

HCI-631 Project #2: DigitalVoices: Firefox Extension Due: Monday, February 25 at 10:30AM

In this project you will try to solve the problem of verifying the authenticity of Wireless networks and services. Imagine the following situation: you visit McDonalds in the centre of Funchal, and you use your laptop to log on to a wireless network called "McDonalds". You open your web browser, and see a welcome page that claims that this network is offered by McDonalds. How can you verify that this is actually the case? Is it possible that someone malicious is behind this network?

Project Overview

The goal of this project is to learn more about web programming by making additions to an existing browser plug-in and an existing java program. You will be given two software components:

- An existing Firefox plugin that supports java. This plugin demonstrates how you can run java programs as plugins in Firefox. You will need to install "ant" in order to compile and package this plugin.
- The java program DigitalVoices. This is a command line application that listens to the computer microphone and decodes information encrypted in sound (much like TeleText for television). You can use the same program to create small .wav files that encode a string of text. See the readme file for more information. Your task is to use this application as a plugin for Firefox by extending the above Firefox plugin.

Your final solution should consist of a plugin which, when activated, listens to the computer microphone, decodes the data, and compares the data to the URL of the current HTML page. If the URL matches the decrypted data, then the page is authentic, otherwise the page is fake. Your plugin should then inform the user whether the html page is authentic or not.

Turning Your Program In

Your program is due on Monday, February 25 at 10:30AM.

As before, you should turn in your assignment via e-mail to **vassilis@cmu.edu** whose subject contains the string "631 project2 turnin for " and then your name. What you turn in should take the form of a **single "zip" file** (as an attachment to your e-mail message). This zip file will contain:

- the install for your extension
- the complete source tree, ready to be compiled using ant
- any other support material (images, readme files, etc)
- a short 2-6 page writeup describing what changes you have made, including any relevant screenshots of the plugin.

Do **not** send multiple attached files (i.e., one attachment for each source file). Your email should also describe any extras that you are submitting (see below). Again, be certain to include the string "631 project2 turnin for " and then your name, in the subject of your message.

Grading

Your program will be graded as follows:

- Robustness, how well does the addition actually work?
- Difficulty, how hard was it to implement?
- Understandability, how well is your code documented? Focus primarily on your code additions rather than what already existed. Though adding documentation to the existing code would help if it isn't well documented.

Tips

Because DigitalVoices uses threads, you need to change its source code so that a single function can be called, the function waits for the threads to finish, and then returns the string that was decoded through the microphone. Hint: look in the main method on how to invoke the decoding, and then simply add a while() loop that waits for data to be decoded.

Also, note that DigitalVoices uses the character 0 to indicate the end of the message.

Resources

Here is a list of web sites listing Firefox extensions:

- The provided plugin is taken from the following tutorial page (source code included). Note that you will need ant to compile the plugin. http://simile.mit.edu/wiki/Java_Firefox_Extension
- Mozilla Firefox and Thunderbird Extensions (source code available for all projects here) <http://extensionroom.mozdev.org/>
- Mozdev.org Active Projects (source code available for all projects here, note that inactive and abandoned projects are listed elsewhere) <http://www.mozdev.org/projects/active.html>

If you are unfamiliar with Firefox and Thunderbird extensions, the following resources may be useful:

- Mozilla extensions (very general reference) <http://developer.mozilla.org/en/docs/Extensions>
- MozillaZine Extension Development Documentation Project (very good resource) http://kb.mozillazine.org/Extension_development
- Mozilla Thunderbird extensions <http://www.mozilla.org/projects/thunderbird/specs/extensions.html>
- Creating a Mozilla extension <http://www.mozilla.org/docs/tutorials/tinderstatus/>
- XUL Tutorial (XUL is an XML-based user interface language for Mozilla apps) <http://www.xulplanet.com/tutorials/xultu/>