CMPE 300 - Analysis of Algorithms
Fall 2014
Assignment 2

Due date: January 3, 2014 13:00

Question 1

Suppose that you have n objects that have identical weight except for one that is a bit heavier than the others. You have a balance scale. You can place objects on each side of the scale and see which collection is heavier. Your goal is to find the heavier object, with the minimum number of weighings.

(a) Find and prove matching upper and lower bounds for this problem.

(b) Write a pseudo-code of CRCW parallel algorithm for this problem. Compare the time complexity of this algorithm to the lower bound.

Note: Be very careful with the syntax of your pseudo-codes. Clearly identify inputs, outputs, ranges, and parallel assignments.

Submission

Bring the hardcopy of your answers to the final exam.