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program insertion;
(*-----
* Name: Neal R. Wagner
* Date: March 26, 1992
* Course: CS 2073, Section 001
*-----
* Program: Insert license numbers into an array L.
*          (Assumes license numbers are just integers
*-----
* Input: A file of old license numbers, LIC.DAT, internally Lfile
* Output: The same file, updated
*-----
*)
const MAXL = 10; (* max number of license numbers *)
type Ltype = array[1..MAXL] of integer; (* the main array *)
var
  L: Ltype;      (* the main array *)
  numL: integer; (* current number of license numbers *)
  Lfile: text;   (* the file of license numbers *)
  X: integer;    (* new license number to lookup *)

function lookup (L: Ltype; X: integer; numL: integer): integer;
(* loop up license number X in array L *)
var i: integer;
begin
  lookup := 0;
  for i := 1 to numL do
    if L[i] = X then lookup := i
  end; (* lookup *)

procedure insert(var L: Ltype; X: integer; var numL: integer);
(* insert new license number X in array L *)
(* ASSUMES X NOT ALREADY PRESENT *)
begin
  if numL = MAXL then writeln('*** overflow ***')
  else
    begin
      numL := numL + 1;
      L[numL] := X
    end
end; (* insert *)

procedure loadL(var Lfile: text; var L: Ltype; var numL: integer);
(* read from file LIC.DAT into L *)
begin
  reset(Lfile, 'LIC.DAT');
  numL := 0;
  while not eof(Lfile) and (numL < MAXL) do
    begin
      numL := numL + 1;
      readln(Lfile, L[numL])
    end
end; (* loadL *)

procedure dumpL(var Lfile: text; L: Ltype; numL: integer);
(* write array L into file LIC.DAT *)
var i: integer;
begin
  rewrite(Lfile, 'LIC.DAT'); writeln('*** dummping L ***');
  for i := 1 to numL do
    begin
      writeln(Lfile, L[i]);
      writeln(L[i])
    end;
  close(Lfile)
end; (* dumpL *)

begin
  loadL(Lfile, L, numL);
  writeln('Please enter new license #');
  readln(X);
  while X <> 0 do
    begin
      if lookup(L, X, numL) > 0 then
        writeln('Tow the car with license:', X)
    end
  end
end

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else
begin
    insert(L, X, numL);
    writeln('Give a warning to car with license:', X)
end;
readln(X)
end;
dumpL(Lfile, L, numL)
end.
INITIAL RUN:
Please enter new license #
47
Give a warning to car with license:          47
23
Give a warning to car with license:          23
0
*** dummping L ***
    47
    23
SECOND RUN:
Please enter new license #
56
Give a warning to car with license:          56
47
Tow the car with license:                    47
23
Tow the car with license:                    23
56
Tow the car with license:                    56
0
*** dummping L ***
    47
    23
    56
THIRD RUN:
Please enter new license #
89
Give a warning to car with license:          89
56
Tow the car with license:                    56
77
Give a warning to car with license:          77
23
Tow the car with license:                    23
33
Give a warning to car with license:          33
99
Give a warning to car with license:          99
61
Give a warning to car with license:          61
19
Give a warning to car with license:          19
21
Give a warning to car with license:          21
39
*** overflow ***
Give a warning to car with license:          39
0
*** dummping L ***
    47
    23
    56
    89
    77
    33
    99
    61
    19
    21

```