Title: Retro Redux (ADGP 110)

Start Date: **11/03/14**

Assessment Date: **12/16/14**

General description

Using the Retro game that was developed during your previous assessment refactor components of this to use Classes, demonstrate understanding of Object Oriented Programming procedures and develop and incorporate a rudimentary math library into your game project.

Through the completion of this assessment, you will be able to demonstrate the ability to refactor code to improve performance and program development, create and code "bug and error free" program and have a better understanding of Object Oriented C++ programming, and develop knowledge on how to build code libraries for individual object components.

You are to document all your code with comments and demonstrate both a static and dynamic math library that is able to be utilized by your retro game.

Your submission must also include appropriate unit testing for your math.

Your unit testing must include all the functionality demonstrated in the mathematics unit test example handout program.

Knowledge and skills

Listed here is the knowledge and skills you'll be learning and on which you will be assessed. Demonstrate basic understanding and application of a programming language, syntax and rules

- The ability to apply mathematical techniques to a range of disciplines
- Your ability to conform to a given brief and create content within the limits of the brief
- Demonstrate unit testing and debugging of code
- Demonstrate and use of given framework
- Demonstrate ability to create and use static and dynamic libraries
- Skills in applying Object Orientated Programming techniques and design

Evidence specifications

This is the specific evidence you must prepare for and present on assessment day to demonstrate you have competency in the above knowledge and skills. The evidence must conform to all the specific requirements listed below.

1. Develop, implement and utilize a static math Library
2. Develop, implement and utilize a dynamic math library
3. Demonstrate use of unit testing to ensure math libraries perform as intended
4. Develop and submit documentation outlining the use and functionality of your math Library

Your roles and responsibilities as a candidate

- Understand and feel comfortable with the assessment process
- Know what evidence you must provide during your assessment
- Take an active part in the assessment process
- Be ready for the assessment at the nominated time

Assessment instructions for candidate

METHOD OF ASSESSMENT

Assessment will be conducted by you personally presenting evidence that demonstrates your competence in a short interview with your assessor. The evidence you must prepare and present is described above in this assessment criteria document. Assessments will be conducted on a specific day recorded above in this assessment criteria document.

ASSESSMENT CONDITIONS

You will have approximately 10 minutes to present your evidence that demonstrates your competence. It is your responsibility to be prepared. If you have forgotten something or made a small mistake you may correct it, however the assessor may choose to assess other candidates who are better prepared and return to you if time permits. Upon completion of the assessment you will be issued with feedback and a record of the assessment, which you will need to acknowledge that you have accepted the result. If you are absent on the nominated assessment day (without prior agreement or a sufficient documented excuse) you will be assessed as not yet competent.

GRADING

The assessment you are undertaking will be graded as either *competent* or not *yet competent*.

REASSESSMENT PROCESS

If you are assessed as being not yet competent you will receive clear, written and oral feedback on what you will need to do to achieve competence. You will have one (1) week to prepare your evidence for a reassessment. You will be given only one

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reassessment opportunity. If you are unsuccessful after your reassessment you will be required to attend an intervention meeting with your Head of School to discuss your progress.

REASONABLE ADJUSTMENTS

We recognize the need to make reasonable adjustments within our assessment and learning environments to meet your individual needs. If you need to speak confidentially to someone about your individual needs please contact your teacher.

Assessment rubric

This table defines exactly what is required to be successfully deemed competent.

Evidence	Definition of Competent

1. Develop, implement and utilize a static math Library	Develop a static math library to that adheres to OOP design principals and promotes reuse and portability for better use and development of C++ code.
	math Library must include the following aspects:
	• 2 Dimensional & 3 Dimensional Vectors
	  ○ Dot Product
	  ○ Normalization
	  ○ Cross Product
	  ○ Magnitude
	  ○ Operator overloading
	  ○ Linear Interpolation
	• Matrix 3x3 and 4x4
	  ○ Orthographic Projection creation
	  ○ Scale
	  ○ Create Rotation
	  ○ Transform Point
	  ○ Transform Vector
	  ○ Matrix Multiplication
	• Vector 4
	  ○ Normalization
	  ○ Construct from Hexadecimal Color value
	• Common math Functionality
	  ○ Linear Interpolation for scalar values
	  ○ Convert between degrees and Radians
	  ○ Testing scalar value for Power of Two (shift to nearest power of two)
	  ○ Bitwise operations

2. Develop, implement and utilize a dynamic math library	Develop a dynamically loaded math library to that adheres to OOP design principals and promotes reuse and portability for better use and development of C++ code.
3. Demonstrate use of unit testing to ensure math libraries perform as intended	A series of unit tests must be developed to test out and demonstrate all functionality included in your math libraries, these tests must demonstrate that your libraries function as intended and these tests must also meet all the criteria demonstrated in the Unit Tests program handout.
4. Develop and submit documentation outlining the use and functionality of your math Library	A PDF file documenting the functionality and purpose of your accompanying math library is to be submitted with your work.

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