

CS 120 Project 3

Due on Blackboard by Friday, February 24

For this project, you will design, implement, and test two C++ classes, where a vector of objects of one class (the component class) is a field of the other class.

Design

Think about what your classes will represent. What data do they hold and what data types? What goes in the component class and what goes in the other class? Does the data have restrictions on their values? What functionalities can they perform?

Some examples:

- a Library class that contains a vector of Books
- a Classroom class that contains a vector of Students
- a Song class that contains a vector of Notes
- a Trainer class that contains a vector of Pokemon
- a Quiz class that contains a vector of Questions
- a SolarSystem class that contains a vector of Planets
- a Garden class that contains a vector of Vegetables

Implement

Your class must have functionality to add and delete elements from the vector component. If appropriate, it should also be able to search/find a vector element with a specific property. At least one public method of the component class must be called in a public method of the other class.

Your classes should be declared in one or two header file(s) (with RMEs and other comments) and defined in corresponding .cpp file(s).

You may reuse your code from previous projects if appropriate.

Test

To make sure your classes are working the way you designed, include a .cpp file that has the main function and tests the class methods thoroughly.

Grading

The project is out of 60 points.

Design and Style

- 2 pts Are there at least three files and does each file have the correct code?
- 8 pts Are there sufficient comments and/or writings to explain what each method accomplishes and what each field represents?
- 4 pts Do the files follow the style guidelines from class? Are they readable? Do the names make sense?
- 10 pts Is there evidence of a well-thought-out design? Does each method have a clear purpose? Is this the best way to implement the class given the functionality goals?

Implementation

- 8 pts Are there two classes, with a vector of objects of one class included as a property of the other class?
- 6 pts Are there methods to add and delete elements of the vector?
- 6 pts Are public methods of the component class called in methods of the other class?

Testing

- 8 pts Is every method tested (directly or indirectly)?
- 8 pts Does testing cover all possible cases?