Software Engineering Project 1

(COMP 10050)

Assignment 1 - The iPod Music Player

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Reading the Input

I used the 'fgets' function to read an artist/music group into an array of artists from the command line. I placed this function in an outer loop that had four iterations, one for each artist array. I created a function called 'insertSongs' to read songs from the user and place them into arrays based on a specific artist. This function is an edited version of a function provided in the labs. I called 'insertSongs' in the loop, which read an array of songs for a different artist on each iteration. If the first character inputted is a new line, the loop will break. I ended up with 4 two-dimensional arrays for song titles, and 1 two-dimensional array for artist names.

Sorting Algorithm

I used a loop and a counter called 'totalNumSongs' to count the total number of songs. I then copied the array of artist names into an array called 'sortedArtists' for sorting. I also copied all the song names that had been inputted into one two-dimensional array called 'allSongs'.

I used a function called 'sortArtists' to sort the artist names alphabetically. It took in the 'sortedArtists' array and the number of artists. It implemented the quick sort algorithm because it works well for small arrays. I then repeated this with each array of songs for each artist, using the function 'sortSongs'. With both the songs and artists now sorted, I used the 'strcmp' function to check which song array corresponded to which artist and printed the sorted list.

Shuffling Algorithm

I created a function shuffleSongs, in which I implemented the Fisher-Yates algorithm to generate a random number, the corresponding element of which I copied into an array called shuffledSongs. I called this function twice, printing the results each time so that each song would appear twice on the playlist.