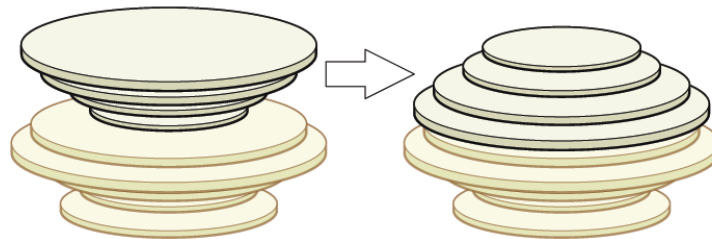# COMP 550, Spring 2015
Quiz 2 (close book)
Feb 9, 2015

1) (80') Name: _____ PID:_____

2) (4')

Suppose you are given a stack of n pancakes of different sizes. You want to sort the pancakes so that smaller pancakes are on top of larger pancakes. The only operation you can perform is a *flip*—insert a spatula under the top k pancakes, for some integer k between 1 and n, and flip them all over.

Flipping the top four pancakes.

Describe an algorithm to sort an arbitrary stack of n pancakes using as few flips as possible. *Exactly* how many flips does your algorithm perform in the worst case?

3) (16') Use the Master Theorem (if applicable) to solve the following recurrences, simply write "N" when Master Theorem does not apply.

(a) $T(n) = n^{1/2} T(n^{1/2}) + n$

(b) $T(n) = T(n-1) + T(n-2)$

(c) $T(n) = 6T(n/3) + n^2/(\lg n)$

(d) $T(n) = 2T(\lg n) + n$

4) Any suggestion is welcomed and appreciated (no bonus this time)!