



## **Week 1: Introduction to C Programming**

- Overview of C programming language
- Setting up a C programming environment
- Basic program structure and syntax

## **Week 2: Data Types and Variables**

- Understanding data types in C
- Declaring and initializing variables
- Basic arithmetic and logical operators

## **Week 3: Conditional Statements**

- Using if-else statements in C
- Switch statements and conditional operators

## **Week 4: Loops and Iteration**

- Introduction to loops in C (for, while, do-while)
- Loop control statements (break, continue)
- Nested loops and iteration

## **Week 5: Functions and Modular Programming**

- Creating and calling functions in C
- Passing arguments to functions
- Understanding function return values

## **Week 6: Arrays and Pointers**

- Declaring and initializing arrays in C
- Understanding array indexing and memory allocation
- Pointers and memory addresses in C

## **Week 7: Strings and Character Arrays**

- Manipulating strings in C
- String formatting and output
- Character arrays and pointers to characters

## **Week 8: File Input and Output**

- Reading from and writing to files in C
- Understanding file I/O streams
- Error handling and file management

## **Week 9: Dynamic Memory Allocation**

- Understanding dynamic memory allocation in C
- Using malloc(), calloc(), and realloc() functions
- Freeing memory and avoiding memory leaks

## **Week 10: Advanced Topics in C**

- Data structures in C (structs, linked lists, stacks, queues)
- Preprocessor directives and macros
- Multidimensional arrays and matrices in C.