# Objective

Write a Java applet to draw charts based on a set of data.

# Requirements

The dimension (width and height) of the chart needs to vary according to the width and height of the Java applet.

The display and behavior of the Java applet is controlled by the following parameters:

|  |  |
| --- | --- |
| Parameter | Description |
| AxisTitleH | Horizontal axis title.  Example: Series |
| AxisTitleV | Vertical axis title.  Example: Data |
| ChartTitle | Chart Title.  Example: A Random Chart Over Some Noise Data |
| NumOfDataSeries | Number of series (rows) of data, N.  Example: 5 |
| Data1, Data2, …, DataN | A comma separated list of data.  Example:  name="Data1" value="289,363,423,578,680,61,431,796" name="Data2" value="158,733,776,202,536,531,913,646" … name="Data5" value="480,625,767,711,359,703,524,841" |
| AxisValueH | A comma separated list of horizontal axis values (number of tokens in the string should be equal to the number of tokens in each data string, i.e., DataN).  Example: Data I,Data II,Data III,Data IV,Data V,Data VI,Data VII,Data VIII |
| AxisValueV | A comma separated list of vertical axis values (number of tokens in the string should be equal to N).  Example: Series A,Series B,Series C,Series D,Series E |
| ShowChartTitle | An integer value indicates the chart title should be displayed or not. 1 = visible, 0 = invisible. |
| ShowAxisTitles | An integer value indicates the horizontal and vertical axis titles should be displayed or not. 1 = visible, 0 = invisible. |
| ShowDataLabels | An integer value indicates the data labels should be displayed or not. 1 = visible, 0 = invisible. |
| ShowLegend | An integer value indicates the legend should be displayed or not. 1 = visible, 0 = invisible. |

The display and behavior of the Java applet is also changeable during runtime.

* Different types of chart can be drawn based on the same set of data. Type of chart – line and bar (horizontal, vertical) – to display is changeable from within the Java applet.
* Color of chart is changeable from within the Java applet.
* Display of data labels can be turned on/off from within the Java applet.

# Sample

* The following is a sample applet layout for your reference only. You are free to design your own layout, but your Java applet should provide similar functions

Chart Type:

Line Chart

Color Scheme:

Rainbow

Data Labels:

🗹 Show

|  |
| --- |
| Line Chart |
| Bar Chart (Horizontal) |
| Bar Chart (Vertical) |

|  |
| --- |
| Gray Scale |
| High Contrast |
| Rainbow |
| Winter |

Charting Area

* Data

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Data  Series | Data I | Data II | Data III | Data IV | Data V | Data VI | Data VII | Data VIII |
| Series A | 289 | 363 | 423 | 578 | 680 | 61 | 431 | 796 |
| Series B | 158 | 773 | 776 | 202 | 536 | 531 | 913 | 646 |
| Series C | 726 | 661 | 86 | 54 | 394 | 236 | 738 | 906 |
| Series D | 725 | 883 | 951 | 865 | 504 | 851 | 382 | 193 |
| Series E | 480 | 625 | 767 | 711 | 359 | 703 | 524 | 841 |

* HTML source code

<object classid="clsid:8AD9C840-044E-11D1-B3E9-00805F499D93" width="800" height="600">

<param name="code" value="Applet1.class" />

<param name="AxisTitleH" value="Series" />

<param name="AxisTitleV" value="Data" />

<param name="ChartTitle" value="A Random Chart Over Some Noise Data" />

<param name="NumOfDataSeries" value="5" />

<param name="Data1" value="289,363,423,578,680,61,431,796" />

<param name="Data2" value="158,773,776,202,536,531,913,646" />

<param name="Data3" value="726,661,86,54,394,236,738,906" />

<param name="Data4" value="725,883,951,865,504,851,382,193" />

<param name="Data5" value="480,625,767,711,359,703,524,841" />

<param name="AxisValueH" value="Data I,Data II,Data III,Data IV,Data V,Data VI,Data VII,Data VIII" />

<param name="AxisValueV" value="Series A,Series B,Series C,Series D,Series E" />

<param name="ShowChartTitle" value="1" />

<param name="ShowAxisTitles" value="1" />

<param name="ShowDataLabels" value="1" />

<param name="ShowLegend" value="1" />

</object>

* Line chart
* Horizontal bar chart
* Vertical bar chart

# Deliverables and Submission Details

* Source code of the Java applet

Upload the whole project (in form of a zip[[1]](#footnote-1) archive) at the CS4280 [Canvas](https://canvas.cityu.edu.hk) course web site.

Go to the “Assignments” => “Assignment 1” => “Submit Assignment” and upload your file[[2]](#footnote-2).

* URL of the Java applet

Place a workable version of the Java applet on the CS server. The URL to your Java applet should look like [https://personal.cs.cityu.edu.hk/~<CityU EID>/cs4280/asgp1/index.html](https://personal.cs.cityu.edu.hk/~%3cCityU EID%3e/cs4280/asgp1/index.html)

* Due date

The deadline to submit the above two materials is **23:59, Feb 8th, 2018**.

# Assessment

This assignment contributes 5% to your final mark. The assessment will mainly be based on the correctness of your Java applet. However, these assessment guidelines will also be applied:

* Comprehensive – meeting all of the specified functional requirements.
* Innovative solution – be able to come up with creative ways of applying what you have learned in lectures and tutorial sessions.
* Flexible design – future changes and new requirements requires minimal development efforts.
* Robust – tolerance to errors, ability to recover from errors and etc.
* User-friendly – user-oriented design.
* Uniqueness – features which distinguish your implementation from others.

This is an individual assignment. You are encouraged to discuss your problems with your fellow students. However, you should not:

* Share your work with others.
* Use others’ work and pretend to be your own work without proper citation.

Penalties for inappropriate collaboration and violation of plagiarism can range from:

* ZERO (0) mark on submission;
* A REDUCTION in the overall mark;
* Grade F for the course.

Discuss with your course instructor if you have any question about knowledge sharing and plagiarism. You can also consult the University’s guidelines on academic honesty, which is available at <http://www6.cityu.edu.hk/arro/content.asp?cid=73>.

1. Other formats (such as .dmg, .rar, .tgz, .7z, etc.) will NOT be accepted. [↑](#footnote-ref-1)
2. Assignment submission through Canvas [↑](#footnote-ref-2)