Programming Assignment 5

1. Write a function, called **minMaxTuple**, that takes a list of numbers and returns the smallest element and the largest element as a tuple (smallest, largest). Cannot use the built-in functions min()/max().
   For example : lst = [6, 3, 8, 23, -4, 35] should return (-4, 35) (20 points)

2. Write a function, called **allPairs**, that takes two lists as paramters, x and y, and returns a new list containing all possible pairs consisting of one element from x and one element from y as long as they are not the same. Cannot use built-in functions or sets.
   For example: If the list x = [1, 4, 6, 8] and y = [5, 2, 6] then the result is the list [(1, 5), (1, 2), (1, 6), (4, 5), (4, 2), (4, 6), (6, 5), (6, 2), (8, 5), (8, 2), (8, 6)]. Note that (6, 6) doesn't appear because they are the same element. (20 points)

3. Write a function, called **distance**, that takes a list of tuples representing points. The first value is the x-coordinate and the second value is the y-coordinate, so a point is defined by the tuple (x, y). The method should return the pair of points (a tuple of two points, i.e. tuple of tuples) that have the smallest distance, if multiple pairs of points have the same minimum distance you can return any of the pairs of points.
   Hint: you can compute distance between every possible pair of points and keep track of the smallest distance. (40 points)

4. Write a function, called **removeDups**, that takes a list of tuples and removes any duplicate tuples and returns the modified list. Cannot use built-in functions nor sets.
   For example if the list contains [(1, 2), (1, 4, 5), (1, 2), (3, 5)] then the list will become [(1, 2), (1, 4, 5), (3, 5)]. (20 points)

Please remember that all functions need to have proper DocString documentation. Refer to the CE_functionComment0.pdf and CE_functionComment1.pdf files for reference.