

EE2160: Linked Lists Exercise in C (10/20 quiz points)

A database keeps track of TV programming using linked list nodes with the following data members and a pointer to the next node. Create the struct **TV_Program**:

```
char programName[20];
char weekday; // M, T, W, R, F
int minutes; // Running time
TV_Program *next; // Pointer to the next node
```

1. Write a C program that will use a singly **linked list** of this structure node to keep records of five TV shows. In the program:
 - a. Declare a typedef "Show" for the TV_program type. Use the typedef you declared to create variables.
 - b. Your program should ask the user to input the information for 5 TV shows (read all the information into the linked list first) and then print out all the information from the linked list as shown on the output sample below:

Optional (2 extra points):

2. Implement a sorting algorithm and print out your 5 records in ascending order by sorting the linked list based on the **programName** (name of the show).

Note:

- You need the <stdlib.h> library to use malloc() and free() functions.
- If your scanf("%c",); // reads weekday is skipping when you input a character, you can include a space before the %c in the scanf(" %c",) to flush in input stream. There are other ways around this too.

What to turn in

Copy and paste your C program and your sample output to a word document, and upload your document on Blackboard as a PDF file.

Sample Output:

```
-bash-4.1$ g++ structTVShows.cpp -o tvShows
-bash-4.1$ ./tvShows
TV SHOW NUMBER 1:
Enter the name of the TV Program:
Friends
Enter the day of the week the show is on:
M
Enter the running time in minutes:
45

TV SHOW NUMBER 2:
Enter the name of the TV Program:
Empire
Enter the day of the week the show is on:
T
```

Enter the running time in minutes:

43

TV SHOW NUMBER 3:

Enter the name of the TV Program:

Castle

Enter the day of the week the show is on:

W

Enter the running time in minutes:

42

TV SHOW NUMBER 4:

Enter the name of the TV Program:

Vikings

Enter the day of the week the show is on:

R

Enter the running time in minutes:

50

TV SHOW NUMBER 5:

Enter the name of the TV Program:

Sherlock

Enter the day of the week the show is on:

F

Enter the running time in minutes:

30

TV SHOW 1 INFORMATION:

Program Name: Friends

Day of the Week: M

Running time: 45 minutes

TV SHOW 2 INFORMATION:

Program Name: Empire

Day of the Week: T

Running time: 43 minutes

TV SHOW 3 INFORMATION:

Program Name: Castle

Day of the Week: W

Running time: 42 minutes

TV SHOW 4 INFORMATION:

Program Name: Vikings

Day of the Week: R

Running time: 50 minutes

TV SHOW 5 INFORMATION:

Program Name: Sherlock

Day of the Week: F

Running time: 30 minutes