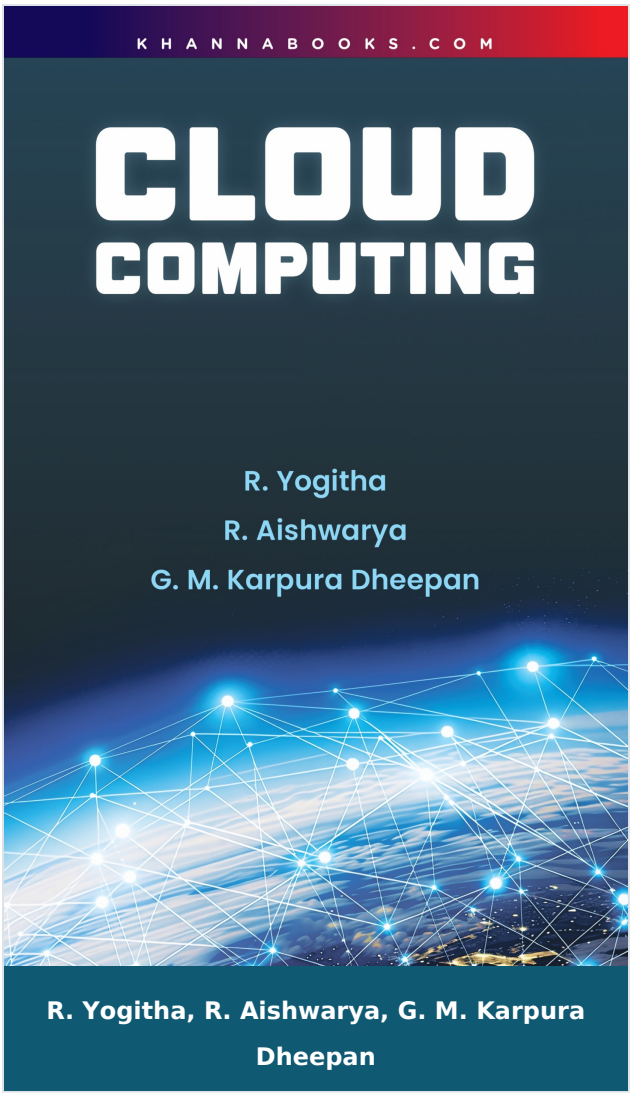

Cloud Computing

Author :	R. Yogitha, R. Aishwarya, G. M. Karpura Dheepan
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Product Description

Cloud Computing

This comprehensive textbook provides a structured and authoritative introduction to Cloud Computing. guiding readers from foundational principles to advanced real-world applications. It serves as an essential resource urce for students, IT professionals, and researchers seeking to master the technologies that power modem digital infrastructure The book clearly outlines the origins and essential characteristics of cloud environments, such as Rapid Elasticity, Broad Network Access, and Measured Service, setting the stage for deep dives into implementation. It thoroughly examines the cloud infrastructure, covering foundational technologies like data center components, power efficiency metrics (PUE), and the multi-level implementation ofvirtualization across CPU, Memory, and I/O. A significant portion is dedicated to cloud architecture, detailing the fundamental service models (SaaS, PaaS, laaS) and various deployment models (Public, Private, Hybrid). Finally, a major focus is placed on cloud security, detailing the CIA Triad, Zero Trust principles, and modem DevSecOps practices crucial for designing and deploying secure cloud software. By covering these core concepts and modern storage systems (Object. NoSQL Databases), this book delivers both the academic knowledge and the practical value needed to confidently design, manage, and secure scalable cloud solutions.

Salient Features:

- **Core Cloud Characteristics**: The book meticulously details the defining aspects of cloud computing, such as Rapid Elasticity, Meaaured Service. and On-demand Seli service, contrasting them with traditional IT models for a clear understanding of cloud value
- **Advanced Infrastructure**: Features an in-depth exploration of data center design, including.crucial topics like calculating Power Usage Effectiveness (PUE) and

implementing robust power redundancy configurations (N+1, 2N forhigh for high reliability

- **Multi-Level Virtualization**: Explains the foundational role of virtualization by detalling the implementation levels across CPU, Memory, and I/D, including hypervisor types and the mechanics of creating virtual machines
- **Cloud Security Focus:** Provides dedicated coverage of Cloud Computing Software Security. focusing on the CIA Triad (Confidentiality, Integrity, Availability), Zero Trust principles, and legal compliance requirements.
- **Secure Development Practices**: Highlights the adoption of modem security methods like DevSecOps and Secure Development Practices to integrate security into the CI/CD pipeline and mitigate risks from the requirements phase onwards.
- **Comprehensive Service Models**: Offers a detailed comparative analysis of the three fundamental service models-laaS, Paas, and Saas complete with their respective features, benefits, and roies within various cloud architecture
- **Modern Cloud Storage**: Delves Inte scalable data management, covering distributod file systems (HDFS, Ceph FS), NoSOL doud databases (MongoDB, Dynamo DB), and industry-leading Object Storage solutions (Amazon 53, Ceph).

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Table Of Contents

- Cloud Introduction
- Cloud Infrastructure
- Cloud Architecture
- Cloud Computing Software Security
- Cloud Storage

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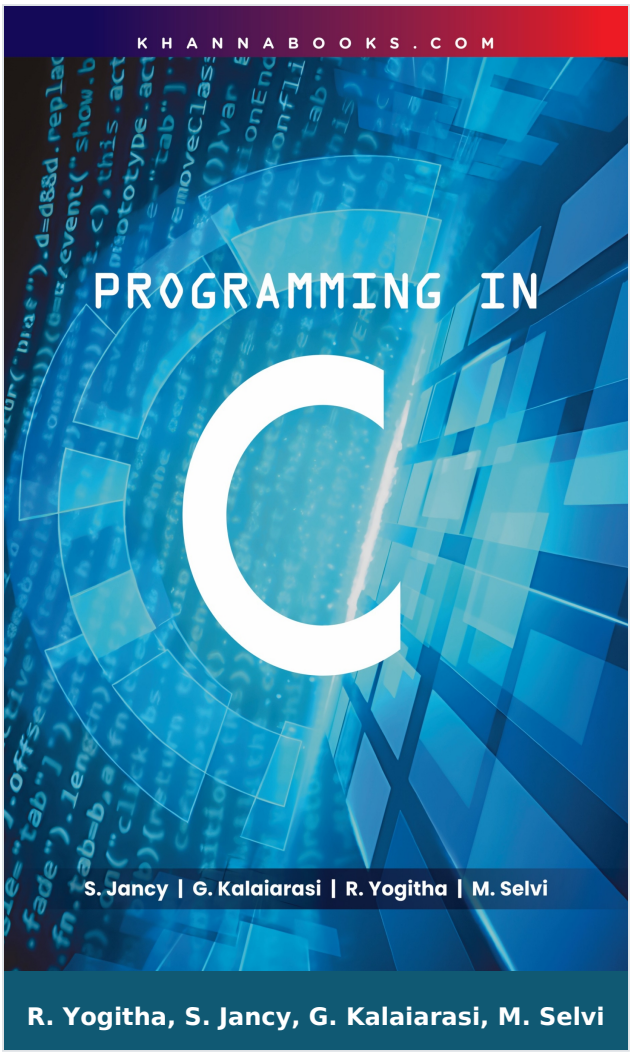

Programming in C

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Product Description

This book, PROGRAMMING IN C, serves as an essential, comprehensive resource for mastering the C programming language, grounded in the foundational principles of computer science. The core theme is the seamless synergy between algorithmic problem-solving and practical, efficient C implementation. It begins by establishing a robust understanding of computational fundamentals, detailing the evolution of programming languages, and exploring key system components like Hardware, Software, Processor, and Memory.

The book's purpose is to mold readers into effective computational thinkers. It meticulously guides users through the art of problem-solving using structured techniques like Algorithms, Flowcharts, and Pseudocode. Crucially, it dedicates significant attention to measuring program performance through Time and Space Complexity (Big O Notation), enabling students to write code that is not only correct but also scalable and optimized.

Readers will gain mastery over the C program structure, fundamental data types, operators, and advanced concepts such as Modular Programming with Functions (including recursion and call-by-reference). Key data structures like Arrays, Strings, Pointers, and Structures are covered in depth. The target audience includes undergraduate students, aspiring software developers, and researchers who require a robust, hands-on, and efficiency-focused guide to system-level programming and computational logic.

Salient Features:

• Fundamental Computing Overview: The book starts with the basics of computer systems, covering Hardware, Software, Processor, and Memory, establishing a strong foundation before diving into coding.

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• Algorithmic Mastery: Teaches problem-solving using Algorithms, Flowcharts, and Pseudocode, acting as a blueprint for translating logical steps into clean, efficient code.

• Efficiency Analysis: Dedicated coverage of Time and Space Complexity (Big O Notation) ensures students learn to analyze algorithm efficiency and optimize programs for scalability and speed.

• Modular Programming: Master code organization using Functions (user-defined and library), covering concepts like parameter passing (Pass by Value/Reference) and advanced techniques like Recursion.

• Control Flow Logic: Clear explanations and examples of Decision-Making (if-else, switch) and Looping (for, while, do-while) statements, enabling the creation of dynamic and interactive programs.

• Essential Data Structures: Comprehensive units on managing data using Arrays (1D and Multi-dimensional), Strings, Pointers, and powerful heterogeneous containers like Structures and Unions.

• Hands-On Learning: Features multiple fully-coded Case Studies and Exercises on practical applications, including sorting, searching, calculating prime numbers, and building a scientific calculator.

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Table Of Contents

- Bits and Bytes in Computing
- C: Math Behind Coding
- C: magic Behind Instant Outputs
- Storing Group of Homogeneous Elements: Arrays
- Storing Group of Heterogeneous Elements: Structure

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