COURSE PROJECT DOCUMENTATION

CS101 Projects 2015

Audio Player

GROUP CUSE

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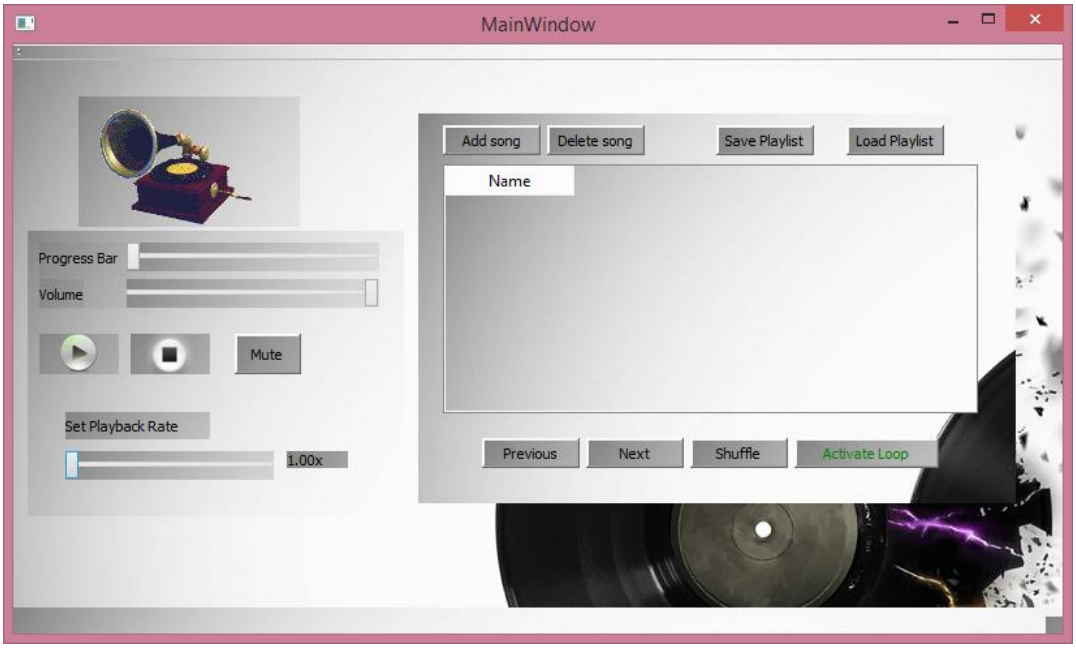
1. Introduction

A Music Player is a term typically used to describe computer software for playing back audio files. A user-friendly music player offers features such as Loading a song of any format, Play, Pause, Volume Control etc. and has aesthetic graphics and design.



A better audio player also provides the user with playlist features such as saving the present list of songs and loading it at a later time with additional options like Next, Previous, Shuffle, Repeat etc. and changing the frequency rate of the song.

2. Problem Statement

The objective of this project is to design and implement a user-friendly music player using Qt IDE with interesting playlist features. It is an implementation of interfaces, packages, classes and methods provided in Qt media framework for data reading and processing. The song should be of .mp3 format and should be available on the user's computer.

The player will recognize the song and enable the user to play the song with some additional options.

3. Requirements

- A computer with speakers and software supportability and compatibility enabling the installation of **Qt Multimedia 5.4** and its libraries.
- Also, while running the program, there should be .mp3 files on the system for testing.
- There should be no compatibility issues while running the program.
- The backend of the music player should be well integrated and supported by the system.
- The user should have windows or linux OS system installed.

4. Implementation

Functionality

A. Adding the Song:

The user clicks on ‘Add Song’ in the ‘On-Screen Dialog Box’.

A Qt File Browsing window opens. The user can select a supported audio file from that window. If the file selected is of supported format, the user is directed back to the On-Screen Dialog Box where the audio file will be played.

The user can start playing the song by clicking on "Play" or by double clicking on the song in the playlist.

B. Setting Volume and Mute Button

The user can select the level of volume using a progress bar. He can use the mute button to set the volume to zero.

The volume at which the file will be played gets updated.

C. Play, Pause and Stop

The user clicks on Play, Pause or Stop button and the audio file selected will do as directed.

D. Progress Bar and time elapsed with duration of the song

The user drags the slider on the progress bar.

The track being played gets interrupted for a while and starts playing from the point defined by user on the progress bar. The time elapsed keeps track of the song currently playing as shown.

E. Setting Playback rate

The slider provided below "Set playback rate" can be moved to change the speed of the

current song. It also displays the value of the frequency beside the slider.

F. Save and Load Playlist

After adding chosen songs, the user may save the current list of songs by clicking on "Save Playlist" button. A dialog box opens for him to select the location of the playlist and the playlist is saved in the .m3u format for future use.

If the user then wishes to listen to an earlier saved playlist, he can click on "Load Playlist" button. A dialog box opens to allow him to choose the .m3u file.

G. Next, Previous, Shuffle and Activate loop

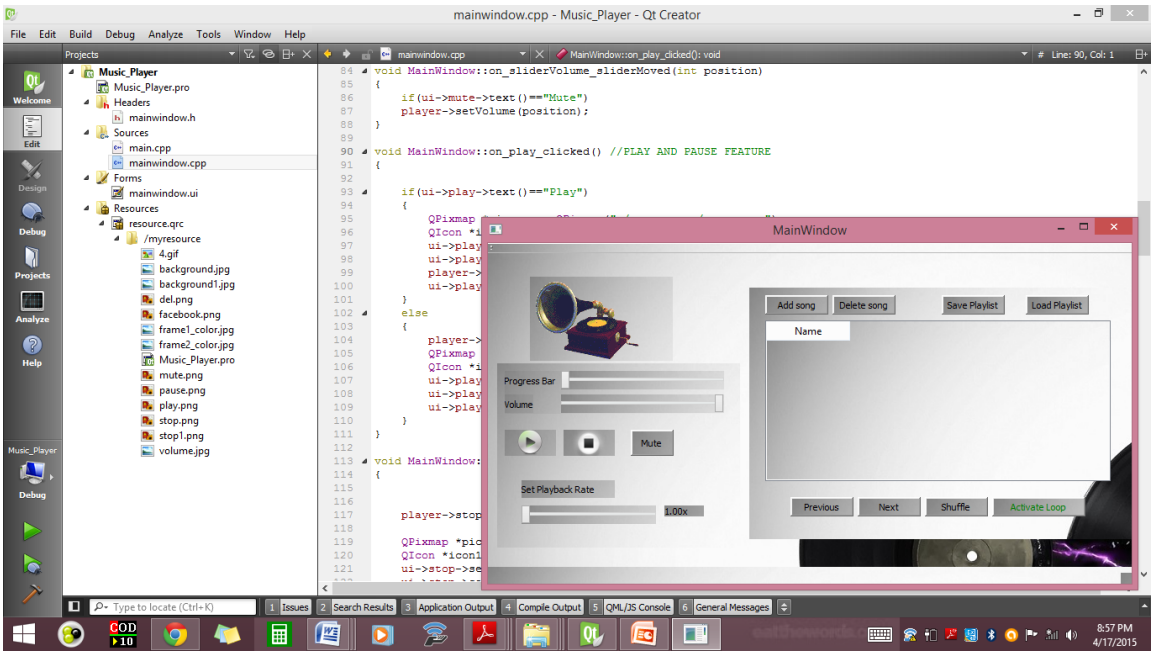
These features are provided to use while listening to a list of songs. Shuffle chooses random songs from the list and Activate loop plays the chosen song in a loop.

H. Delete Song

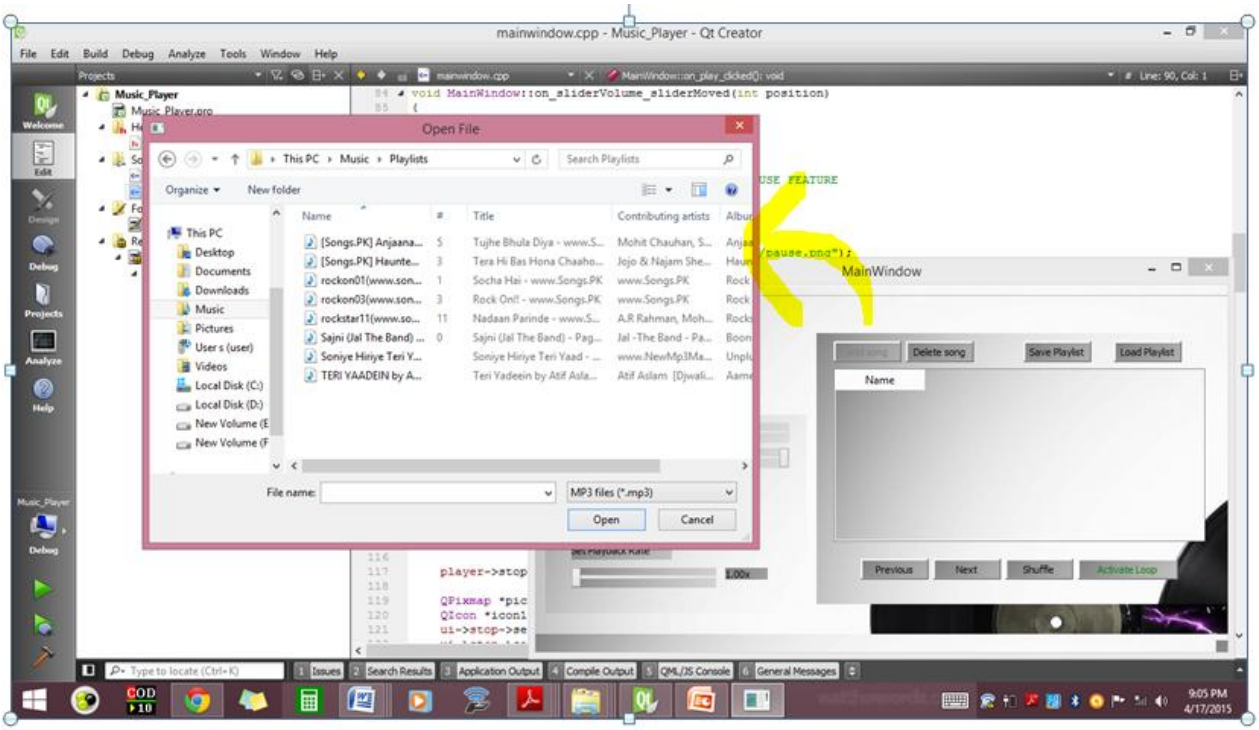
The selected song, on clicking on "Delete Song" can be removed from the list.

5. Testing Strategies and Data

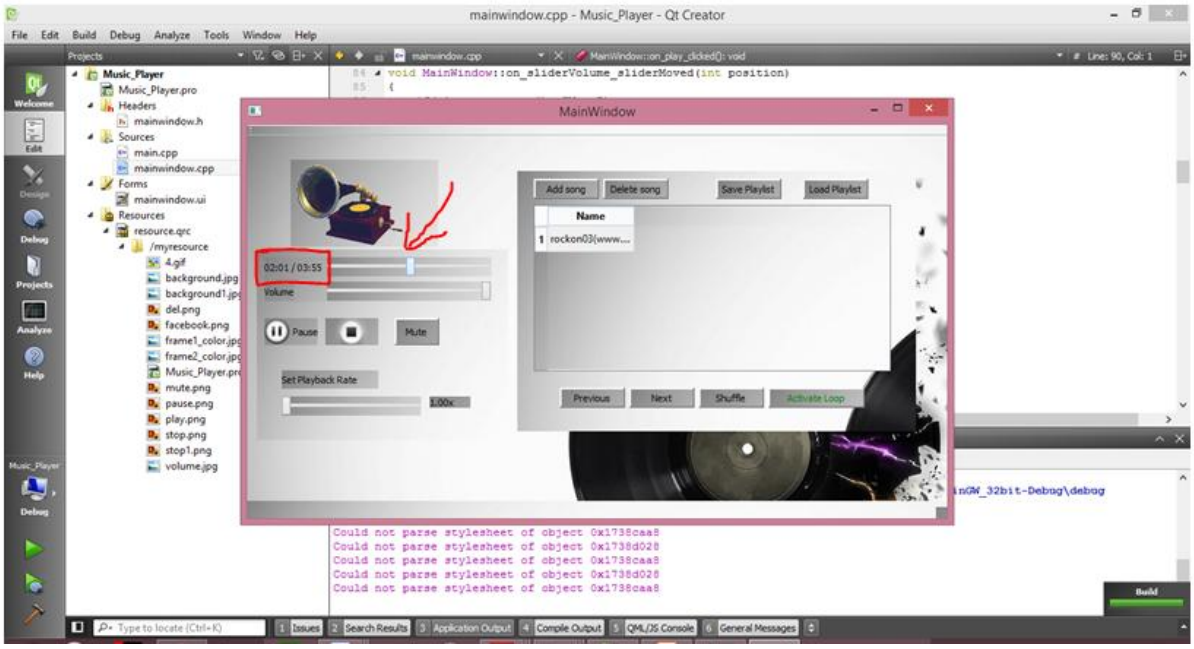
This is the window that opens when the user runs the program.



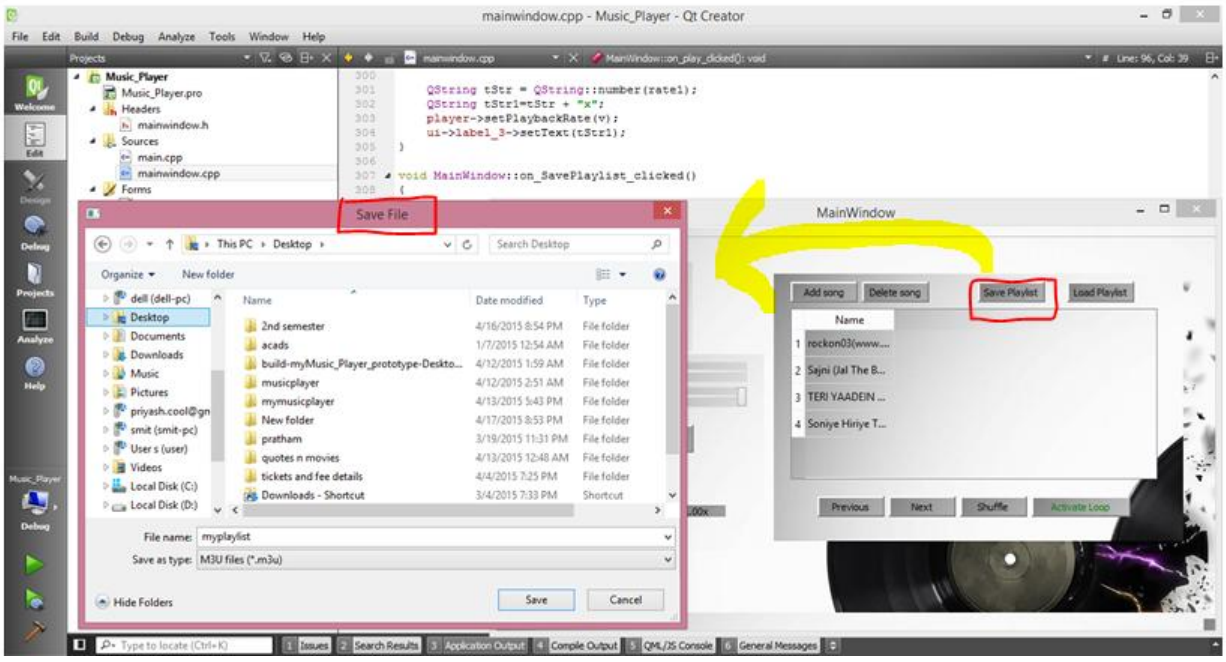
On clicking on "Add Song":



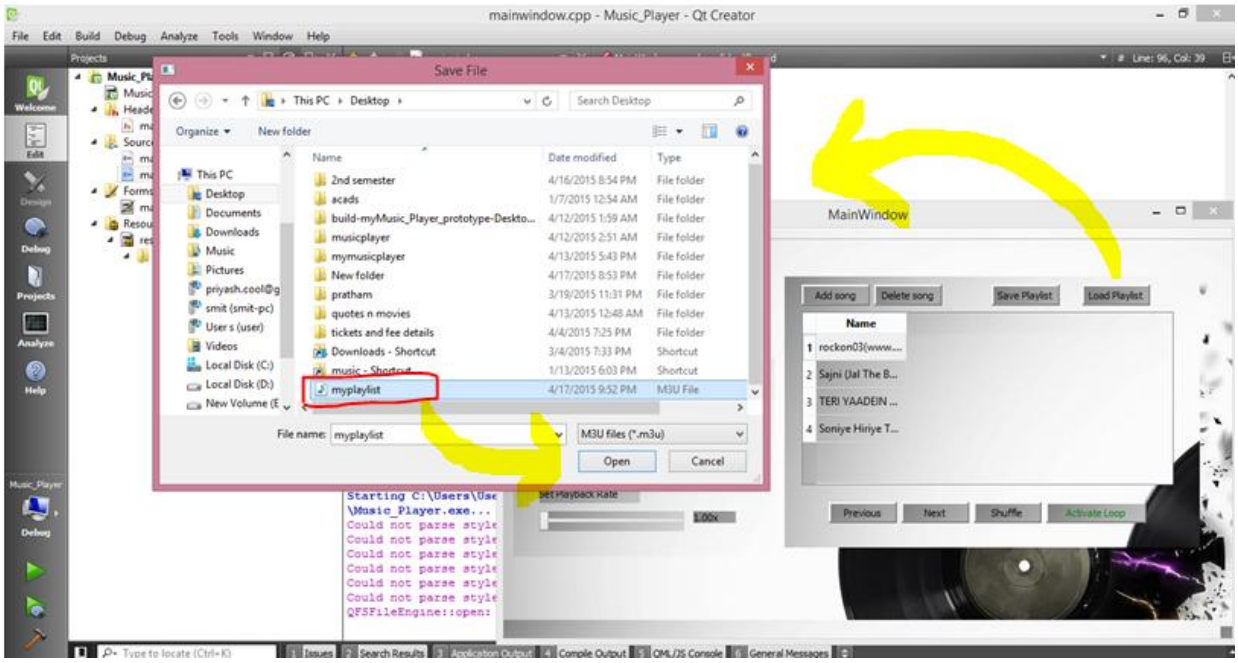
As the song is being played, the progress bar moves and the time elapsed is displayed:



After adding a number of songs and on clicking "Save Playlist":



The playlist is saved under the name "myplaylist" on the desktop. This can then be accessed using the "Load Playlist" button as:



The other features like Shuffle, Activate loop, next, previous etc can be used as required.

6. Discussion of System

A) What worked as per plan?

1. Basic buttons and features like play, pause, stop
2. Slider for Progress bar and Volume
3. Browsing and selecting feature
4. Time elapsed display

B) What we added more than discussed in SRS?

1. Playlist display with the added songs and accompanying features like next, previous, shuffle and Activate loop.
2. Additional features like saving and loading the playlist, delete song.
3. Option for changing the playback rate of the song.
4. Making the player more aesthetic by developing the UI using graphics.

7. Future Work

Many additional features can be added such as:

1. Supporting multiple file formats.

2. Extracting and displaying the details of the audio file like the name of the artist and album, the picture related to the song.

3. Synchronizing the player with other media devices.

4. Displaying the number of hits.

5. Manipulate BPM(beats per minute) while playing the song.

8. Challenges faced and conclusion:

The main challenge was learning how to work with Qt IDE. Understanding the working of the multiple classes and subclasses provided and using the same for the features of the playlist was not easy.
Also, managing time while balancing other course work during the semester. Things don't always work as planned so coming up with alternatives was also a big part of this venture.

We overcame the above by watching and learning through the tutorials available for Qt on the youtube channel VoidRealms and dividing work efficiently such that every member had enough time for his/her allotted work.

It was a fun learning experience as we got to learn a multi-faceted framework like Qt which can be used for making many such applications in the future also.

9. References

1. The Youtube channel VoidRealms https://www.youtube.com/user/VoidRealms

2. Qt Documentation and Help

http://qt-project.org/

http://doc.qt.io/qtcreator/index.html

http://doc.qt.io/qt-5/topics-app-development.html

http://wiki.qt.io/Deploying_Windows_Applications