Name/Surname: **Date:**7/11/2022

Number:

EHB208E **Data Structures & Programming** **Autumn 2022**

1st Homework

1) Write a "C" program, which inputs and then saves school numbers, names, and surnames (Figure 1) into the student automation system. Each record is stored by using a separate linked list, as shown in Figure 2. When a new school number is entered, a record is also added to the **stack(s)** to be able to sort the numbers **by ID** (the last four digits of the school numbers), **student name, and faculty codes (Figure 2)**. You can use as many stacks as you want. Your code should

   (A) Display the student names in ascending order by their **IDs**.
   (B) Display the **student names** in ascending order by the first letter of their names.
   (C) Display the school numbers by the **faculty codes** in ascending order.
   (D) Delete a record by school number.
   (E) What is the Big-O annotation of each option above? (add the answer of this option as a comment at the beginning of your program code)

   Your data should be stored in sorted in the stack(s).

   It is predicted that a lot of sorting will be done by users while using this program. The minimum time cost is important.

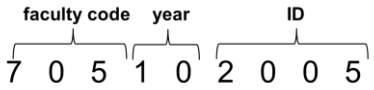

Figure 1. School number

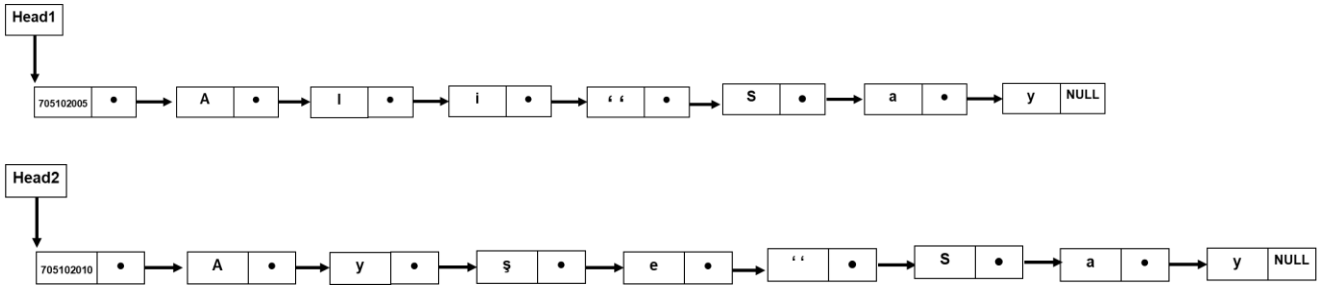

Figure 2. Sample linked lists

<u>Important: Your code should be properly commented. Uncommented code will get partial credit. You need to do your assignment alone. Code sharing among students or using code from any other source is not allowed.</u>

Upload your project's C source files to "EHB208E Homework" field in your Ninova system.