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CS4450

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Chapter 21 Homework

Exercise 8 For each of the following, give a formula for computing the address to use for the array reference. Assume that the array A is allocated as a single block at address base, and let size be the size of an individual array element.

a. The element A[i], where 0 <= i < n.

Address of A = base + i * size.

b. The element A[i], where 1 <= i <= n.

Address of A = base + i * size.

c. The element A[i][j], where 1 <= i <= m and 1 <= j <= n, and where the array is allocated in row-major order.

Address of A = base + (i * n * size) + (j * size).

d. The element A[i][j][k], where 0 <= i < m, 0 <= j < n, and 0 <= k < p, and where the array is allocated in column-major order.

Address of A = base + ((k * n + j) * m * size) + (i * size).