BT 0065
C Programming and Data Structures

Contents

Edition: Spring 2009

BKID – B0949 10th Dec. 2008

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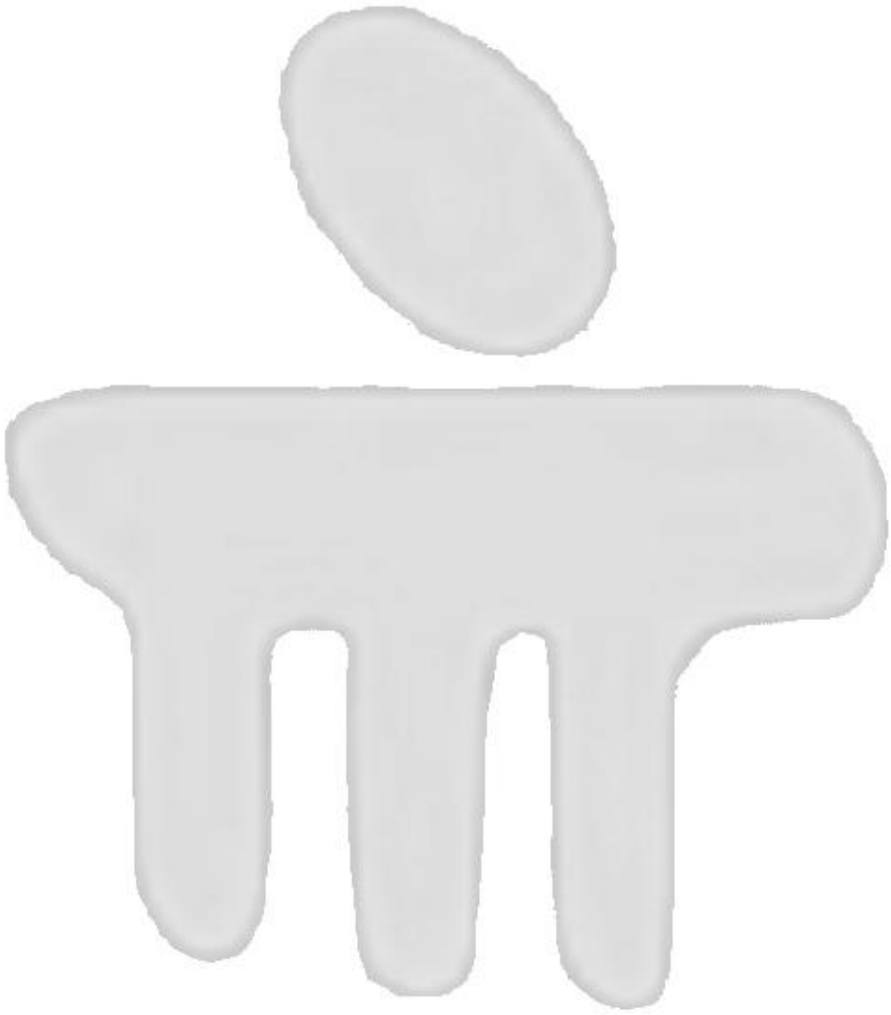
Edition: Spring 2009



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SUBJECT INTRODUCTION

This book explores role and importance of C Programming Language and data structures. It discusses the features of C Programming Language like basic constructs, functions, pointers, and files. It also covers the data structures used to optimize the usage of memory. Data structures are explained clearly with C programming examples and illustrations.

Unit 1: Introduction to Language C

This unit covers the historical development, character sets, variables, data types, operators and expressions.

Unit 2: Algorithms & Flowcharts

This unit covers the description and application of algorithms and flowcharts.

Unit 3: Introduction to Programming

This unit covers fundamental units of C language, statements, and program writing. Sample programs are given to support the concepts described in this unit.

Unit 4: Arrays

This unit covers the Definitions and concept of an array, single and double dimension array, C Preprocessor, and storage classes.

Definition of pointers, Declaring pointer variable, pointer operators, Pointers and Arrays, Pointers and Functions, structures, Declaring initializing of structure, processing of structure, Structure with array.

Unit 5: Functions

This unit introduces general structure of a function. The different categories of functions, like library functions and user defined functions, are also discussed with examples.

Unit 6: Structures, Unions and Pointers

This unit covers the definition and declaration of pointer variables, pointer operators & arithmetic, and manipulation of pointers. It also discusses the general structures of structure and union data types and their implementation in C.

Unit 7: File Structures

This unit demonstrates the usage of file structure. It focuses on file creation, file manipulation, and file closing operations.

Unit 8: Overview of Data Structure

This unit covers the overview of the Data structure, Definition of Data structure, Data types and Structured data type, Abstract data type, pre and post conditions, Linear Data structure, and also discussed the implementation methods using C, Non linear data structures.

Unit 9: Stack and Queue

This unit covers the definition, declaration, and manipulation of the data structures stack and queue. It also covers algorithms and applications of stack and queues. Various operation are illustrated using C.

Unit 10: Linked List

This unit covers the Introduction of Lists, Linear list, Linked list, Typical basic linked-list operations, singly-linked list, circular singly linked list, with its operations Doubly linked list with its operations. Various list operation examples are illustrated using C.

Unit 11: Trees and their Applications

This unit covers the Introduction of Trees, Definitions, Binary tree, Storage representation of a Binary tree, Various operations on binary trees using linked representation, Binary Search tree [BST], and operations of BST.

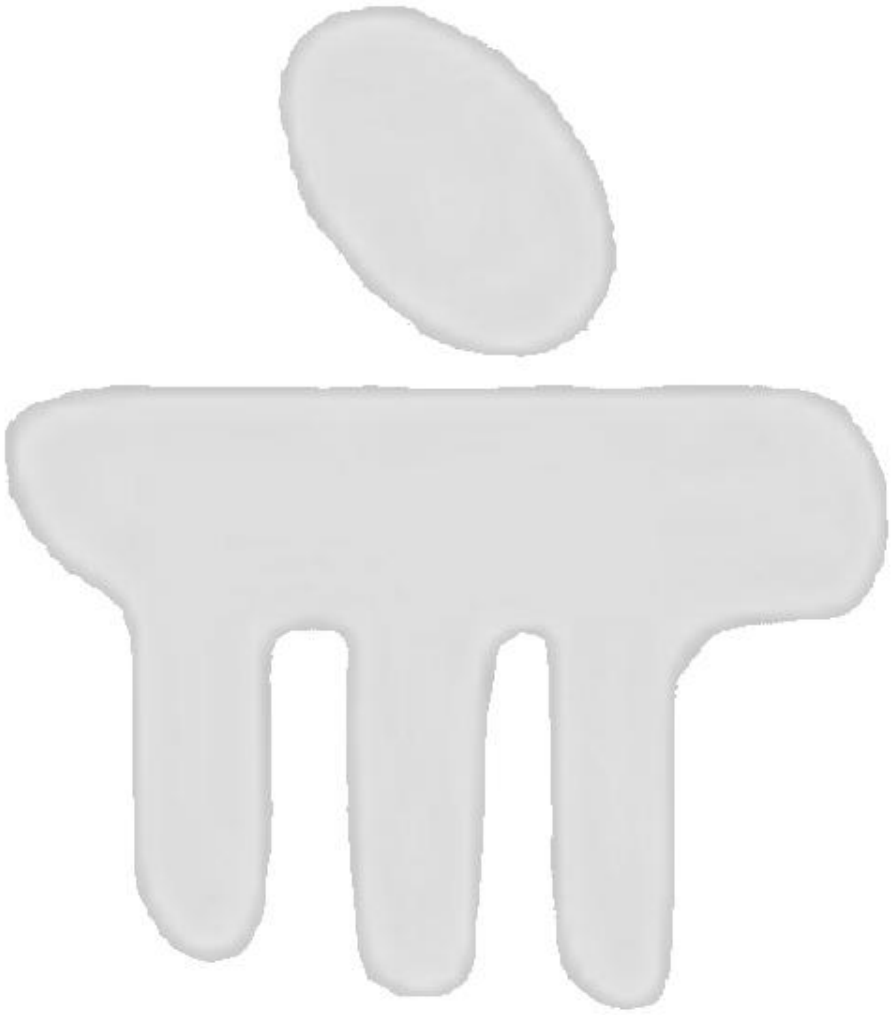
Unit 12: Graphs and their Application

This unit covers the Overview of Graphs, and their applications. Various graph algorithms are also discussed in this unit.

Unit 13: Searching & Sorting

This unit covers basic searching techniques and performance analysis of searching techniques, sorting algorithms and performance criteria used in evaluating sorting algorithms.

Note: Softcopies of Programs are available in TeL Portal



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