Participation 3

Due Thursday, July 3, at 9 AM (GMT-7)

CSc 345 – Summer 2014

Instructor: Qiyam Tung

Instructions

1. This is an individual assignment. You must do your own work.
2. If you are having difficulty and need to ask a question you can:

   (a) Ask questions in class.
   (b) Stop by my office hours (or make an appointment).
   (c) Post a question on Piazza.
   (d) Post a private question on Piazza if the question is too specific.

3. Show all work. I will be grading on whether you put effort into this problem (i.e. participation) and not correctness. Showing your work helps me identify your thought process and helps me with grading.
4. You may write your solutions by hand, or you may type them using any appropriate program such as Microsoft Word, OpenOffice Writer, LaTeX, etc. . .
   However, the final copy should be in PDF form and formatted so that it is legible.
5. If the listed problem is only a number, refer to the online book for the description of the problem (starting at page 46).

Dropping Laptops (5 points)

A company wants to test the ability of their laptops to endure shocks. So, they do the most logical thing and take their prototypes and drop them from different floors of a tall building. They want to figure out the highest floor that they can drop the laptop before it breaks.

However, these laptops are expensive, so they are only willing to give two to test this out. A laptop can dropped continuously until it breaks. The brute-force method is to drop a laptop from every floor starting from the bottom floor until it breaks.

For this participation, your task is to find a method that is asymptotically *faster* than testing every floor. Prove it.