Universal Visualization Platform

User's Guide

Version 2.0

2008-09-10 – NOTE: FIGURES DO NOT MATCH EXACTLY CURRENT VERSION

Table of Contents

1   Overview

The Universal Visualization Platform (UVP) is an application for viewing and understanding large data sets. With different visualization tools, parameters for each of those tools and many other functions, it makes viewing large data sets easy and also can generate useful information from those datasets.

2   Recommended System Requirements

Minimum Memory: 256M
Suggested Memory: 1G

Operating Systems: Microsoft Windows 2000/XP, Windows Server 2003, Mac OS, Linux.

Java VM: **Version 1.6** or higher

3   Installation

Extract the UVP zip file anywhere on your local file system. The files will be extracted to a directory named "Platform". Double-click the file "`Vizit.jar`" in this directory to start the UVP.

4 User Interface Layout

The user interface layout consists of the following components: the visualization tool display panel, which displays the data using the selected tool; the property panel, which displays the selections that allow the data to be viewed in different ways; and the legend panel, which displays probing data and the key to any color or size by schemes.
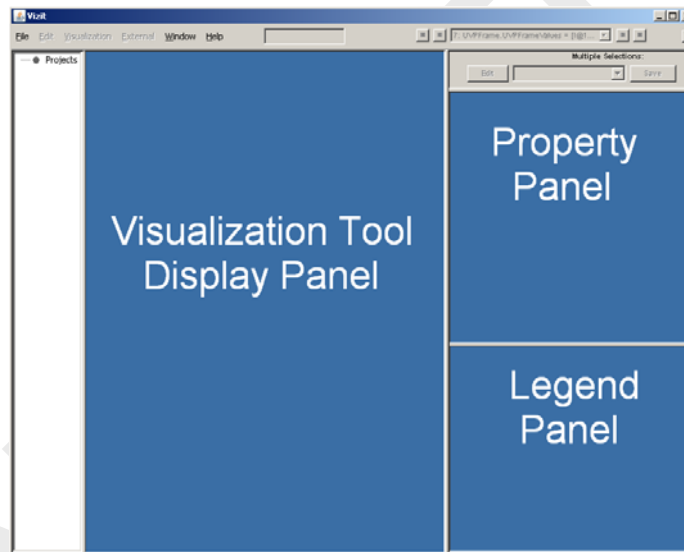

Figure 1. User Interface Layout

4.1 Menu Bar Functions

File

Open Dataset from File	open a data file on disk
Exit	exit application

Edit

TBD

Visualization

Displays available visualization tools
Selecting a tool displays the current dataset using that tool.

Window
>   Display options for multiple display windows
>   Tiled
>   Horizontal
>   Vertical
>   Cascade.

Help
>   TBD

4.2   Visualization Tool Display Panel:

This is where all the visualizations are actually displayed. User actions in this panel include selecting and probing displayed data points. Also note that selecting a tool's display panel makes it the active tool; so the Property Panel and Legend Panel (see next) will refer to that tool.

4.3   Property Panel

Control panel for the user to set a variety of properties for the active tool. See the section "Property Panel" below for details.

4.4   Legend Panel

This panel has just two tabs: the legend tab and the probe tab.

Legend Tab
>   Displays the legends such as color assignments for the active tool.

Probe Tab
>   Turning probing on causes mousing over data points to display detailed information about that point or group of points.

5 Opening a Dataset

You can open a dataset from the File Menu option *Open Dataset From File.*

Open ...   Brings up a dialog box for the user to browse for the data files on the local file system, usually a .csv Excel spreadsheet

When a dataset is opened, the application automatically displays it with the default visualization tool, ScatterPlot, as seen in Figure 2.
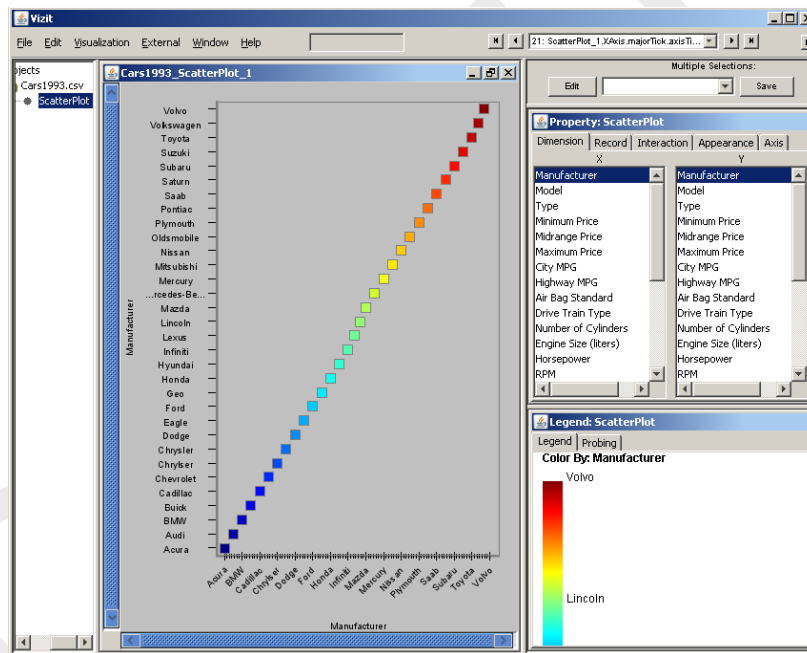

Figure 2. Screen display after opening a data set.

6   Visualization Tools

6.1   Pie Chart

The pie chart visualization tool represents data as an array of pie charts. Figure 1 shows one pie chart and Figure 2 a pie chart visualization of multiple pies. This tool is very similar to the ScatterPlot tool (both allow X and Y to be set, which in Pie Chart is a scatter plot of pies), so it is not described separately. If X and Y are set to *NONE* in the Pie Chart, the pie is colored in by the *Color By* parameter as set in the Record tab.
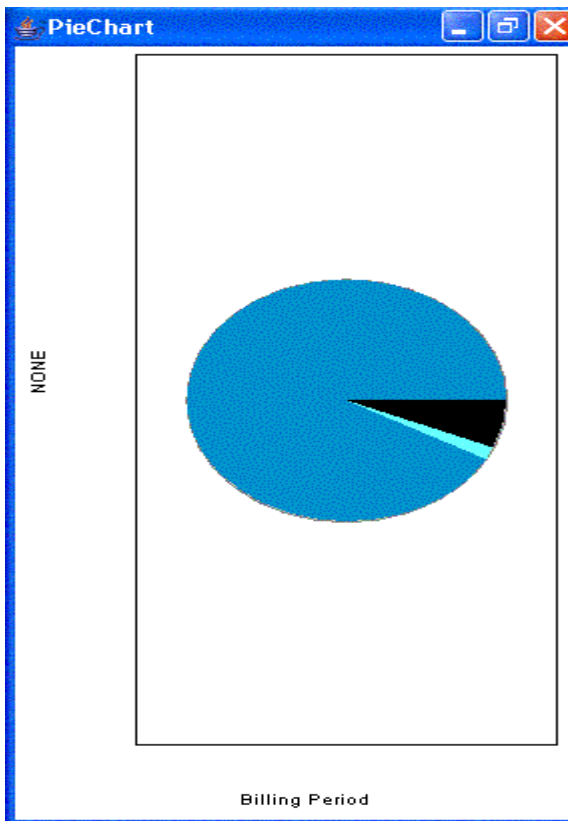

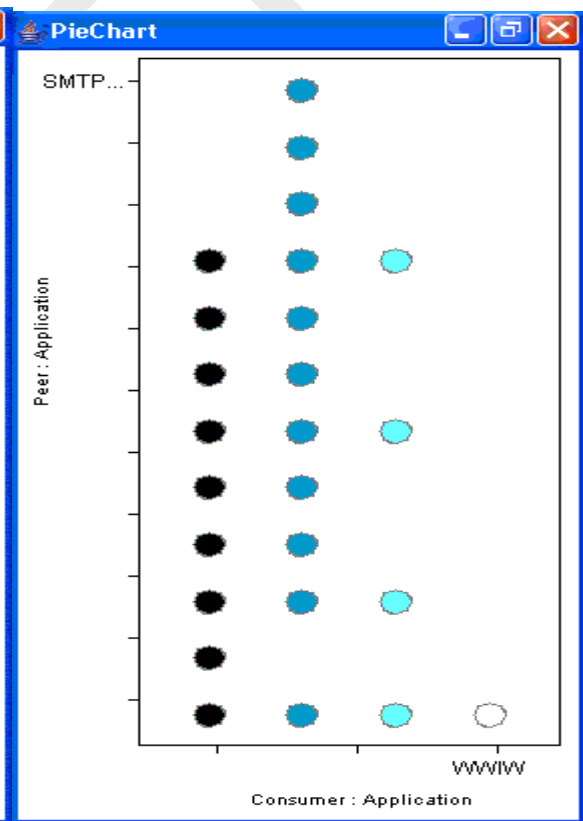
Figure 4. One pie chart.　　　　　　　　　　　Figure 5. Multiple pie charts.

The parameters for the pie chart tools include the *x* and *y* axes, *color*, *fixed size*, *size by records count*, *size by sum* and *size by average*. Figure 6 highlights all the parameters.
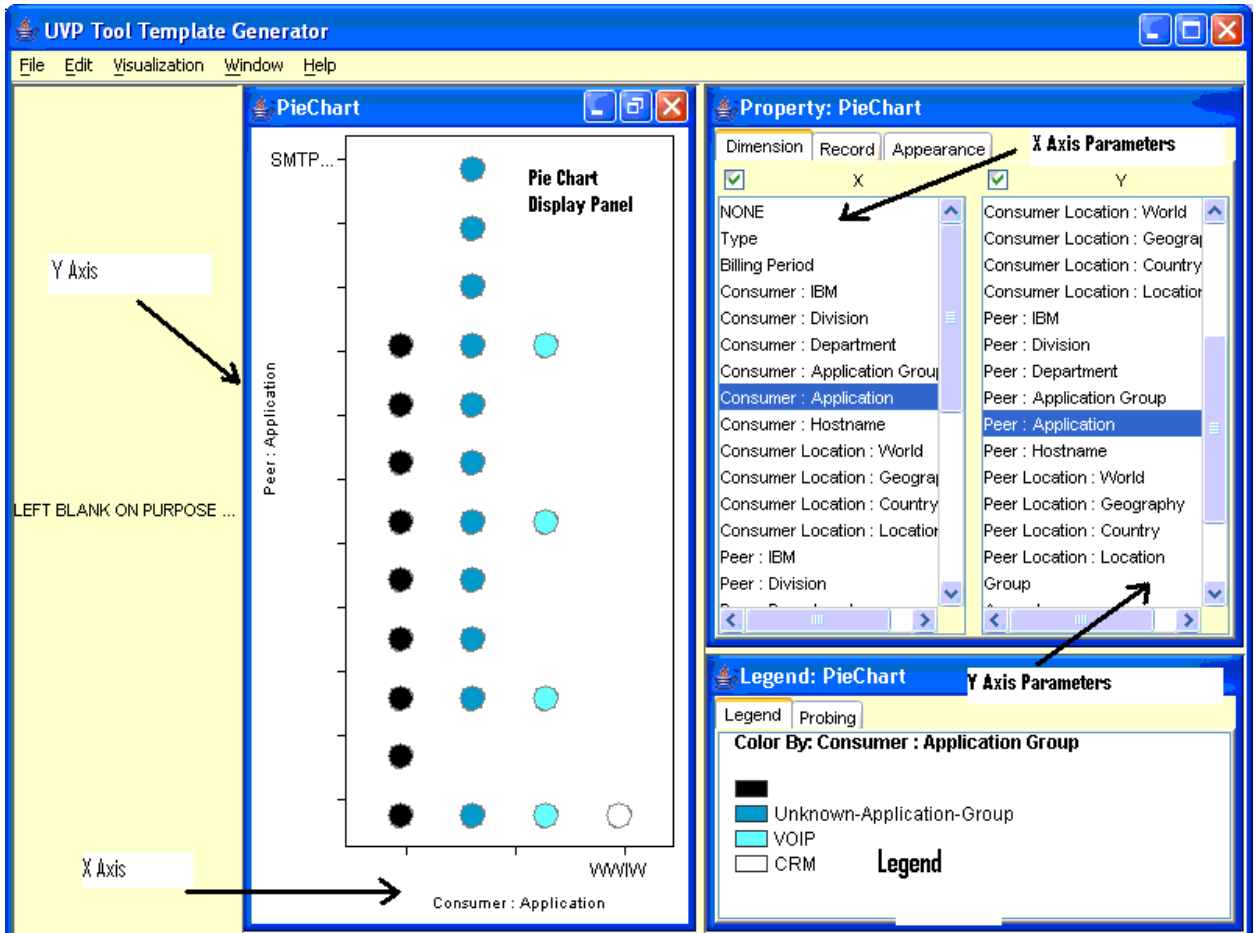

Figure 6. User view with parameters, legend and display.

6.1.1   Axes

The axes are the dimensions which determine the (x, y) position of the pie charts. All columns in the data table are selectable dimensions for both the x and y axis. Tick marks are useful in different ways sometimes showing numbers and sometimes parameters. The axis descriptions can have different fonts, sizes, and formats as selected by the user.

6.1.2   Legend

The legend identifies the color and size values. The legend has a predetermined starting location and can be re-sized by the user to use more of the space from the display panel or property panel.

6.1.3   Record Size

Records (pies) are size (pixel) adjustable by a slide bar for better visibility in some cases.

Size of the points (records) can also be selected to vary based on certain aspects of the data:

1.) Record Count

2.) Average and 3.) Sum of the following:

    a. Type.

    b. Billing period.

    c. Group.

    d. Amount.

    e. Billable bytes.

    f. Actual bytes.

6.1.4   Color Schemes

Multiple color schemes are available and viewable in the legend for the following:

    a. Type.

    b. Billing period.

    c. Group.

    d. Amount.

    e. Billable bytes.

f. Actual bytes.

g. Protocol

h. Many variations of Consumer.

i. Many variations of Consumer Location.

j. Many variations of Peer.

k. Many variations of Peer Location.

The background color of the display panel can also be selected by the user.
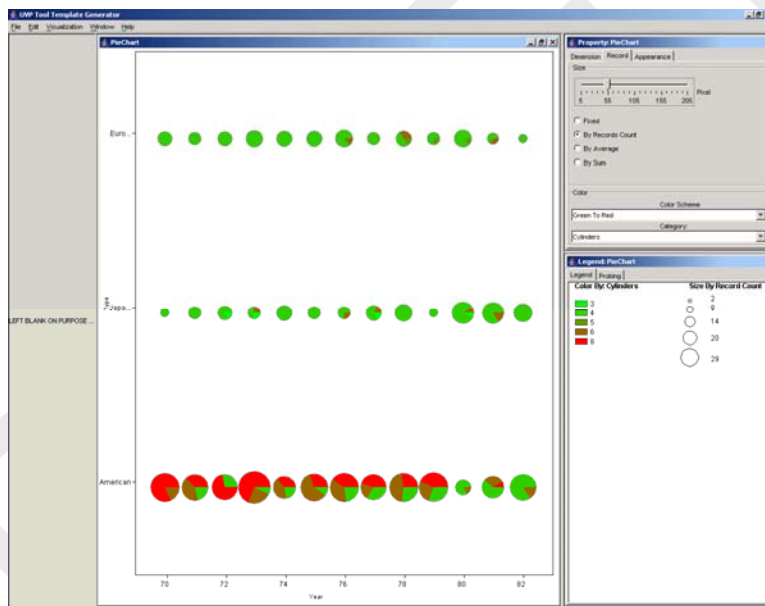

Figure 3. Pie chart plug-in tool.

The position of each pie is determined by the data fields that are mapped to the X and Y dimension.

The appearance of the pies can display additional properties.

6.1.5   Pie Chart Display Panel

The pie chart visualization tool represents data as an array of pie charts.

Selection   User can select an area to highlight the records within the selected block.

Probing   The application will provide more detailed information on the legend panel when user moves the mouse to the preferred pie.

                Probing is available with the cursor in the case that multiple records fall on top of one another and **aren't fully visible.**
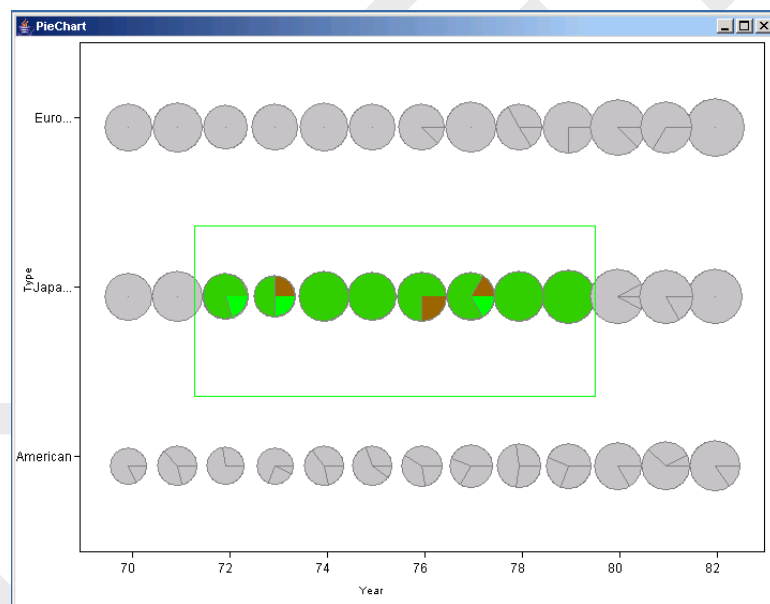

Figure 4. Pie chart selection.

6.1.6   Pie Chart Property Panel

Control panel for the user to set a variety of properties for the active tool.

6.1.6.1   Dimension Tab

This allows the user to select which dimensions (data fields) are mapped to the X and Y axis. Because these are the most visually important properties for human vision, you should choose the most important properties of the data (or, alternately, properties that naturally map into two dimensions such as geographic location.)
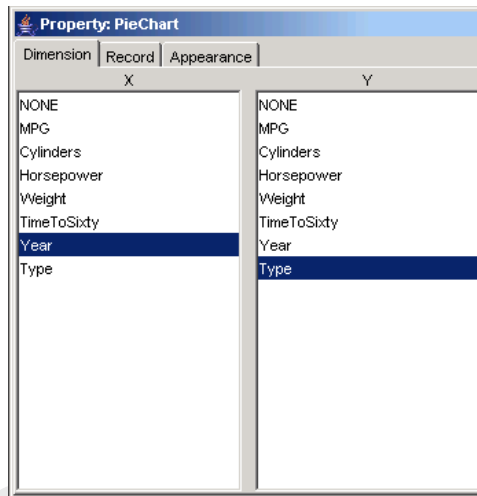
6.1.6.2   Record Tab

This includes a number of different elements:

Size

Select different strategies to set the size of the pie
(Slider determines the largest pie size in pixels)
- **Fixed**
  Every pie in the display has the same size, which depends solely on the value of the slider
- **By Record Count**
  The size of the pie depends on the number of records that map to the sample point
- **By Average**
  The size of the pie depends on the average value of the selected dimension
- **By Sum**
  The size of the pie depends on the sum of the values of the selected dimension

Color

Determines how the pies and pie segments will be colored
(Slider determines the largest pie size in pixels)

- **Color Scheme**
  Select from a variety of color schemes to provide an intuitive mapping between data values and pie or segment colors
- **Category**
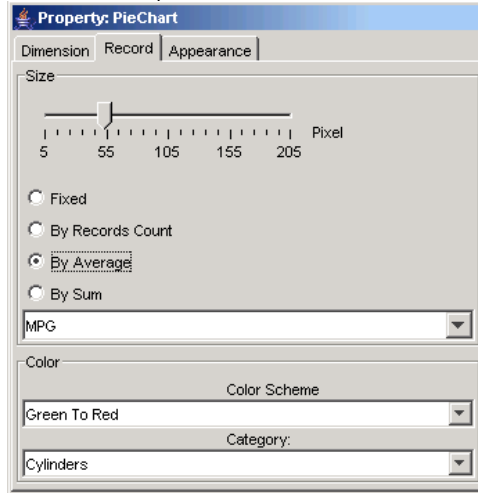 The mapped data dimension to color the pies

Figure 5. Pie chart property tab.

6.1.6.3   Appearance Tab
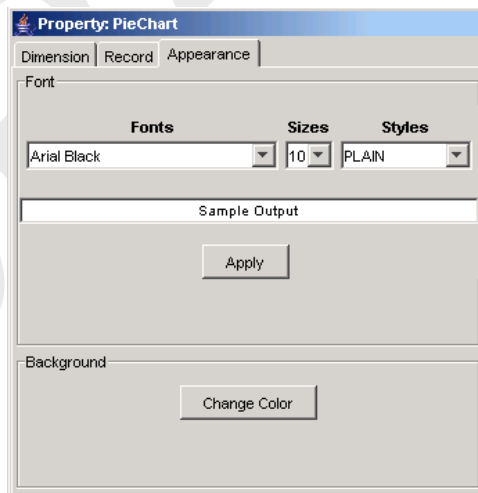
Select the font and background color for the display.

Figure 6. Pie chart appearance tab.

6.1.7   Pie Chart Legend Panel

This panel contains the legend and probing tabs which show detailed information about the current visualization.

6.1.7.1   Legend Tab
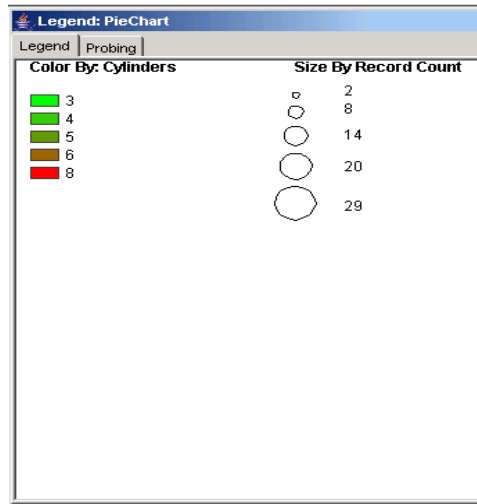
Displays the color legend and size legend.

Figure 7. Pie chart legend tab.

6.1.7.2   Probing Tab

Shows more detailed information based on mouse position in pie chart display panel. Figure 9 shows typical response to cursor over 3 pies. Figure 10 shows 2 pies that the cursor was over and the probing tab response.
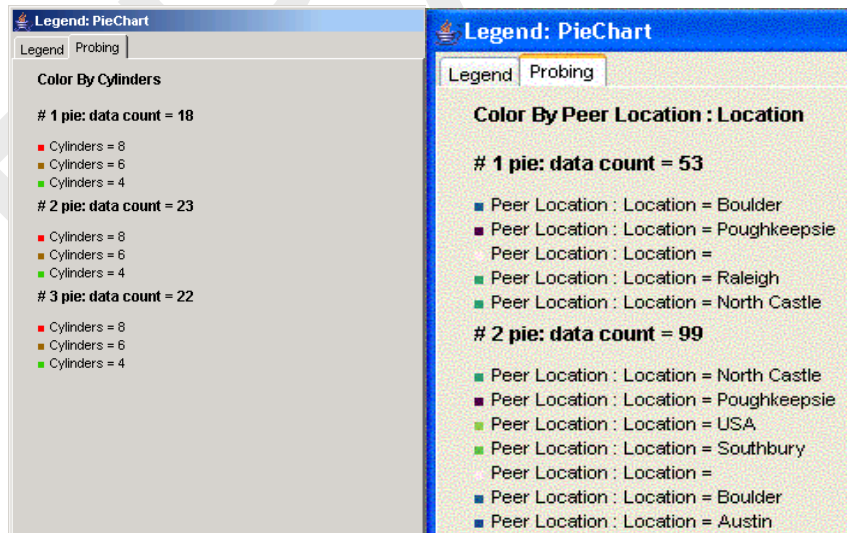

Figure 8. Pie chart probing tab.   Figure 10. Pie chart probing tab.