# CSCI 110 Intro to CS I

## Project 4 Creative Group Project

### Crafton Hills College

#### Total Points: 50

In this project, you will work in a team of two or three students to create a C++ creative program of your choice. You can choose any interesting problem with sufficient complexity that is appropriate for a four-week programming group project. Once you have decided on a project idea, check with the instructor to make sure it is appropriate and feasible for the project time frame.

#### Project Requirements

1. The behaviors of your program should be well-defined. The definitions should be clear and specific such that one can reasonably tell whether your program is correct according to your definition. The definition should have enough details so that another programmer can create a similar program according to your definition.
2. The program is of sufficient complexity, requiring efforts to design and test for a group of two or three students within four weeks.
3. The program is interactive (i.e. it allow inputs from the user and provides feedback to the user). The program uses user interfaces that provide clear, well-designed, and visually pleasing feedback to the user.
4. Your program should perform file input/output. It should read and write to an external file. An example of how files can be used in your program is storing persistent program state or data (such as scores for a game, large amount of external input data).
5. Your program must show **good modularized program design using functions**. Your program must define and use at least *three* functions. Functions should be used to maximize code reuse and ease of code maintenance (there will be point deductions if your program contains a significant amount of redundant code).
6. Your program must use named constants where appropriate (i.e. there should be no hard-coded literals other than named constants).
7. Your program should *not* use any global variables.
8. Each group member must contribute equally to the programming portion of the project. Overall, each group member must contribute equally to the project.
9. On the project due date, each group will do peer evaluation of other groups’ projects.

#### What you need to submit for the project:

* A report containing the following items (only one report is needed per group):
  + 1. Project 4 title page / grading template
    2. Project name
    3. Group member names
    4. Discussion of how the creative program satisfies each of the project requirements (your discussion here is very important because I will be relying on this to score your project’s satisfaction of the project requirements.
       1. Definition of the behaviors of your program. Your definition must be clear and precise so that one can reasonably tell whether your program is correct according to your definition.
       2. Complexity of problem
       3. How the program is interactive
       4. How files are used
       5. How your program show good modularized program design using functions. How your program defines and uses at least three functions.
       6. How your program uses named constants where appropriate
    5. Describe your representative test cases along with screenshots
       1. Use sufficient screenshots to show that your program behaves correctly according to the definition.
    6. Brief discussion of your project experience
       1. Did you enjoy this project? What problems did you encounter?
       2. What did you get out from the project?
       3. How did you find the project (too easy, easy, just right, difficult, too difficult)?
       4. What type of help/references did you use in your project (e.g. book, web sites, classmates, tutors)?
       5. Describe the roles of each partner.
  1. Submission of source code and executable files on Blackboard
     1. Compress the files into a zip archive file and submit the zip file

#### Grading Criteria

* **Group Project** **Submission** (50 points)
  + Satisfaction of project requirements & a well-written report (25 points)
  + Program correctness (10 points)
  + Quality and efforts (10 points)
  + Documentation and coding-style (5 points) - refer to the textbook’s program style
    - Provide comments about your program in appropriate places. Each function should have clear and sufficient documentation for another programmer to use it without looking at the implementation.
    - You must use the program template provided on Blackboard that has a program comment block containing filename, description, author, class, and date.
    - Use descriptive identifiers.
    - Use proper spacing and indentation.
* **Peer Evaluation**
  + You are required to evaluate other groups’ projects using rubrics provided by your instructor. You will lose 5 points if you do not participate in the peer evaluation process.