Pointers

Lab questions

1. Write a C program to declare an integer variable quantity, store its address in a pointer variable p, and print both the value of the variable and its memory address.

2. Write a C program to create a function calculate() that accepts two integers and addresses of two variables, and returns their sum and difference using pointer arguments.

3. Write a C program to swap two integer values using pointers (call by reference).

4. Write a C program to demonstrate passing a function as an argument using function pointers.
   Define a function difference() that calculates and displays the difference between two integers.
   Pass this function as an argument to another function operate() and call it using the values 20 and 10.

5. Write a C program to access and display the elements of an integer array using a pointer. Assume the integer array contains the values {10, 20, 30, 40, 50}.
   Use a pointer to traverse the array and display all the elements.

6. Write a C program to store and display multiple strings using:
   i. A two-dimensional character array
   ii. An array of character pointers
   Assume the strings are:
   "India", "USA", and "Japan"

7. Write a C program to dynamically allocate memory for five integers using malloc().
   Assume the integer values are 5, 10, 15, 20 & 25**.**
   Store these values in the dynamically allocated memory and display them on the screen.

8. Write a C program to demonstrate pointer arithmetic by accessing array elements using pointer increment operations.
   Assume the integer array contains the values {2, 4, 6, 8, 10}.

Use a pointer to traverse the array by incrementing the pointer and display all the elements.

9. Write a C program to define a structure Student with the members roll, name, and marks. Use a pointer to the structure to access and display all the structure members.

10. Write a C program to demonstrate that:
    i. Memory addresses are numerical values
    ii. Pointer variables store addresses
    iii. Dereferencing a pointer accesses the value of the variable stored at that address