

AI1110: Probability and Random Variables Software Project

Kaipa Venkata Tuhil
CS22BTECH11030

1 ABSTRACT

In this project, we made a program to play a list of 20 songs randomly.

2 EXPLANATION

- The main logic of the randomization is in the file "randomizer.py". here there is a class called Randomizer, which has a list of song numbers. It has a method, "play_next", which does the following:
 - 1) generate a random integer between 0 and the length of the song list minus 1 (both inclusive) using the numpy's random.randint() function
 - 2) start playing the song corresponding to that number using pygame's mixer module
 - 3) remove that song from the song list
 - 4) if all the songs have been removed, reinitialise the list
- This way, it plays the songs in random order, and for a particular song, the position of the song being played (0 to 19) follows a uniform distribution.
- The main.py file uses this play_next function to play the song, and the rest of the code is related to initialising everything and making the GUI work.
- The GUI consists of a play/pause button, a "next" button, which starts playing the next song, and a list of all songs on the right, which are greyed out one by one after they are played.

3 CONCLUSION

The order of the first 20 songs being played follows a uniform distribution. This is because each time we choose a song out of how many ever are remaining, we are generating a random number which chooses any of them with equal probability. So, all the permutations of the 20 songs are equally likely.

4 FIGURE

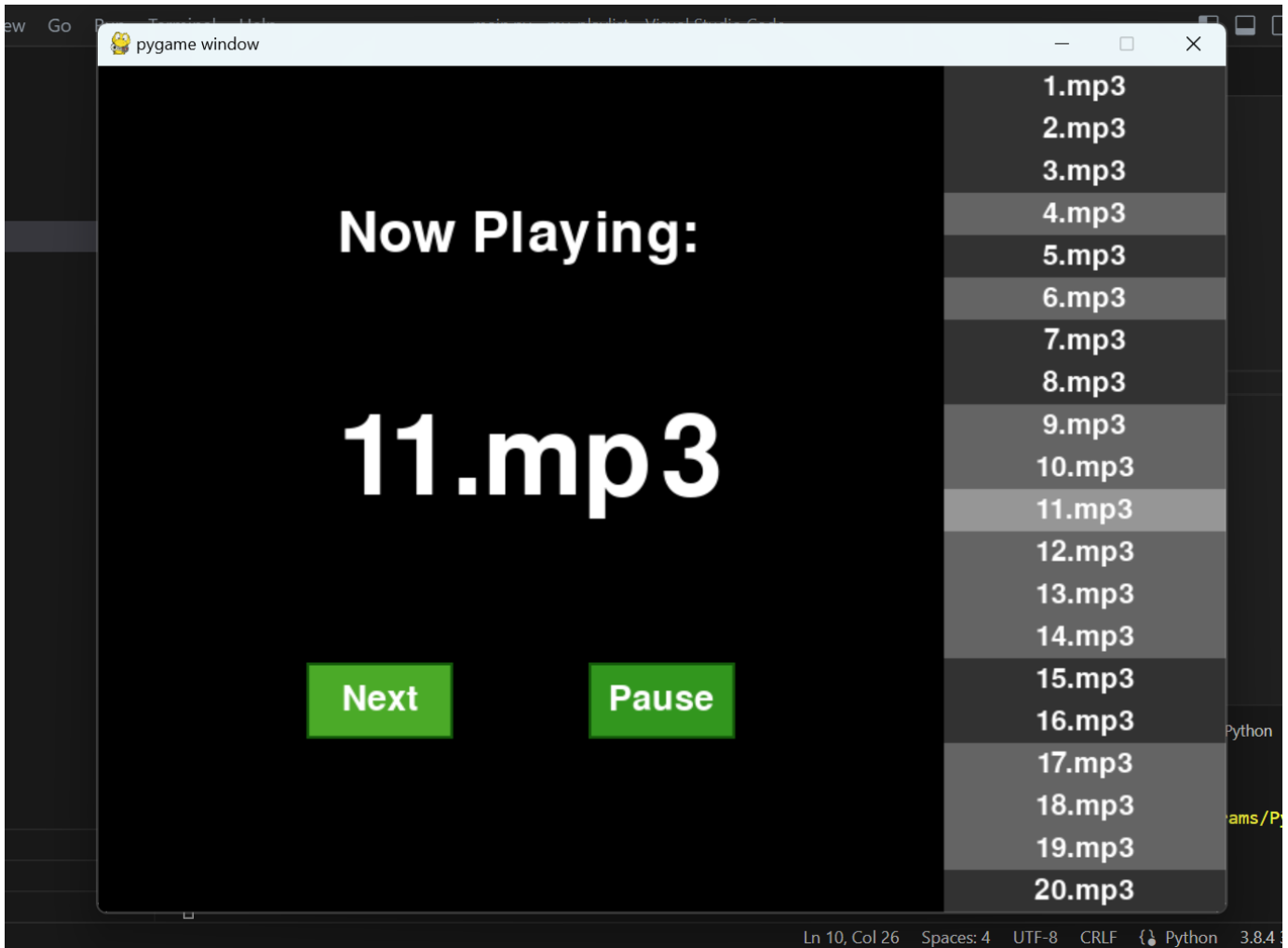


Fig. 1: Screenshot of the GUI