CPS 130 Homework 16
Amortized Analysis

due Wed June 12th

Write and justify your answers in the space provided.[1]

1. (CLRS 17.2-1) A sequence of stack operations is performed on a stack whose size never exceeds k. After every k operations, a copy of the entire stack is made for backup purposes. Show that the cost of n stack operations, including copying the stack, is $O(n)$ by assigning suitable amortized costs to the various stack operations.

[1]Collaboration is allowed, even encouraged, provided that the names of the collaborators are listed along with the solutions. Students must write up the solutions on their own.

2. A sequence of n operations is performed on a data structure. The ith operation costs i if i is a power of 2, and 1 otherwise. Using the accounting method, determine the amortized cost per operation.