**COMP 1917  
Computing 1  
Session 2, 2014**

**Tutorial - Week 5**

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**Tutorial Presentation**

Explain Type Conversion in C. In what situations does type conversion occur? Referring to the Course Notes, Chapter 7, slide 31, briefly explain what output is produced by this code, and why.

1. Convert from Binary to Decimal:

1101.011

1. Convert from Decimal to Binary:

12.6875

1. Find the negative of each of these numbers in 2's Complement (binary) format:

(a) 10010100  
(b) 4210

1. Verify that 59 - 42 = 17 by computing the binary representation for 59 and adding the negative of 42 computed in the previous question.
2. Given that x is of type int, what is the value of x after x = c when:
   1. c is an unsigned char with the value FF ?
   2. c is a (signed) char with the value FF ?
3. How would you declare a variable cartesian to be a two dimensional array of integers with 5 rows and 10 columns?  
   How would you initialize this array to all zeros? Write a C code fragment to store, in each element of this two dimensional array, the sum of the two indices (or coordinates). For example, cartesian[2][7] would be 9, etc.
4. Write a function
5. double max\_value(int n, double a[])

which accepts a positive integer n as well as an array of n doubles, and returns the maximum of the n values in that array.

1. Any questions about Assignment 1.

**Presentation Topic for Week 6**

Explain what is meant by a "Buffer-Overrun Attack".  
What kind of code is susceptible to such an attack?  
How can you re-write your code to protect it from this threat?