



EC-200 Data Structures

Assignment # 01

(Report)

Submitted by:

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Assignment # 01 : AUDIO-PLAYER

Question Statement:

"Audio Players" are defined as any media player explicitly designed to play audio files, with limited or no support for video playback. You are required to design an audio player with following functionalities.

1. Select current directory When your program starts it must prompt the user to set a directory. Your audio player can only load/access the audio files present in current directory.
2. Change current directory User can change the current directory. in that case your existing play list (if any) will be destroyed.
3. Create a new play list If user selects option to create a new playlist, your program should ask the user to create an empty play list with a name entered by user.
4. Insert an Audio File in play list If user wants to insert an audio file to his play list, he can choose it from current directory ONLY. Your application should insert the audio file at end of existing linked list.
5. Delete an Audio from play list User may delete any audio file from playlist. Audio file shouldn't be deleted from directory.
6. Shuffle Playlist Play list gets shuffled in random order once user selects shuffle option.
7. Play the play list Should play all audio files from start to end present in play list created by user

Note: An instance of Audio player can ONLY hold at most 5 play lists. Each playlist can be identified from its name and its directory. A playlist can ONLY hold songs from same directory.

You have to reuse your templated linked list ADT to implement the solution. You are not allowed to use built-in classes as a data holder

Brief explanation:

Templated Classes:

- **Class node()**
- **Class PlayList()**
- **Class AudioPlayer()**

Driver class:

- **Int main()**

Stepwise program making:

- First, I made private attributes of a string object "**AUDIOName**" and node pointer "**next**" in **node()** class, its default constructor, setters and getters.

- Declared private attributes of a string object “**PLname**” and node pointer “**head**” in **PlayList()** class which acts as my linked-list class.
- Created its default, copy-constructor, destructor, setter, and getter.
- Functions associated with **PlayList()** class:
 - **Insert At Start → IAS()**
 - **InsertAudio()**
 - **Delete At Start→DAS()**
 - **DeleteAudio()**
 - **playingPlayList()**
 - **copyinArray()→(unused)**
 - **transverse()**
 - **printSongs()**
 - **getAllSongs()**
- Then I made an array (of constant size 5) of class **PlayList()** namely P1 in my **AudioPlayer()** class.
- Made private attributes of **AudioPlayer()** class:

```
DIR* dir=0;
struct dirent* ent=0;
T directory;
int size = 5;
PlayList<string>* P1=new PlayList<string>[size];
```

- Created default constructor of **AudioPlayer()** class.
- Functions associated with **AudioPlayer()** class.
 - **selectDirectory()**
 - **changeDirectory()**
 - **createPlayList()**
 - **insertAudioFile()**
 - **deleteAudioFile()**
 - **shuffle()**
 - **playListPLAY()**
 - **playSoundFile()**
 - **printPlaylists()**
 - **displaySongs()**
- Lastly, I made a driver class **int main()**, where I created an object “**A1**” of **AudioPlayer()** class.
- In an infinite **while loop**, I asked user the following choices:
 1. **Press 1 for Changing/Selecting Directory.**
 2. **Press 2 for Creating New PlayList.**
 3. **Press 3 for Inserting an Audio File.**
 4. **Press 4 for Deleting an Audio File.**
 5. **Press 5 for Shuffling the PlayList.**

6. Press 6 for Playing the PlayList.
7. Press 7 to display names of created PlayLists.
8. Press 8 to display names of Songs added in the specific PlayList."

- I have added input validations in almost all functions where it was needed.

Code working:

- Initially program asks the user to input directory path:
For example:

D:\Music\songsWAV1
- It displays content of the entered directory, after which it asks the user 8 different choices. See output for rest of the working.

Output:

(Selecting a directory and creating PlayLists)

[illegible]

(inserting AudioFiles and displaying them)

```

--> Press 1 for Changing/Selecting Directory.
--> Press 2 for Creating New Playlist.
--> Press 3 for Inserting an Audio File.
--> Press 4 for Deleting an Audio File.
--> Press 5 for Shuffling the Playlist.
--> Press 6 for Playing the Playlist.
--> Press 7 to display names of created PlayLists.
--> Press 8 to display names of Songs added in the specific Playlist.
3

Select Playlist by pressing serial of each Playlist:
1 > spotifyfavourites
2 > soundcloudfavourites
3 > NULL
4 > NULL
5 > NULL

1

Select song (from the current selected directory) which you want to add in your Playlist by pressing serial number of song :
1 > Akhiyaan_by_MITRAZ.wav
2 > Iraaday_by_Abdul-Hannan.wav
3 > Pashoori_by_CokeStudio.wav
4 > Psycho_by_Post-Malone.wav
5 > Sunflower_by_Post-Malone.wav

2

AudioFile Insertion = Successful !

--> Press 1 for Changing/Selecting Directory.
--> Press 2 for Creating New Playlist.
--> Press 3 for Inserting an Audio File.
--> Press 4 for Deleting an Audio File.
--> Press 5 for Shuffling the Playlist.
--> Press 6 for Playing the Playlist.
--> Press 7 to display names of created PlayLists.
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3 > Pashoori_by_CokeStudio.wav
4 > Psycho_by_Post-Malone.wav
5 > Sunflower_by_Post-Malone.wav

5

AudioFile Insertion = Successful !

--> Press 1 for Changing/Selecting Directory.
--> Press 2 for Creating New Playlist.
--> Press 3 for Inserting an Audio File.
--> Press 4 for Deleting an Audio File.
--> Press 5 for Shuffling the Playlist.
--> Press 6 for Playing the Playlist.
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--> Press 2 for Creating New Playlist.
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--> Press 4 for Deleting an Audio File.
--> Press 5 for Shuffling the Playlist.
--> Press 6 for Playing the Playlist.

```

```

---> Press 7 to display names of created PlayLists.
---> Press 8 to display names of Songs added in the specific Playlist.
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AudioFile Insertion = Successful !

---> Press 1 for Changing/Selecting Directory.
---> Press 2 for Creating New Playlist.
---> Press 3 for Inserting an Audio File.
---> Press 4 for Deleting an Audio File.
---> Press 5 for Shuffling the Playlist.
---> Press 6 for Playing the Playlist.
---> Press 7 to display names of created PlayLists.
---> Press 8 to display names of Songs added in the specific Playlist.
8

Select Playlist by entering the serial number of Playlist to display names of its songs :
1 > spotifyfavourites
2 > soundcloudfavourites
3 > NULL
4 > NULL
5 > NULL

1

List of songs in this Playlist :
1 > Iraaday_by_Abdul-Hannan.wav
2 > Sunflower_by_Post-Malone.wav
3 > Akhiyaan_by_MITRAZ.wav
4 > Pashoori_by_CokeStudio.wav

```

(Shuffling a Playlist)

```

---> Press 1 for Changing/Selecting Directory.
---> Press 2 for Creating New Playlist.
---> Press 3 for Inserting an Audio File.
---> Press 4 for Deleting an Audio File.
---> Press 5 for Shuffling the Playlist.
---> Press 6 for Playing the Playlist.
---> Press 7 to display names of created PlayLists.
---> Press 8 to display names of Songs added in the specific Playlist.
5

Select Playlist which you want to shuffle by pressing serial number of the Playlist
1 > spotifyfavourites
2 > soundcloudfavourites
3 > NULL
4 > NULL
5 > NULL

1

Before Shuffling :
1 > Iraaday_by_Abdul-Hannan.wav
2 > Sunflower_by_Post-Malone.wav
3 > Akhiyaan_by_MITRAZ.wav
4 > Pashoori_by_CokeStudio.wav

After Shuffling :
1 > Akhiyaan_by_MITRAZ.wav
2 > Iraaday_by_Abdul-Hannan.wav
3 > Pashoori_by_CokeStudio.wav
4 > Sunflower_by_Post-Malone.wav

```

(Deleting an AudioFile)

```
---> Press 1 for Changing/Selecting Directory.
---> Press 2 for Creating New Playlist.
---> Press 3 for Inserting an Audio File.
---> Press 4 for Deleting an Audio File.
---> Press 5 for Shuffling the Playlist.
---> Press 6 for Playing the Playlist.
---> Press 7 to display names of created PlayLists.
---> Press 8 to display names of Songs added in the specific Playlist.
4

Select Playlist in which you want to delete an AudioFile by pressing serial number of the Playlist :
1 > spotifyfavourites
2 > soundcloudfavourites
3 > NULL
4 > NULL
5 > NULL

1

Select song which you want to Delete by pressing its serial number :
1 > Akhiyaan_by_MITRAZ.wav
2 > Iraaday_by_Abdul-Hannan.wav
3 > Pasaori_by_CokeStudio.wav
4 > Sunflower_by_Post-Malone.wav

2

AudioFile Deletion = Successful !
```

(Displaying contents of Playlist after deletion of an AudioFile)

```
---> Press 1 for Changing/Selecting Directory.
---> Press 2 for Creating New Playlist.
---> Press 3 for Inserting an Audio File.
---> Press 4 for Deleting an Audio File.
---> Press 5 for Shuffling the Playlist.
---> Press 6 for Playing the Playlist.
---> Press 7 to display names of created PlayLists.
---> Press 8 to display names of Songs added in the specific Playlist.
8

Select Playlist by entering the serial number of Playlist to display names of its songs :
1 > spotifyfavourites
2 > soundcloudfavourites
3 > NULL
4 > NULL
5 > NULL

1

List of songs in this Playlist :
1 > Akhiyaan_by_MITRAZ.wav
2 > Pasaori_by_CokeStudio.wav
3 > Sunflower_by_Post-Malone.wav
```

(Creating another PlayList and displaying all created PlayLists)

```
---> Press 1 for Changing/Selecting Directory.
---> Press 2 for Creating New PlayList.
---> Press 3 for Inserting an Audio File.
---> Press 4 for Deleting an Audio File.
---> Press 5 for Shuffling the PlayList.
---> Press 6 for Playing the PlayList.
---> Press 7 to display names of created PlayLists.
---> Press 8 to display names of Songs added in the specific PlayList.
2

Enter name for your new PlayList :Faizan'sFavourites

PlayList Creation = Successful !

---> Press 1 for Changing/Selecting Directory.
---> Press 2 for Creating New PlayList.
---> Press 3 for Inserting an Audio File.
---> Press 4 for Deleting an Audio File.
---> Press 5 for Shuffling the PlayList.
---> Press 6 for Playing the PlayList.
---> Press 7 to display names of created PlayLists.
---> Press 8 to display names of Songs added in the specific PlayList.
7

Names of PlayLists :
1 >spotifyfavourites
2 >soundcloudfavourites
3 >Faizan'sFavourites
4 >NULL
5 >NULL

---> Press 1 for Changing/Selecting Directory
```

(Playing a PlayList)

```
---> Press 1 for Changing/Selecting Directory.
---> Press 2 for Creating New PlayList.
---> Press 3 for Inserting an Audio File.
---> Press 4 for Deleting an Audio File.
---> Press 5 for Shuffling the PlayList.
---> Press 6 for Playing the PlayList.
---> Press 7 to display names of created PlayLists.
---> Press 8 to display names of Songs added in the specific PlayList.
6

Select PlayList by entering the serial number of PlayList which you want to play :
1 > spotifyfavourites
2 > soundcloudfavourites
3 > Faizan'sFavourites
4 > NULL
5 > NULL
1

Playing : Akhiyaan_by_ MITRAZ.wav_
```


(Next song)

```
Playing : Akhiyaan_by_ MITRAZ.wav
Next Song :-
Playing : Pasoori_by_CokeStudio.wav_
```

(Next song)

```
Playing : Akhiyaan_by_ MITRAZ.wav
Next Song :-
Playing : Pasoori_by_CokeStudio.wav
Next Song :-
Playing : Sunflower_by_Post-Malone.wav_
```

(End of PlayList)

```
Playing : Akhiyaan_by_ MITRAZ.wav
Next Song :-
Playing : Pasoori_by_CokeStudio.wav
Next Song :-
Playing : Sunflower_by_Post-Malone.wav
Next Song :-
< PlayList Ended >
```

(Some input validations)

```
---> Press 1 for Changing/Selecting Directory.
---> Press 2 for Creating New PlayList.
---> Press 3 for Inserting an Audio File.
---> Press 4 for Deleting an Audio File.
---> Press 5 for Shuffling the PlayList.
---> Press 6 for Playing the PlayList.
---> Press 7 to display names of created PlayLists.
---> Press 8 to display names of Songs added in the specific PlayList.
9
Wrong Input ! Enter a number in between 1 to 8

---> Press 1 for Changing/Selecting Directory.
---> Press 2 for Creating New PlayList.
---> Press 3 for Inserting an Audio File.
---> Press 4 for Deleting an Audio File.
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---> Press 5 for Shuffling the PlayList.
---> Press 6 for Playing the PlayList.
---> Press 7 to display names of created PlayLists.
---> Press 8 to display names of Songs added in the specific PlayList.
8

Select PlayList by entering the serial number of PlayList to display names of its songs :
1 > spotifyFavourites
2 > NULL
3 > NULL
4 > NULL
5 > NULL
6

Wrong Input ! Enter again in between 1 to 5 :
1

List of songs in this Playlist :
1 > Akhiyaan_by_MITRAZ.wav
2 > Iraaday_by_Abdul-Hannan.wav
3 > Sunflower_by_Post-Malone.wav
4 > Psycho_by_Post-Malone.wav
```

```
---> Press 1 for Changing/Selecting Directory.
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---> Press 7 to display names of created PlayLists.
---> Press 8 to display names of Songs added in the specific PlayList.
6

Select PlayList by entering the serial number of PlayList which you want to play :
1 > spotifyFavourites
2 > NULL
3 > NULL
4 > NULL
5 > NULL
9

Wrong Input ! Enter again in between 1 to 5 :
1

Playing : Akhiyaan_by_MITRAZ.wav
```

Help Taken from Internet:

- Youtube.
- StackOverFlow
- TutorialsPoint.