# School of Computer Science, University of Windsor
## 60-141: Introduction to Algorithms and Programming II
## Term: Summer 2014 (July-August)
## Instructor: Dr. Asish Mukhopadhyay

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**Lab** 3
**Posted**: 18th July, 2014
**Due**: Beginning of lab4

**Preamble:** The purpose of this lab is to consolidate your understanding of pointers and in particular how an array of pointers can be used to sort a set of strings lexicographically. Each one of the programs should be properly commented, following the style of your textbook. All lab work is expected to be original.

**Grading Scheme:** Each problem is worth 10 points, for a total of 20 points. The scoring break-up for each problem is: 2 points for program documentation, 2 points for effort and 6 for correctness.

**Credits:** The idea of this lab is original and due to me.

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**Problem 1:** Implement in C a revised version of the insertion sort algorithm by using the swap routine that I discussed to in class to place two numbers in order by passing pointers to them. Allow the user to choose whether the numbers are to be sorted in ascending or descending order by providing a menu (read the bubble sort program in your text book in Section 7.6).

(10 points)

**Problem 2:** In class, we developed a programming framework to sort a finite set of strings in lexicographically ascending order by using an array of pointers.

Use this framework to provide a choice to the user to:

(a) sort in ascending or descending order;
(b) find the string that is lexicographically maximum;
(c) find the string that is lexicographically minimum;
(d) find a string of maximum length;
(e) find a string of minimum length and

(f) given a query string, determine by binary search if it is in the list

by creating a menu as you did for Lab 1.

(10 points)