MAT 115E Introduction to Programming Language
Lab-8 / CRN : 21132

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1 Question 1

Write a C program that swaps two pointers using an additional pointer as illustrated in the following figures.
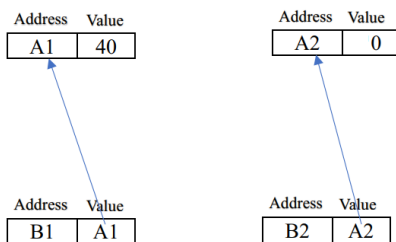

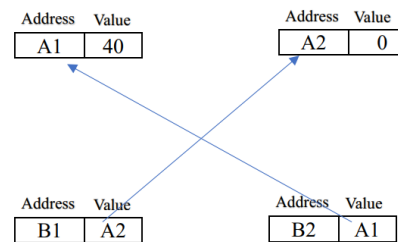Figure 1: Status of the pointers before swapping

Figure 2: Status of the pointers after swapping

Example Scenario
⟩ Before swap: Pointer1 points to 40, Pointer2 points to 0.
⟩ After swap: Pointer1 points to 0, Pointer2 points to 40.

2 Question 2

In an $N \times N$ image, the 0's and 1's represent the background and the object, respectively. Since it is known that there is only one object in the image, make the following tasks.

a.) Write a C program that reads an $N \times N$ image, **from user input**, and calculates the sum of the pixels in each row, and stores these sums in the corresponding cells of the Hist array. Print the Hist array.

b.) Check if the object takes up more than half of the image space. (In terms of number of pixels.)

Figure 3: Image and Histogram

Example Scenario
⟩ Enter the size of the image (N): 3
⟩ Enter the image data (3 x 3) as a sequence of 0's and 1's: 1 0 1 0 1 1 1 1 0
⟩ The Hist Array of the image: 2 2 2
⟩ The object takes up more than half of the image space.