



## The CookBook



## Purpose of the Cookbook



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## Definitions - General

- **Chart Owner**

The chart owner creates and publishes charts using iCharts Studio. The original chart owner owns also the data source. The original chart owner decides whether others can adapt the original chart. In all chart derivatives the original chart owner should be referenced.

- **Chart Consumer**

The chart consumer is the viewer of an iChart. He does not need iCharts Studio. If enabled by the chart owner, a chart consumer can become a chart owner by copying a chart into his own account. The chart consumer can set and adapt a charts interactivity elements.



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## Definitions – iCharts building blocks

- **Chart Data**

The actual data set which is to be visualized through a chart. The data set is contained in a **data source** provided by the **chart owner**. The data source is to be structured in a simple standard column form with arbitrary ordering of columns.

- **Chart Types**

The type of chart to be selected to graphically visualize the data set. **Chart types** (Bar, Column, Pie, Scatter etc.) can have sub types (Stacked Bar, Parallel Bars). The chart owner can build any kind of chart from the data source. The owner constructs his chart by dragging and dropping the data columns on to the **chart creation pane**. Each chart type provides dedicated **drop zones** (specific to a chart type) to support the user in selecting and dropping the appropriate data for the selected chart.

- **Design Elements**

Each chart has a number of **design elements** such as background colour, border lines, axis ticks etc. that the chart owner can alter to visually adapt the chart to his own preferences. Each chart type has a specific set of design elements which have a default setting that follow charting world standard guidelines. The chart owner should be able to change design elements easily and intuitively in a minimum of clicks. Design element settings can be grouped into **presets** for 1-click chart reformatting.



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## Definitions – iCharts building blocks

- **Message Elements**

The chart owner can use 1-click available **message elements** like call-outs, text boxes, arrows etc. in a chart to help build an overall message for the chart and help the chart consumer interpret a chart.

- **Finetuning Actions**

The chart owner has certain chart **finetuning actions** available such as rotating the pie chart or rearrange columns or scaling the chart that allow to easily and intuitively optimize the visual representation of the chart. Finetuning actions use drag' n' drop methods. Available finetuning actions are specific to a chart type.



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## Definitions - iCharts interactivity features

- **Interactivity features**

Once a chart has been filled with data, **interactivity features** become available. Interactivity features provide a visual and intuitive method to generate a custom view on the underlying data set without having to manipulate the data set.

The chart owner can use interactivity elements to easily provide a ready-to publish view on his data.

Post publishing, the chart consumer can use the same interactivity features to develop a consumer view on the data.



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## Definitions – LiveCharts

- **LiveCharts**

A LiveChart is a particular iChart that can be updated by updating the data source in iCharts Studio. LiveCharts need to be clearly identifiable as being a chart that can change over time. An iChart can be turned into a LiveChart by simply updating it's original source.



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iCharts building blocks

## Chart Data Elements

A chart always consists of the following data elements:

| Date       | OIL      | GOLD    | S&P500  | FTSE100 |
|------------|----------|---------|---------|---------|
| 23.11.1999 | 0,000%   | 0,000%  | 0,000%  | 0,000%  |
| 30.11.1999 | 5,311%   | 2,902%  | 2,260%  | -0,687% |
| 07.12.1999 | -9,677%  | -1,135% | 4,015%  | -0,870% |
| 14.12.1999 | -14,011% | -9,617% | 3,719%  | -2,524% |
| 21.12.1999 | -10,199% | 4,420%  | 5,284%  | -2,496% |
| 28.12.1999 | -11,339% | 5,218%  | 4,322%  | -5,153% |
| 04.01.1999 | -14,044% | 3,296%  | 1,872%  | -4,553% |
| 11.01.1999 | -10,231% | 6,021%  | 0,041%  | -2,995% |
| 18.01.1999 | -12,512% | 2,244%  | 5,436%  | -0,504% |
| 25.01.1999 | 24,538%  | 1,202%  | 6,655%  | 4,378%  |
| 01.02.1999 | -30,238% | -3,031% | 8,870%  | 6,178%  |
| 08.02.1999 | -30,596% | -3,933% | 14,043% | 6,966%  |
| 15.02.1999 | -27,924% | -4,176% | 17,125% | 9,137%  |
| 22.02.1999 | 20,050%  | 5,000%  | 10,000% | 10,000% |



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## Chart Data Elements

The following is a definition for the various data elements:

- **DataValue**  
Individual datum (corresponds in a spreadsheet to cell value)
- **DataTable**  
Collection of DataValues in a tabular format (corresponds to spreadsheet)
- **DataColumns**  
Vertical arrangement of DataValues in a defined order
- **DataPoint**  
Combination of two or more DataValues with the same order value in corresponding DataColumns
- **DataSeries**  
Series of DataPoints containing parts or all DataValues of the corresponding DataColumns



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## Chart Types

- 1. Bar Charts (Horizontal & Vertical / Linear & Logarithmic)
- 2. Line Charts / Point Charts / Combination of both (Linear & Logarithmic)
- 3. Scatter Charts (Linear & Logarithmic [both dimensions])
- 4. Pie Charts / Ring Charts / Net Charts
- 5. Histograms (Linear & Logarithmic [both dimensions])
- 6. Area Charts (Linear & Logarithmic)
- 7. Bubble Charts
- 8. 3D Surface

Note: Error bars need to be provided to the following chart types: Bar, Line, Point, Histograms, Bubble



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# Chart Types

## 1. Bar Charts

Horizontal & Vertical Charts (for both the following subcategories are valid)

- Multiple (2++) Bar Charts
- Stacked Bar Charts
- Area normalized Stacked Bar Charts
- Gantt Charts
- Waterfall Charts (only Vertical)
- Marimekko Charts

Note: 3D visualization not under consideration



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## Design Elements

- Axis  
Range, Ticks, Axis Label, Tick Labels
- Chart Title
- Chart Legend
- Chart Source
- DataPoint
- DataSeries
- Chart Grid
- Chart Inner Background
- Chart Outer Background



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## Message elements

The chart owner should be able to insert the following message elements.

- **Comments**

Comment boxes with direct data entry capability. Can contain call-outs. If call-outs are used, they should be sensitive to scaling.

- **Lines**

User should be able to draw lines. Lines should be sensitive to scaling.

- **Circles**

User should be able to draw circles. Circles should be sensitive to scaling.



## Finetuning actions

The chart owner should be able to dynamically fine tune his charts interactively. The following are examples. In the per chart description the possible fine-tuning actions are listed.

- **Turning the pie**  
In pie charts the chart owner should be able to rotate the pie.
- **Manual reordering**  
In bar, column and waterfall charts, the chart owner should be able to rearrange the chart by dragging the columns



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## iCharts interactivity features

## Interactivity features

The following is a list of interactivity features that should be available for chart consumers as well as chart owners:

- Data Zoom
- Show/hide Data Series
- Show/hide Data Points
- DataFlags
- DataGroupings
- Sortings
- Tools (Print, Copy, Download)



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## DataZoom

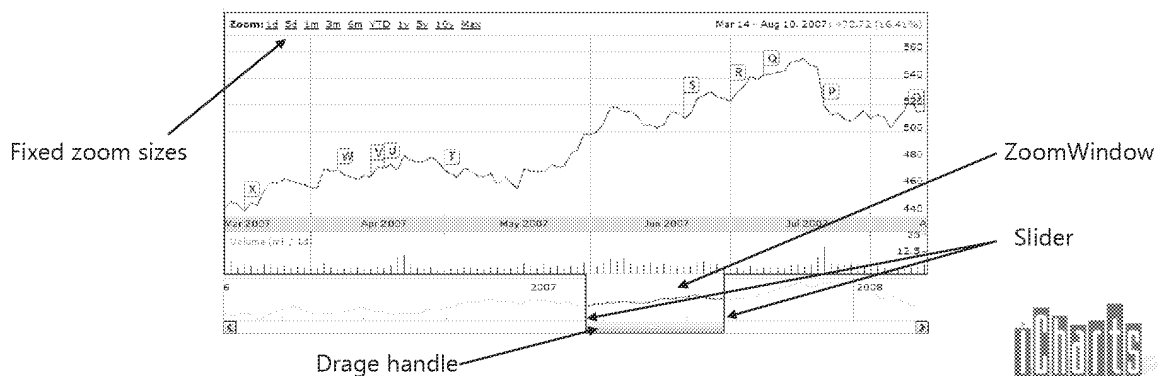
- The DataZoom interactivity element allows to increase and decrease the granularity of the viewable data set (ZoomWindow) as compared to the total available data set
- The following functions should be available

Left & right slider: To define the range of the viewable data set

Drag handle: To be able to drag a fixed zoom window across the total data set

Total data set preview: The total data set should be backset to allow for a preview

Fixed zoom sizes: For time series, pre-fixed zoom window should be available



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## Show/Hide DataSeries

- The Show/Hide DataSeries interactivity element allows to show & hide a data series dynamically
- The following functions should be available

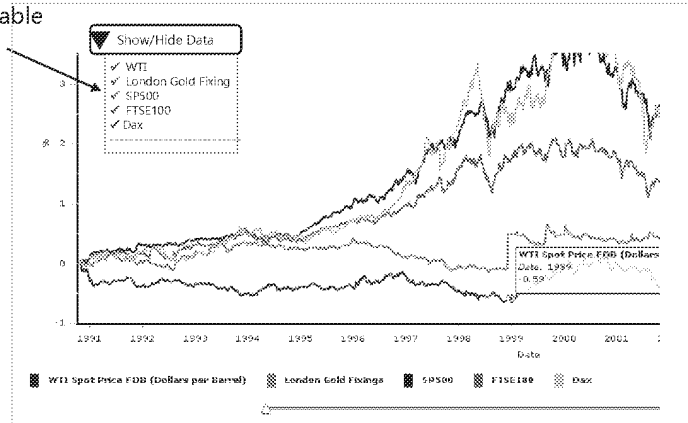
Show/Hide DropDown Menu

Contains list of showable/hideable DataSeries, if a DataSeries is hidden, legend items needs to hide aswell. On right mouse click over data series, should be able to

hide

data series aswell.

Showable/Hideable  
DataSeries



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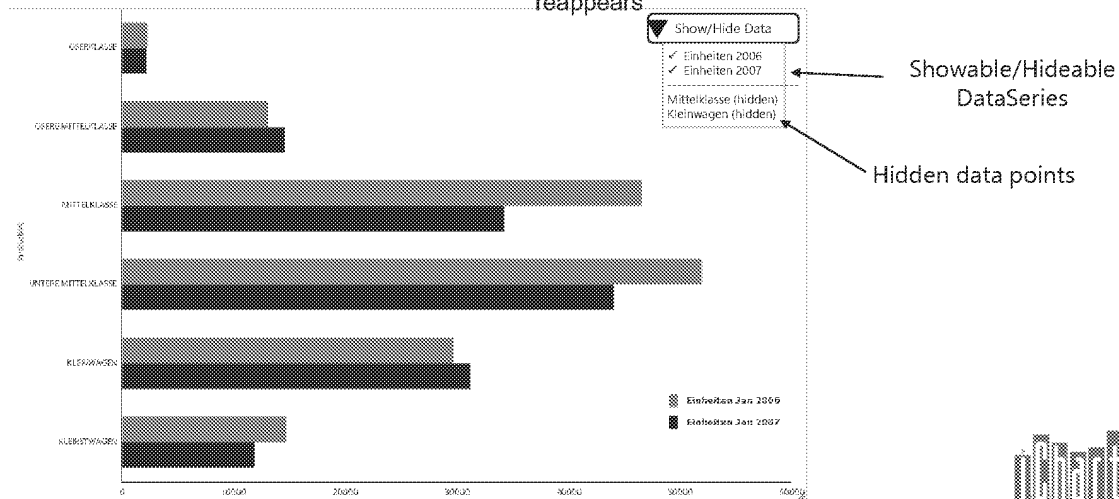
## Show/Hide DataPoints

- The Show/Hide DataSeries interactivity element allows to show & hide a data point dynamically
- The following functions should be available

Show/Hide DropDown Menu  
DataPoint

Contains list of hidden DataPoints, if selected the

reappears



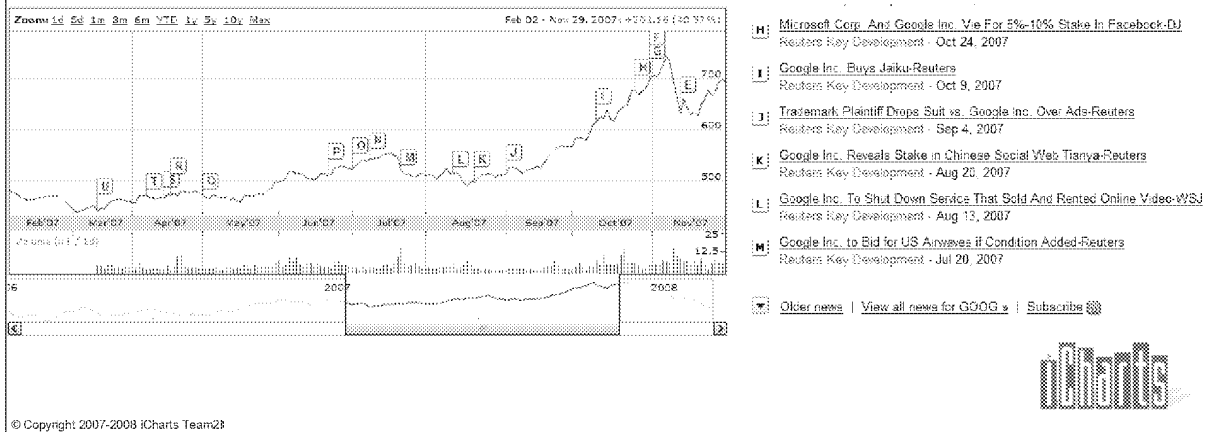
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iCharts

## DataFlags

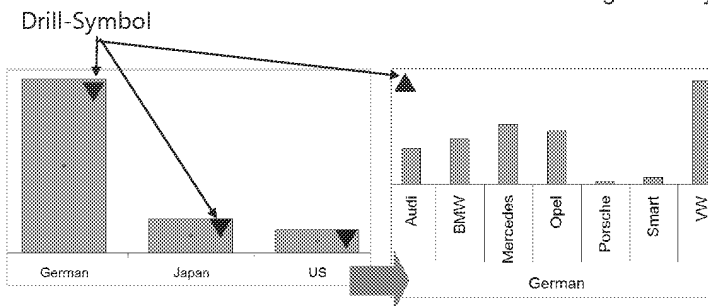
- DataFlags provide additional information for particular data points  
As compared to the comment function (which is good for individual, one-off comments), DataFlags provide an easy mass commenting method, where the comment data comes from a file (that could be a different file, than the data source for the graph) and is created thru drag'n'drop.
- The following functions should be available
 

|                |                                                                                  |
|----------------|----------------------------------------------------------------------------------|
| MouseOver      | With MouseOver the particular flag text should appear                            |
| Show/Hide List | Alternatively, a list listing the flag text next to the graph should be showable |



# DataGroupings

- DataGroupings allow a drill-down to the next level of detail.  
DataGroupings should be automatically created based on possible groupings in the source data without burdening the user. Grouping could be e.g. created by dragging two label columns onto the X-Axis. A drill-down should open up a new chart as a layover.
- The following functions should be available
  - Drill-Down level chart  
A click on the drill symbol should drill to the next detail of granularity opening a new window with a new level of data granularity
  - Drill-Up higher  
A click on the drill-up symbol should lead to the next level of data granularity



Source data with grouping potential

| Category | Brand      | 2007 Data |
|----------|------------|-----------|
| German   | VW         | 19,08     |
| German   | Mercedes   | 11,01     |
| German   | Opel       | 9,84      |
| German   | BMW        | 8,35      |
| German   | Audi       | 6,62      |
| German   | Smart      | 1,32      |
| German   | Porsche    | 0,48      |
| Japan    | Toyota     | 4,37      |
| Japan    | Hyundai    | 1,79      |
| Japan    | Nissan     | 1,78      |
| Japan    | Honda      | 1,41      |
| Japan    | Mitsubishi | 0,9       |
| Japan    | Suzuki     | 0,85      |
| Japan    | Lexus      | 0,11      |
| US       | Ford       | 7,11      |
| US       | Chrysler   | 0,52      |
| US       | GM         | 0,03      |



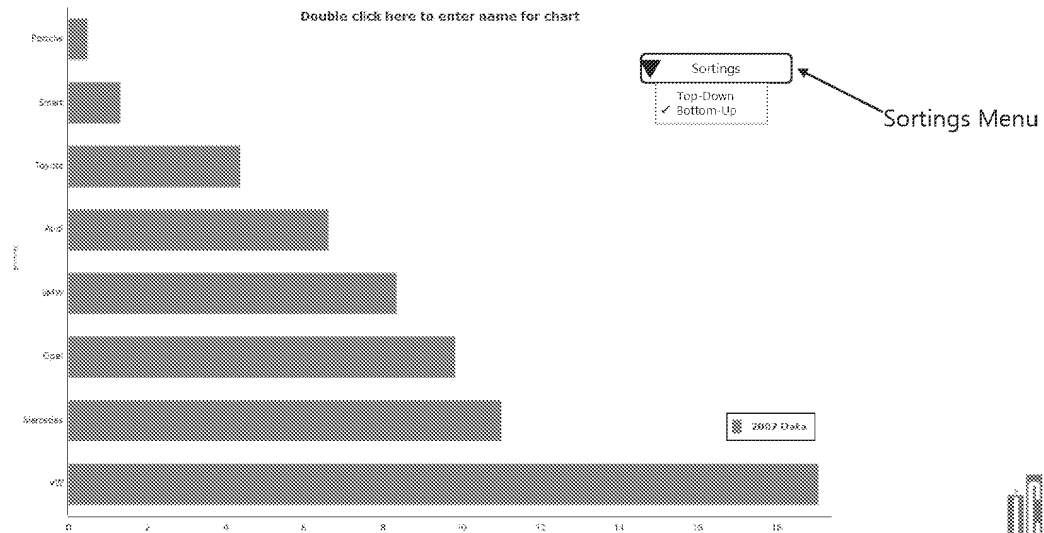
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## DataSortings

- The DataSortings feature allows easy reordering of data
- The following functions should be available

Sortings DropDown Menu

Contains list of possible sortings order

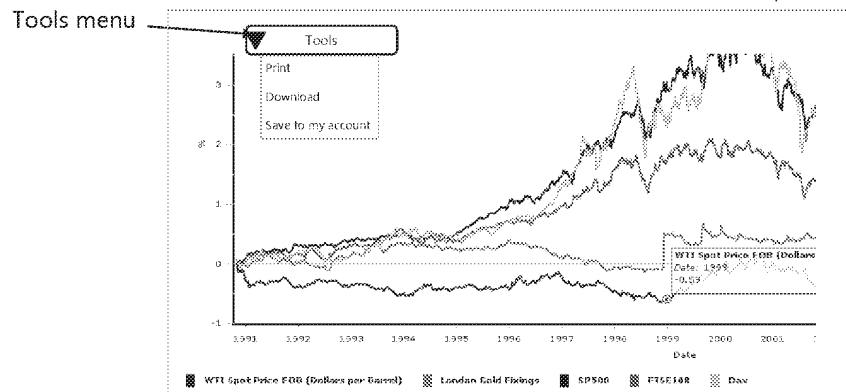


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## Tools

- Consumers of charts need to be able to print, download, forward or save-to-my-account (if enabled by chart owner)
- The following functions should be available (if enabled) as a drop-down menu

|                       |                                                                                                             |
|-----------------------|-------------------------------------------------------------------------------------------------------------|
| Print                 | Prints the current chart                                                                                    |
| Download              | Downloads the chart in <u>static</u> format                                                                 |
| Forward               | Allow consumer to forward chart to someone through eMail                                                    |
| Save to my acct none, | Allows to save the chart to the account of the consumer. If he has this leads to the account set-up screens |



iCharts

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LiveCharts

# LiveCharts

LiveCharts are interactive Charts that can be updated remotely by uploading a data sheet with the same structure and a current data set.

The following functions should be available:

Update Button (in iCharts Studio)

Pressing the „Update“ button in the iCharts Studio automatically updates the LiveChart. If the chart is an that has not been updated, then trying to update it should to an explicit question to the chart owner whether he turn his iChart into a LiveChart.

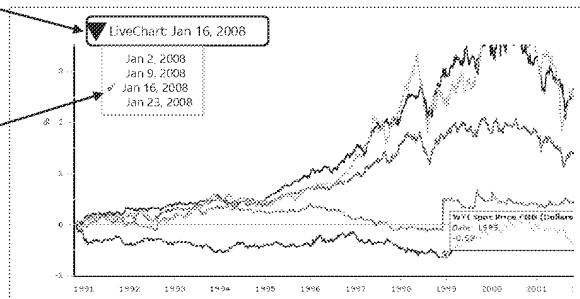
iChart  
lead  
wants to

LiveChart DropDown Menu

In iChart, drop-down menu contains list of dates for which previous data sets are available and which consumer can select. Probably chart owner should be set # and dates of old data sets.

chart  
able to  
LiveChart  
DropDown  
Menu

Date of viewable  
data set



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## iCharts publishing methods

## Publishing methods

The following is a list of the methods that should be available for publishing iCharts

- **eMail**  
A chart owner should be able to send a URL of the chart to anybody via eMail. Ideally the eMail already contains an image of the chart
- **Publish into portal**  
A chart owner should be able to create a listing of the chart in the iCharts portal
- **Publish into collaboration room**  
A chart owner should be able to create a listing of the chart in one or more collaboration rooms in iCharts portal
- **Embed**  
A chart owner should be able to receive a snippet of the chart with which he can embed the chart anywhere
- **Image download**  
A chart owner should be able to download the chart in the following formats:  
JPG, GIF, TIFF
- **Interactive download**  
A chart owner should be able to download the chart as interactive version in the following formats:  
SWF, PPT, PDF



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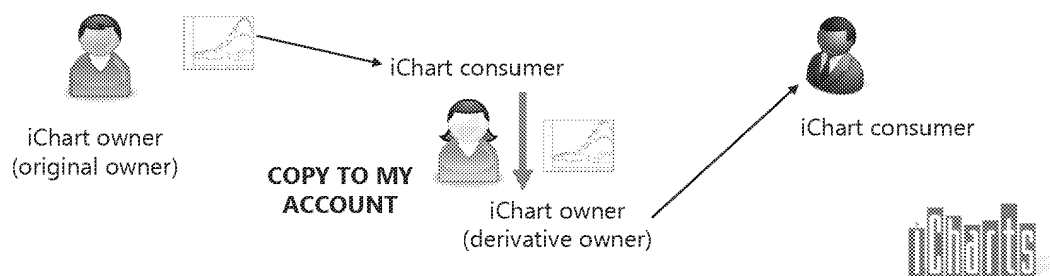


iCharts proliferation method

## Proliferation of charts

Proliferating charts should be easy. This means that an iChart consumer can copy an iChart into his own account, adapt it and redistribute in as few clicks as possible. So that people will adopt this capability the following aspects are critical:

- **Original Owner Control**  
The original owner needs to be able to control whether his chart can be copied or not and whether the source data can be seen or not.
- **Source Reference**  
When copied, the copied chart has a new chart owner. However such derivative charts need to maintain an unchangeable reference to the source chart owner (if required by him).



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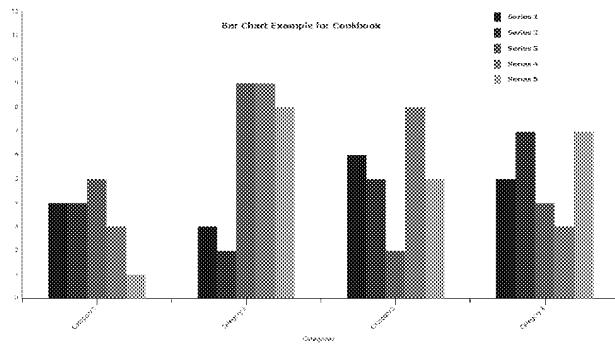


## The iCharts Directory



# Chart Types

## 1. Bar Charts: Multiple (2++) Bar Charts



Data Structure of an Multiple (2++) bar Chart:

- Series = Data Column
- Each Series build up by 4 Values
- Values settled on the x-axis in the categories
- Series have all been dragged to y-Axis
- Categories column has been dragged to x-axis.

### Data Structure of above Bar Chart

| Series 1 | Series 2 | Series 3 | Series 4 | Series 5 | Categories |
|----------|----------|----------|----------|----------|------------|
| 4        | 4        | 5        | 3        | 1        | Category 1 |
| 3        | 2        | 9        | 9        | 8        | Category 2 |
| 6        | 5        | 2        | 8        | 5        | Category 3 |
| 5        | 7        | 4        | 3        | 7        | Category 4 |

Series and Categories Data as edited in excel source before upload



# Chart Types

## 1. Bar Charts: Stacked Bar Charts

Data Structure of a stacked bar Chart:

...

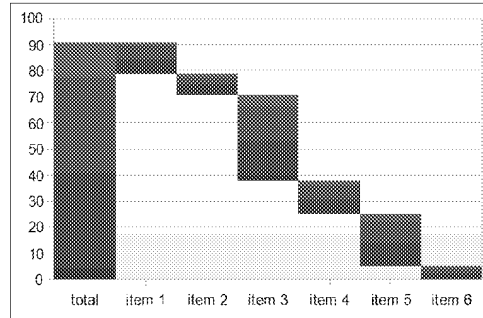
Data Structure of above Bar Chart

description



# Chart Types

## 1. Bar Charts: Waterfall Charts (only Vertical)



Data Structure of a Waterfall Bar Chart:

- Only 2 columns required
- One column for value items
- One column for waterfall values
- Value Items dragged to x-axis
- Values dragged to y-axis
- Totals calculated implicitly

## Data Structure of above Waterfall Chart

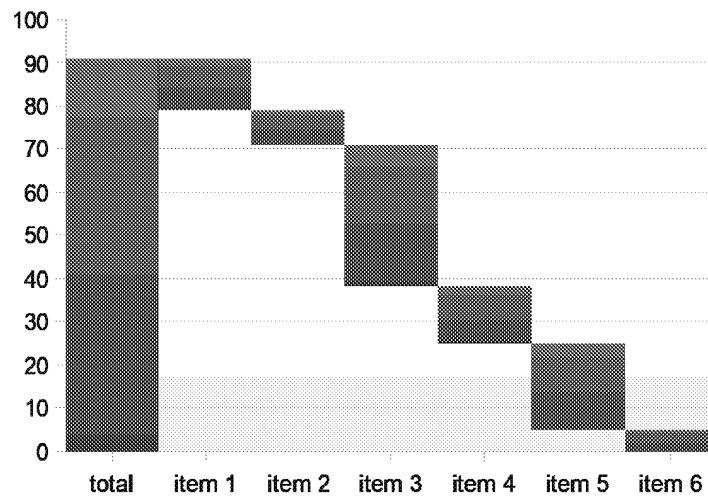
| Items  | Values |
|--------|--------|
| item 1 | 12     |
| item 2 | 8      |
| item 3 | 33     |
| item 4 | 13     |
| item 5 | 20     |
| item 6 | 5      |

Item and value columns as the most simple data representation of a waterfall chart



## Chart Types

### Bar Charts: Waterfall Charts (only Vertical)



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#### Related Dates

|               |                   |
|---------------|-------------------|
| Last Modified | 3/16/2008 3:29 PM |
|---------------|-------------------|