

Introduction to Programming EE2310 Homework 9

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Problem

To read in files from a selected directory, process the mp3 files and sort them in selected ways. Then generate a HTML file by the sorting result.

Solution, Additional Feature, Program Flow & Structure

Classes

- `file` : Include below data of a file:

- `track(string)`
- `performer(string)`
- `title(string)`
- `duration(string)`
- `filetype(string)`
- `path(string)`

Functions and flow

- `main(int argc, char *argv[])`
 - Get Folder Path and Directory
 - Save Every File to Vector
 1. Create two empty `string` vector called `FullPathlist` and `FullNamelist`, and a nother empty `file` vector called `FileList`.
 2. Push the file name and path of every file in the directory to `FullPathlist` and `FullNamelist` separately.
 - Process the File List
 1. Call `dataProcess` function to separate data in the `FileNamelist` and save to `FileList`.
 - Choose And Apply The Sorting Method
 1. Get the user's choice.
 2. Call sort functions depend on the user's choice. Apply the secondary then the major key.
 - Output To The File
 1. Call `output` function to generate the HTML file.
- `dataProcess(vector<string>& FullPathlist,`

```
vector<string>& FileNameList, vector<file>& FileList)
```

- Create a file called buffer, a string to save the whole file name which is going to be processed, and two `size_t` to save the positions to separate.

- Get File type

1. (Position of first "." from 0) + 1 ~ (Position of the last character) - 1.

- If the file type is "mp3"

1. Get and Save Track ID:

- ✓ Start: First character but not "-" from 0
- ✓ End: (First "-" from the start position) - 1

2. Get and Save Performer:

- ✓ Start: First character but not "-" from the last end position
- ✓ End: (First "-" from the start position) - 1

3. Get and Save Title:

- ✓ Start: First character but not "-" from the last end position
- ✓ End: (First "-" from the start position) - 1

4. Get and Save Duration:

- ✓ Start: First character but not "-" from the last end position
- ✓ End: (First "." from the start position) - 1

5. Save Path

- ✓ Get path from `FullPathList`

6. Push above data to `FileList`.

- Repeat above two big steps until all the files are processed.

- `sortTitle/Performer/Track/Duration (vector<file>&FileList)`

1. Use bubble sort to sort the whole `FileList` by the base data user select.

- `output (vector<file>& FileList, int choose1, int choose2)`

1. Generate the HTML file and show the result on the process screen.
2. [Additional Function] The HTML file has been decorated by the Bootstrap css framework.
3. [Additional Function] The hyperlink on the title will link to the search result on Youtube.
4. [Additional Function] The table row will have a hover effect when the mouse is on the row.

Output Result

Major Key: Performer, Secondary Key: Duration

Song list:

```
01-Kristen Bell-For The First Time In Forever-0345
02-Idina Menzel-Let It Go-0344
03-Josh Gad-In Summer-0154
04-Christophe Beck-Epilogue of Frozen-0304
05-Alex G-Disney Classics Medley-0455
06-Hans Zimmer-Dumpling Warrior-0330
07-Christophe Beck-Paperman-0501
10-Jesse Eisenberg-Real In Rio-0348
16-One Direction-One Thing-0317
17-Taylor Swift-Sparks Fly-0422
```

Result on the process screen:

```
Sort by...
1)Track  2)Title  3)Artist  4)Duration
Enter the major key then secondary key:3 4
05 Disney Classics Medley, by Alex G | 0455
04 Epilogue of Frozen, by Christophe Beck | 0304
07 Paperman, by Christophe Beck | 0501
06 Dumpling Warrior, by Hans Zimmer | 0330
02 Let It Go, by Idina Menzel | 0344
10 Real In Rio, by Jesse Eisenberg | 0348
03 In Summer, by Josh Gad | 0154
01 For The First Time In Forever, by Kristen Bell | 0345
16 One Thing, by One Direction | 0317
17 Sparks Fly, by Taylor Swift | 0422
Press <RETURN> to close this window...
```

Generated HTML code:

```
<!DOCTYPE html>
<html>
<head>
<link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.1/css/boot
strap.min.css">
<title>Chunyou's Song List</title>
</head>
```

```

<body>
<h1 class="text-center">Chunyou's Song List</h1>
<p class="text-center">Sort by Performer > Duration</p>
<div clsee="row">
  <div class="col-md-8 col-md-offset-2">
    <table class="table table-hover">
      <thead>
        <td><p>Player</p></td>
        <td><p>Track</p></td>
        <td><p>Title</p></td>
        <td><p>Artist</p></td>
        <td><p>Duration</p></td>
      </thead>
      <tbody>
        <tr>
          <td><audio controls>
            <source src="C:/Qt/ee2310/hw9/music/05-Alex G-
Disney Classics Medley-0455.mp3" type="audio/mpeg">
          </audio></td>
          <td><p>05</p></td>
          <td><a
href="https://www.youtube.com/results?search_query=Disney
Classics Medley">Disney Classics Medley</td>
          <td><p>Alex G</p></td>
          <td><p>0455</p></td>
        </tr>

```

(The structure of other rows are very much alike.)

```

    </tbody>
  </table>
  <p class="text-center text-muted">Click on the Title to
search on Youtube!</p>
</div>
</div>
</body>
</html>

```

Generated HTML file display result:

Chunyou's Song List

Sort by Performer > Duration

Player	Track	Title	Artist	Duration
	05	Disney Classics Medley	Alex G	0455
	04	Epilogue of Frozen	Christophe Beck	0304
	07	Paperman	Christophe Beck	0501
	06	Dumpling Warrior	Hans Zimmer	0330
	02	Let It Go	Idina Menzel	0344
	10	Real In Rio	Jesse Eisenberg	0348
	03	In Summer	Josh Gad	0154
	01	For The First Time In Forever	Kristen Bell	0345
	16	One Thing	One Direction	0317
	17	Sparks Fly	Taylor Swift	0422

Click on the Title to search on Youtube!