

# C Programming

**Duration: 30 Days**

 **Register Here**

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# C Programming

- Introduction to C Programming
  - History and importance of the C programming language
  - Setting up a C development environment (IDEs, compilers)
  - First C program: Hello World
  - Basic structure of a C program
  - Data types and variables in C
- Control Flow
  - Conditional statements (if, else if, else)
  - Loops (while, for, do-while)
  - Switch-case statements
  - Break and continue statements
- Functions and Modular Programming
  - Defining and declaring functions
  - Function prototypes and headers
  - Passing arguments to functions
  - Return values and void functions
  - Scope and lifetime of variables
- Arrays and Pointers
  - Arrays in C
  - Multidimensional arrays
  - Pointers and pointer arithmetic
  - Pointers and arrays
  - Dynamic memory allocation (malloc, free)
- Strings and Character Handling
  - C-style strings (null-terminated character arrays)
  - String manipulation functions (strcpy, strcat, strlen, etc.)
  - Character input and output functions (getchar, putchar, etc.)
- Structures and File I/O
  - User-defined structures (structs)
  - Working with structure members
  - File handling in C (fopen, fclose, fread, fwrite, etc.)
  - Reading and writing structured data to/from files
- Memory Management and Data Structures
  - Memory allocation functions (malloc, calloc, realloc)
  - Creating and managing linked lists
  - Stacks and queues using arrays and linked lists
  - Introduction to binary trees



- Advanced C Concepts
  - Function pointers
  - Preprocessor directives (`#define`, `#include`, etc.)
  - Enumerations and typedef
  - Command-line arguments
  - Error handling and debugging techniques
- C Standard Library
  - Overview of the C Standard Library (`stdio.h`, `stdlib.h`, `string.h`, etc.)
  - Working with standard functions
  - Custom library creation and usage
- Best Practices and Coding Standards
  - Writing clean and maintainable code
  - Code commenting and documentation
  - Debugging techniques and tools
  - Coding standards and style guides
- Practical Applications and Projects
  - Implementing real-world projects to apply C programming concepts
  - Building command-line utilities
  - File manipulation and data processing
  - Simple games or simulations



## Bonus Content

- Guest Lectures by Industry Professionals
- Mock Interviews and Resume Building Workshops
- Guidance on Building a Professional Portfolio
- Soft Skills Development: Communication, Teamwork, Problem-Solving
- Mid-Course Assessment to Gauge Understanding and Progress
- Job Interview Preparation and Mock Interview Sessions
- Assistance in Job Placement and Internships
- Access to Alumni Network and Industry Events



## Sample Mini Projects

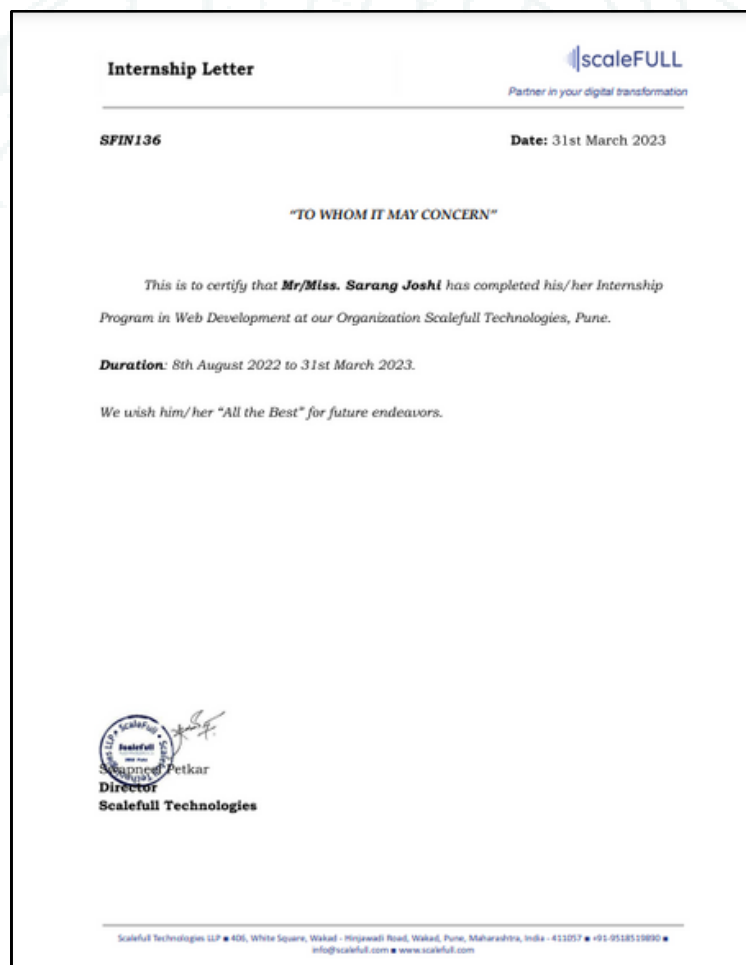
- Student Gradebook – Build a program to manage a student gradebook. Users can input student names and their corresponding grades. The program should calculate and display the average grade, highest grade, and lowest grade.
- File Reader and Analyzer – Develop a program that reads text from a file, counts the number of words and characters, and displays the results. Users should be able to specify the file to analyze through command-line arguments.
- To-Do List – Build a to-do list program where users can add, remove, and mark tasks as completed. Tasks should be stored in memory using dynamic memory allocation (malloc and free).



## Sample Course Completion Certificate



## Sample Internship Completion Letter



Course Details		
1	Duration	30 days
2	Mode of Training	Offline/Online
3	Registration Fees	₹ 999

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