**Group Projects and Presentation**  
**CS225**

Demonstrate your knowledge of Object-Oriented Programming in a Group Project. Groups of 2 students will select a topic or be assigned a topic. You must use C++ unless you receive instructor approval. Project topics must receive approval.

**C++ Program and Style Guide (80%)**

Your finished project should demonstrate the following concepts we learned in class:

* thoughtful selection of variable names, function names, and class names.
* division of code into multiple header and source code files
* if statements
* while, do-while, and for loops
* Functions
* class definitions
* constructors and destructors
* operator overloading
* object composition
* Inheritance
* Exceptions
* file I/O
* a UML diagram
* demonstration of a C++ command/function/concept that we have not covered in class yet
* good programming practices

Submit a style guide and made sure to follow it with all your submitted code. (In class we talked about Google’s coding guidelines: <https://google.github.io/styleguide/cppguide.html> Your Style Guide doesn’t have to be nearly this extensive)

If you submit someone else’s code as your own without give them credit, this is academic misconduct and you will receive a zero on the project.

The project should demonstrate your object oriented programming knowledge from the whole semester and the project should be complex/comprehensive enough to warrant a multiple week project. (if you turn in only a few lines of code or something that doesn’t look like you spend more than an hour on it, don’t expect to get full credit)

**Presentation (20%)**Create a PowerPoint (or other graphical) presentation that is aimed at your target audience (our class).

* 10-15 minutes long.  Presentations will take place during class time.  Correctly use C++ vocabulary words during your presentation (ex. virtual function, abstract base class, overloading, overriding, scope resolution operator).
* Be an attentive listener during all of your classmates’ presentations.

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| **C++ CONCEPT REQUIREMENT PROGRESS** | |
| **STATUS** | **CONCEPTS AND DETAILS** |
| Don’t need to worry about | 1. thoughtful selection of variable names, function names, and class names. 2. if statements 3. Functions 4. class definitions 5. Inheritance    1. Every class created inherits from monobeheviour. This may not count for our project so we should ask the professor. 6. A UML diagram    1. Will be done in early planning stages 7. good programming practices |
| Potentially have a plan | 1. division of code into multiple header and source code files    1. Possibly put all of our recipe and element information into a header file that is used by the ChemManager script OR Put in C++ Project 2. constructors and destructors    1. Potentially used for the initialization of new elements after a reaction is preformed. Could be used to instantiate a particle effect on creation of the game object 3. file I/O    1. Used for saving and persistance |
| No Clue, probably possible in project | 1. while, do-while, and for loops 2. Exceptions 3. demonstration of a C++ command/function/concept that we have not covered in class yet |
| NO CLUE AT ALL | 1. object composition |
| put in separate C++ script | 1. operator overloading |