for the Facet Value.

# 4 Examples

## 4.1 Products for Illustration

| Item# | Cat | Desc | Price | Brand | Material | Color | Author | Doors | Size |
|---|---|---|---|---|---|---|---|---|---|
| B1 | Books | Programming | $49 | Reilly | Paper | White | Smith | | |
| B2 | Books | Debugging | $39 | Reilly | Paper | White | Robson | | |
| B3 | Books | Performance | $59 | Reilly | CD | N/A | Smith | | |
| B4 | Books | Performance | $79 | Salmon | Paper | White | Harvey | | |
| B5 | Books | Performance | $69 | Salmon | Paper | White | Harvey | | |
| B6 | Books | Performance | $45 | Salmon | Paper | White | Harvey | | |
| C1 | Cars | Ford Taurus | $16,000 | Ford | Metal | White | | Two | Compact |
| C2 | Cars | Ford Explorer | $22,000 | Ford | Metal | Red | | Four | Mid Size SUV |
| C3 | Cars | Mercedes S500 | $95,000 | Mercedes | Metal | Blue | | Four | Sedan |
| C4 | Cars | Mercedes E350 | $73,000 | Mercedes | Metal | White | | Four | Sedan |
| C5 | Cars | Ford Exhibition | $71,000 | Ford | Metal | Blue | | Five | Large SUV |

- Each product will have a set of "descriptive attributes"
- For Books this will include Brand, Material, Color, Author
- For Cars this will include Brand, Material, Color, Doors, Size
- "Descriptive attributes" are simple attributes that further define the product

## 4.2 Facet Group Definition

- A Facet Group Definition will associate a list of Descriptive-Attributes with a Product Category
- Not all Descriptive Attributes are required to be defined for a Product Category. In our example we are storing a descriptive-attribute of Material for the Cars Product Category but we are not defining this as a Facet Group
- Price is a special Facet-Group. It is always positioned as the first group
- For our example, the FACET_GROUPS are defined as follows:

| FACET GROUP DEFINITION | |
|---|---|
| **Product Category** | **Facet Groups** |
| Books | Price, Brand, Material, Color, Author |
| Cars | Price, Brand, Color, Size, Doors |

## 4.3 Books Example

***Price:***
*$0 - $39 (1)*

*$40 - $49 (2)*
*$50 - $59 (1)*
*$60 - $69 (1)*
*$70 - $79 (1)*

***Brand:***
*Reilly (3)*
*Salmon (3)*

***Material:***
*Paper (5)*
*CD (1)*

***Color:***
*White (5)*

***Author:***
*Harvey (3)*
*Smith (2)*
*Robson (1)*

** Note: Color has one less item than the other groups. This is because item B3 has a "N/A" color.*

### 4.4 Cars Example

***Price:***
*$0 - $16,000 (1)*
*$16,001 - $22,000 (1)*
*$22,001 - $75,000 (2)*
*$75,001 - $95,000 (1)*

***Brand:***
*Ford (3)*
*Mercedes (2)*

***Color:***
*White (2)*
*Blue (2)*
*Red (1)*

***Size:***
*Compact (1)*
*Sedan (2)*
*Mid Size SUV (1)*
*Large SUV (1)*

***Doors:***
*Two (1)*
*Four (3)*
*Five (1)*

## 4.5 Price Facet Group

- Consider a browse for "Books", Price Facet could be grouped with the following ranges:

  ***Price:***
  *$0 - $39 (1)*
  *$40 - $49 (2)*
  *$50 - $59 (1)*
  *$60 - $69 (1)*
  *$70 - $79 (1)*

- A click on the "$40 - $49" Facet VALUE will further filter the PLP, and offer Price Facets as follows:

  ***Price:***
  *$40 - $46 (1)*
  *$47 - $49 (1)*

- *The algorithm for computing the ranges of price facets is described in the Excel document "BF Facet Price Calculator.xls".*

- At some point the Price Facet will only have one VALUE range:

  ***Price:***
  *$40 - $46 (1)*

- If this is the case then the Price value should NOT be clickable.

## 4.6 Price Facet Rounding

- The system parameter FACET_PRICE_ROUND will control the number of decimal places to be displayed in the listed prices. Examples:

- FACET_PRICE_ROUND = 0 (default)

  ***Price:***
  *$0 - $39 (1)*
  *$39 - $49 (2)*
  *$49 - $59 (1)*
  *$59 - $69 (1)*
  *$69 - $79 (1)*

- FACET_PRICE_ROUND = 2 (default)

  ***Price:***
  *$0.00 - $39.00 (1)*
  *$39.01 - $49.00 (2)*
  *$49.01 - $59.00 (1)*
  *$59.01 - $69.00 (1)*
  *$69.01 - $79.00 (1)*

## 4.7 Sequence of Facet GROUPS

- Business Users will want to control the sequence of the FACET GROUPS rather than allow the system to display in alphabetically order. This is simply because some Facet GROUPS are more important than others.
- Default settings will order alphabetically (Price is always positioned at the top).
- For example, for "Cars", the "Size" group is more important than "Color".

***Price:***
*values (n)*

***Size:***
*values (n)*

***Color:***
*values (n)*

## 4.8 Sequence of Facet VALUES

- Business Users will want to control the sequence of the VALUES rather than allow the system to display in alphabetically order. This is simply because some Facet VALUES are more important than others.
- Default settings will order alphabetically
- For example, for "Cars", the "Size" values should be logically sequenced as follows:

***Size:***
*Compact (1)*
*Sedan (2)*
*Mid Size SUV (1)*
*Large SUV (1)*

- Alternatively, business users may want to order by "# results" – this would ensure that the biggest result for a VALUE is displayed first. Secondary sort will be alphabetical.

***Size:***
*Sedan (2)*
*Compact (1)*
*Large SUV (1)*
*Mid Size SUV (1)*

## 4.9 General Rules

- The following rules should be parameterized so the business user can control settings:
  - The PRICE FACET is ALWAYS listed first

- The PRICE FACET will NEVER contain a "More>>" option
- Never display a facet with ZERO results
- Control the number of displayed facets values (typically 5), offer a standard "More>>" link that will display the remaining facets
- A "Category" Facet GROUP will ALWAYS be displayed as the LAST option.

  ***Category:***
  *Books (3)*
  *Cars (4)*

### 4.10 Controlling the "More>>" link

- This is used to limit the number of Facet VALUES displayed so that the UI remains usable. For example:

  ***Color:***
  *Red (4)*
  *Blue (3)*
  *Green (3)*
  *Yellow (3)*
  *White (2)*
  *More>> (7)*

- A "More>>" option is used to expand the list to show all available values. For example:

  ***Color:***
  *Red (4)*
  *Blue (3)*
  *Green (3)*
  *Yellow (3)*
  *White (2)*
  *Magenta (2)*
  *Violet (2)*
  *Rose (2)*
  *Black (1)*
  *Less<<*

- These basic settings are controlled via the system parameters FACET_VALUE_MIN and FACET_VALUE_MAX
- If the FACET_VALUE_MIN was set to 3, our example would display as:

  ***Color:***
  *Red (4)*
  *Blue (3)*
  *Green (3)*
  *More>> (12)*

- If the FACET_VALUE_MAX was set to 8, after clicking the "More>>" link our example would display as follows:

  ***Color:***
  *Red (4)*
  *Blue (3)*
  *Green (3)*
  *Yellow (3)*
  *White (2)*
  *Magenta (2)*
  *Violet (2)*
  *Rose (2)*
  *<u>See All>></u> (1)*

  - In this example the MAX are displayed but more facets remain. Show a "See All>>" link
  - After clicking the "See All>>" link our example would display as follows:

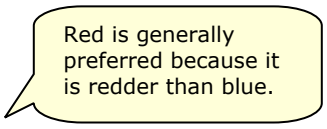
  ***Color:***
  *Red (4)*
  *Blue (3)*
  *Green (3)*
  *Yellow (3)*
  *White (2)*
  *Magenta (2)*
  *Violet (2)*
  *Rose (2)*
  *Black (1)*
  *<u>Less<<</u>*

### 4.11 <u>Facet Group Tooltip</u>

- There are options to provide a Tooltip for a Facet Group (within a category)
  - See spec "*<u>BF Admin Module Manage SOLR Config.doc</u>*" for more information

- If the tooltip text is available then it should be available for styling

- Example:

  ***Color***
  *Red (4)*
  *Blue (3)*
  *Green (3)*

  ***Material***
  *Leather (4)*
  *Wood (3)*
  *Plastic (3)*

### 4.12 Expand / Collapse of Facet Groups

- If the FACET_VALUE_MIN is set to 0 (zero) then this means that the Facet Group should be "collapsed" for the initial display:

  ***Color:***

- Some indication to "expand" the display needs to be provided, some examples follow:

  ✚ ***Color:***

  ▼ ***Color:***

- Clicking on the "expand" icon (shown as ✚ or ▼ in the above examples) would expand the selection, using the FACET_VALUE_MAX parameter to limit the number of VALUES displayed

- A "collapse" indicator would then allow the user to collapse the display:

  ***Color*** ◄

  ***Color*** ▲

- Whenever the group is Expanded or Collapsed, subsequent page loads should honor this selection
  - In other words, assume the following:
    - Color is expanded
    - Values of Blue, Red and Green are displayed
    - Customer selects "Blue"
    - On page refresh, the Color group should remain expanded with the remaining Red and Green values available for selection

- NOTE: The "expand" and "collapse" indicators will be images, so more UI flexibility can be achieved

### 4.13 Removing Selected Facet VALUES

- As Facet selections are made they will be automatically placed into the Breadcrumb component

- Any facet selection made should be able to be removed, whether selected as part of a single-select or multi-select implementation

- For example, assume selections as follows:

  - Home / Apparel and Blouses are built from the standard navigation workflow, and cannot be removed

  - Blue, Denim and Red are faceted selections, and can be removed:

Home ▸ Apparel ▸ Blouses ▸ Blue ☒ ▸ Denim ☒ ▸ Red ☒

- If a customer *hovered* over the ☒ indicator next to "Denim" then the tooltip would display "Remove Denim" (this can be a standard browser tooltip)

- If a customer *clicked* on the ☒ indicator next to "Denim" then the Denim "Material" filter would be removed and the breadcrumb displayed as follows:

Home ▸ Apparel ▸ Blouses ▸ Blue ☒ ▸ Red ☒

- After removal, the facet panel would again offer the Material/Denim options as facets:
  - In a multi-select implementation the "Denim" VALUE would be offered
  - In a single-select implementation the "Material" GROUP would be offered

### 4.14 No Results Found

- Under normal faceting circumstances there should always be results displayed in the PLP (if facets are offered then products are available)

- However, it is possible that by removing facets from the Breadcrumb component that products are not available

- Consider:

  - Products available:

| | |
|---|---|
| Blue | Medium |
| Blue | Large |
| White | Large |

  - Customer clicks on "Blue" (displays 2)
  - Customer clicks on "White" (displays 3)
  - Customer clicks on "Medium" (displays 1)
  - Customer REMOVES "Blue"
    - This leaves "White" + "Medium", no products are available

- f there are no results found then a generic message should be displayed indicating that products are not found for the selected filter.

Products are not found for the selected filter

Please try clearing the filter, or browse our products using the menu above

### 4.15 Controlling MIN and MAX at a PRODUCT-CATEGORY level:

- For each PRODUCT-CATEGORY, the table PRODUCT_FEATURE_CAT_GRP_APPL further controls the value at a PRODUCT-CATEGORY level

- The same rules apply as above using the FACET_VALUE_MIN and FACET_VALUE_MAX attributes on that entity

- If the MIN / MAX are set to blank, null or zero then the system parameter settings should be used

- For more information see "*BF Admin Module Manage SOLR Config.doc*"

### 4.16 Display Item Count

- A system parameter FACET_SHOW_ITEM_CNT (values of "true" or "false") will be used to determine whether to show the item counts for the values.

- Example FACET_SHOW_ITEM_CNT = true

  ***Color:***
  *Red (4)*
  *Blue (3)*
  *Green (3)*
  Yellow (3)

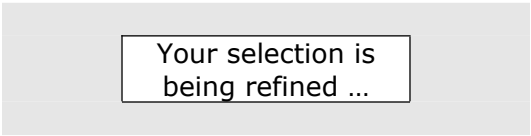
- Example FACET_SHOW_ITEM_CNT = false

  ***Color:***
  *Red*
  *Blue*
  *Green*
  Yellow

# 5 Checkbox Selector (Multi Select)

## 5.1 General

- This is only applied if the system parameter FACET_VALUE_STYLE is set to "CHECKBOX"
- Note that the number of items available, displayed in parenthesis, is not applicable
  - This is because after one VALUE is clicked, the item-count is built from what is displayed as a result of this action
  - This is controlled by the parameter FACET_SHOW_ITEM_CNT
  - No special processing should take place.
  - In other words, if this is set to TRUE then the implementation should continue to display the item count even if it becomes misleading
- Each selection of a facet, by clicking a checkbox, is immediately used as a filtering action
  - Additional selections for the same group will use "OR" filtering logic
- For Multi-Select, do NOT build up the breadcrumb with selected facets
  - Facets are removed by un-checking the facet selection
- The act of filtering immediately may take a few seconds, therefore an "in progress" indicator is required:




  - See www.bigbasket.com for a good implementation of the "in progress" indicator

## 5.2 Example and UI Guideline

- Initial display offers the following:

***Color:***
☐ *Red*
☐ *Blue*
☐ *Green*
☐ *Yellow*

- Customer clicks on "Blue"
  - Products are dynamically refined
  - Subsequent display as follows:

***Color:***
☐ *Red*
☒ *Blue*
☐ *Green*
☐ *Yellow*

- Subsequent selections

- Customers may choose to add more colors to the refinement (treated as an "AND" condition)

  ***Color:***
  ☒ *Red*
  ☒ *Blue*
  ☐ *Green*
  ☐ *Yellow*

- If the Customer un-checked "Blue" and no facets values were checked for a Facet Group, then the refinement for Facet Group would be reset

  - In others words, all values checked is the same as no values checked

    ***Color:***
    ☐ *Red*
    ☐ *Blue*
    ☐ *Green*
    ☐ *Yellow*

    Is effectively the same as:

    ***Color:***
    ☒ *Red*
    ☒ *Blue*
    ☒ *Green*
    ☒ *Yellow*

# 6 DropDown Selector

## 6.1 General

- This is only applied if the system parameter FACET_VALUE_STYLE is set to "DROPDOWN"
- Specific Processing:
  - This behaves in a very similar way to the single select option (FACET_VALUE_STYLE = NORMAL)
  - The capability for "multi select" is NOT required
  - The Group and Value remain displayed after a selection is made
  - The number of items available, displayed in parenthesis, IS applicable if the parameter is set appropriately
  - An "All" value is automatically inserted into the dropdown as the first value
    - This is also the default selection

## 6.2 Example and UI Guideline

- Initial display offers the following:

***Color:***
*All*

- Customer selects "Blue" from the drop-down
  - Products are dynamically refined
  - Subsequent display as follows:

***Color:***
*Blue*

## 6.3 DropDown Selector and Pricing Facet

- Processing
  - The default displayed option will be the last selected value
    - For the first time this will be "All"
    - Highlighted in **bold** in the example below
  - Selecting "All" will remove any price filtering
- Example:
  - Initial Display

***Price:***
**All**

| |
|---|
| $100 to $200 (2) |
| $201 to $300 (10) |
| $301 to $400 (2) |
| $401 to $500 (2) |
| $501 to $600 (2) |

- Click on $201 to $300

***Price:***

| |
|---|
| **$201 to $300** |
| All |
| $201 to $220 (1) |
| $221 to $240 (2) |
| $241 to $260 (2) |
| $261 to $280 (3) |
| $281 to $300 (2) |

- Click on $221 to $240

***Price:***

| |
|---|
| **$221 to $240** |
| All |
| $221 to $230 (1) |
| $231 to $240 (1) |

- Click on $231 to $240

***Price:***

| |
|---|
| **$231 to $240** |
| All |

# 7 Selectable Attributes, Variants and Facets

## 7.1 Overview

- A "Selectable Attribute" is a special attribute that the customer will select as part of the "Add to Cart" functionality.
- The uniqueness of a "Selectable Attribute" is that it can contain more than one attribute value.
- All best illustrated with examples:

## 7.2 Facet Group Definition

- For our example, the FACET_GROUPS are defined as follows:

| **FACET GROUP DEFINITION** | |
|---|---|
| **Product Category** | **Facet Groups** |
| Shirts | Price, Brand, Color, Size |

  - "Material" is an important attribute for the "Shirts" category, However since all values are the same we are specifically excluding "Material" from the facet-group definition for this category.

## 7.3 Shirts Example

***Price:***
*$0 - $20 (1)*
*$20 - $28 (2)*
*$29 - $34 (2)*
*$35 - $39 (1)*

***Brand:***
*Versace (3)*
*Hugo Boss (3)*

***Color:***
*White (4)*
*Red (4)*
*Blue (5)*

***Size:***
*Small (5)*
*Medium (6)*
*Large (6)*
*X-Large (5)*

# 8 Facets and Site Search

## 8.1 Site Search

- The Site Search will leverage the SOLR Index in order to find matching products. Products are displayed as a PLP list.
- Some products may be loaded into multiple categories within the Product Catalog. A site search must eliminate duplicates in this case.

## 8.2 Displaying Facets via Site Search

- Using the SOLR Site Search function, Products may be matched from multiple Product Categories.
- The "Price" and "Category" facet GROUPS will be displayed.
- In addition, the superset of Facet Groups from the various Categories should be displayed.
- Consider a result set for a search term of "White" that returns the following Products:

| Item# | Cat | Desc | Price | Brand | Material | Color | Author | Doors | Size |
|---|---|---|---|---|---|---|---|---|---|
| B1 | Books | Programming | $49 | Reilly | Paper | White | Smith | | |
| B2 | Books | Debugging | $39 | Reilly | Paper | White | Robson | | |
| B4 | Books | Performance | $79 | Salmon | Paper | White | Harvey | | |
| B5 | Books | Performance | $69 | Salmon | Paper | White | Harvey | | |
| B6 | Books | Performance | $45 | Salmon | Paper | White | Harvey | | |
| C1 | Cars | Ford Taurus | $16,000 | Ford | Metal | White | | Two | Compact |
| C4 | Cars | Mercedes E350 | $73,000 | Mercedes | Metal | White | | Four | Sedan |

- The Facets would be displayed as follows:

***Category:***
*Books (5)*
*Cars (2)*

***Price:***
*$0 – $99 (5)*
*$100 - $16,000 (1)*
*$16,001 – $73,000 (1)*

***Brand:***
*Reilly (2)*
*Salmon (3)*
*Ford (1)*
*Mercedes (1)*

***Material:***
*Paper (5)*
*Metal (2)*

***Color:***
*White (7)*

***Author:***
*Harvey (3)*
*Robson (1)*
*Smith (1)*

***Doors:***
*Two (1)*
*Four (1)*

***Size:***
*Compact (1)*
*Sedan (1)*

- Notes:
  - The Facet Groups "Color", "Brand" and "Material" are shared amongst the products even though they are from different Categories
  - The Facet Group "Author" is specific to Products in the "Books" category
  - The Facet Groups "Doors" and "Size" are specific to Products in the "Cars" category
- Final Filtering of Facet Groups
  - The System Parameter SEARCH_FACET_GROUP_INCLUDE contains a list of comma separated Facet Groups that should be INCLUDED in the final display
- Example:
  - Assume that SEARCH_FACET_GROUP_INCLUDE has a value of CATEGORY, PRICE, BRAND, COLOR
  - Then the final display would appear as follows:

    ***Category:***
    *Books (5)*
    *Cars (2)*

    ***Price:***
    *$0 – $99 (5)*
    *$100 - $16,000 (1)*
    *$16,001 – $73,000 (1)*

    ***Brand:***
    *Reilly (2)*
    *Salmon (3)*
    *Ford (1)*
    *Mercedes (1)*

***Color:***
*White (7)*

# 9 Ongoing Flexibility

It is very important that ongoing flexibility will handle changes to the product data and how this impacts the facets.

As an example, assume that our client now requires the following changes:

- Add a new descriptive-attribute to be added to the Book product category. This is "Topic".
- Remove the "Material" facet-group, this is not relevant to their business for this category.
- Add "Topic" as a new Facet-Group
- Data being received is now:

| # | Cat | Desc | Price | Brand | Material | Color | Author | Topic |
|---|---|---|---|---|---|---|---|---|
| B1 | Books | Programming | $49 | Reilly | Paper | White | Smith | Java |
| B2 | Books | Debugging | $39 | Reilly | Paper | White | Robson | PHP |
| B3 | Books | Performance | $59 | Reilly | CD | N/A | Smith | Java |
| B4 | Books | Performance | $79 | Salmon | Paper | White | Harvey | Systems |
| B5 | Books | Performance | $69 | Salmon | Paper | White | Harvey | Web |
| B6 | Books | Performance | $45 | Salmon | Paper | White | Harvey | Systems |

- The Facet-Group definition is simply modified as follows:

| FACET GROUP DEFINITION | |
|---|---|
| **Product Category** | **Facet Groups** |
| Books | Price, Brand, Color, Topic, Author |

- Facets will display as follows:

***Price:***
*$0 - $39 (1)*
*$40 - $49 (2)*
*$50 - $59 (1)*
*$60 - $69 (1)*
*$70 - $79 (1)*

***Brand:***
*Reilly (3)*
*Salmon (3)*

***Color:***
*White (5)*

***Topic:***
*Java (2)*
*Systems (2)*
*Web (1)*

## 10 Technical Implementation Notes

- The two database tables used in the OFBiz implementation are:
  - ProductFeatureCatGrpAppl: this table defines, by Product-Category, the Facet GROUPS
  - ProductFeatureGroupAppl: this table defines, by Facet Group, the Facet VALUES
- Both tables have specific columns to determine whether the Facet GROUP or VALUES are displayed and the sequence of both GROUPS and VALUES:
  - From and thru-date: [system-date] must be >= from-date and <= thru-date in order for a GROUP or VALUE to be displayed
  - The SeqNum column should be used for sorting of GROUPS and VALUES