

Lab: Creating and Posting a Playlist

CSI 3305: Introduction to Computational Thinking

November 12, 2010

1 Introduction

As an aspiring web DJ, you are looking for a way to choose and randomize a group of 100 songs from a 500 song library and then have a web player use that playlist to broadcast to the world. You could attempt to create this playlist yourself, but it is taking too long and keeping you from clubbing. What can you do?

2 Problem Statement

Your task is to create a script that will randomly select a set of 100 songs from a library of 500 available songs, and randomly arrange them into a playlist that you will save to a pre-specified location.

You will also create a scheduled task on Windows to automatically run the script each night at midnight and generate a new playlist.

3 Tools

You will be using the Windows command prompt and Python programming language for this lab. The script will be written using a text editor, and will be run using the command line.

4 Setup and Programming

4.1 Playlist Generator

1. Download the music library zip file from the course website. Unzip the file and save to a local folder.
2. Within that folder, create a new file called generate.py
3. Open the generate.py in the text editor of your choice (such as Notepad or Vim.)
4. Enter the following code in the file:

```
import random
import os
```

The line of code imports the **random** module, which you will use for making your random selections. The second imports the **os** module, which you will use for getting the files in a directory.

5. Next, enter the following code:

```
files = os.listdir(".")
songs = random.sample(files, 100)
```

First, we get a list of all the files in our current directory. This is stored in the *files* variable. Next, we use the **sample** method of **random** to select a random group of 100 songs from our set.

6. Next, enter the following line of code:

```
playlist = open("playlist.m3u", "w")
```

This creates a file object for output. The first parameter is the filename and path, and the second is a flag signifying we will write to this file.

7. Next, enter the following, keeping mind of indentation:

```
for song in songs:
    playlist.write(song + "\n")
```

This iterates through our randomized selection of songs, and outputs their filenames to the playlist.

8. Finally, we enter this on the last line, to close the playlist output file:

```
playlist.close()
```

9. Save the file and close it.

10. Open the command line (From the Windows menu bar: Start > Run... > cmd). Navigate to the folder where you created your file (use the following command: cd "C:\Folder\where file\is".)

11. Call the generate.py file from the command prompt, using the following command and hitting enter:

```
python generate.py
```

You should not see any output on the screen, but it should return control to the command prompt after a second. Once it is done, look in your folder to verify that a file named playlist.m3u was created.

12. Open the newly created playlist.m3u file and verify that it contains a listing of 100 randomized songs from your library.

5 Scheduling

Using Google, learn how to create a scheduled task on Windows. Set up a scheduled task to run each night at midnight. Verify your task runs by first setting it up to run a few minutes from now and checking if it calls your script correctly, generating the playlist file. After you're sure the task works, change the time for midnight.

6 Questions

1. List the steps necessary for creating a scheduled task on Windows.
2. Assume we now want to automatically upload our generated playlist to a web server each night. How can we accomplish this using free tools and/or web services? (Hint: **Dropbox.com** allows you to automatically upload files from your local computer.)
3. If your library grew to include two thousand more songs, what steps would you need to change in your playlist generation technique?
4. Imagine that your audience becomes very picky, and now only prefers 50 specific songs. You reduce your library to these songs alone. What would need to change in your playlist generation script, since your library is now smaller than 100 songs?