

Software analysis (Graph reader software)

WebPlotDigitizer

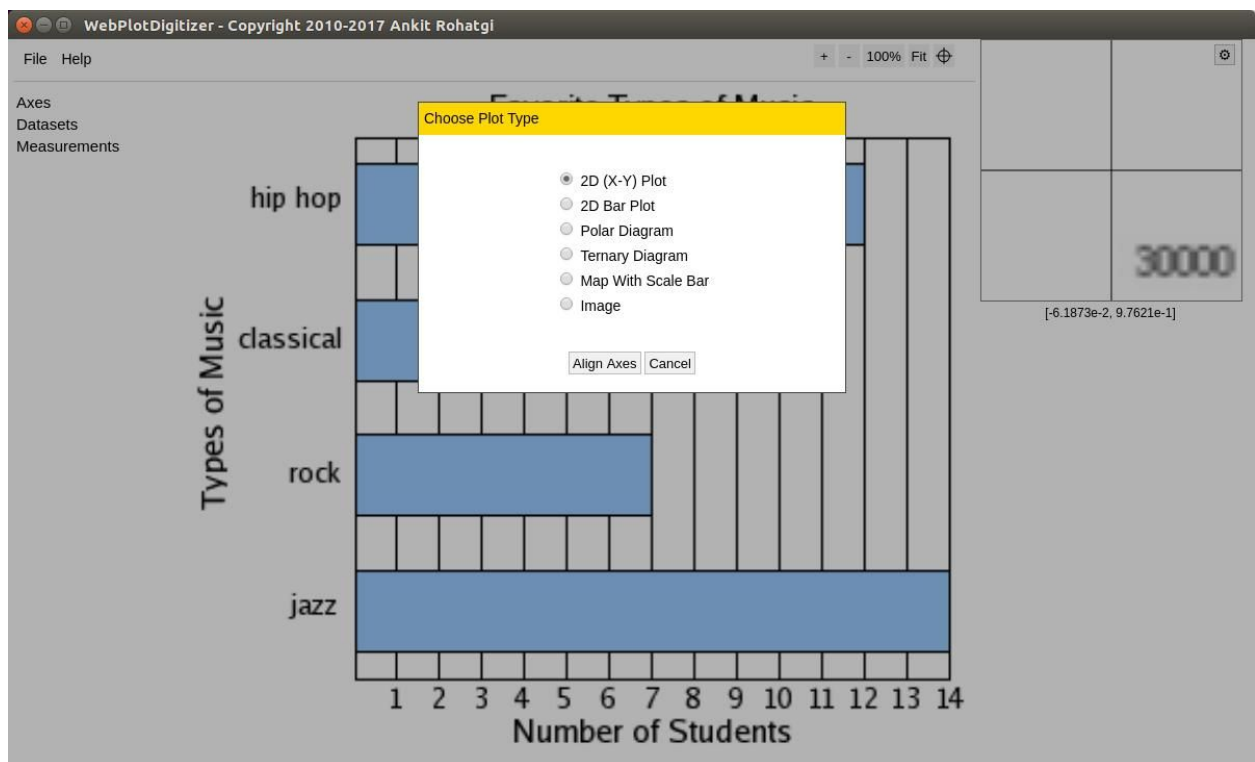
Ankit Rohatgi. 2015. WebPlotDigitizer, Version 3.8. Retrieved September 22, 2015 from

Link: <http://arohatgi.info/WebPlotDigitizer>

Online use: <https://apps.automeris.io/wpd/>

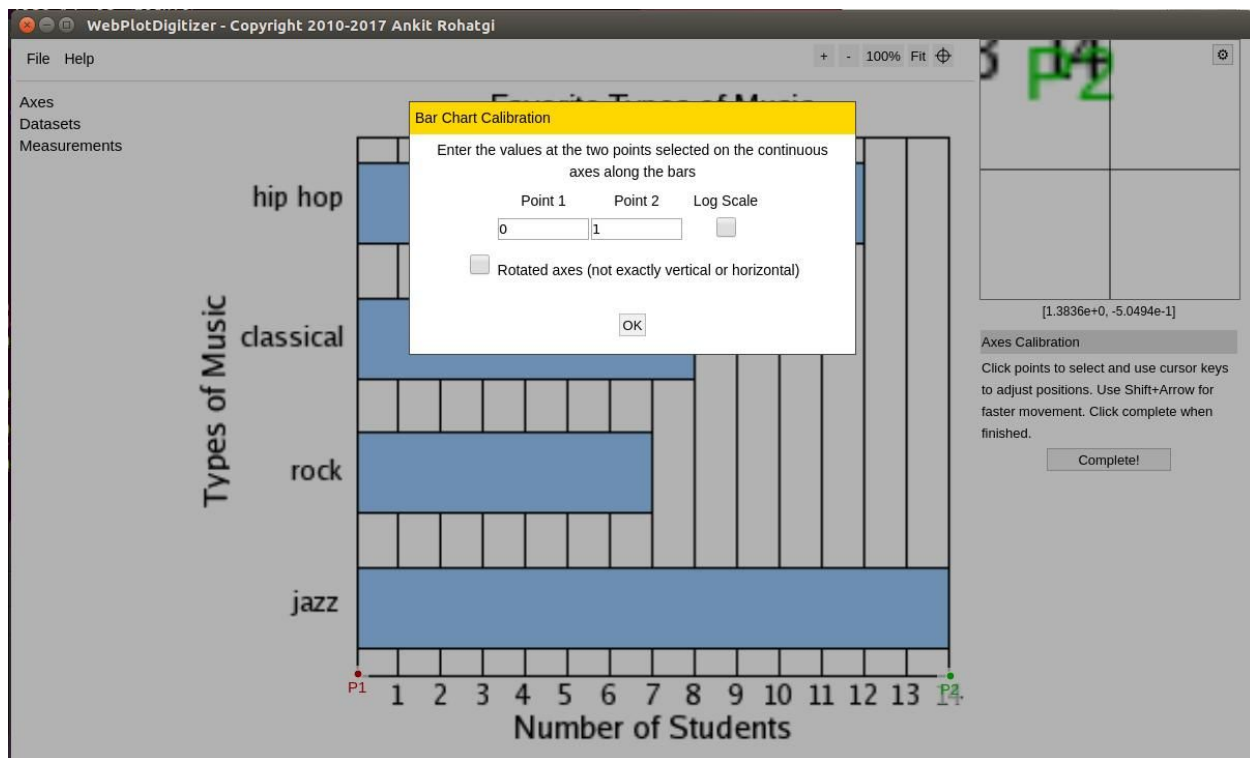
Video Tutorial: <https://www.youtube.com/watch?v=P7GbGdMvopU>

Process

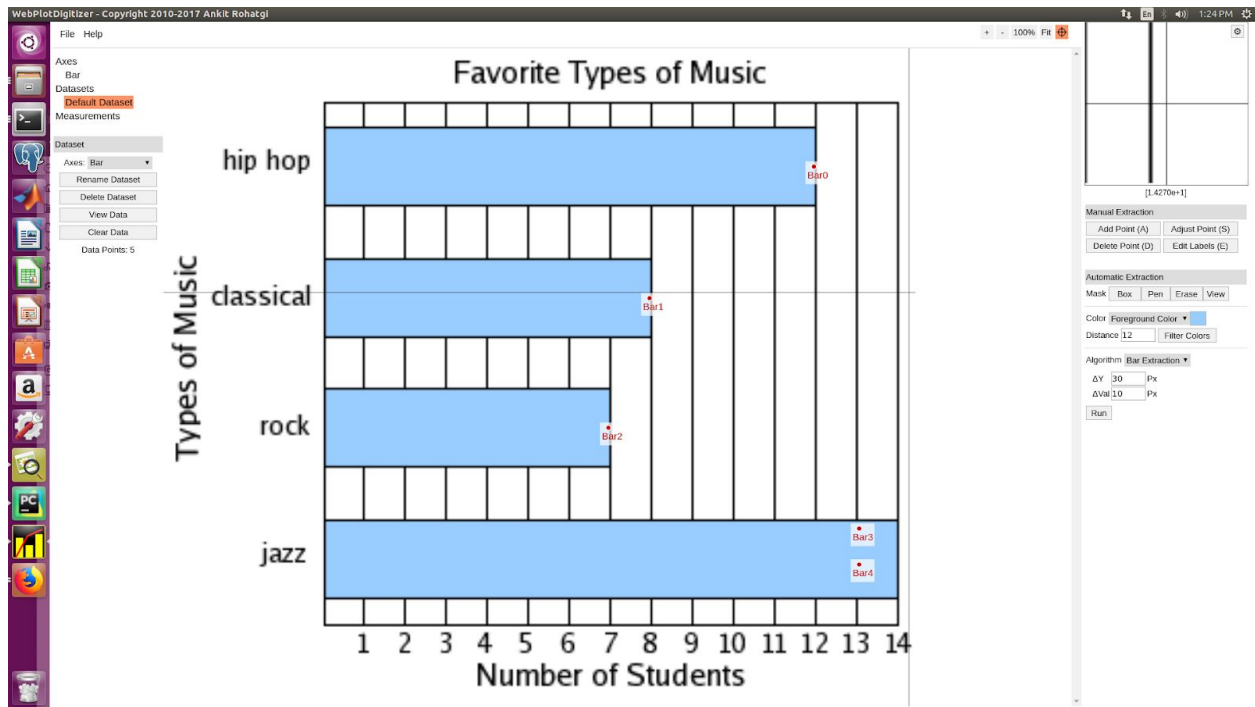


- Option of selecting the graph type

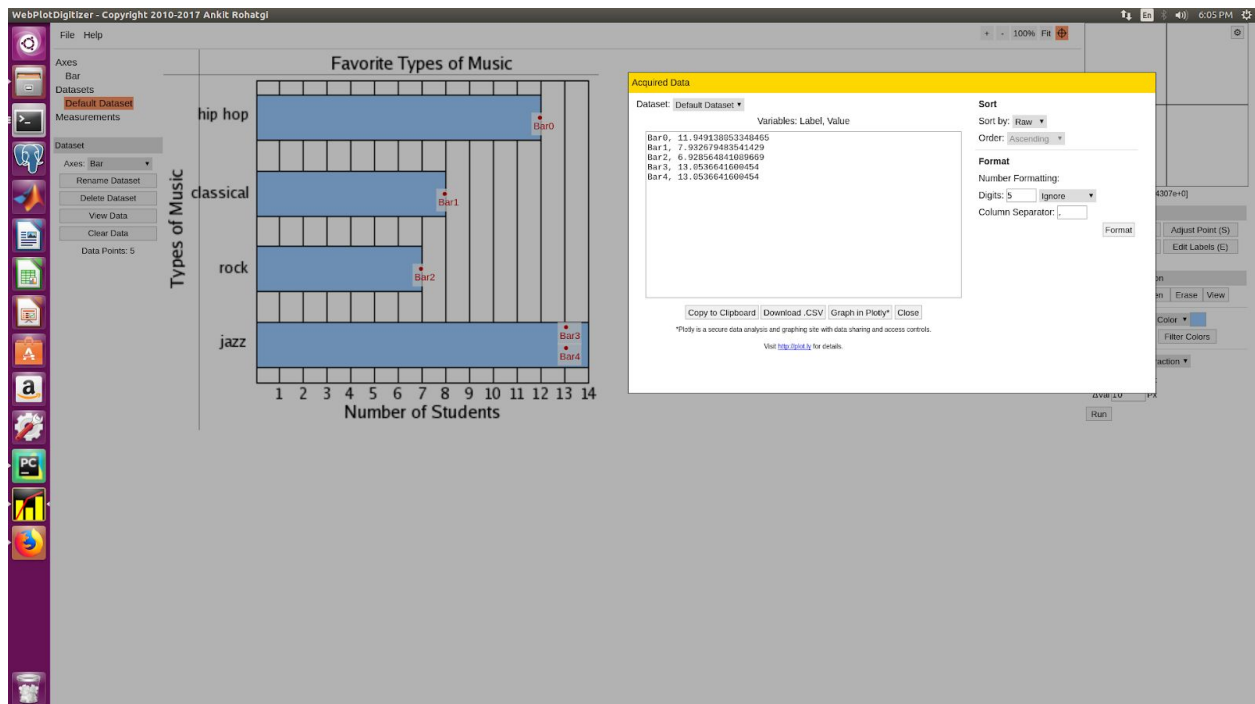
- Manually mark the Numerical axis. The axis which denotes y-axis in vertical graph. In the below example it is x-axis.



- Enter the corresponding values of the marked points. A magnifier is provided at the top right corner for accuracy. This is used to calculate the value to pixel ratio.
- The automatic extraction requires to mark the region first using the lower right options available. For bar graph the colour must be provided of the bars. Thus manually identifying it.



- The extracted values can be exported in various formats, for further uses.
- It can be directly visualised in <http://plot.ly> . Exported in csv.



Conclusion

Software has divided images in following categories.

- X-Y plot
- 2D Bar plot
- Polar diagram
- Ternary diagram
- Map with scale bar
- Image

Classification of the graphs is manual. Marking the axis and the values are manual. Either we can select the bar tips manually or select the colour of bars and its background colour. We use a marker to select a predefined region where the program should search for colours.

Labels are not even extracted, thus OCR is not used.

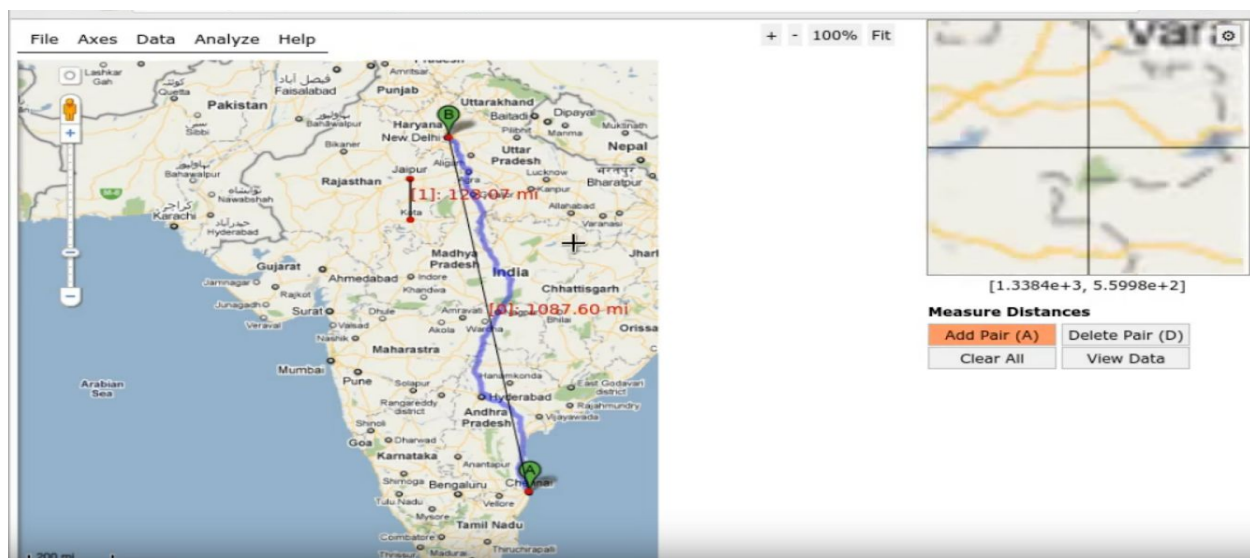
The program is implementing the ratio principle to extract the information from the image.

For line plots (X-Y plot) this program treats scatter plot, line plot, or curve the same.

- It can provide the corresponding values of Y-axis with the x-axis marked by the user.
- Some algorithms are provided to manually select the colour of the curve and extract its data points as an automatic feature. But for this the mask is to be marked with the tools provided, thus ultimately making it manual.

Overall it requires 80% of human interaction. This software has implemented image processing with good interface .It is useful to determine the values of ambiguous curves, and bar plots.

Map with scale bar is implemented with the same feature. It can use to determine the displacement between two points, if the original scale is provided.



iVolver

Video link: <https://drive.google.com/open?id=1tMotQlgzrUQbqDytLDGGz9DyAkKeXxhG>
(military data vizualisation)

Video link: <https://drive.google.com/open?id=1PQJQpV1sq3OuaSGLDDUwzXsvPop8smiC>
(Everest data visualisation)

Github code : <https://drive.google.com/open?id=12Nsezny1rv77JIXImWTkyPWa5AUWAtS5>

Site: <https://ivolver.cs.st-andrews.ac.uk>

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Info:

[https://risweb.st-andrews.ac.uk/portal/en/persons/miguel-nacenta\(86fad595-fc6b-4611-b0cf-ac798681f7df\).html](https://risweb.st-andrews.ac.uk/portal/en/persons/miguel-nacenta(86fad595-fc6b-4611-b0cf-ac798681f7df).html)

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The working version of the site is **inaccessible**.

[iVoLVER](#) is a tool that allows users to **create visualizations** using many types of data without textual programming.

Thus this tool is used to create visualized data with interactive user interface.

Other site : <http://vizzlo.com> visualize data

DataThief

Software link: <https://drive.google.com/open?id=1QPgs-R0Kh05i8Gd45sQF9FPmABtoa34L>

In ubuntu run : java -jar Datathief.jar

Comment from

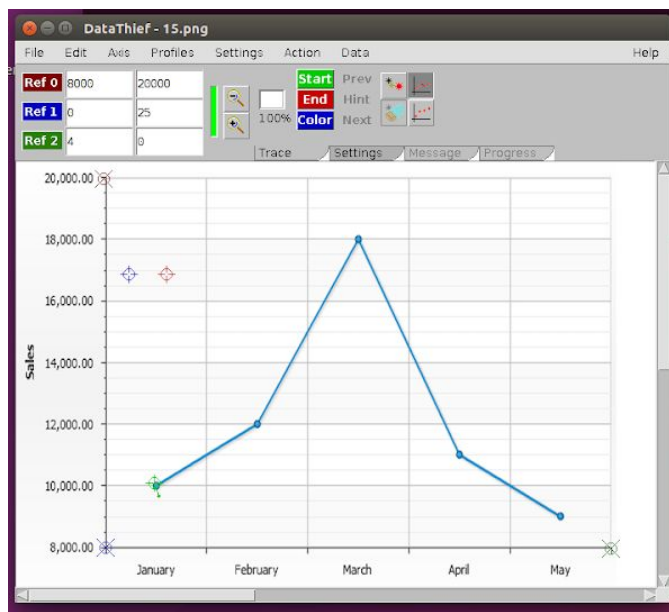
<http://sciencejon.blogspot.com/2013/04/using-data-thief-to-rebuild-misleading.html>

*If you're working with a **bar chart** or other figure where tracing a line isn't necessary, once you set your three axis points and enter the value range for x and y (by updating Ref 0 with 0,[high range of the bar chart], setting Ref 1 to 0,0, and setting Ref 2 to [any value],0), you can simply **drag one of the circles with a + in it around to the end of each bar and record the value displayed as you drag it.** Especially for a small chart with just a few bars I find this quick and easy.*

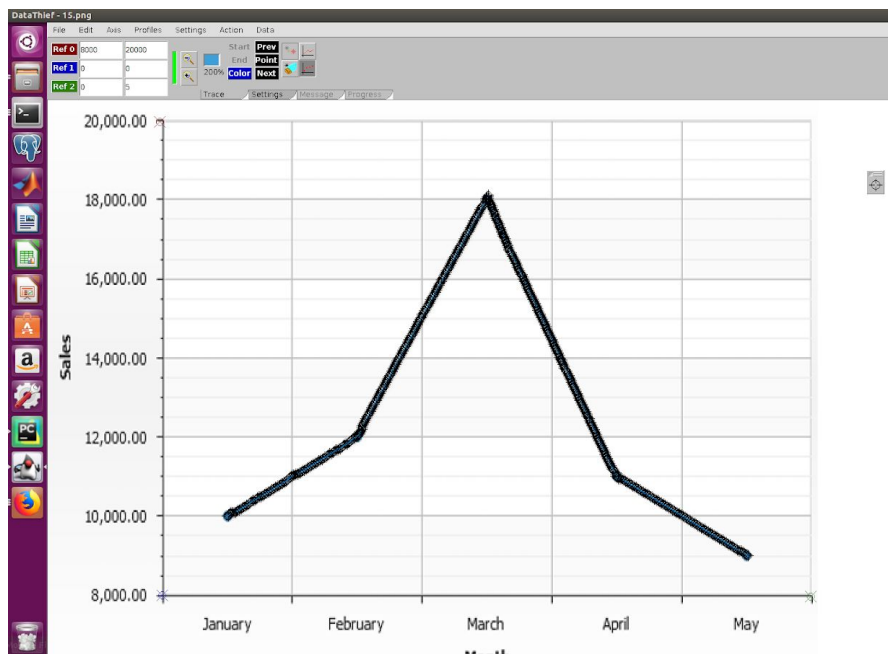
This program is used in data extraction of line/curve graph.

Process

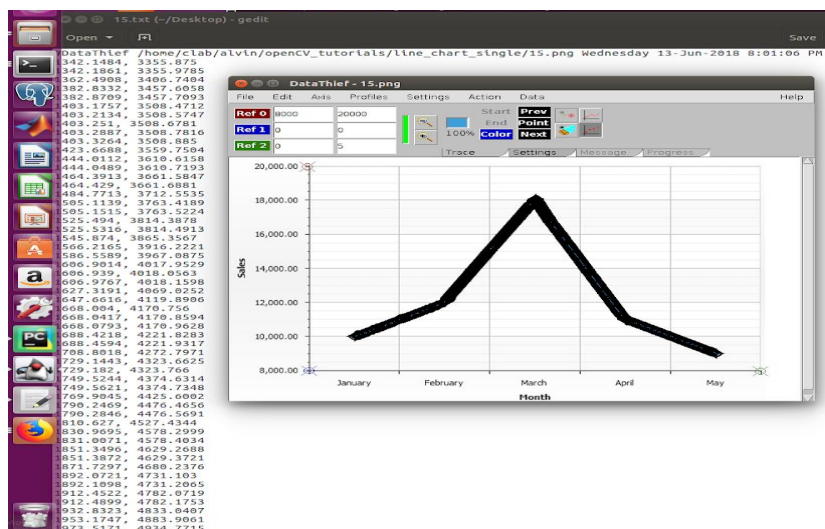
- Markers are provided for marking X-axis and Y-axis.
- Numerical values of the marks must be entered, at the top left corner. It is used for finding the ratio of line to pixel.
- Other markers are provided for marking the beginning and end of the line/ Curve.
- Some vectors are provided to define the direction of the curve.



- After successfully marking tracing is performed to identify the curve.



- The data can be only exported in a txt file.



Conclusion

Though the x-axis contains labels it exports the value in coordinate format. This software is made for accurate data extraction from an ambiguous curve. Pie charts and many other charts won't work.