CPE 112 Introduction to Data Structure
Laboratory Exercise 3

Objective

This lab gives you practice creating, traversing, inserting, and deleting the linked list.

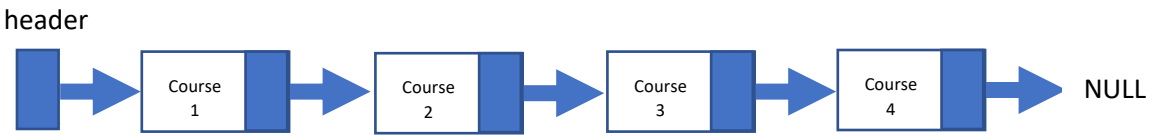
Instructions

Create a program for recording courses. The information of the course is stored in the linked list. Then the program can edit the linked list by inserting or deleting the node in the linked list. Finally, the program shows the information in each node of the linked list.

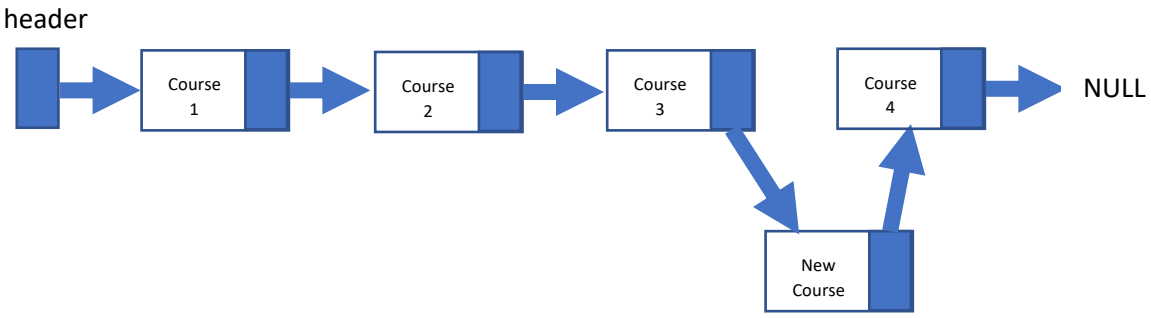
1. Create a structure that stores a course name, grade, and credit. This structure will be the node in the linked list.
2. Create a linked list by receiving the data from the keyboard. The course name is entered first. Then grade is entered in the second line and the third line is the number of credits. If the user wants to stop receiving the input, the string "-" must be entered. After inputting "-", the linked list must be created.

```
ENGINEERING EXPLORATION     //Course name
B                           //Grade
3                           //Credits
-                           //Stop entering the input
```

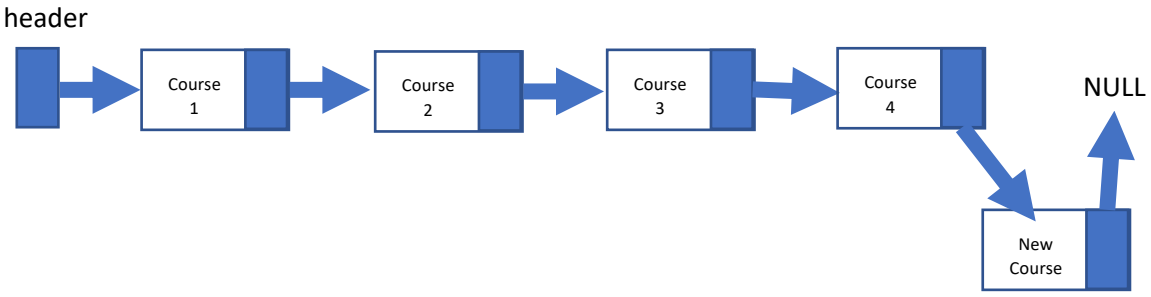
3. To edit the linked list, the user can insert the new node in the linked list by entering 1. To delete a node in the linked list, the user must enter 2. Besides, the program will stop editing the linked list.
4. To insert the new node, the position must be received. The position begins with 0. Moreover, the data of the new node must be entered. If the position is more than the length of the linked list, the new node must be put at the end of the linked list.



1	//Select inserting new node
2	//Insert at position 2
New Course	//Course name
C+	//Grade
3	//Credit

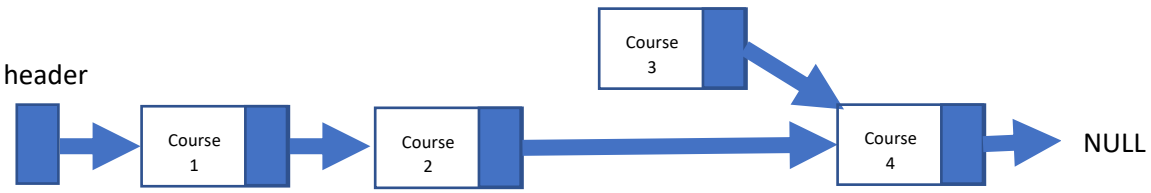


1	//Select inserting new node
10	//Insert at position 10
New Course	//Course name
C+	//Grade
3	//Credit
0	//Stop inserting or deleting node

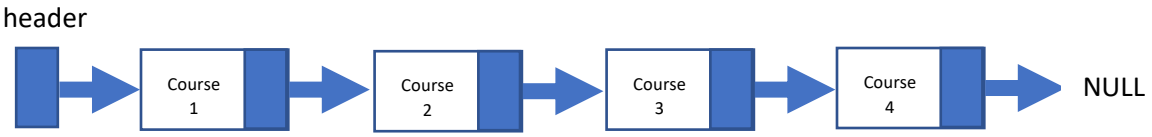


5. To delete a node, the position must be entered. The position begins with 0. If the position is more than the length of the linked list, no node will be deleted.

```
2          //Select deleting node
2          //Delete node at position 2
```




```
2          //Select deleting node
10         //Delete node at position 10
```



6. After editing the linked list, the data in the linked list will be shown by using the following format.
7. Upload your C source file to the Grader web for evaluating your score.

Example

Input	ENGINEERING EXPLORATION B 3 ACADEMIC ENGLISH IN INTERNATIONAL CONTEXTS A 3 COMPUTER PROGRAMMING FOR ENGINEERS C+ 3 DISCRETE MATHEMATICS FOR COMPUTER ENGINEERS C 3 - 0
Output	1 ENGINEERING EXPLORATION B 3 2 ACADEMIC ENGLISH IN INTERNATIONAL CONTEXTS A 3 3 COMPUTER PROGRAMMING FOR ENGINEERS C+ 3 4 DISCRETE MATHEMATICS FOR COMPUTER ENGINEERS C 3

Input	ENGINEERING EXPLORATION B 3 ACADEMIC ENGLISH IN INTERNATIONAL CONTEXTS A 3 - 1 5 COMPUTER PROGRAMMING FOR ENGINEERS C+ 3 1 1 DISCRETE MATHEMATICS FOR COMPUTER ENGINEERS C 3 0
Output	1 ENGINEERING EXPLORATION B 3 2 DISCRETE MATHEMATICS FOR COMPUTER ENGINEERS C 3 3 ACADEMIC ENGLISH IN INTERNATIONAL CONTEXTS A 3 4 COMPUTER PROGRAMMING FOR ENGINEERS C+ 3
Input	ENGINEERING EXPLORATION B 3 ACADEMIC ENGLISH IN INTERNATIONAL CONTEXTS A 3 COMPUTER PROGRAMMING FOR ENGINEERS C+ 3 DISCRETE MATHEMATICS FOR COMPUTER ENGINEERS C 3 - 2 2 2 10 0
Output	1 ENGINEERING EXPLORATION B 3 2 ACADEMIC ENGLISH IN INTERNATIONAL CONTEXTS A 3 3 DISCRETE MATHEMATICS FOR COMPUTER ENGINEERS C 3