Probability Software Assignment

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***Abstract*—In this assignment we made a Music player in python which uses numpy module of python to shuffle the songs and play in the loop**

Process

1) I used numpy module to randomise or shuffle the song
2) To make UI I have taken help of the online sources and I have customised it
3) I add list of the songs in my player this list is saved in songs list
4) I have made the my python file to shuffle that list where i passed the Songs list in the function named myrandom
5) Then that list is converted to an array and then i have shuffled the array using numpy.random.shuffle
6) Then converted the array back to list and returned that and thats my new songs list

Numpy.Random.Shuffle

The np.random.shuffle function in NumPy is used to randomly permute or shuffle the elements of an array in place. In terms of probability, np.random.shuffle can be seen as a process that generates a random permutation of the elements in the array, where each possible permutation is equally likely.

Let's consider an array with N elements. When you apply np.random.shuffle to this array, it randomly reorders the elements, creating a new permutation. The number of possible permutations of N elements is N!, which is the factorial of N. Each of these permutations has an equal probability of being generated.

In our case we have 20 songs so we have 20! ways to permute the array of 20 songs each and each permutation will get a uniform probability of getting selected of $\frac{1}{20!}$

Some snaps of My Music Player

Fig. 6. This is how My music player looks normally

Fig. 6. After shuffling for once the list got shuffled

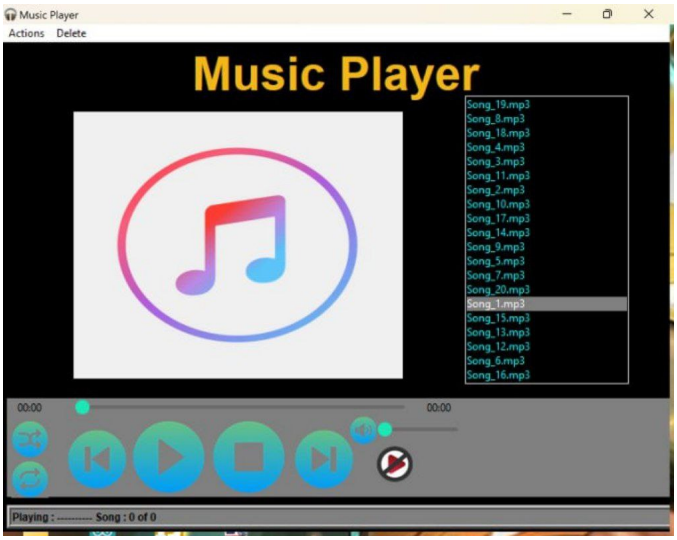

Fig. 6. Another example of list shuffling