Project Description

We ask you to develop a web interface for a sample C++ code that we provide to you (generator.cpp). You will also need to make some simple enhancements on the C++ code. You will work on front-end (web interface) and back-end (C++ code and any server side code and tools that are necessary) components as described below. Please read this whole document before you start working on it.

You should package all of your code (both front-end and back-end) in a compressed file (zip is preferred but rar is fine too) and e-mail to us. You will be asked to do a 30-minute demo of your code in an online interview (using skype). You don't have to include any third-party tools or libraries in your e-mail. For example, if you use angular.js or node.js in you development, you don't have to include those libraries in your e-mail. Send us only the code that you developed or modified.

Back-end

You will be provided a sample C++ code that generates multiple data files. Each data file will be named using a key that is an integer in a certain range (e.g., from 0 to 1000). You should enhance the C++ code in order to read all the data files and keep them in a proper data structure in memory. The C++ code should be able to serve the requested data file when a key is retrieved from the front-end. You can assume that the data files are named using the keys as follows: 0.txt 1.txt 2.txt 3.txt ….. 1000.txt. Each data file contains a sequence of numeric data values.

Front-end

The front-end should allow its user to select a key (e.g., integer value from 0 to 1000), retrieve the contents of the corresponding data file from the back-end, and display an interactive chart using the retrieved data. For example, if the key of "23" is chosen, then the contents of the data file "23.txt" should be retrieved and displayed in a chart. The chart should be as interactive as you can possibly imagine. For example, the user should be able to move the chart along the x-axis, or change the range of x-axis (i.e., move the beginning or ending point of the visible data window in x-axis), a mouse over action should trigger the display of a pop-up label that indicates the value of a bar or data point in the chart, etc. Basically, try to think about possible interactive visualization effects that may nice to have on a chart. If you need to see an example of an interactive chart, you may take a look at the stock charts at Google Finance web site (http://www.google.com/finance). Keep in mind that Google Finance web site is just a nice example that shows how an interactive chart may look like; it does not represent what you should develop for this project.

Important Notes

You may use any open source library or tool, but we would prefer JavaScript based ones, such as Node.js, Angular.js, React.js, etc.

You should send your code in an e-mail at most four days after receiving this project description. Don't worry if you don't finish everything, just do whatever you can do, and explain what you would have done if you had more time. If there is anything that is not clear in the project description, you can make reasonable assumptions. Please send your code and explanations as attachment (compressed file) in an e-mail message. Your explanations should tell what parts of the project you were able to complete and what you would have done if you had more time.