



C Programming

Say Hello To Programming, Learn it in a Fun and Practical Way

Overview

1. **Programming** is how **you give instructions to computers to solve problems.**
2. **Computer programs** (or software) are **what make computers work.**
3. Programming is **creative** and an important skill, whether you aspire to a **career in software development** or **understand computer-related subjects.**
4. **C** is a **general-purpose high-level programming** language and an excellent language to learn to program for beginners.
5. **C language** is suitable for system programming like **operating systems**(minimal important software for basic computer functions) or **compiler development.**

Objectives

1. Getting a broad and robust understanding of computer science programming.
2. Concentrating more on programming than a programming language.
3. Improving the thought process of problem-solving and programming.
4. You can only learn programming by writing a lot of code and practice.
5. After understanding C, learning other programming languages like Java, Python, Javascript, etc. will be easier.

Class Activity

- **Class Strength:** 1-1 / Group (max 6-7 students) interactive live class
- **Class Delivery:** PPT/ Whiteboard based.
- **Support:** **Never hesitate to ask doubts**, you can message me on urban pro.

Course Content

1. Introduction to Programming and C Language

- Basics of a computer system, software, hardware, operating system
- Why programming is interesting and why everyone should code
- How a computer understands a C program
- **Introduction to Compilation steps** (Optional)
- Hello World Program in C, Hands on some more basic programs
- Flow Chart, Algorithms, Pseudo Code
- Class Assignment - 1
- **2 hrs**

2. Keywords, Data Types, Operators

- Keywords, Constants, and variables in C
- Data types in C (char, int, float, enum, etc)
- Number Systems (Decimal, Binary, Hexadecimal)
- Operators and their precedence, Bitwise Operators, Sizeof operator
- Storage class in C (global, local, static, auto)
- Program practice and Class Assignment - 2
- **4 hrs**

3. Statement and Conditionals and Loops

- If, else if, else conditions
- Switch case statements
- Looping constructs (for, while, do-while)
- Break and continue statements
- Program practice and Class Assignment - 3
- **6 hrs**

4. Function

- Why function is needed
- Flow of execution in function
- Stack frame and how a function stores its data
- Program practice and Class Assignment - 4
- **2 hrs**

5. Arrays and Strings

- Why is an array used?
- Types of array(1-D or Multidimensional) and its usage
- Strings and string operations
- Program practice and Class Assignment - 5
- **4 hrs**

6. Pointers

- Why is a pointer needed?
- Usage of pointers
- Pointer arithmetic and applications
- Let's make pointer the favorite topic
- Program practice and Class Assignment - 6
- **2 hrs**

7. Structure and Union

- Why is Structure needed?
- Declaring and accessing structure elements?
- Array of structure, Typedef usage
- Additional Features of Structures
- Program practice and Class Assignment - 7
- **1 hrs**

8. Dynamic memory allocation

- Memory layout of C program
- Dynamic memory allocation for array, string, structure, 2 -D array, etc
- Program practice and Class Assignment - 8
- **1 hrs**

9. Recursion

- Why is recursion needed? Visualizing recursion using stack frame
- Program practice and Class Assignment - 9
- **3 hrs**

10. File Operation

- File Input/Output and File operations, File Operating Modes
- Playing with characters in file
- Program practice and Class Assignment - 10
- **1 hrs**

Fundamental Helpful Videos

1. https://www.youtube.com/watch?v=eEo_aacpwCw
 2. <https://www.youtube.com/watch?v=Ojqdty-Oh1M>
 3. <https://www.youtube.com/watch?v=ifo76VyrBYo>
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