

## C LANGUAGE COURSE CONTENT

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### GETTING STARTED

- . What is C?
- . Background
- . Sample Program
- . Components of a C Program
- . Examples
- . Data Types
- . Variables
- . Naming Conventions for C Variables
- . Printing and Initializing Variables
- . Array Examples
- . Compiling and Executing a C Program

### FUNCTIONS AND OPERATORS

- . Examples of C Functions
- . Functions
- . Sum invoked from main
- . Invoking Functions
- . Elementary Operator = Operators
- . Operators
- . The Conditional Operators
- . Increment and Decrement Examples
- . Increment and Decrement Operators

### CONTROL FLOW CONSTRUCTORS

- . Examples of Expressions
- . if else
- . while
- . do while
- . switch

### SIMPLE I/O

- . Character I/O
- . End of File
- . Character I/O
- . Simple I/O Examples
- . Simple I/O Redirection
- . I/O with Character Array

### MORE ON FUNCTIONS

- . General
- . Function Declarations
- . Returning a value or not
- . Function Prototypes
- . Arguments and Parameters
- . Organization of C Source Files
- . Extended Example
- . The getline Function
- . The strcmp Function
- . The check Function
- . The atoi Function

### STRINGS

- . Fundamental Concepts
- . Aggregate Operations
- . String Function

### HIGHER DIMENSIONAL ARRAYS

- . Array Dimensions
- . An Array as an Argument to a Function
- . String Function

### SEPARATE COMPILATION

- . Compiling over several files
- . Function Scope
- . File Scope
- . Program Scope
- . Local Static
- . Register and extern
- . Object Files
- . Libraries

- . The C Loader
- . Header Files

### POINTERS

- . Fundamental Concepts
- . Pointer Operators and Operations
- . Changing an Argument with a function Call
- . Pointer Arithmetic
- . Array Traversal
- . String Functions with Pointers
- . Pointer Difference
- . Prototypes for String Parameters
- . Relationship between an Array and a Pointer
- . The Pointer Notation \*p++

### STRUCTURES

- . Fundamental Concepts
- . Describing a Structure
- . Creating Structure
- . Operations on Structures
- . Functions Returning Structure
- . Passing Structures to Functions
- . Pointers to Structures
- . Array of Structures
- . Functions Returning a Pointer to a Structure

### FILE I/O

- . System Calls vs Library Calls
- . Opening Disk Files
- . fopen
- . I/O Library Function
- . Copying a File
- . Character input vs Line input
- . Scanf
- . printf
- . fclose
- . feof

### USEFUL LIBRARY FUNCTIONS

- . strstr
- . strchr, strchr
- . system
- . strtok
- . strspn, strcspn
- . Math Functions
- . Character Testing Functions
- . exit and atexit
- . signal
- . memcpy and memset
- . qsort
- . Binary Search - bsearch