**Dynamic Allocation Memory & Algorithms**

Create a C++ application that keeps track of contacts.  
The information concerning a contact is following:   
contact number, first name, last name, company name, phone number, fax, meeting date.  
  
The information concerning an address is following:   
 street number, street name, city, province, postal code, country.  
  
The information concerning a phone number is following:   
 international code (1 digit), country code (3 digits), city code (3 digits) and, cell code (7digits).

The information concerning a date is following:  
 month, day and year.

The main menu is following:

1. Create a contact,
2. Display all the contacts,
3. Search for a contact by:

* contact number
* first name and last name

1. Sort the contacts by:

* contact number
* company name

1. Exit application

Requirements:

1. Create the necessary structures. 10%
2. Create a dynamic array to store all the contacts 5%
3. The tasks listed in the menu have to be built as *independent* functions. 5%
4. Create the header file and implementations file 10%
5. Add small comment before each function implementation. 5%
6. You have to overload the necessary functions 20%
7. You have to overload the input stream and output stream operators 10%
8. The main application has to call these functions.(create a friendly application) 20%
9. Use templates functions instead of overloaded functions (when necessary) 10%
10. Use the C++ name convention 5%
11. Add comments specifying: the author of the application, submitted to your teacher, the created date, the small description of the application, the version number of the application.

Submitted date: March 5th, 2018