

**Problem 1 (100pt):** Download the files `main.cpp`, `Student.h`, `Student.cpp` on CCLE and write classes `StudentClub` and a non-member function `find_youngest` to make `main.cpp` compile. Put the declaration and definition of `find_youngest` in `StudentClub.h` and `StudentClub.cpp` separately. You may not modify provided files and only submit `StudentClub.h` and `StudentClub.cpp` on CCLE.

Non-member function `find_youngest` is declared as follows. It returns the names of students who have the youngest age. Note there may exist more than one students who are youngest.

```
std::vector<std::string> find_youngest(const std::vector<Student*> member);
```

`StudentClub` should have the following private data members.

- `name`: a string that stores the name of student club.
- `president`: `treasurer`: pointers to `Student` objects.
- `member`: a vector of pointers to `Student` objects.  
Hint: `std::vector<Student*> member;`

`StudentClub` should also have at least the following methods.

- `StudentClub(std::string n)`: initializes `name` with `n`, pointers as null pointers and `member` as a vector of size 0.
- `StudentClub(std::string n, Student* p, Student* t, std::vector<Student*> m)`: initializes private members with provided arguments.
- `get_president()`, `get_treasurer()`, `get_member()`: return private members accordingly. Hint: don't forget they are const methods (or so-called accessors).
- `void set_president(Student* p)` and `void set_treasurer(Student* t)`.
- `void add_member(Student* s)`: appends the student pointer object to `member`.
- `print`: prints the information of the `StudentClub` class object. Change the following `/* *** */` part with correct syntax to print according information on the console.

```
void StudentClub::print() const
{
    std::cout << std::setw(20) << "Club Name: " << name << std::endl;
    std::cout << std::setw(20) << "President Name: "
        << /* president name*/ << std::endl;
    std::cout << std::setw(20) << "Treasurer Name: "
        << /* treasurer name*/ << std::endl;
    std::cout << std::setw(20) << "Current members: "
        << /* number of current members */ << std::endl;
}
```

With the provided int main file, the output should look exactly like:

Club Name: MATHBRUINS  
President Name: John  
Treasurer Name: John  
Current members: 4  
Youngest members: Kate Jess

**Instructions:**

- (5pt) You may not modify provided files. Submit the header file **StudentClub.h** and implementation file **StudentClub.cpp** on CCLE only.
- (10pt) Write your code with good coding practice. Comment on your code to make it readable and add description of this file in the beginning to show your ownership.
- (85pt) **main.cpp** compiles with your code and has correct results. Your code should work with other int main function as well. You may lose the majority of points if it doesn't compile with VS 2019. Only use virtual machines to check your homework after it compiles well and has correct results on your local computer. Manually log out your account after using the machine.

You are not allowed to use global variables.