|  |  |
| --- | --- |
|  | Graph plotter |
|  |  |
|  | Denis Akopyan  A python project  6/11/16 |

Contents

[Introduction 2](#_Toc453588999)

[Description 2](#_Toc453589000)

[Resources 2](#_Toc453589001)

[Project structure (for dev) 3](#_Toc453589002)

[The “App” class 3](#_Toc453589003)

[Initiation (\_\_init\_\_) 3](#_Toc453589004)

[Opening the csv (openFile) 3](#_Toc453589005)

[Reading the csv (read) 3](#_Toc453589006)

[Buttons 3](#_Toc453589007)

[Flipping Row to Column (flipCSV) 1 3](#_Toc453589008)

[Resize data to fit window (resizeList) 3](#_Toc453589009)

[Draw data (draw) 3](#_Toc453589010)

[The “Plotter” class 4](#_Toc453589011)

[Initiation (\_\_init\_\_) 4](#_Toc453589012)

[Draw point (drawPoint) 4](#_Toc453589013)

[Draw line (drawLine) 4](#_Toc453589014)

[Draw point name (drawVName) 4](#_Toc453589015)

[Draw gridlines (drawGrid) 4](#_Toc453589016)

# 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]](#footnote-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.
   1. Feeds the sorted list to the grid

### Draw data (draw)

1. Clears the canvas
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.

1. ***Note****: this is an unnecessary function, but it was kept since the application used to read data in row format.* [↑](#footnote-ref-1)