

York University
Dept. of Computer Science and Engineering
CSE2031 Software Tools
Assignment 2
Due Nov. 13th 2008

Write an ANSI C program that maintains a small database in the form of a linked list. The program user interacts with the program by issuing commands and sending data. The program manages and stores the data and responds to the user commands (that could include displaying data).

The commands are as follows

I to insert an element in the list
D to display the list in a specific format
S To show the details of a specific record
Del to delete a record.

Each record consists of a student ID, student name, date of birth, status, and GPA. The specification for each field is as follows (as an input to the program).

ID student ID is a string of 8 digits (0-9) $d_7d_6d_5\dots d_1d_0$ such that $d_6+d_2=7 \pmod{10}$.

$[(d_2+d_6) \pmod{10} = 7]$ The ID is terminated by a tab

Name, name is on the form last name, comma, **space**, and first name. The maximum size of the string is 20 characters (including the comma and spaces. The record ends with a tab.

Date of birth is on the form dd mm yyyy where d,m,y are digits (0-9) and represent day, month, and year respectively. There is exactly one space between dd, mm, and yyyy. The date field ends with a tab.

Status is a digit from 1 to 4 to indicate student status (1st year, 2nd year ...) also ends with a tab.

GPA is a floating point positive number less than or equal 4.0

The records should be stored in a linked list sorted by ID (ascending order). The commands are interpreted as follows. (**quotations are not part of the output**)

- I: on a line by itself indicates inserting a student's record. The following line should include the record as explained in the previous paragraph. The program checks for the validity of the record. In the case of a malformed record (Illegal ID, duplicated ID, name > 20 char, wrong date, status, or GPA), the program display the message "Malformed Record" followed by a new line character. If the record is O.K. the record is put in a node and inserted in the list. A message "Record inserted" followed by a new line character is displayed. The list should be maintained in an ascending order according to the student ID.

Submission: submit it as a2.c in a2