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//Program to understand use of arrays in structures
#include <iostream>
using namespace std;
const int SIZE = 100;    //constant to define size of array
struct listType{     //List defined using structure
      int listElem[SIZE];       //list array
      int length;       //length of list
};
//take input of list elements and its length
void getListElements(listType& lt){
      cout<<"how many elements do you want in the list";
      cin>>lt.length;
      for(int i=0;i<lt.length;i++){
            cin>>lt.listElem[i];
      }
}

//display list
void printListElements(listType lt){
      for(int i=0;i<lt.length;i++){
            cout<<lt.listElem[i]<<" ";
      }
}

//perform sequential search on the list
int seqSearch(const listType& lt, int searchItem){
      int loc;
      bool found = false;
      for(loc=0;loc<lt.length;loc++){
            if(lt.listElem[loc]==searchItem){
                  found = true;
                  break;
            }
      }
      if(found){
            return loc;
      }
      else{
            return -1;
      }
}
//main function
int main(){
      listType listt;
      int n;
      int f;
      getListElements(listt);
      cout<<"List Elements are:"<<endl;
      printListElements(listt);
      cout<<"\nEnter the number to be searched:"<<endl;
      cin>>n;
      f = seqSearch(listt,n);
      if(f==-1){
            cout<<"\nElement does not exist in the list"<<endl;
      }
      else{
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            cout<<"\nElement found at location: "<<f<<endl;
        }
        return 0;
}
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