# CSC 212 Tutorial
# Sorting

Note: Assume that all the following sorting algorithms (as implemented in-class) sort in increasing order.

## Problem 1 Fill in the Blanks

1. Consider the following elements where keys are integers and data is of type string: $\{(2, B), (4, D), (2, A), (1, E), (6, E), (4, B), (0, F)\}$. The order of the elements after being sorted by:
   - Selection-sort is: _____
   - Bubble-sort is: _____
2. Selection-sort is O(__) in the best case.
3. Unlike Selection-sort and Bubble-sort, Merge-sort requires O(__) in extra space.

## Problem 2 Code

1. Modify the code for Selection-sort so that it becomes stable.
2. Modify the code for Bubble-sort so that it becomes O(n) in the best case.

## Problem 3 Draw

Draw a tree that shows the divide and merge steps of Merge-sort on the following elements: 5,10,4,11,9,7,3,6.