National Institute of Technology Calicut
Department of Computer Science and Engineering
Third Semester B. Tech.(CSE)
CS2092D Programming Laboratory
Assignment #5 Practice (25-09-2023)

Naming Conventions for Submission

- The source codes must be named as

`ASSG<NUMBER>_<ROLLNO>_<FIRST-NAME>_PRACTICE.c`

(For example: *ASSG5_BxxyyyyCS_LAXMAN_PRACTICE.c*).

Standard of Conduct

- Violation of academic integrity will be severely penalized. Each student is expected to adhere to high standards of ethical conduct, especially those related to cheating and plagiarism. Any submitted work MUST BE an individual effort. Any academic dishonesty will result in zero marks in the corresponding exam or evaluation and will be reported to the department council for record keeping and for permission to assign F grade in the course. The department policy on academic integrity can be found at: http://cse.nitc.ac.in/sites/default/files/Academic-Integrity_new.pdf.

General Instructions

- Programs should be written in C language.
- Check your programs with sufficiently large values of inputs with in the range as specified in the question.
- **No need to create a folder or a zip file**; the source code itself is sufficient for uploading with the naming convention mentioned above.
- Global and/or static variables should not be used in your program.

QUESTION

1. Imagine you are designing a music player application and need to implement a playlist feature using a doubly linked list data structure to manage the songs in the playlist. Each node in the doubly linked list represents a song, and it contains information about the song (title, language) and pointers to the previous and next songs in the playlist.
   You have a doubly linked list representing a playlist with several songs. A user wants to perform the following operations:

   - **Add a Song:** They want to add a new song to the playlist after a specific song is already in it. If the song they want to add is not in the playlist or they are not provided, add it at the end.
   - **Remove a Song:** They want to remove a song from the playlist by providing its title.
   - **Play a Song:** They want to play a song in the playlist and have to print the song's title.
   - **Play Next Song:** They want to play the next song in the playlist and have to print the song's title.
   - **Play Previous Song:** They want to play the previous song in the playlist and have to print the song's title.
   - **Display Playlist:** They want to display the entire playlist with song details in the order they are queued.

   Input Format:

- Each line contains a character from ‘a’, ‘r’, ‘n’, ‘p’, ‘d’, or ‘e’ followed by zero, one, two, or three strings. The strings are in the range $[a-z, A-Z]$.
- Character ‘a’ is followed by two or three strings separated by a space. The first two represent the song's title and language, and the third, if provided, is the title of the existing song after which the new song is added. If no third string is given, the new song is added at the end.
- Character ‘r’ is followed by a string represent, remove the song titled given string from the playlist.
- Character ‘n’ followed by a string is used to display the title of the next song in the playlist, based on the given song.
- Character ‘p’ followed by a string is used to display the title of the previous song in the playlist, based on the given song.
- Character ‘d’ is to display the entire playlist (title and language as space separated).
- Character *‘e’* is to ‘exit’ from the program.

Output Format:

- The output (if any) of each command should be printed on a separate line.
- For options ‘r’, ‘n’ , ‘p’ , and ‘d’, if a node with the input key is not present or if the list is empty, print -1.

Sample Input:
a MizhiyilNinnum Malayalam
a TumHiHo Hindi NenjukkulPeidhidum
r NenjukkulPeidhidum
d
a EnnaSolla Tamil MizhiyilNinnum
n MizhiyilNinnum
p MizhiyilNinnum
d
r MizhiyilNinnum
d
n TumHiHo

Sample Output:
-1
MizhiyilNinnum Malayalam
TumHiHo Hindi
EnnaSolla
-1
MizhiyilNinnum Malayalam
EnnaSolla Tamil
TumHiHo Hindi
EnnaSolla Tamil
TumHiHo Hindi
-1