



CSCI3280 Introduction to Multimedia System, 2014 Spring

Mini Project Specification

Karaoke System

14 Feb, 2014 ~ 14 Mar, 2014

Late penalty: 10% per day

Introduction of the Mini Project

The Karaoke System project should be carried out by a group of **three** students. Your system should fulfill the basic requirements and have enough enhanced features. After implementing the system, you are required to give a 10-minute demonstration and 2-minute Q&A on your project.

For this project, you are required to implement an UI to play WAV format audio files, display music lyrics, and search music. You are welcome to use any programming languages, such as C, C++, C#, Java, etc. to implement your system, provided that you can fulfill the requirements. You must explicitly state what packages or libraries your programs are based on when presenting your work.

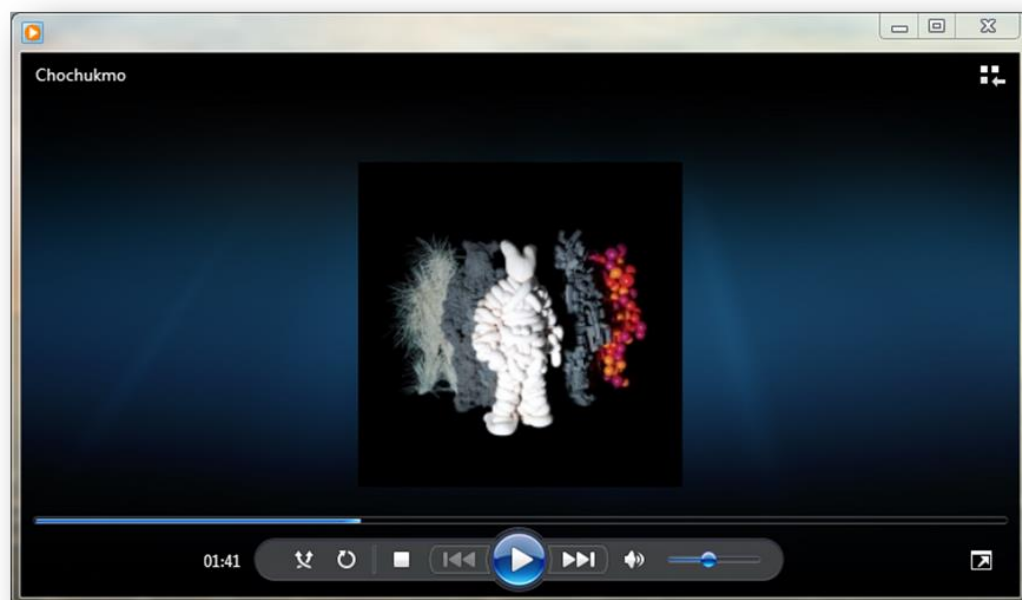


Figure 1. Example of Karaoke system: audio player (Window Media Player12)



Basic Requirements

1. Basic User Interface

Your program shall have a basic user interface. The interface should at least include a play button, a stop button, a volume control button, a lyrics display window and a list control of audio files. The user can select the music in the list control so as to play the audio file. You also need to provide an interface for user to add/delete the information of audio files.

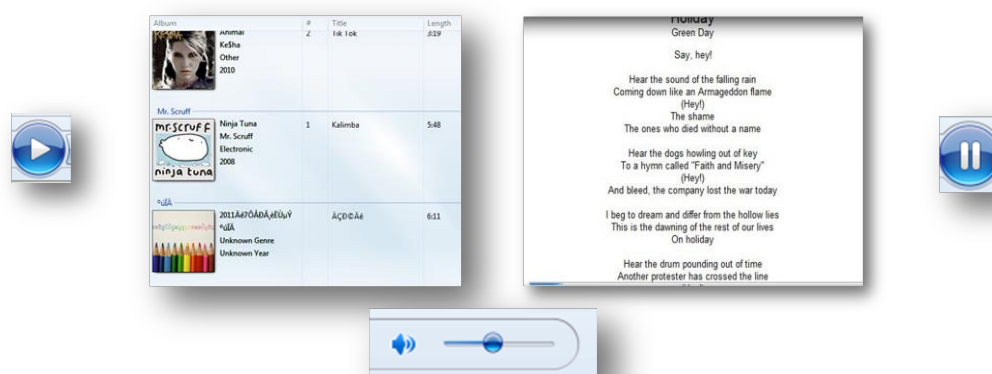


Figure 2. Example of play button, play list and stop button

2. Volume control

Your program should be able to control the volume through a certain button (e.g. an easy accessible slider).

3. Music Management

Your program should have a database which stores music information (e.g., album, title, length) such that the program can detect the music files in the database then display them in the play list. Your program should also have a database (or a text file) to store the information of the audio files. The information of the audio files should be manually input and removed by the user.

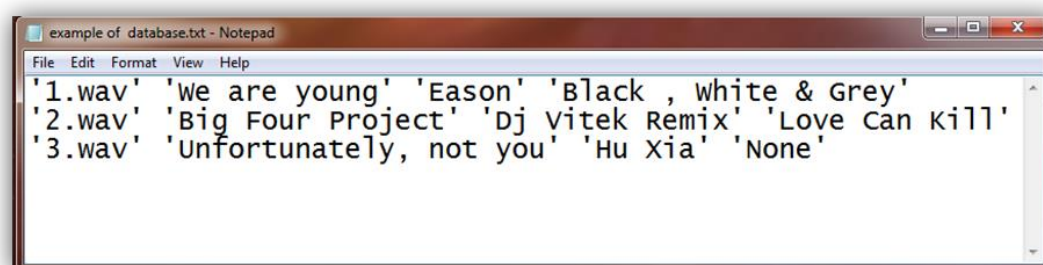


Figure 3. An example of database

4. Lyrics displaying

Your program should be able to play music and show lyrics synchronously.



LRC format is recommended here because it contains lyrics with the addition of timing information. You should download LRC file of your favorite song from internet or type the lyrics text without Time-info, and then edit it by yourself.

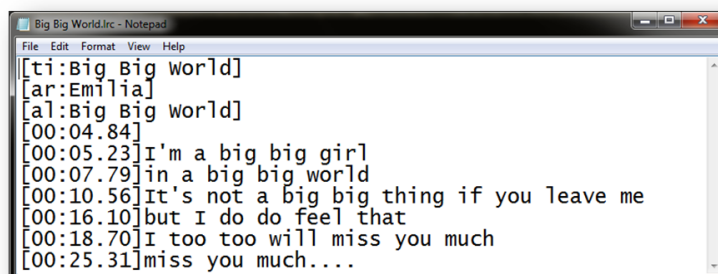


Figure 4. Example of LRC files

5. Music information management

Your program shall be able to display the information of the music including the music title, singer and album name according to your database. When the user selects a song in the list control, the corresponding information should be displayed. If the certain information is not available, the program should display “N/A” on certain places.

Users can also type in keywords to search music based on your data base. Your program can search the music from the database of music according to the keywords. The results should be displayed in the list control of your program. The searching must support multi-keyword (e.g. music title, singer’s name and album name).

6. Music decoding and playback

You are required to understand the inside structure of wave format and write your own codes that can open, analyze, and playback a WAV file. The fmt sub-chunk and the data sub-chunk of the WAV file must be read and extracted manually, which means YOU CANNOT USE ANY THIRD PARTY program. The sound data should be played fluently and bring the users beauty of music.

Suggested Enhanced Features

1. Support Chinese lyrics
2. Support other audio format; this can be based on a third-party library.
3. Video playing
4. Dynamical effects
5. Visualization
6. Any other creative ideas to enhance the system



Demonstration and Report

For this project, you need to do a demonstration on your program and submit a report for each phase.

The report (no more than 5 pages) is a short description of your program, which at least include:

- team number (we will announce your team number later)
- student names and ID
- workload division
- program's operation manual
- a list of third-party libraries which are used in your program
- enhanced features

You need to do a demonstration in front of a tutor. In the demonstration, every basic requirement that you have fulfilled and every enhanced feature that you have implemented should be introduced clearly and efficiently. Please tell tutors if you have any special requirements on the library, tools or any resources. What's more, you will only have 10-min to demonstrate your program and mark will be deducted if you do your demonstration for more than 10-min.

The requirements below are also need to be followed:

Before the demonstration

- You can use any machines, including your own PC, in the venue of demonstration. Please be well prepared before you do the demonstration (e.g., setting up your environment, downloading the necessary resources and preparing your own audio files other than wav format).
- Tell the tutor, if they are free, to come and get the submitted CD-R.
- You need to copy your program from the submitted CD-R to the demonstrate machine in front of the tutor.
- The demonstration starts when you run your program.

During the demonstration

- You need to demonstrate all of your program features.
- You are not allowed to close/restart your program without permission.
- Unstable performance (e.g. BSOD, program no responses, or unexpected results) may lead to mark deduction.
- Tutors will ask questions about your program and your answers will definitely affect the grades.



Materials provided (www.cse.cuhk.edu.hk/csci3280/)

1. A C++ sample program, which plays “8id32.wav” when clicking the button - PlayWave. It is a reference for you to write the wav file decoder and player.
2. A music file named “my music” which contains four files: 1.wav, 2.wav, 3.wav and info.txt. ‘info.txt’ contains information of the 3 wav files, including ‘filename’, ‘music title’, ‘singer’ and ‘Album name’, as below:

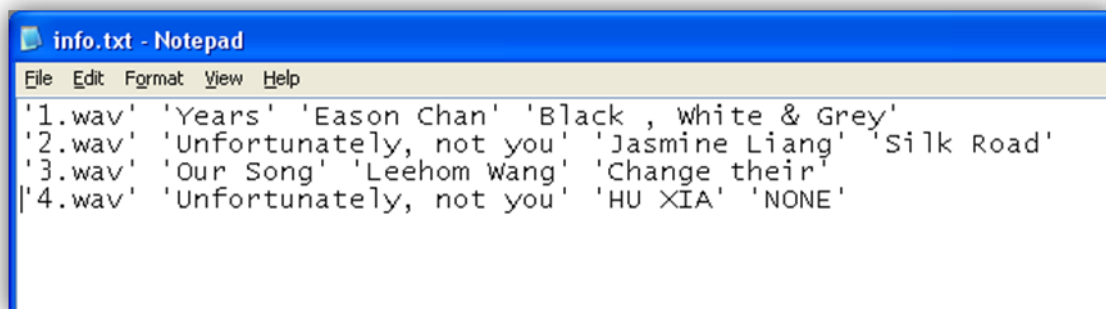


Figure 5. Info.txt file

3. A LRC file which contains lyrics with Time-info.

Assessment

Basic requirements:	35%
Enhanced features:	25%
Originality:	30%
Demonstration and report:	10%

Important Dates

Deadline:	14 Mar, 2014.
Demonstration Time:	To be announced

Submission Guidelines

1. You are required to submit your project with CD-R and a hardcopy of report. The CD-R should contain your source codes, a soft copy of your report.
2. There will be an assignment box on the 10/F of SHB about 1 week before the deadline. You can submit your CD-R into that assignment box.
3. Late submission will lead to mark deduction.
4. No plagiarism is allowed. Plagiarism will lead to fail in this course.
5. All the test case waves are downloaded from the internet for educational purpose. Music may be subjected to copyright. Please do not distribute them.