

€ TRAINING

CLA C Certified Associate Programmer





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Introduction:

This program is designed to prepare participants for the certification exam only.

This training program is designed to elevate participants' understanding and proficiency in C programming to an associate level. It delves deeper into advanced C programming concepts, including complex data structures, algorithms, and system-level programming, preparing participants for the CLA-C certification exam.

Program Objectives:

By the end of this program, participants will be able to:

- Develop a thorough understanding of advanced C programming techniques.
- Apply complex data structures such as trees, graphs, and hash tables in C.
- Utilize advanced algorithms for sorting, searching, and data manipulation.
- Master system-level programming in C, including file operations and memory management.
- Prepare comprehensively for the CLA-C certification exam with confidence.

Targeted Audience:

- Programmers with basic C knowledge seeking advanced certification.
- Computer science students aiming to enhance their programming skills.
- Software developers needing advanced C programming capabilities for professional growth.
- Technical professionals looking to transition into systems programming.

Program Outline:

Unit 1:

Advanced Data Structures in C:

- Introduction to complex data structures and their applications.
- Implementing linked lists, stacks, queues, and binary trees.
- Exploring graph theories and algorithms in C.

- Practical implementation of hash tables for efficient data retrieval.

Unit 2:

Advanced Algorithm Techniques:

- Sorting algorithms: quicksort, mergesort, and heapsort.
- Searching algorithms: binary search, depth-first search, and breadth-first search.
- Algorithm optimization techniques and complexity analysis.
- Implementing recursive algorithms and understanding their performance.

Unit 3:

System-Level Programming:

- Overview of system programming concepts in C.
- Managing file I/O operations and understanding system calls.
- Working with processes, threads, and synchronization techniques.
- Network programming basics using sockets.
- How to develop robust and scalable applications using system-level programming.

Unit 4:

Memory Management:

- Deep dive into dynamic memory allocation and management.
- Understanding pointers in depth, including pointer arithmetic and pointer arrays.
- Techniques for managing memory leaks and buffer overflows.
- Using memory management tools and libraries in C programming.
- Best practices for writing memory-efficient code.

Unit 5:

CLA-C Exam Preparation:

- Detailed review of the CLA-C exam format and question types.



- Revision focusing on potential exam topics and problem-solving techniques.
- Exam sample questions and their answers.
- Material and study resources for the exam.

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