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B. Tech. I CSE (Sem-2)
Data Structure (CS102)
LAB Assignment 2

Goal:

- To understand the nonprimitive data type Array and its operations.
- To write the reusable functions for later usage in this subject.
- To understand how the array works as one of the parameters.

1. Write a C program to create three signed integer arrays SubArray1, SubArray2, and MainArray of sizes 10, 10, and 20 respectively. With the appropriate error message handling, perform the following operations on the array with the help of the menu. After each operation, print the array elements.
   a. Insert the elements in a user-given array and print the memory address of all elements, the size of the array, and the number of elements in the array:
      - at the end
      - at the beginning
      - at the user-given position
   b. Modify the elements in a user-given array:
      - at the end
      - at the beginning
      - at the user-given position
   c. Delete the element from the array:
      - from the end
      - from the beginning and
      - from the user-given position
   d. Reverse the elements of the user-given array:
      - use a temporary array to hold the result
      - do not create another array to hold the result
   e. Copy the sequence of the user-given subarray to Main Array.
   f. Merge two arrays of the same size sorted in descending order.
   g. Display the sum of all array elements:
      - without recursion
      - using recursion
   h. Search the array for the user-given value from the user-given array.
   i. From the MainArray, separate sub-arrays for odd and even numbers and display them. (Assume 10 odd and 10 even numbers are provided in MainArray).

j. From the MainArray, separate sub-arrays for positive and negative numbers and display them. (Assume 10 positive and 10 negative numbers are provided in MainArray).

Multi-Dimensional Array

2. **Calendar.** Repeat Exercise 1.33 to produce a calendar for a given month and year. Use arrays to store the names of the days of the week, the names of the months, and the number of days in a month.