ADVANCED C/C++ PROGRAMMING

COURSE DETAILS

Why C ?

» Fundamentals of C
  Data types and Constants
  Operators & Expressions
  Simple I/O
  Flow Control
  Preprocessor features

» Functions
  Role of Functions
  Passing arguments to functions
  Returning values from functions
  Recursive Functions
  Call Back functions
  Implications on Stack
  Pass by value/reference

» Arrays
  Defining, initializing and using arrays
  Multi Dimensional arrays
  Arrays of Characters and Strings
  Arrays and pointers
  Passing arrays to functions
  String handling and its library functions

» Storage Classes
  Scope
  Internal
  External
  Automatic
  Static
  Scope and extent of parameters

» Structures & Unions
  What structures are for
  Declaration, initialization and accessing
  Nested Structures
  Array of structures
  Allocation of memory and holes
  Unions

» Bit Operations
  AND (&), OR (|), XOR (^)
  Compliment (~)
  Left-shift (<<), Right-shift (>>)
  Masking, Setting and Testing of Bit/Bits

» Pointers

The purpose of pointers
Defining pointers
The & and * operators
Pointer assignment
Pointers with functions
Pointer arithmetic
Advanced pointer types
Pointers to functions
Pointers and Strings
Pointers and Dynamic memory
FAR & NEAR Pointers
» **File Handling Concepts**
Concept of a FILE data type
Character handling routines
Record handling routines
Formatting routines
» **Command line arguments**
» **Dynamic Memory Allocation**
Malloc ()
Calloc ()
Realloc ()
Free ()
Farmalloc ()
Farcalloc ()
» **Data Structures**
Linked Lists
Stacks & Queues
Binary Trees
» **Sorting and Searching Techniques**
Insertion sort
Selection sort
Bubble sort
Merge sort
Quick sort
» **Concepts and Real-time exposure**
Development Tools and Environment
Compiler
Functionality of Assembler
Functionality of Linker
Make Utility
Object File format
Executable File Format
Debugger
Multiple C File Program Development
Basic networking concepts
Dynamically Loading Libraries (DLL)

» **Object Oriented Concept with 'C++'**
Data Vs Object
Classes
Data abstraction
Casting in C++
Constructors & Destructors
Class Methods & Data
Inheritance
Overloaded Functions
Virtual Functions
Overloaded Operations
Pure Virtual Functions
Exception Handling
References & Constants
Standard Template Library

An Investment in Knowledge Pays Best Returns. Benjamin Franklin

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