

CS2323 Assignment 1: Linked Lists, Stacks and Queues:

Implement the following functionalities of a music playlist using linked lists, stacks and queues.

- **Store** all songs in a linked list. The struct would contain the name of the song.
- **Create** a playlist from the library of songs created above, as a queue. To add a song to the playlist
 - Search in the linked list. If it is there, print "Inserting into the play list"
 - Enqueue the song. If not found, print "Sorry, song not found".
- **Play**
 - Play Next: Dequeue and print "Playing <name of the song>", then push into a "Recent songs" stack.
 - Play Previous (k):
 - For (i =1 to k)
 - Pop a song from "Recent songs" stack, print "Playing <name of the song>"
 - Enqueue into "Temporary Queue"
 - If you run out of songs in the playlist, print "Sorry, there weren't k recent songs"
 - Empty the Temporary Queue by dequeuing one by one and pushing into "Recent songs" stack.

Input (Messages from the program are shown here in bold for clarity; your program doesn't need to print it in bold)

"Enter all songs (as strings), End with "-1" "

S1

S2

S3

S4

-1

"All songs entered!"

"Create Playlist, end with "-1" "

S5

"Not Found in the song library"

S1

"Found, Enqueued"

S3

"Found, Enqueued"

S4

"Found, Enqueued"

-1

"Playlist Ready!"

"Play next song, previous songs or end? n/p:k/e"

n

Playing S1

"Play next song, previous songs or end? n/p:k/e"

n

Playing S3

"Play next song, previous songs or end? n/p:k/e"

p:3

Playing S3

Playing S1

"There aren't 3 previous songs"

"Play next song, previous songs or end? n/p:k/e"

n

Playing S4

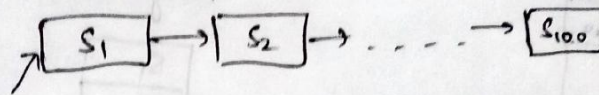
"Play next song, previous songs or end? n/p:k/e"

"Bye"

More examples in the image that follows in the next page.

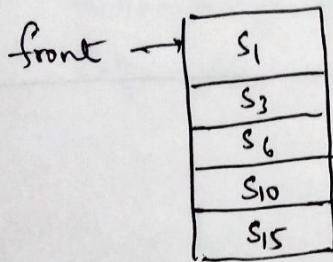
① 100 songs S_1, S_2, \dots, S_{100} given to store

Linked list



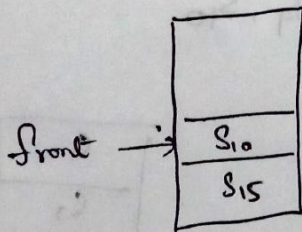
② Create playlist with songs $S_1, S_3, S_6, S_{10}, S_{15}$.

Playlist Queue

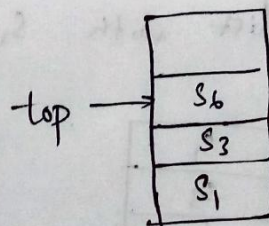


③ Play next 3 times

Playlist Queue



Recent Song Stack



④ Play previous 2.

