

PHONEBOOK (https://github.com/FrancescaSciacca6/OOP_CPP)

A program to manage a phone book that is a container with a finite capacity and can contain at most n entries. An entry is a 'voice' triple <name, surname, phone number> or a 'businessVoice' <name, surname, phone number, email, company>.

Declare/Define in the files voice.h/voice.cpp a struct voice that represents the triple <fname, lname, ntel>, and in the files businessVoice.h/businessVoice.cpp one about businessVoice that represents <fname, lname, phone number, email, company>.

Declare/Define in the files phoneBook.h/phoneBook.cpp a class phoneBook that represents the address book of entries. Use a dynamic array of entries to store the various entries. The class contains all the fundamental methods and handles dynamic memory correctly. Also use exceptions where appropriate.

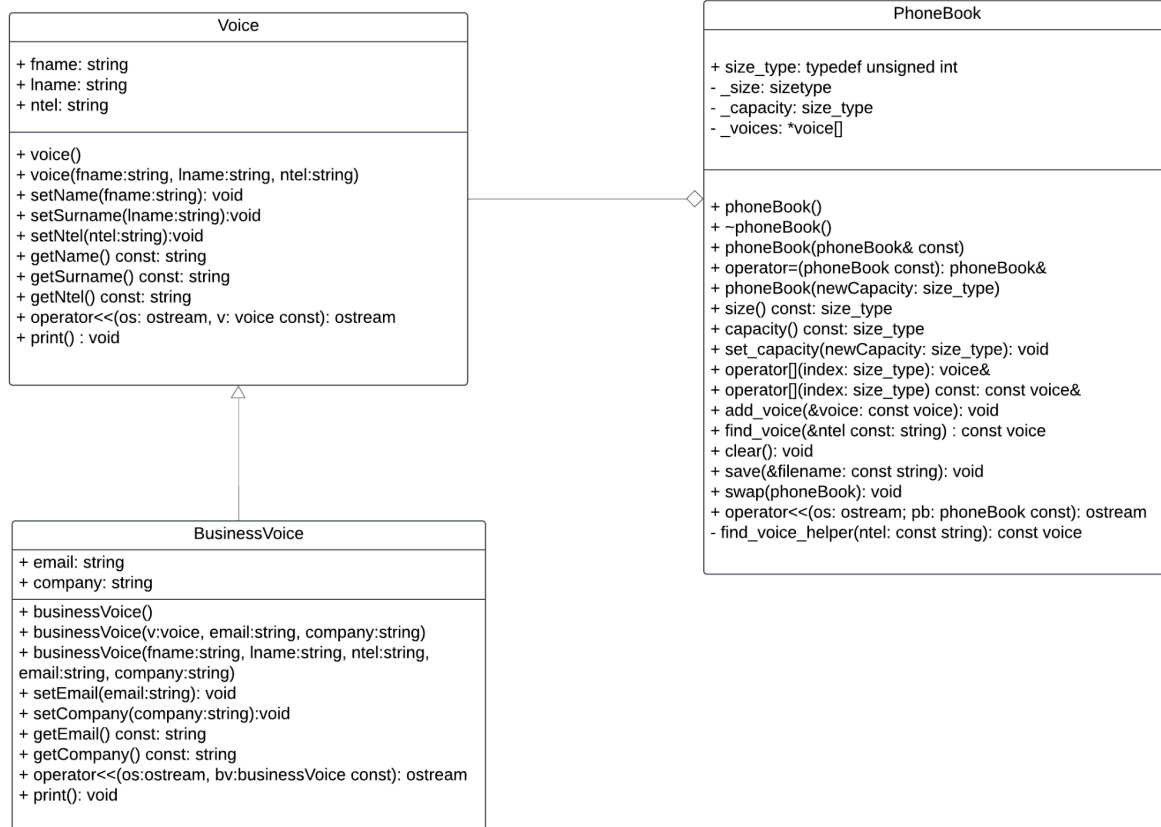
The dimension of the array must be chosen by the user during the construction phase and through a set_capacity method. If when calling set_capacity the address book already contains entries and the indicated capacity allows it (new capacity greater than the size), keep the entries, otherwise they will all be lost.

It is possible to know the number of entries that the directory can contain (capacity) and the number of entries actually entered (size).

Use operator[] to read and/or write the i-th entry in the address book. Handle the case in which the address book is full. It is possible to search an entry given the telephone number.

Implement, via operator<<, the printing of the contents of an address book.

Save method that saves the contents of the address book to a text file.



```

[francesca@MateBookXPro2020 ProjectPROVE]$ ./main
*** TEST VOICE ***

Voice:
Voice: Paolino Paperino 313
BusinessVoice: Paolino Paperino 313 v3.campus@pk.com PK
Voice: Paolino Paperino 313
Voice: Mickey Mouse 111
  
```

Create an empty voice, you can rewrite it.
Create a voice and a businessVoice.
Use the assignment operator on the empty voice.
Set new details.

```

*** TEST PHONEBOOK ***

Capacity: 0
Size: 0

Capacity: 10
Size: 0

Capacity: 10
Size: 0

Capacity: 10
Size: 4
Printing voice number 1
Name: name1, Surname: surname1, Phone: 11111

Printing voice number 2
Name: name2, Surname: surname2, Phone: 22222
Company: uania@22.com, Email: comapani2g. BusinessVoice: YES

Printing voice number 3
Name: name3, Surname: surname3, Phone: 33333
Company: uania@33.com, Email: comapani3g. BusinessVoice: YES

Printing voice number 4
Name: name4, Surname: surname4, Phone: 44444
  
```

Create an empty phoneBook.
Create a phoneBook capacity 10.
Use the assignment operator on the empty phoneBook, and show it.
Add 4 entries when the capacity of phoneBook is 10, and show them.

```

!!! ERROR: your phoneBook is full !!!
Capacity: 5
Size: 5
Printing voice number 1
Name: name1, Surname: surname1, Phone: 11111

Printing voice number 2
Name: name2, Surname: surname2, Phone: 22222
Company: uania@22.com, Email: comapani2g. BusinessVoice: YES

Printing voice number 3
Name: name3, Surname: surname3, Phone: 33333
Company: uania@33.com, Email: comapani3g. BusinessVoice: YES
  
```

Add 6 entries when the capacity of the phoneBook is 5, and show them. It causes exceptions.

```

!!! ERROR: entry not found !!!
Capacity: 5
Size: 0

Capacity: 7
Size: 2
Printing voice number 1
Name: name1, Surname: surname1, Phone: 11111

Printing voice number 2
Name: name2, Surname: surname2, Phone: 22222
Company: uania@22.com, Email: comapani2g. BusinessVoice: YES

Capacity: 1
Size: 0

```

Result of searching for an entry that does not exist.

Create a phonebook of capacity 5, then insert entries and try to increase the size to 7: this is possible because the new capacity is greater than the number of entries in the phonebook (size). If you try to change the capacity to 1 (which is less than the size) the phonebook will be set to 1 the capacity, but you will lose all the entries.

```

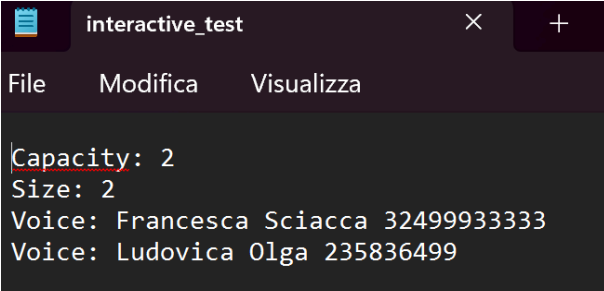
*** INTERACTIVE TEST ***

Insert the capacity of phoneBook: 2
Insert an entry
  Name (* for terminate): Francesca
  Surname: Sciacca
  Telephone Number: 32499933333
Insert an entry
  Name (* for terminate): Ludovica
  Surname: Olga
  Telephone Number: 235836499
Insert an entry
  Name (* for terminate): *
Do you want to save the phoneBook (y/n)?y
Nome del file: interactive_test
Printing voice number 1
Name: Francesca, Surname: Sciacca, Phone: 32499933333
Printing voice number 2
Name: Ludovica, Surname: Olga, Phone: 235836499
PhoneBook pb saved.

```

main.cpp uses an address book interactively:

Ask the user how many entries the address book should have and set the address book appropriately. Ask the user which entries to insert by requesting the data of an entry. If the user inserts an asterisk (*), it means that he does not want to insert further entries. Ask the user if he wants to save the address book and, if so, the name of the file to use. Save the address book and display its contents on the screen.



```

interactive_test
File  Modifica  Visualizza

Capacity: 2
Size: 2
Voice: Francesca Sciacca 32499933333
Voice: Ludovica Olga 235836499

```

Here is the .txt file where the entries are saved.