# Introduction

For this assignment you will need to read a couple chapters from the *C++ Coding Standards* book and write a report on what you have learned. This assignment will expose you to just a few practices that will help you to become a better programmer.

# Research

* The following book is available for 24-hours check-out from the library
  + *C++ Coding Standards: 101 Rules, Guidelines, and Best Practices*
  + By Herb Sutter & Andrei Alexandrescu
  + ISBN: 0321113586
* Select ***one*** of the following topics and complete the assignment according to the instructions for that topic.

# Topic 1: Design Style

* Read - Chapters 5 & 11.
* Write - In your own 500 words (+/- 10%), explain:
  + What is meant by giving one entity one cohesive responsibility?
  + What are the benefits of giving one entity one cohesive responsibility?
  + What are the drawbacks of giving one entity multiple responsibilities?
  + What is meant by hiding information?
  + What are the benefits of hiding information?
  + What are the drawbacks of exposing information?
  + What is meant by abstraction?
  + Can you cite from your personal experience instances where these practices could have been applied?
* Submission
  + Check spelling and grammar to avoid penalties.
  + Check your word count (500 +/- 10%) to avoid penalties.
  + Report must be in Word or OpenOffice format.
  + Report must be submitted via Moodle during ***Week 9***. Late submissions will be penalized -25% if less than one week late. Beyond one week the submission will receive a score of 0%.
  + Submission must conform to the following naming convention:
    - GAM150\_(login)\_DesignStyle.(file type)

# Topic 2: Premature Optimization/Pessimization

* Read - Chapters 8 and 9.
* Write - In your own 500 words (+/- 10%), explain:
  + What is meant by premature optimization?
  + What are the drawbacks associated with premature optimization?
  + What are the recommended alternatives to premature optimization?
  + What is meant by premature pessimization?
  + How is avoiding premature pessimization different from premature optimization?
  + Can you cite from your personal experience instances where these practices could have been applied?
* Submission
  + Check spelling and grammar to avoid penalties.
  + Check your word count (500 +/- 10%) to avoid penalties.
  + Report must be in Word or OpenOffice format.
  + Report must be submitted via Moodle during ***Week 9***. Late submissions will be penalized -25% if less than one week late. Beyond one week the submission will receive a score of 0%.
  + Submission must conform to the following naming convention:
    - GAM150\_(login)\_Optimization.(file type)

# Grading Rubrics

**Individual Grade:**

* 100% + modifiers

**Grade modifiers:**

***Submission:***

* No submission. (-100%)
* Late submission. (-25%)
* Incorrect submission name. (-10%)

***Chapter 5:***

1. What is meant by giving one entity one cohesive responsibility?
   * Meaning is not explained. (-10%)
   * Meaning is not clearly explained. (-5%)
   * Meaning is only partially explained. (-2.5%)
2. What are the benefits of giving one entity one cohesive responsibility?
   * Benefits are not identified. (-10%)
   * Benefits are not clearly identified. (-5%)
3. What are the drawbacks of giving one entity multiple responsibilities?
   * Drawbacks are not identified. (-10%)
   * Drawbacks are not clearly identified. (-5%)

***Chapter 11:***

1. What is meant by hiding information?
   * Meaning is not explained. (-10%)
   * Meaning is not clearly explained. (-5%)
2. What are the benefits of hiding information?
   * Benefits are not identified. (-10%)
   * Benefits are not clearly identified. (-5%)
3. What are the drawbacks of exposing information?
   * Drawbacks are not identified. (-10%)
   * Drawbacks are not clearly identified. (-5%)
4. What is meant by abstraction?
   * Abstraction is not identified. (-5%)
   * Abstraction is not clearly identified. (-2.5%)

***Chapter 8:***

1. What is meant by premature optimization?
   * Meaning is not explained. (-15%)
   * Meaning is not clearly explained. (-7.5%)
2. What are the drawbacks associated with premature optimization?
   * Drawbacks are not identified. (-10%)
   * Drawbacks are not clearly identified. (-5%)
3. What are the recommended alternatives to premature optimization?
   * Alternatives are not identified. (-10%)
   * Alternatives are not clearly identified. (-5%)

***Chapter 9:***

1. What is meant by premature pessimization?
   * Meaning is not explained. (-15%)
   * Meaning is not clearly explained. (-7.5%)
2. How is avoiding premature pessimization different from premature optimization?
   * Meaning is not explained. (-15%)
   * Meaning is not clearly explained. (-7.5%)

***Citing Personal Experiences:***

1. Can you cite from your personal experience instances where these practices could have been applied?
   * No citations given. (-10%)
   * Citations given are confusing and/or misleading. (-5%)
   * Citations given do not relate to either subject. (-5%)
   * Good citation(s) provided. (+2.5%)
     + [Citations clearly communicate that one or both subjects are well understood.]

***Miscellaneous:***

Word count modifiers:

The allowed word count is 500 +/- 10%. Do not include any header information in the word count unless doing so is in the student’s favor.

The word count thresholds are at 375/450/550/625.

* + Document is significantly (>25%) under the required word count. -25%
  + Document is under the required word count. -10%
  + Document is over the required word count. -10%
  + Document is significantly (>25%) over the required word count. -25%

Spelling/Grammar/Punctuation modifiers:

The focus of the grading for this assignment should be on the content, rather than the spelling, grammar, etc. Generally, one or two minor errors are acceptable. However, sloppy writing and/or failing to use a spellchecker should result in penalties to the grade.

If a paper is riddled with errors (most paragraphs, many sentences), then apply the greatest penalty. In the case of only a few significant spelling errors, then apply the smallest penalty. Use the middle penalty for cases in between the two extremes.

Some allowances may be made for students for whom English is clearly a secondary language.

* + Frequent errors in spelling, grammar and/or punctuation. -3%
  + Several errors in spelling, grammar and/or punctuation. -2%
  + Some errors in spelling, grammar and/or punctuation. -1%