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

**Tutorial - Week 8**

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**Presentation Topic for Week 8**

Briefly describe the 2012 attempt by George Church and Sriram Kosuri at Harvard University to encode a book in DNA and read it out again. Do you think we will be programming with molecular computers in the foreseeable future?

1. A point in two dimensional space can be stored as an array with two entries, or as a structure with two components x and y:
2. typedef struct point Point;
3. struct point {
4. double x;
5. double y;
6. };

For each of these two representations, write a function which, given two points p and q, returns the distance between them:

double distA( double p[2], double q[2] );

double distS( Point p, Point q );

Do you find one version of the function "easier to read" than the other?

1. Rewrite this expression using the "arrow" notation:
2. (\*((\*speeding[s]).date)).year
3. Write a function
4. Lnode \* concat( Lnode \*L, Lnode \*M )

which concatenates two linked lists L and M into a single list containing all the nodes of L (in their original order) followed by all the nodes of M (in their original order) and returns a pointer to the head of the new list.

1. Using the Lnode structure defined in lectures, write a function
2. Lnode \* reverse( Lnode \* head )

which reverses the nodes of a linked list, so that the ordering of the nodes becomes exactly the opposite of what it was before. The function should return a pointer to the head of the new list.

1. (if time permits) Later in the course we will be writing short programs in a simplified Machine Language which has no multiplication operator. In preparation, we will try writing some C functions which achieve multiplication by repeated addition:
   1. Write a function int mult(int a,int b) which takes an integer a and a non-negative integer b and computes the product of a and bby repeated addition, without using the C multiplication operator '\*'.
   2. Write a function int to\_power(int b,int c) which takes two positive integers a and b and computes the result when a is raised to the power b. This result should be computed by "repeated" repeated addition, without using the C multiplication operator or calling any other function.

**Presentation Topic for Week 9**

Explain Assignment 2 (which will be released on Wednesday). What parts of the assignment do you think will be most challenging? What are the "pitfalls" to watch out for?