**CSE 2001: Data Structure & Algorithms**

**Programming Assignment-III**

**(Array & String)**

1. Input 10 integers from keyboard and store them into an array. Write a C program to find out how many of them are positive, how many are negative, how many are even and how many odd.

2. Write a C program to read a set of non-zero numbers into an array of maximum size 100. Data is terminated by 0 and amount of number is unknown beforehand.

a) Find and print the largest

b) Find and print the 2nd largest

b) Find the sum of the numbers

3. Input 10 integers from the keyboard into an array. The number to be searched is entered through the keyboard by the user. Write a C program to find if the number to be searched is present in the array and if it is present, display the number of times it appears in the array.

4. Let the array elements in Q.3 be in sorted order at the begnning. Write a C program to search an element using binary search that have following loop structures.

a. *while(lower<upper)*

b. *while(lower<upper+1)*

c. *while(lower<upper-1)*

5. A retail store has 10 departments which submit their daily sales to the store manager. Management wants a report which includes the department name, daily sales and what percentage of daily sales each department contributes. The total store sales is also printed at the end of the report. Write a C program to produce the report, given the department Name and daily sales for each of the 10 departments.

6. There are 500 light bulbs (numbered 1 to 500) arranged in a row. Initially they are all OFF. Starting with bulb 2, all even numbered bulbs are turned ON. Next, starting with bulb 3, and visiting every third bulb, it is turned ON if it is OFF, and it is turned OFF if it is ON. This procedure is repeated for every fourth bulb, then every fifth bulb, and so on up to the 500th bulb. Write a C program to determine which bulbs are OFF at the end of above exercise.

7. Write a C program that accepts a string from the console and count the total number of vowels, consonants, present in that string.

8. Write a C program to find whether a string is palindrome or not.

9. Write a C program to read a set of names and print the last one in alphabetical order.

10. Write a C program to concatenate 2 strings without using strcat(s1,s2) library function.

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