Lab8: Midterm review

Dian-Lun Lin Yasin Zamani
Department of Electrical and Computer Engineering
University of Utah , Salt Lake City, UT

Problem 11

- Given a binary array (i.e., contains only 0 and 1), find the maximum number of consecutive 1s in this array

- Example:

  Input: [1,1,0,1,1,1]

  Output: 3

Problem 12

- A rotation (or circular shift) is an operation similar to shift except that the bits that fall off at one end are put back to the other end. In left rotation, the bits that fall off at left end are put back at right end. In right rotation, the bits that fall off at right end are put back at left end

- Example: let *n* is stored using 8 bits:

Left rotation of *n* = 11100101 by 3 makes *n* = 00101111 (Left shifted by 3 and first 3 bits are put back in last).

Right rotation of n = 11100101 by 3 makes n = 10111100 (Right shifted by 3 and last 3 bits are put back in first.

Problem 13

- Given a limited range array of size N where the array contains elements between 1 to n-1 with one duplicate number, write a program to find the duplicate number

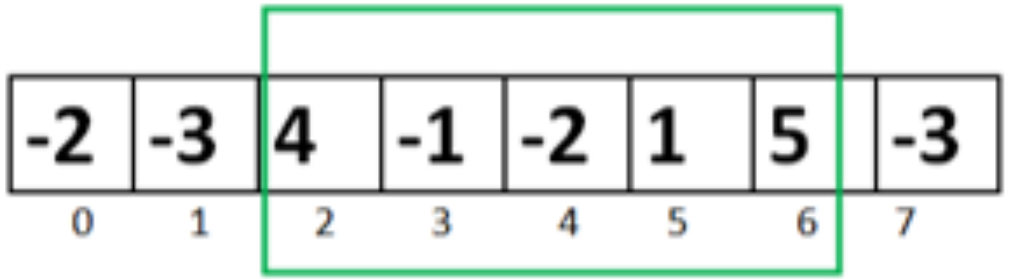
- Example:

  Input: {1, 2, 4, 3, 4}
  Output: 4

  Input: {1, 2, 1, 3, 4, 6, 5}
  Output: 1

Problem 14

- Maximum subarray sum



4 + (-1) + (-2) + 1 + 5 = 7

Maximum Contiguous Array Sum is 7

Problem 15

- Merge sort