

Graph plotter

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A python project

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Introduction

Description

This application serves as a simple line graph plotter which grabs data from csv documents.

Resources

Graph plotter uses the following modules to function:

- Tkinter
- CSV

Project structure (for dev)

The “App” class

Initiation (`__init__`)

1. Packs the applications canvas and buttons.
2. Defines variables.

Opening the csv (`openFile`)

1. Opens file dialog.
2. Checks if file was received. If not, skips steps below.
3. Resets the grid.
4. Feeds the values from the file into a variable using the read function (below).
5. Enables the UI buttons.
6. Draws the data using the draw function (below).

Reading the csv (`read`)

1. Defines variables.
2. Opens selected file.
3. Feeds the file data into a variable.
4. Extracts data from each cell of a row from the variable.
5. Resizes the data using the resize function (below).
6. Flips the data from row to column in case it was written incorrectly. ¹
7. Returns data.

Buttons

This function applies to the Points, Names and Lines show/hide buttons.

1. Checks button current state.
2. Changes to opposite state.
3. Redraws graph using the draw function (below).

Flipping Row to Column (`flipCSV`) ¹

1. Defines a variable.
2. Creates new row from each column.
3. Returns data.

Resize data to fit window (`resizeList`)

Since the operations are identical for both X and Y axis, only one will be described.

1. Defines `list`.
2. Strips data and feeds it into the `list`.
3. Defines a new `list` from the one above.
4. Sorts the new `list`.
5. Checks if the list is less than 0. If false skips sub steps below.
 - a. Feeds the sorted list to the grid
 - b.

Draw data (`draw`)

1. Clears the canvas

¹ **Note:** this is an unnecessary function, but it was kept since the application used to read data in row format.

2. Checks if lines are not set to hidden.
 - Draws lines using the draw line function (below) from The “Plotter” class.
3. Checks if points are not set to hidden.
 - Draws points using the draw point function () from The “Plotter” class.
4. Checks if names are not set to hidden.
 - Checks point value and draws the name accordingly:
 - If it is the first point, draw the name to the left.
 - If the point is higher than the previous point, draw the name above.
 - If the point is lower than the previous point, draw the name below.
 - If is none of the above, draw the name to the right.

The “Plotter” class

Initiation (__init__)

Defines variable

Draw point (drawPoint)

1. Defines size variable.
2. Draws vertical line.
3. Draws horizontal line.

Draw line (drawLine)

Draws a line.

Draw point name (drawVName)

Draws text.

Draw gridlines (drawGrid)

1. Draws horizontal line.
2. Draws vertical line.
3. Draws 0 at line intersection.