Title: Bitwise Operator Program

Start Date: Monday, 14 July 2014

Assessment Day: Friday, 7 November 2014

Assessable units of competency

PGDMTH601A – Apply fundamental games programming mathematical skills

General description

You are to create a program that can convert between decimal and binary numbers as well as perform operations on binary numbers.

The user must be able to enter a number in either binary or decimal. Your program must allow them to convert from decimal to binary AND from binary to decimal. The program must have a signed and unsigned mode (use two's complement in the unsigned mode).

You must be able to perform the following operations on binary and decimal numbers: addition, subtraction, bitwise AND, bitwise OR, bitwise NOT, bitwise XOR, left bit-shift, right bit-shift.

Knowledge and skills

Listed here is the knowledge and skills you'll be learning and on which you will be assessed.

- Binary and decimal conversion
- Logical operators
- Bit shifting

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.

The program should have the following attributes:

1. Binary/decimal conversion
2. Bitwise operations on numbers

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 mins 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 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 recognise 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 for Bitwise Operator
1. Binary/decimal conversion	Submitted project should: • Allow the user to input in binary AND decimal • Convert from decimal to binary • Convert from binary to decimal
2. Bitwise operations on numbers	Submitted project should: • Perform addition and subtraction of binary and decimal numbers • Perform bitwise: AND &, OR |, NOT ~, XOR ^, left shift <<, right shift >>