1. Exercise 16.3-3 on p. 436 of CLRS.

2. Problem 16-1 on p. 446 of CLRS.

3. Consider a $k$-digit decimal counter, with initial value 0. Suppose that $n$ additions to the counter of numbers of the form $10^i$ are performed (i.e., each of the $n$ addition operations specifies an exponent $i$ between 0 and $k - 1$). Results are to be computed modulo $10^k$, in case of overflow. Using the accounting method or a potential function argument, show that the total number of digits that change is at most $\frac{10}{9}n$.

4. Show how to implement a queue with two ordinary stacks, so that the amortized cost of each enqueue and dequeue operation is $O(1)$. Use either the accounting method or a potential function argument.

5. Design a data structure and algorithms to support the following two operations for a dynamic multiset $S$ of numbers (duplicates allowed): $\text{insert}(S, x)$: insert $x$ into $S$; $\text{deleteLargerHalf}(S)$ deletes the largest $\lceil |S|/2 \rceil$ elements from $S$. The amortized cost of each operation should be $O(1)$. Your algorithm should be comparison based: the only operations performed on the numbers in $S$ are comparisons. Use either the accounting method or a potential function argument.

6. **Honor’s exercise.** Problem 17-2, parts $a$ and $b$ only, on p. 473 of CLRS.