

# CSC236 tutorial exercise #4

## week #6, Winter 2014

Use repeated substitution, AKA unrolling or unwinding, to find a closed form for  $T(n)$  when  $n = 2^k$  and  $k \in \mathbb{N}$ .

$$T(n) = \begin{cases} 1 & \text{if } n = 1 \\ 1 + T(\lceil n/2 \rceil) + T(\lfloor n/2 \rfloor) & \text{if } n > 1 \end{cases}$$

Prove your closed form is correct (for the subset of natural numbers indicated), by Induction.