Playlist Manager

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EECE2140 - Computing Fundamentals

Introduction

Objectives and Goals

- Create a platform that allows for the creation and management of a song library and a playlist library
- Develop backend code to support the creation and storing of songs and playlists
- Develop frontend code to allow users to allow users to interact with the program
- Increase familiarity with Python and building GUIs

Scope

- Program supports adding songs to a song library
- Program supports creating and editing playlists in a playlist library
- Limited time
- Limited knowledge of the Python Language and GUI building methods

Literature Review

Relevant Existing Work

- Numerous music apps available for public use: Apple Music, Spotify, etc.
- Music platforms contain song libraries where users can add songs
- Music platforms contain a library of playlists where users can manage their playlists from

Relation to Project

- Due to the goal of the project being to simulate a music app-like platform, similar organizational structures were implemented in the project

Methodology

Methods and Techniques

- Object Oriented Programming (Backend Development)
- Tkinter (UI Development)

Data Structures

- Arrays

Methodology

Pseudo-Code for Techniques Used

- Class objects were created to represent playlists and the playlist manager application itself
- Arrays were used to represent lists of objects like songs or playlists
- The user interacts with the platform through a user interface developed with Tkinter

Methodology

Pseudo-Code for Techniques Used

- Playlist Manager Class → Used to represent the playlist manager platform and associated data like the song library and the playlist library
  - Supports adding songs to the song library
  - Supports creating playlists and deleting playlists from a playlist library
- Playlist Class → Used to represent the playlists and the songs that they contain
  - Supports adding and deleting songs from a playlist

Methodology

Pseudo-Code for Techniques Used

- When buttons are clicked on the platform, new windows are pulled up to direct the user to their desired location
- Scroll bars and list boxes are used to navigate and interact with lists of items like songs or playlists
- The save button causes the data associated with the current playlist manager object to be saved to a text file that the program then loads the next time the program is accessed
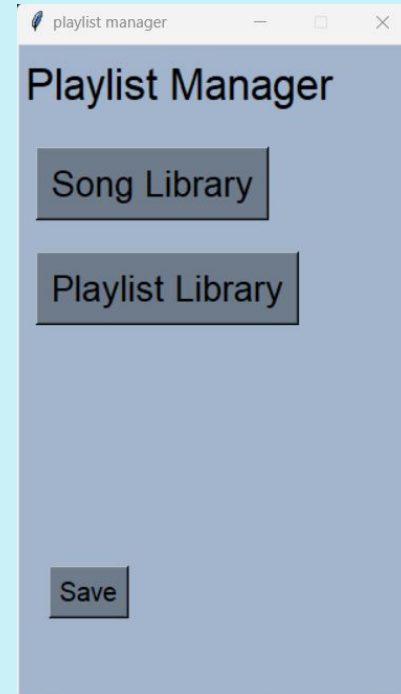
Analysis and Results

| Week	Hours
Week of 10/6 - 10/12	1
Week of 10/13 - 10/19	1.5
Week of 10/20 - 10/26	1
Week of 10/27 - 11/2	2
Week of 11/3 - 11/9	1.5
Week of 11/10 - 11/16	3
Week of 11/17 - 11/21	4

Analysis and Results

- The main menu allows the user to navigate to the song library or the playlist library
- Data from the platform can be saved by clicking the save button
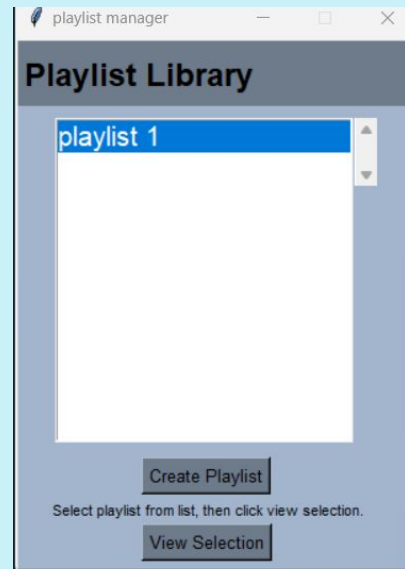
Analysis and Results

Songs

- Songs can be added to the library
- Songs are stored in the song library
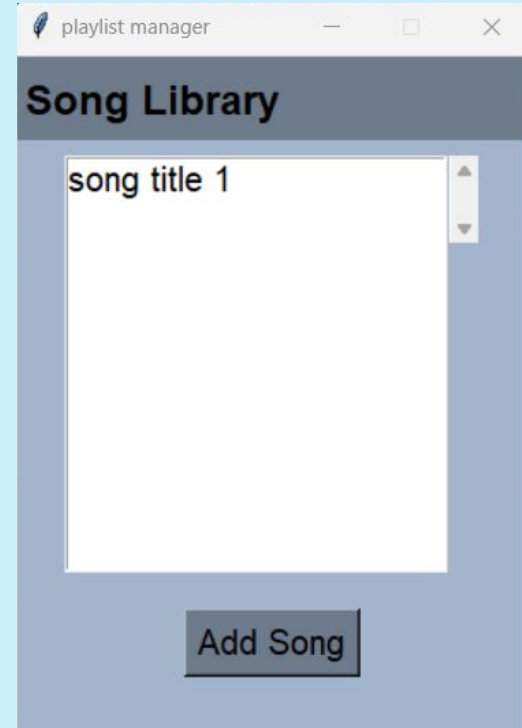
Analysis and Results

Playlists

- Playlists can be added to and deleted from the playlist library
- Songs can be added to and deleted from playlists

Analysis and Results

Interpretation of Results

- Object oriented programming allowed for ease in representing features of the playlist manager program like songs, playlists, and the manager itself
- Tkinter allowed for the construction of a simple UI for users to interact with
- Proper UI construction and organization can streamline the user's interactions with the program
- Data structures like arrays allowed for ease in supporting features in the program that required lists

Discussion

Implications

- Object oriented programming is a good approach when representing programs with many complex parts
- Tkinter works well for simple, small scale projects

Limitations

- Windows in platform need to be refreshed manually
- Songs on the playlists cannot be re-ordered once added
- Tkinter GUI is very simplistic and slightly outdated in appearance

Conclusion

Conclusions

- A playlist manager platform can be simulated using Tkinter and objects defined to represent
- Object oriented programming makes it easier to represent complex systems when developing programs
- Tkinter is easy to access and can be used to create simplistic GUIs that users can interact with the program through

Recommendations for Future Work

- Choose a method to develop a GUI that supports more advanced graphics and display options as well as real-time refreshing
- Add more options for organizing playlists and the song library

References

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