

Pointers :- A pointer is a special type of variable which stores the address of another variable. Instead of holding a direct value, it points to the location in memory where the value is stored.

It is declared by using the "*" operator.
ex.

```
int a = 10; // variable  
int *p = &a; // p stores address of  
a.
```

Advantages of pointers

- (i) Efficient in dynamic memory allocation.
- (ii) Allows call by reference (functions can be modified through actual arguments)
- (iii) Useful in array and string handling.
- (iv) Enables creation of complex data structure.
- (v) Improves program efficiency in memory management.

Disadvantages of pointers :-

- 1) Misuse may lead to segmentation faults and program crashes.
- 2) Requires careful memory management.

3) Code with pointers is harder to debug and understand.

4) If they are not used properly they may cause undefined behavior.

3) Difference between Array and Pointer.

Array	Pointer
i) fixed-size collection of elements of same type.	i) Variable that stores the memory address of another variable.
ii) Declared like <code>int a[10];</code>	ii) Declared like <code>int *p;</code>
iii) Size must be known at compile time.	iv) Can point to any variable or dynamically allocated memory.
v) Name of array gives base address (i.e. constant)	v) pointer is variable and can change to point elsewhere.
vi) Can't be reassigned to another address.	vi) Can be reassigned to different variable.

Conclusion

In this labwork, we learned the concept of pointers in C programming.

Pointers allow direct access and manipulation of memory, making programs for basic arithmetic handling, call by reference, swapping, and finding maximum values using pointers.

This labwork helped us understand the importance of pointers in function calls, arrays, and memory management, which is essential for writing optimized and flexible C programs.