CSE 2001: Data Structure & Algorithms

Programming Assignment-VI

(Pointer)

1. Write a C program to declare a variable of int type, assign value to the variable and print the value and address of the variable. Print the value using * operator.

2. Write a C program to declare an array of float type, assign value to the array variable and print the array values and addresses. Print the array values using * operator.

3. Write a C program using pointer to exchange the values stored in two locations in memory.

4. You have an array of 10 integers consisting of even and odd integers. Write a C program to declare a pointer to the array and compute the sum of odd integers present in the array using pointer manipulation.

5. Write a C program using pointers to read an array of integers and print its elements in reverse order and find the max element of the array.

6. Suppose a one-dimensional array named *arr* containing integers is arranged in ascending order. Write a user-defined function in C to search for an integer from arr using pointer to array. The function returns an integer 0 to show absence of the number and integer 1 to show   presence of the number in the array. The function should   have three parameters:
    (i) pointer to array *arr*
    (ii) the number to be searched and
    (iii) the number of elements N in the array.

7. Write a C program to find the largest among three numbers. Create a function *find_large()* that will use pointers as parameters and return will be pointer type.

8. Write C function to calculate the definite integral.
$$\int_{a}^{b} f(x)\, dx$$

using Simpson's rule (below) with n strips. n must be even. An approximation to the integral is given by

$$h/3\{(f(a) + 4f(a + h) + 2f(a + 2h) + \cdots + 2f(a + (n - 2)h) + 4f(a + (n - 1)h) + f(b)\}$$

where, $h = (b - a)/n$ .Test your function on some simple integrals likes

$$\int_0^2 (x^2 + 5x + 3)dx$$

(*Hint: Use the concept of Pointer to function*)

9.   Write a C program to find the length of a string using Pointer.

10.   Write a C program to compare two stings using function & pointer.

11.   Write a C program to find the reverse of a string using recursive function and pointer.

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