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- 1. List the members of your group below. Underline your name.
- 2. Prove or disprove the following from first principles.

(a)
$$\log n = O(n)$$

(b)
$$n^3 = o(2^n)$$

- 3. Define maximum contiguous subsequence (MCS).
- $4.\ \,$ Prove or disprove: Every sequence has a unique MCS.

5. Trace the MCS computation for the sequence (2, -3, 4, 2, -1, 3) using the $O(n^2)$ algorithm from the textbook. Prove the $O(n^2)$ claim. Is the algorithm $\Theta(n^2)$? Explain.

6. Repeat Question 5 for the O(n) algorithm from the textbook.