User manual:

Setting up:

Before launching the program, make sure all the Python files of the program are downloaded and located in the same directory. All the packages mentioned in the section “Tools used” are required and should be properly installed before launching the program.

Launching the program:

To launch the program, run the file named “gui.py”. This will open up the graphical user interface (GUI) of the program. This window should look like figure 1 below.

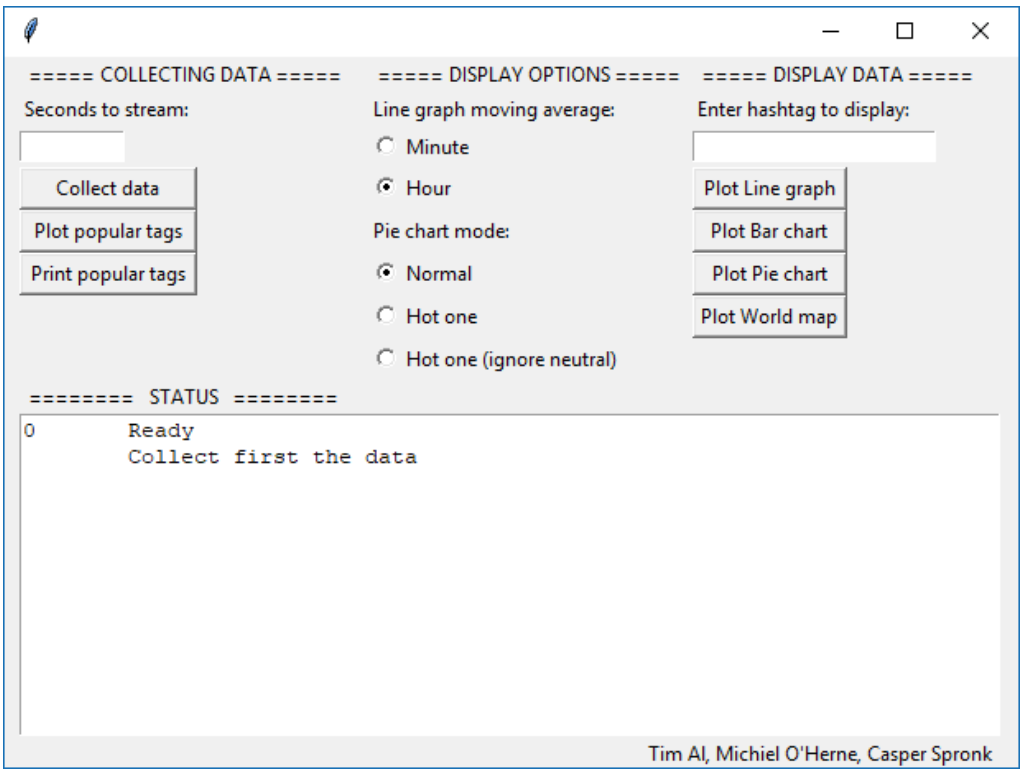

Figure 1: The GUI of the program

Using the program:

The window contains four different sections. One for “Collecting data” on the top left, the “Display options” in the top middle, the “Display data” on the top right and at the bottom the status is displayed.

Start by collecting data from Twitter. This can be done by setting a number of seconds to the field at the top left. If this value is set, press the button “Collect data” below the box and the program will gather some data. Please note that the process of collecting data cannot be interrupted and Windows can state that while this process is running the program is not responding. When the data in the time interval is collected, the total number of received messages is shown in the status box.

To see which tags are collected, it is either possible to print the five most popular tags in the status box by pressing the “Print popular tags” button, or the sixteen most popular tags are displayed in a horizontal bar graph. In both cases, the number of messages per tag is also displayed.

To display the data, you first have to enter a so called “hashtag” in the field on the top right, the data of the given hashtag will be plotted when pressing one of the four

buttons to plot the data. Note that the hashtag-field is case-sensitive. The data can be displayed in four different ways:

- **Line graph**: every message is represented by a dot in a scatter plot. The x-axis is the time and the y-axis the compound. The closer to one, the more positive the message was. The average compound of all the messages is drawn as a yellow dotted line. The green line is a moving average, either per hour (default) or per minute. This setting can be set *before* plotting the data under "Display options".
- **Bar chart**: all messages (or the average if multiple messages are received in the same second) are displayed as a bar on the x-axis. Each bar can contain a red (negative), yellow (neutral) and green (positive) part, which indicates how positive the message is rated.
- **Pie chart**: an overall opinion of the given topic (hashtag) is displayed. This can be done in different ways. The normal mode, which is the average of each negative, neutral and positive rating in a message. In the hot-one mode, only the highest value of the negative, (neutral) and positive is selected. The mode can be set under "Display options" *before* plotting the data.
- **World map**: The data is drawn in a world map. In the world map, first select on the top left which data should be displayed in the map. This can be the occurrence (how many messages with the specified topic are send from each country) or the opinion (red country means a negative opinion, a green one a positive). Please note that only very few messages received from Twitter contain a location.

In every plot there are a lot of options available to analyse the data. Hovering on data can display more information, and with the controls at the top right it is possible to zoom on specific parts of the data. There is also an option to export the data in different formats.