Faculty of Science

Course: CSCI 2020U: Software Systems Development and Integration
Lab: #9
Topic: Loading web data

Overview

In this lab, you'll write a program to download stock prices from the web (Yahoo Finance), and draw a line chart comparing two stocks.

Instructions

You can use any operating system or environment for this laboratory assignment.

You will create a new directory (or IntelliJ IDEA project) called `lab09`. Perform the following steps:

1. Write a function, downloadStockPrices():
   - This function takes a stock ticker symbol (e.g. GOOG), and downloads historical stock data about that organization from Yahoo Finance
   - The URL you will use will look like this:
     I. `https://query1.finance.yahoo.com/v7/finance/download/GOOG?period1=1262322000&period2=1451538000&interval=1mo&events=history&includeAdjustedClose=true`
     II. period1: Unix Timestamp (seconds since January 1, 1970) for start of period (currently January 1, 2010)
     III. period2: Unix Timestamp for end of period (currently December 31, 2015)
     IV. interval: Period between data points (e.g. '1mo' for every month / monthly)
     V. events: type of event data, if 'history' then historical stock data
     VI. includeAdjustedClose: If true includes 'adjusted close'
2. Write a function, drawLinePlot():
   - This function takes two lists of floating point values, which are stock closing price values
   - Use 2D graphics to draw the x-axis and y-axis 50 pixels from the left and bottom edge of the window
   - Call plotLine() (below) twice, once for each stock
3. Write a function, plotLine():
   - Use 2D graphics to draw lines between each closing price
     i. Note: You'll need to adjust for the size of the window, the 50 pixel pad around the outside, and for the inverted y-axis
4. Write some code to call the above functions in order to generate a graph similar to that shown in figure 1 (you can hard code the stock symbols, but I would recommend you try out a few different stocks, for thorough testing)

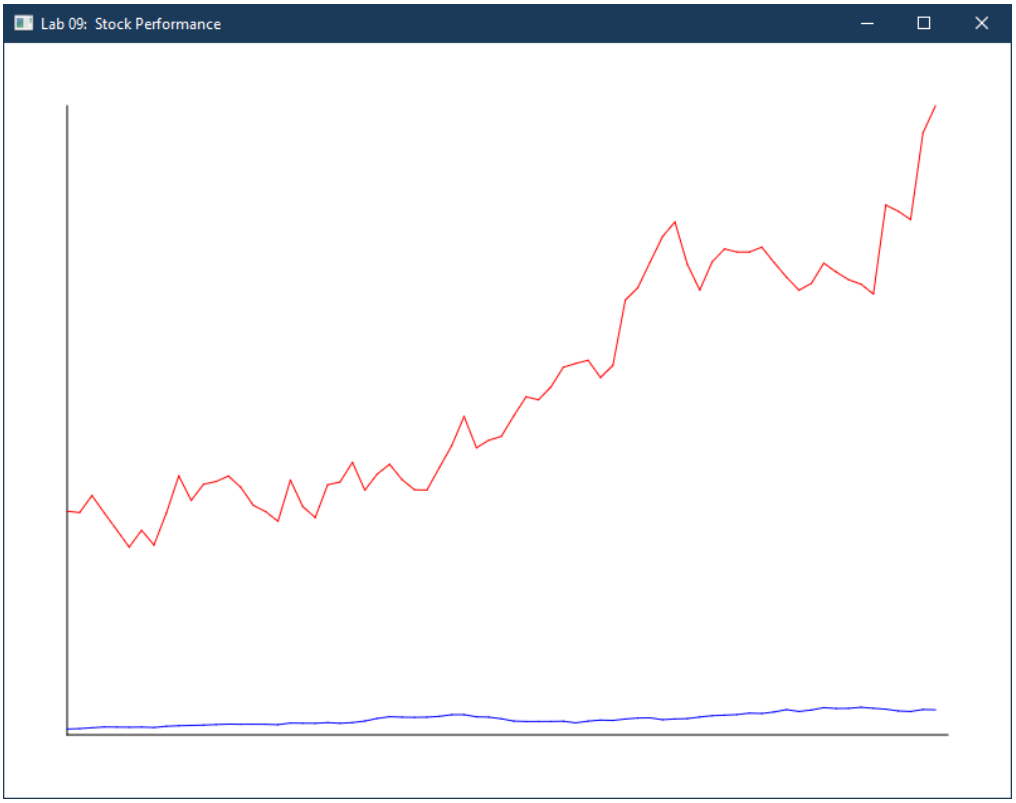

Figure 1: The application's sample output comparing Apple (AAPL: blue) and Google (GOOG: red)

How to Submit

In session *(Preferably)*

- Show your running application to the TA to prove that you have finished this lab.
    - This can happen by your sharing your screen to the TA or direct messaging them with screenshots.
    - If your TA is too busy while helping other students in-session, you may follow the "after lab hours" submission instructions below instead.

After lab hours *(1 week to submit - before your next lab session)*

In one PDF documents attach the following:

- Screenshot of your local directory "lab09" showing the appropriate .java/.fxml files.
- Screenshot of your running application (UI) including the expected output.
- Link of your GitHub repository (if it is a public repository) -- this contains your full source code.
    - Alternatively, attach your project as a `.zip` along with the PDF file.

The TA can provide oral feedback if you do not receive full marks for any lab assignment, but it is most appropriate to ask the TA for this feedback in a timely fashion (i.e. ask now, not at the end of the term).