

Exercises: Structs and Linked Lists

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- Implement a **contact management app**
- Store the following data:
 - name
 - surname
 - phone
 - email

Contact Management: Hypotheses



- Use an **array of structs**, to store up to N-contacts
- Use a **linked list**, to store an arbitrary number of contacts



- Implement a function to **print all records**
- Read **new records from the user**, one field at a time
- Implement a function to **copy a record**
- Implement an **edit function** (the user is asked to enter new data for a given record)

Example of how to implement interaction:

```
int main() {  
    while (true) {  
        int choice;  
        cin >> choice;  
        switch(choice) {  
            case 1:  
                print();  
                break;  
            case 2:  
                add();  
                break;  
            // ...  
        }  
    }  
}
```

- Write a function to **read data from file**
- Assumptions:
 - Each line contains **one record, with each field separated by spaces**
 - The file is **correct**: there are no errors
- Write a function to **save data to file**:
 - Use the same format for input :-)



- Implement a function to **sort by name**
- Implement a function to **print a record to the VCARD** format
- Implement a **search by name** (exact match)

<https://www.w3.org/2002/12/cal/vcard-examples/>

BEGIN:VCARD

VERSION:4.0

FN:Simon Perreault

N:Perreault;Simon;;;

EMAIL;TYPE=work:simon.perreault@viagenie.ca

TEL;type=WORK:+1 (617) 555-1234

END:VCARD



- Implement a struct to store a 2D (or 3D) point
- Write a function which computes the distance between two points
- Write a function which computes the perimeter of a triangle, given its three vertexes



- Use a **linked list** to store the vertexes of a polygon
- Write a function which **asks the number of vertexes** of the polygon and stores them into a **linked list**
- Write a function which takes as input a **polygon** and **computes its perimeter**